



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON ECONOMICS, FINANCE AND
PUBLIC ADMINISTRATION

**Reference: Australia's manufactured export and import competing base now and
beyond the resources boom**

FRIDAY, 2 MARCH 2007

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HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON ECONOMICS, FINANCE AND PUBLIC ADMINISTRATION

Friday, 2 March 2007

Members: Mr Baird (*Chair*), Ms Bird (*Deputy Chair*), Mr Ciobo, Dr Emerson, Ms Grierson, Mr Keenan, Mr McArthur, Mr Secker, Mr Somlyay and Mr Tanner

Members in attendance: Mr Baird, Ms Bird, Mr Ciobo, Ms Grierson, Mr Keenan and Mr McArthur

Terms of reference for the inquiry:

To inquire into and report on:

The state and future directions of Australia's manufactured export and import competing base, focusing on, but not limited to:

- Australia's dominance in commodities exports and the impacts of this on the economy following the resources boom;
- The state of the country's manufacturing sector (and the goods and associated services) including opportunities and challenges from the expansion in global trade (in particular by China); and
- Policies for realising these opportunities.

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Committee met at 9.18 am

CHAIR (Mr Baird)—I declare open this public hearing of the House of Representatives Standing Committee on Economics, Finance and Public Administration. Today's hearing is for the inquiry into the state of Australia's manufactured export and import competing base now and beyond the resources boom and for the inquiry into the current and future directions of Australia's service industries. The inquiries were referred by the Treasurer, the Hon. Peter Costello MP on 3 May 2006. To date the committee has received close to 50 submissions for each inquiry. Copies of these submissions are available on the committee's website.

Australia's resources sector is currently experiencing a well-publicised boom, driven mainly by unprecedented Chinese demand for raw materials globally. While Australia is currently enjoying the riches of this boom, history indicates that high commodity prices cannot be sustained indefinitely. The committee is, therefore, investigating the state of two of our other dominant trade sectors: services and manufacturing.

Today we will hear from representatives of a variety of peak associations and the relevant Australian government department. Science Industry Australia and the Australian Chamber of Commerce and Industry will discuss both inquiries, with services discussed in the first portion of their appearance of approximately half an hour, followed by manufacturing in the second half-hour. Engineers Australia and the Australian Vice-Chancellors' Committee will appear for the services inquiry only. The Department of Education, Science and Training will appear for the manufacturing inquiry only.

Evidence for the Inquiry into the current and future directions of Australia's service industries was then heard—

Proceedings suspended from 9.20 am to 10.06 am

BAKER, Professor Mark Scott, Committee Member, Science Industry Australia Inc.

FRAVAL, Dr Hadrian, Science Industry Australia Inc.

GONIS, Dr Jim, Executive Council Member, Science Industry Australia Inc.

PULSFORD, Dr John Derrick, Science Industry Australia Inc.

CHAIR—I welcome representatives of Science Industry Australia to today's hearing to discuss the services inquiry. Do you have any comments to make on the capacity in which you appear?

Dr Pulsford—I am the research and development manager for Varian Australia Pty Ltd.

Dr Fraval—I am the managing director of Rofin Australia.

Dr Gonis—I am the general manager of the environmental division of Amdel, Australia.

Prof. Baker—And I am the chief executive officer of the Australian Proteome Analysis Facility, one of our major national research facilities.

CHAIR—Three doctors and a professor: that is a pretty good representation. We feel intimidated! Although, as you know, the committee does not require you to give evidence under oath, these committee hearings do have the same standing as proceedings before the parliament. Now we would invite you to make an opening statement and Mr Keenan will then lead in terms of the questioning.

Prof. Baker—Firstly, I would like to give the apologies of the executive director of Science Industry Australia, Duncan Jones. Duncan has got a personal health issue that he is dealing with that requires daily treatment.

We are here to represent Science Industry Australia. This industry represents now a growing body of Australian industries. It is an industry which has been fragmented in the past and has, through the Science Industry Action Agenda, now started to come together. It represents a significant service and manufacturing sector in Australian industry. It employs about 50 per cent of its workforce as graduates and it has about 25,000 employees across the sector.

During the Science Industry Action Agenda, it was quite difficult to define what the science industry was and to find ABS statistics that could allow us to measure the success of the science industry. So the action agenda led to a process and interactions with DITR and DEST that have allowed us to submit a definition of what the science industry is and to set an action agenda for the next 15 years, which looks at trying to do a number of things which we have included in our submission.

These include to grow exports; to increase the percentage of innovations that are in our publicly funded research agencies—like CSIRO, universities, and research institutes—getting

through to production; to progress regulation and to minimise red tape so that some of our larger industries could capture that innovation cycle; and to attract and retain a skilled workforce. We were privileged to hear the engineers a minute ago saying that they were experiencing exactly the same issues that we have. Finally, we want to promote the Australian science industry as an industry in its own right, both internally and externally to the export market. I think my colleagues might be able to do a better job than that.

CHAIR—Mr McGowan, from the committee secretariat, has just reminded me that we should concentrate on the services sector first. We have got this artificial construct of trying to divide the *Hansard* into references: services and manufacturing. So we will concentrate, first of all, on services and then we will do a switch to manufacturing. Were you about to make some further comments?

Dr Pulsford—I think Mark has covered science from an introductory point of view.

Mr KEENAN—I want to pick up on the point about red tape and bureaucracy. Could you expand on where you see problems in that area?

Prof. Baker—I think that some of my colleagues have actually experienced it.

Dr Fraval—Small companies, particularly, in the administration of some of the R&D concessions or grants that they might apply for, have to expend quite a large amount of effort and time to benefit from those. The question is: is it worth the effort? That is one of the questions that some of the members have asked. ‘If it’s going to cost us \$50,000 in order to get \$70,000, is it really worth it?’ That is one of the items. From a personal point of view, our own company has been involved in R&D for the last 17 years and we are very grateful, I might say, for the assistance that we have received through EMDG, the R&D concession, the Start grants etcetera. They are all very beneficial to the company. The only question is for smaller companies: do they have the wherewithal which will allow them to efficiently gain access to those?

Mr KEENAN—Is that a realistic assessment about what would happen? You would need to spend \$50,000 to get a \$70,000 research grant? How would that \$50,000 be spent?

Dr Fraval—I hate to be specific, but I have a specific example from my own company, where for over two years we have been ‘discussing’—I think that is the right word—with the ATO our claim that we were \$20,000 under the \$1million-cap, compared to their claim that we were a few dollars over. Is the effort for us to keep on with it really worth while? We only have to do it because now the ATO says, ‘We’d like you to.’ We supplied them with 30 kilograms of papers, audits et cetera, and they are still discussing it. I put it to you: is it worth our while? That is an example.

Mr KEENAN—If you were to pinpoint the area of government that is a problem, you would say it is within the ATO and the assessment about tax concessions in relation to R&D. Is that what you are saying?

Dr Fraval—I am specifically talking about R&D, because that is the example that I gave. Maybe others have other examples. In an application for a grant—it might be a Start grant—there is quite a large amount of work to be done in order to create a presentation which will

allow the grant committee to feel comfortable that you are a company that would be able to carry it out. One would accept that that would be your duty; however, the paperwork during the course of the grant is quite onerous. I can only be as specific as that. There are a number of milestones within a project and each milestone has to be audited and reported on.

Mr KEENAN—I suppose you can understand that the government needs to account for the expenditure of public money, in a sense, and it is a matter of finding that right balance.

Dr Fraval—I understand that. What I am saying is that one needs to look at whether it is too rigorous. That is my point. I know why it is there: it is in order to make sure that the public money is not abused, and there have been instances where it has. One is not complaining about the fact that it has to be policed, and adequately. It is a question of whether it has gone a bit too far. My ATO example is a situation I would question and say that the spirit of the law that government passed has been misinterpreted. If it was \$2 over the \$1 million, I do not think that the \$1 million was a sacrosanct number, it was an indication, and I believe the ATO has taken that too far. That is my opinion.

Mr KEENAN—I want to ask about the barriers that you are finding to trade in services internationally. Again, I want to flesh out whether some of the agreements that Australia has negotiated with some of our trading partners have been helpful in that area.

Dr Pulsford—It is interesting that you are focusing on services, because I really have to say that basically we are not into providing services. We are a designer and manufacturer. In fact, our customers are frequently the sorts of people who provide those services. So I am not too sure how to answer that question.

Mr KEENAN—I suppose if you are looking at trade barriers, it is easier to identify things in relation to manufacturing than in relation to services. Has nobody here any experience?

Prof. Baker—As a major national research facility, one of the things we are providing is services to the Australian research community in the hot area of research called proteomics. For example, we characterise the proteins that make good-quality wheats for biscuits or breads et cetera, or barleys for beer—or, equally, we might be discovering proteins that give an early indication of ovarian and breast cancer, prostate cancer et cetera.

The technology was invented in Australia, and we have deployed it through the major national research facility, and find that about 50 per cent of our business—about \$5 million a year—comes from international sources. That is because the innovation cycle has remained in Australia. We have managed to capture a workforce now by recruiting international experts that have industry experience and bringing them back into our major national research facility that is embedded primarily in universities. That has allowed us to provide services locally and internationally.

The barriers that we have at present are primarily, I think, trying to get the innovation cycle looking forward—so, filling in the gaps in the innovation cycle. In particular, Australian investment into commercialisation of products has been traditionally in our industry late stage, and so there is a gap between things like the ARC Linkage grant schemes, the NHMRC development schemes, and getting product from the publicly funded research agencies into

organisations like Varian, Rofin, SGE et cetera, and the local Australian companies that are commercialising Australian product.

We do not have any problems getting it to the world. The issue is trying to fill in those gaps in the innovation cycle. That is the particular issue that Hadrian was trying to address. Trying to encourage Australian companies to pick up the Australian innovation out of our publicly funded research agencies is the critical issue in getting the services out.

Ms BIRD—I would like to explore that a little bit further. I find it interesting, in that I have dealt with some people at my own local university, trying to link them up to pharmaceutical companies and so forth. It strikes me that a lot of the university operators are pretty naive about how the industry works. Is that the sort of gap that you are talking about: people are doing fabulous pure research in the area that they love, but their understanding of how to take that a step further is pretty simple and undeveloped? You are all nodding. I am assuming that that is a common experience.

Prof. Baker—There is unanimous agreement. That statement is very accurate. Getting the research through the commercialisation entities, either in CSIRO or universities, has been less than optimal. There are lots of reasons for that. The whole commercialisation sector of those agencies that take the research from the basic researcher and present it to companies is fairly new in Australia. I think that is probably less than a 10-year-old industry in its own right.

Dr Fraval—The point you make is a really important one. We do have fantastic innovation from very naive people. I think you will find that one of our proposals is to have a bridge—it is an innovation but we do not know whether it is commercial—that will allow there to be an interaction between commercial and the inventor. The innovation centre would say, ‘Let’s meter this, let’s measure it. Is this something that is worth while?’ The big problem with that is: where do you find a commercial entity that is willing to take a risk to evaluate that? I believe that is where the challenge is: let us find a forum.

Ms BIRD—In some of the partnership arrangements, you are locked into a particular person picking up your product and taking it, rather than getting it to a commercial-ready state and saying to the companies that would be interested in it, ‘Okay, come and talk to us.’ You also do not necessarily want too tight a relationship at that point.

Dr Fraval—You might be lucky and you might not be.

Ms BIRD—Yes, exactly.

Dr Pulsford—It really is an issue not just for services but for manufacturing as well.

CHAIR—Do you have a problem with government-funded organisations moving through commercialisation of products?

Dr Pulsford—We talk to about half a dozen groups a year; mostly they are government funded. You occasionally get a private group come in and talk, but it is generally government funded. I think there is too big a communication gap between the two groups, or too big an expectation.

Ms BIRD—That might just be early stage, do you think—that we are just starting to do this—or do you see flags going, ‘No, there’s a structural problem’?

Dr Fraval—I think there is a bit missing. In my view, there is a component missing. I can only relate it to this: if one had a forum like this and you were the research organisations and we were the commercial entities and we had had our green hats on—meaning that we are just discussing, ‘This is what I do,’ and you are saying, ‘This is what I have’—we could see whether there might be three or four companies here that potentially match up or are in the same area as your research. Of course, there is a problem of confidentiality too, because we are going to release some information that may be sensitive and we do not want the whole world to know about it. If one were able to create such an environment it would be very dynamic and useful.

Yesterday I went to the CSIRO and I found out about something I did not even know they were working on. It was actually going to be very valuable to me, and it was only through a conversation—a general one—that that came up. So that is an example.

CHAIR—To zero in on that, what specifically would you recommend? Would you recommend the establishment of a forum to talk about some of these areas?

Prof. Baker—There already are a number of fora that have started to address this: KCA—Knowledge Commercialisation Australasia—and AusBiotech, for example, have fora that are trying to create these networks between the discoverers, innovators and inventors, and those who commercialise or the industry partners. There are some strong efforts around the country that are starting to pay off, but we are looking forward now and saying that there are still some gaps in that process and that the job is not done.

CHAIR—Specifically, how do we overcome that gap?

Dr Pulsford—I think it goes back to the expectations. We are a commercial company. We have to do things. We have to make a profit and we have to do things within a certain time frame. We do not want to lose our commercial integrity and the universities or the CSIRO have an invention that they think is worth millions. It may be; it may not be. They have a problem: ‘How do we divvy up working with intellectual property?’ There may be some that come in; there may be some that gets jointly developed. How do you commercialise that and how do you pay back a fair reward to both partners?

The other thing that we find is that generally research institutions have a quite different time frame than we have to live with. You don’t only have this problem with televisions and DVDs: in our industry a platform life cycle might be seven or eight years and that might include two or three transplants—maybe some new software or something like that. It could well be that the research institution takes seven or eight years to get to step 2, whereas we are past step 10 and we are looking for step 1 on the next thing. They are the sorts of areas that we have had problems with and we keep having the same problems. We know we have got people to talk to. We talk to them but it is much easier to pull it back and do more of it internally.

CHAIR—We are obviously considering our report. What specifically would you recommend to government that they do to try to overcome that?

Ms BIRD—It is clear that some overseas countries do not have this problem, because they are stealing our innovation and commercialising it. So what is happening somewhere else?

Prof. Baker—There are a lot of factors that are certainly playing into this. For example, the high failure rate of spin-offs and start-ups is one contributing factor that allows for that product to be taken off shore. In addition, there is the late-stage venture capital investment in Australian discoveries, whereas in the States, where I have recently returned from, in Silicon Valley, you can get early-stage investment—or could have, 10 years ago—in almost any invention that you put on the table in genomics, proteomics, metabolomics: any of those ‘-omics’. In Australia it has been quite difficult to get funds for those early-stage technologies that Australia has been quite good at in our basic science sector.

Ms BIRD—Who is providing those funds in Silicon Valley?

Prof. Baker—In the States?

Ms BIRD—Venture capitalists?

Prof. Baker—It is venture capital money; getting in early.

Dr Fraval—It is private money. We do not have that situation here.

Prof. Baker—So we are funded further into the innovation cycle by government.

Dr Fraval—You are specifically asking us what we recommend. In our submission we are saying that there could be something called ‘a proof of concept’, three-to-one encouragement to publicly funded organisations and industry to say, ‘You are a publicly funded institute. You’ve got something, we think, maybe, but let’s measure its commercial viability in terms of how much and how long it would take us to get it to a product.’ There is that little bit of middle ground there in which I think government could assist. It is the biggest risk area and, maybe out of every 10, two or three of them will succeed, but if you never had any of the 10, then none of them are going to go ahead.

Ms BIRD—That would require specific funding to universities, because they are going to say, ‘We don’t want to do that role because we’ve got to provide the people in the classrooms and the PhD supervisors and so forth.’ They do not want to spend all their time on that sort of thing. Perhaps a specific focus of government funding of university roles that allow that to happen might be useful.

Prof. Baker—In fact, it might be more beneficial to split the funding between company and university, so that it is actually encouraging the partnership: it is a proof of concept and it is only late stage. There have to be impediments to stop universities from using this for basic research, for the early-stage stuff that we already have very strong funding programs for.

Dr Fraval—It is also the driver. The commercial will be the driver. We worked with Curtin University of Technology and RMIT on a project which was funded by government. We were just the commercial entity at a safe distance, and we did not have the input into that project that

we would have liked. That was in the GIRD days. I think that the commercial entity does put an accelerator on the thing which maybe the university does not quite understand.

Ms BIRD—There is another small thing that I want to explore. It was interesting when you talked about the 30 kilos of paper required by the ATO for applications. I have a boat-building and boat-licensing company in my area and they brought their box of applications to me and said, ‘Of all of those applications; we’ve got two of them.’ They were making the point to me that government funded programs should look at rationalising criteria, so that there is a set group of criteria if you are applying for particular government program funding. You could resubmit the same thing, fundamentally, just with updates that are allowed to be much more specific to that particular program, rather than rewriting every application. I am interested to know whether that sort of approach would be something that you would see—

Dr Fraval—It sounds very attractive to me.

Prof. Baker—It is the Australian Research Council and NHMRC grant time at present. They are going into universities this week. I can tell you that in both of those programs you have to rewrite your grant every year because the formats are changed from year to year. That is done to decrease the numbers of applications. You have to be totally dedicated to putting in a new application each year. And it gets reviewed by a different group. It is completely different in the US and in Europe, where your grant applications are seen and they grow and they develop—they become more mature over a period of time—and where the review panel is basically quite constant.

Ms BIRD—Yes, otherwise you end up funding the same people over and over again, really.

Mr CIOBO—You have touched on a number of the issues I wanted to touch on, but I want to explore a couple of things. Are you aware of the incubator program that the Australian government has funded, and centres of excellence and so on and so forth—Australian Technology Park in Sydney? It seems to me that a lot of that touches on exactly what we have just been talking about. I am interested in your observations about how successful or otherwise those programs have been.

Prof. Baker—We are aware of all of those programs. In fact, there are members from each of those programs in Science Industry Australia or on the action agenda. I think the issue there is that they have been quite successful locally; it is whether they can be distributed nationally. ATP, for example, is a stunning example of success, but it is a very localised New South Wales initiative. KCA is growing slowly and steadily; its membership is increasing. Those initiatives that are out there, and the centres of excellence that you refer to, are individual, focused initiatives. What we are trying to do is say, ‘We need to broaden the scope of this so that we’ve got a technology pipeline that goes from early discovery all the way through to the generation of industry.’

Mr CIOBO—If the model is shown to work, why then is the market not doing that itself?

Ms BIRD—Because it is imperfect.

Dr Pulsford—I think part of it goes back to the other people in the equation. Mark Baker mentioned the role of venture capital. There has to be some funding in there somewhere, and I do not know that there is an awful lot of it around in Australia.

Mr CIOBO—Capital has never been as cheap as it is now. We know that for a fact. Capital has, in a global sense, never been as liquid and never been as cheap as it currently is, so I struggle with the concept that there is no capital. There certainly is capital, but it is just not being invested in this area.

Dr Fraval—Yes, I think that is right. There is a lot of money around—for instance, in superannuation funds. But they are looking for security, and I think we must admit that innovation is sometimes successful and sometimes unsuccessful.

Mr CIOBO—That is obviously not the case in the United States. Let us hold that up as the beacon of venture capital investment—early stage, late stage, whatever you want to call it. There are other examples. Israel, I think, is quite good in this area, and Finland.

Dr Fraval—The big difference, though, is that they have got 250 million, 260 million or 270 million people that they would be marketing to as an incubator, a starting-up company.

Mr CIOBO—So it is the market size?

Dr Fraval—Yes. We are going to a market of 20 million people. I think the view of the capital is, ‘Where is the best use of my money?’ and I do not think they view innovation of small new ideas as something that is important to them or secure enough.

Mr CIOBO—Is it the case, then, that perhaps with these kinds of innovative and research based projects, be they services or manufacturing—probably, predominantly manufacturing—we need to get those who are working, the scientists, and those who are involved in undertaking this research to raise their eyes and look at it as a much bigger market than just Australia? Should we be looking at opportunities to expand and broaden marketing for these kinds of new products into foreign markets right from the get-go?

Dr Pulsford—It is unlikely that any of these types of ideas in our industry could survive if we only looked at the Australian market. That is why virtually all of the big companies, and probably a lot of the small companies, in the business are already global companies.

Mr CIOBO—So these wonderful Australian projects that we come up with that ultimately go offshore are in fact a process of natural selection, whereby those that realise the true international marketability of these concepts actually exercise that right and take it offshore?

Dr Pulsford—I think ‘natural selection’ is a good way to express it, because the markets are much smaller and the venture capitalist structure in Australia is not as aggressive and risk-taking as it is overseas. Not every American venture capitalist makes money every time. I know of several that have lost money on certain things that they—and we, somewhat peripherally—have become involved in, but there are also an awful lot more wealthy people in America who seem to be able to, almost as individuals, make this money available. I do not know that there are a huge number of wealthy individuals in Australia with lots of money to give. There might be money in

superannuation funds, but I am not sure that that is a good way to go, from the members' point of view, all the time.

Dr Fraval—It is also about creating the environment. If one has not created in Australia the environment for the people to stay and flourish here and, therefore, to employ people here, of course they are going to go and maybe sell out to overseas or whatever.

Mr CIOBO—But is that what it is? This is what I am trying to delve into. You talk about creating the environment. They are policy decisions that the government can make. Is it the case that we have not created the environment? I am left thinking that in fact we have, and it is actually the market sorting itself out. That is why I say it is almost a process of natural selection. Is it the case, really, that we have not created the environment or is it the case that people simply see better opportunities—that is why I say it is a process of natural selection—and they go offshore? This is really the nub of the issue that we are boring down into.

Prof. Baker—I can give you an example that comes directly from APAF's experience. When I was recruited back from Silicon Valley, I deliberately decided to recruit non-academics from Australia but industry-trained Australians who had gone offshore. So I deliberately went out and targeted a list of 20 expats that I was going to bring back. How did I get them back? The only way I could get them back was to go to other companies and say, 'Let's work together,' so that I could supplement their salaries, because the standard university salary was not going to bring back Professor Mark Molloy from Pfizer and Ann Arbor. I had to supplement that salary; in fact, almost double it.

That is the sort of problem that we face in dragging people back out of a market where they have gone—post their PhDs, usually, in Australia—and getting them back into Australian industries to be creators and drivers of innovation. We do have to make an effort and I think any assistance the government can give to increase this 'brain gain', as I call it, would be to our benefit, especially in the science industry, because we are growing this industry now at a rate of about 12 per cent to 13 per cent per annum.

CHAIR—There was a grant announced by, I think, Dr David Kemp some time ago.

Mr CIOBO—Sure, but again what I am hearing from you is that the market is working.

CHAIR—Yes.

Mr CIOBO—These guys can, in a much bigger market, earn a lot more money.

Prof. Baker—I think we resonated with your natural selection idea. That is exactly right.

Mr CIOBO—Maybe our policy focus should not be to pretend that we can in some way put barriers up and retain all this in Australia. Maybe our policy goals should be to say, 'Well, look, let's try to get our biggest and best offshore but retain that IP in Australia if possible, and generate the wealth through being world-class when it comes to IP.' I am not saying that is the answer, but is that the kind of thing we should be doing?

Dr Pulsford—It depends on where you see your outcomes. For example, it is great to own the IP, but let us say you do sell the IP overseas—and the licence fees are bundles of money, and things like that—but in the end, does that grow your infrastructure and your manufacturing capability? Does it employ people? This may be a distinction between providing services and providing manufacturing, because manufacturing certainly cannot survive in Australia by servicing the Australian market. We export 96 per cent to 97 per cent of what we build. If we look at intellectual property, it might be a completely different model. Indeed, if you look at services industries—for example, laboratory supply or analytical services companies; and Australia has a few of those which are globalised—you find that the business model is the innovation and the intellectual property, rather than saying, ‘Let’s patent some fundamental invention,’ or something like that.

I hesitate to spend a lot of time talking about services industries because I am not really in one, and we look at things like intellectual property from a different perspective. We look at things like, ‘Well, we want to employ people. We want to actually make things and make them better next time around, and sell them, and actually bring in not royalties but 100 per cent of what we build in terms of the dollar value,’ and things like that. It is a distinction that might be perhaps bigger than you think—depending upon how one goes about it.

CHAIR—Do you use the Pooled Development Funds program? Do you find it adequate?

Dr Pulsford—We do not. We are largely self-funding for our research and development, partly because we have to be: we are above the thresholds or the ceilings of most funding. About the only funding that we get is the taxation concession on R&D. We have become progressively more internally focused, and we have got too many things to do anyway, to be honest. We do not do some things because we run out of money. Perhaps if we had access to some more of these schemes, we might do more of those sorts of things—not particularly that scheme, but Start grants or whatever. We are out of those and we cannot get them.

Mr CIOBO—I have a bit of a hypothetical question for you. If I could offer you an investment where you derived the full benefit—I’ll pay up front 100 per cent of the cost but ultimately ask you to chip in 25 per cent of the investment and you retain the full benefit—do you think that would be an attractive proposition?

Dr Fraval—Sounds good to me!

Ms BIRD—Is it legal?

Mr CIOBO—I think most people would say yes. The reason I ask that is because I take issue with your submission on page 80—your concern about HECS fee increases for students in science and engineering. Basically that is the proposition that is put forward to any tertiary student. They invest 25 per cent over a period of time only if their income rises above a particular level. They derive 100 per cent of the benefit, yet for some reason in this country we have got this notion that HECS is a huge barrier to study.

My interest is to cut beyond the rhetoric and get to the facts. I know of no-one in my peer group, or anything like that, who has ever been dissuaded from study by HECS. I am fascinated that you have put that in. Have you done any quantitative research that indicates that students

being required to pay 25 per cent once their income passes a certain threshold is the reason they will not go and study?

Dr Pulsford—My answer to that is, no. I do not know of any person that has or has not done that, to be specific.

Dr Fraval—The point that we were trying to make in that submission was that we were trying to find—that was one of the items that was a possibility—some way to encourage more students not to go for history and English but to go for the perceived more difficult subjects to get a degree. How do you do that? That was a suggestion of one way to do it.

Mr CIOBO—I guess I am just saying that I do not think it is because of the imposed level of HECS. I have never heard put forward a good argument that HECS is a barrier and I am trying to explore the strength of your proposition, to be frank.

Prof. Baker—Science Industry Australia has not undertaken any study of that fact or that contention. It is pretty clear that we are trying to do is to generically say that anything that would encourage—

Mr CIOBO—I support the aspiration. I just think that the specifics may be questionable. Thank you.

CHAIR—There have been some good questions. We have tried to have this artificial construct of separate questions on services and manufacturing. It is clearly not working. If you have got specific manufacturing responses, then we would be interested in those as well.

Dr Pulsford—I just have a general statement, using our company as the basis. We are in a range of businesses which are all associated with designing and manufacturing scientific equipment. We have about 70 or 80 engineers, so the previous people would be in tune with that. We also have about 30 scientists, so we are a heavily R&D-intensive kind of company. About 10 per cent to 12 per cent of money goes into investment in R&D. As I mentioned, we basically manufacture everything here for the whole world. We export 90 per cent of it. Our biggest issues in terms of manufacturing are getting good people to work in R&D and to work in manufacturing.

CHAIR—Do you recruit people internationally?

Dr Pulsford—Very occasionally. We have some very specific jobs that need to be done and for those appointments we do look outside Australia sometimes. We would occasionally 'import' somebody, if I can put it that way, but generally not. Generally we recruit locally. The people that we have tended to recruit overseas have been more than just the general engineer or the general scientist, so I would say we would import someone every year or every two years—that kind of thing.

The other issue that we have with running the business is that we have got too many ideas to fund. We always leave things on the shelf and we are struggling to find some funding for something at the moment. Some things will not ever get done because we are too busy doing other things, and we struggle to get access to extra money by way of anything other than from

our parent company to do those projects that we do not typically do. That is a little bit like our world in a nutshell.

CHAIR—I am sure you would not be suggesting that government provide a pool of funding for investment in that area. Or are you?

Dr Pulsford—Not entirely. But there are some things that are high risk but also have good return to the country in terms of exports and employment and growing of the infrastructure that are worthy of consideration. To pragmatically answer your question, governments do not think that way—that is why we have not got this money. It is rather like: where does the HECS scheme fit in? Somebody who might be a genius might think that that is the straw that breaks the camel's back. We should not go down those sorts of pathways too much because it is individualising things, but it is important that, in return, the government understands that some things that could happen, and probably would be of advantage to the country, do not happen when there is not enough of that sort of thing.

As I mentioned, we are basically at the taxation concession level, and that is it. We have a couple of projects which we know would generate good returns but I do not think we will not do them, because we are doing the ones which will generate better returns. We are not doing all of the projects.

Ms GRIERSON—The conversation that we are having about finance and risk is terribly important. The market does not want to finance risk and take on risk, and with science and innovation there is always risk. The government has reduced its contribution to risk. We do not have the access to risk capital, so I think that some of the points that you are making are essential. If we do not invest in other ways, then we are really always going to be diminishing the opportunities for this country. But someone has to invest eventually and government does have access to funds at a lower cost than anyone else, so it seems to me that somewhere along the line there has to be recognition that investing in the future through science and innovation carries risk. There is something that can carry that burden better than others—and that is government.

I listened to the argument on HECS and I think it has to be pointed out that there is some gross hypocrisy, in that the government's parliamentary staff have access to HECS reimbursement, ADF do not pay their HECS in their training, and yet our students have to. I notice that one of the vice-chancellors recently came out and said that they thought Australia was at the tipping point, where the HECS level was such now that it was becoming a barrier. Does your profession consider that that comment may be having an impact on recruitment and people going into science?

Dr Fraval—We are not saying that it is the only thing that is going to work in terms of getting more people into science, but it was the readily available option in front of us. I am sure that people could find other ways of encouraging students to make that decision, but, in terms of what we looked at, that was one of the easiest options. Is it the most effective one? I do not know.

Ms GRIERSON—The better manufacturing businesses in the Hunter have gone back to cadetships. They are basically now paying for their personnel to go to university. They are

paying their HECS, they are carrying them in their workforce permanently, and they have reintroduced the cadetship approach. If industry is at a point where it wants to do that, should we be opening some incentives for it to do that again?

Dr Fraval—The answer is yes, of course. Relating a specific example, our company employed a student from Swinburne University of Technology for six months as part of their course. I think it was a four-year course. Within that four-year course, for six months they worked in our company. They basically got some experience of the real world, which is quite an important aspect that they do not get at university, and we get a look and say, ‘Gee, this might be somebody who has potential as an employee for the future.’ It worked quite well in the situation where we had a student, and I wonder whether it is something that needs to be looked at a bit more carefully—whether that is an option to bridge the university-to-real-world situation. I know that Swinburne does it, but I do not know whether very many other places do.

Ms BIRD—There is another thing that we sometimes miss, and someone made a comment that alerted me to this before. We have provided internationally world-class trade training for decades in this country. The engineers reminded me of it. Somebody said they are not recruiting university graduates but technical-type people. It is quite a big prohibition, as a mature person with a trade background who is earning good money, to consider upgrading to degree qualifications and so forth. I wonder whether there is a similar phenomenon in the science field and whether we should be looking at upgrading the mature skilled worker, not just at the entry level—how many kids we can get into engineering.

Dr Gonis—It is fairly rare that you see a mature student coming through the science faculties. Our issue is generally not one of knowledge, because when people come out of a science degree they have the knowledge; they just do not have the skill. Again, we are going back to the gaps that we see. There is certainly a gap between the knowledge that people have when they come out and the skill that they need to do the work once they are in.

Ms BIRD—So there is no problem with the model of having the skills and then saying, ‘I’ve done 10 years as a technician. I want to upgrade,’ but if you then have a couple of kids and a mortgage and you are going to drop your income a bit while you study, and then pick up a HECS debt, I would imagine that would be quite prohibitive.

Prof. Baker—It is particularly difficult in this industry because 50 per cent of our workforce has a tertiary degree, and in some sectors of the industry, including the major national research facilities, it is higher. Ninety-five per cent of the people that work in my organisation have degrees, and that is because it is right at the cutting edge of innovation. So I think the further you are towards that real cutting edge of innovation the stronger a support network you need from the university, or the better recruitment of expatriates.

Dr Fraval—Equally, the people in production might not have a degree but there are skills that they still have to learn tertiary-educationwise, and there are the salespeople—those who are not in the innovative part of the company but are really important and really hard to find.

Dr Pulsford—We see some natural progression, but not because we make someone get another degree or something like that. For instance, if we see a cadetship going through to a

tradesperson or to an engineering assistant, if that person develops and demonstrates a good level of skill we will give him higher level jobs.

Ms BIRD—Without worrying about the qualifications?

Dr Pulsford—We will not tell them, ‘But we’re not going to do it unless you get an extra diploma,’ or something like that. It can happen, but I think it would not be typical.

Ms BIRD—It is good for you, John, but it is hard for them to move.

Dr Pulsford—Yes, but we do not do it if they do not want to, either.

Ms GRIERSON—According to the OECD tables, the innovation gap is real, and you have put in your submission suggestions on tax incentives, the R&D start-up, and modification of what is there already. Is it time to be investing in the workforce and having bonuses and incentives to employ scientists, basically? Is it that critical, in terms of losing them overseas or not keeping them?

Prof. Baker—I think it is. I think we lose most of our scientists to overseas. In fact, I used to be at the John Curtin School of Medical Research here years ago and every PhD student over a three-year period that trained there left to go overseas immediately after. I elected not to go overseas at the end of my PhD because I wanted to play Rugby Union and I could not find a place to go to do that. The States did not look real good to me then, playing for the American Eagles—the ‘Bald Eagles’ as they call them now!

Ms BIRD—That is a whole policy area we have not explored!

Prof. Baker—What you are saying resonates highly. We need some scheme to bring back our best scientists. We have not thought of this as part of a repertoire of incentives that we give our graduates and our expats to bring them back. Those sorts of ‘come back home’ types of approach have some merit or are at least worth considering.

Ms GRIERSON—I think bringing them back is really important, and one of the reasons they do not come back is that they would then have to pay their HECS debt. It is a puzzle for everybody in terms of science and innovation. We now have the CSIRO national flagships program. Have the priorities of that program assisted in putting scientific innovation into commercialised industry? We also have a Productivity Commission report that was fairly condemning of the link between formal institutions and commercialisation of innovation, and yet we have some stand-out companies doing wonderful things in Australia. It just seems to me that there is a need for change that we have not put our finger on yet. We just do not seem to be getting there. Can you comment on the priorities and the flagships? Can you comment on the Productivity Commission report and the stand-out companies? I know you have done it in your paper, but for politicians and for public policy it is a puzzle that has to be solved.

Dr Pulsford—I am happy to talk a little bit about the CSIRO-university situation. We have two discussions going with CSIRO at the moment. One of them also involves a third party, so it is starting to get a little bit complicated, but they are very eager to do things which have a good outcome for both parties. I think there are a lot of issues about how we go about making it work,

and again, as I mentioned before, we see differences in timescale, which sometimes commercially we would struggle with. With universities and other institutions we have dealt with, we see a willingness to solve the problem but nobody wants anything to change while we solve it. We struggle sometimes to find out from universities what they do, for example. With a US university, you just look on their website and you see hundreds of pages of what everybody is doing and who you talk to if you want to commercialise it, and all that sort of thing.

We do not really see that here. We have to go through the formal process of a set of meetings, and then people go off and find out what they really do, and say, 'Have we got anything that matches what you're interested in?' That has been our experience in working with universities in recent years. But we keep trying. We are trying again at the moment. But we are very impatient, relative to universities, because we have our commercial timescales. So it is not always their fault.

Prof. Baker—You have hit the nail right on the head. The Science Industry Action Agenda is reinvigorating the process. The flagships, as part of the restructuring of CSIRO, and having CSIRO in the Science Industry Action Agenda, has meant that there have been discussions—and John's company talking to CSIRO is one of those examples. There are multiple examples of those interactions now happening. I think one of the things that came out of *Measure by measure*, the action agenda report, was that most of these interactions occur face to face. It is people with other people; it is getting to know them. It is actually calling the universities, the companies and industry together, putting CSIRO in the mix and saying, 'You've got to talk.'

Ms GRIERSON—Yes, it is being left to them, isn't it? It is not being facilitated very formally.

Prof. Baker—That is true. There has been no government intervention, except for DITR's support of the action agenda.

Ms GRIERSON—We cannot understate how clever some of our companies are being. I use the example of CCI Pope in my area, which is a problem-solving company for engineering and manufacturing. It has successfully solved a problem for the Rolls Royce jet engine manufacture and it has now embedded itself in a huge global chain. Those sorts of success stories are out there all the time but you will not see it on the front page of the newspaper. I do not think anyone is doing enough to make it look interesting and to tell those really good stories, so I hope that your organisation can assist in telling some of those good stories.

CHAIR—We have carried out a quite interesting discussion in terms of probing some of these issues. The challenge for us is how to approach the whole area of providing sufficient incentives for you so it is not direct government investment but the incentives are there. Thank you for the input today. If you have got further inspirations, you know what our agenda is about and you know that we need to work on this together so that in 20 years time people will not look at this committee and say, 'They certainly blew it there. They had the opportunity to make some recommendations.' It behoves us to try to come forward with appropriate recommendations so that we do capture the scientific endeavour in terms of corporations and government-funded institutions that can result in manufacturing and a successful services sector as well.

Proceedings suspended from 11.00 am to 11.12 am

EVANS, Mr Gregory James, Director, Industry Policy and Innovation, Australian Chamber of Commerce and Industry

JOHNSON, Mr Peter Andrew, Policy Adviser, Australian Chamber of Commerce and Industry

CHAIR—I welcome representatives from the Australian Chamber of Commerce and Industry—ACCI—to today’s hearing on the services inquiry. As you know, we do not require you to give evidence under oath, but this hearing has the same standing as proceedings before the parliament. We now invite you to make an opening statement and then we will proceed to questions.

Mr Evans—The comments that we will make are probably relevant to both the services and manufacturing inquiries so we will not necessarily seek to differentiate some of those general comments. By way of opening, ACCI is the oldest business organisation, representing manufacturing at the national level for some 103 years, and it has the widest reach across the manufacturing sector in Australia.

The Australian manufacturing sector has been facing challenging circumstances for many decades but now, contrary to the views of some, it is neither dying nor chronically sick. While manufacturing’s share of the economy has been steadily declining as the economy has grown, the sector still accounts for some 12½ per cent of the national economy or \$96 billion, and averages around 1.5 per cent growth per annum. However, simply looking at the relative share of the economy and the shift between the manufacturing sector, services, mining or agriculture is not particularly instructive.

We recognise, as with most advanced OECD countries, that the manufacturing contribution has declined while services have increased. This is not necessarily a problem, but what is important is that, whatever the sector, it is provided with an economic framework to operate efficiently and competitively. We certainly do not see that government has any role in somehow adopting a grand plan to assist one sector over another. Rather, in the case of manufacturing, Australian governments—both Commonwealth and state—must continue with overall economic reform to allow the sector to take up the opportunities offered by globalisation.

CHAIR—Yes, we agree with all of that.

Mr Evans—That is good. In recent decades, Australia has followed the path of engagement with international markets through lower tariffs and reducing barriers to inflows of international capital. The rise of low-cost production centres for simply-transformed manufacturers—especially in China and India—combined with lower tariffs meant that some Australian firms have moved offshore or, where the readjustment task was too difficult, have gone out of business.

The story of the evolving manufacturing sector is a positive one, we think. Australian manufacturers have become more outwardly focused, manufacture high-value goods, develop niche products for global markets or mass produce goods for global supply chains. The diversity

and relative size of the manufacturing landscape as it was in the fifties or sixties will never be repeated in Australia but this is not an example of policy failure. Rather, it is a sign of our increasing economic sophistication and a competitive, open economy.

The manufacturing sector continues to contain success stories that defy a more negative view sometimes portrayed by those seeking a more interventionist or prescriptive approach. Australia has industries within the manufacturing sector which maintain comparative and competitive advantages over even the lowest-cost countries. Regardless of the relative decline of manufacturing to GDP, it is a vital part of the Australian economy and will remain so for a long time into the future.

However, ACCI believes that recent difficulties faced by manufacturing should not be used as an excuse to lead governments back to old, failed policies of protectionism and intervention. The future of manufacturing does not lie in increasing government intervention, building higher tariff walls, providing greater subsidies or picking winners.

CHAIR—Hear, hear!

Mr Evans—The future of Australian manufacturing lies with policies that strengthen the overall economy and support competition—such as sound taxation and industrial relations policies; initiatives to address skill shortages; policies to increase investment in infrastructure, innovation, and research and development—

CHAIR—Sorry. Could you run that past us again? I am sure that most of the committee will agree with the first part but we want to focus on those issues that you see as problems. Could you start that list again?

Mr Evans—Sure. The future of Australian manufacturing lies with policies such as sound taxation and industrial relations policies; initiatives to address skill shortages; policies to increase investment in infrastructure, innovation and research and development; continued support for trade negotiations that reduce tariff and other barriers in other countries; the implementation of recent undertakings to reduce the regulatory burden on business; and, finally, ensuring that Australia maintains access to cheap energy, which is a vital component in securing a competitive advantage for the manufacturing sector.

A survey recently provided by ACCI in January, the Westpac survey of industrial trends, shows that while the level of demand for product and the competitive environment weighs heavily on future investment decisions of Australian manufacturers, key generic issues, as I have just mentioned, are to the fore amongst concerns of business. In particular, major constraints on manufacturing investment continue to include the level of business taxes and charges, the availability of suitably qualified employees, wage costs and non-wage labour costs, interest rates and current levels of debt, federal government regulations and state government regulations.

The priority for the manufacturing sector, as for all industry sectors—including the services—in the Australian economy is to ensure that we have appropriate policy settings for each component part of the wider reform agenda. This allows producers to better deal with a potentially adverse trading environment. ACCI, as a major stakeholder on behalf of the

Australian manufacturing industry and representing service companies, therefore will continue to argue for reform in all of those areas that I have mentioned. Thank you.

CHAIR—Mr Johnson, do you want to add something to that?

Mr Johnson—Many of the issues that I was going to raise have already been covered by Greg so I will make this as quick as possible. Australia's manufacturing sector, while currently experiencing a number of competitive pressures, has nevertheless continued to grow in value terms over the last two decades. However, as with many OECD economies, manufacturing has grown at a rate relatively lower than the economy as a whole. Furthermore, while manufacturing employment has remained constant in absolute terms, it has declined as a proportion of the total labour market.

ACCI remains supportive of the manufacturing sector, and notes that broader macro-economic reforms such as industrial relations, taxation, skills and investment are the challenges for improving our competitiveness. Previous macro-economic reforms have provided benefits to all Australians and ACCI supports continuing down this path. ACCI is a long supporter of Australia's engagement with the international economy. This process has provided many difficulties for businesses, but for others has provided great opportunities.

The manufacturing sector is not a homogenous sector and, as pointed out previously, a number of sectors remain internationally competitive. Programs that assist the manufacturing sector must be transparent and rigorously costed. While Australia's high exchange rate is presently reducing manufacturing's competitiveness, the benefits from floating the Australian dollar cannot be understated. You cannot and should not intervene in the market which is driven by international conditions.

The rise of low-cost competitors, such as China, compounds the manufacturing sector's problems, but the opening up of borders has provided further opportunities to sell into markets which are expanding at a rate higher than our own. The future of Australia's manufacturing sector, like the economy in general, lies in being innovative, integrated into the global supply chain, investing in high-value products while having access to a skilled and flexible workforce, and securing a regulatory environment conducive to business.

CHAIR—It is all good stuff that you have come up with. I am sure that the majority of this committee would agree with most of that. There are, nevertheless, some issues that I want to take up, not the least of which is today's *Australian* on page 8, where it says:

The resources boom is gathering a fresh head of steam as miners gear up for the export boom, but new production capacity is shrinking in the rest of the economy.

Investment by the mining industry is expected to jump 22 per cent this year and firms expect to cap this with another extraordinary 37 per cent rise in 2007-08.

That is the good news. It goes on:

But reflecting Australia's two-speed economy, the loss of confidence in manufacturing industry in the eastern states is leading firms to scrap investment plans.

Business investment by manufacturing will slump by 15 per cent this year and a fall of similar size is forecast next year.

Investment is weakening in other industries such as retail, transport, finance and telecommunications.

Given that most of your members are in that sector, and I cannot remember your exact comment but it was along the lines of, 'The demise of the manufacturing industry is much exaggerated,' how do we relate the two? That is today's paper, highlighting the problems that we face. It is terrific news that the resources sector continues to expand, but where to in the manufacturing sector? I am interested in talking about some of the issues that you see as being impediments.

Mr Evans—For a start, there are different levels at which different parts of the economy grow, and the resources sector is obviously growing very strongly at the moment, manufacturing less so. However, I do not think that it is the role of government to somehow introduce prescriptive policies, as I said, that will favour one sector over the other.

CHAIR—I think we would agree with that.

Mr Evans—We believe it is important for the manufacturing sector to address issues of the economic fundamentals so that we can have a competitive and efficient manufacturing sector. We believe that that is really what underlies our position.

Mr Johnson—The resources boom is certainly taking economic resources away from mining and other areas. Generally, it is part of the history of the Australian economy for there to be these long-term structural changes. I would imagine back 60 years ago that people were saying the same thing about agriculture. This is a long-term trend that has happened over 20 years and, as mentioned before, there are a number of issues that are beginning to come together to make the trading environment more difficult. But, again, this is just the market working through where the resources are best allocated in the economy so that we do have higher incomes and higher wages for all people in the Australian economy.

CHAIR—Could we focus on some of the things that you highlighted as being issues for the development of the manufacturing sector and impediments to overcome in terms of micro-economic reform? You have rightly identified a number of them. I am sure my colleagues will want to take up some of them.

Perhaps I should say, because of your introduction, that any artificial construct in terms of dividing this hearing into questions on manufacturing and services has been demolished, so we might just proceed on both sectors. We are interested in both sectors. In terms of the skills shortage, do you think it is real? What should we be doing to overcome these shortages? Is it a training exercise? Should we be putting more funding into training? Should we be bringing people in on short-term visas? Should we be recruiting people offshore, doing deals with our South Pacific neighbours? What do you think?

Mr Evans—For a start, I suppose I should say that, yes, it is a real issue and it continues to be a major issue. In response to our surveys, members say that it is of concern to them. Different parts of ACCI have done extensive work on skills shortages, and I can later refer you to some of that work. Today we just wanted to highlight the generalities in that issue and we do identify that our members are concerned about skill shortages. Particularly in manufacturing, skill shortages

are in technical areas. One of the things that we refer to in our document is the level of education. We refer to some deficiencies in the uptake of science and maths in schools and the uptake of those related courses at university. These are some of the issues that we are seeking to address and want to highlight to you.

CHAIR—You said we have a problem. The problem for this committee is that we have been given issues that we should address; we would also like some suggested solutions.

Mr Evans—We have done extensive work on skills et cetera. It is not our area of ACCI responsibility but the responsibility of other personnel in ACCI. We can certainly provide that to you.

CHAIR—That would be great. In terms of infrastructure, what would you like to see happen? Do you think that we have not been developing enough in terms of infrastructure? Which infrastructure is it: ports or railways, roads?

Mr CIOBO—All of the above?

Ms GRIERSON—And knowledge?

Mr Evans—As part of this process, when looking at this issue throughout the last 12 months, we did not identify that there was an infrastructure crisis but we did say that there are certain principles that should be adopted with respect to infrastructure investment—that is, it is usually best undertaken by the private sector and where there is an actual need. We are very much promoting the role of the private sector in that, rather than perhaps grand government plans to build infrastructure that can turn into a white elephant. There are some impediments, and we will talk about those later. I suppose, specifically in relation to infrastructure, it is the overall economic environment. There are some specific tax issues and there are other—

CHAIR—Which tax issues in particular are you concerned about?

Mr Evans—There are constraints in terms of specific tax issues that are impeding the level of investment in infrastructure. I think it is section 16D, for example. That is the one that comes to mind.

CHAIR—So is that it?

Mr Johnson—On skills issues, we do know that with maths and science a number of our members have had issues with the number of graduates and future projections for people leaving the industry and those graduates filling the gap. So we do see a shortage. Another important issue is the quality of the teaching for maths and science. Rather than changes to the HECS structure, we feel flexible wages is the solution and will increase the number of maths and science teachers because they now pay a higher level of HECS but receive the same wages as someone who has done another course, such as humanities.

Ms BIRD—Now let's move into the realm of reality, because that ain't gonna happen!

Mr Johnson—It is what we would like to see happen.

Mr CIOBO—What she means is that it will never happen under Labor.

Ms BIRD—As an ex-English-history teacher, I used to think that what I did was pretty important too.

Mr Johnson—We are not making judgements on the relative importance of teachers.

Ms BIRD—No; I understand.

Mr Johnson—We just prefer the flexible wage structure to account for that, that is all.

Mr CIOBO—Yes.

CHAIR—You have listed a number of impediments, and I know ACCI has a pretty free-market environment—and we support that—but there are no firm recommendations that I can see. You have mentioned one item: taxation. What specifically would you like the government or this committee to focus on? Apart from providing the overall environment in terms of regulatory reform and industrial relations reform, taxation et cetera, where do you feel we can assist both sectors?

Mr Evans—In essence you have summarised it. A lot of this is about deregulation. One of our responses is that there needs to be less regulatory burden placed on firms. That is having an effect on the level of investment and job creation et cetera, and the government responded to a report by Gary Banks last year on that issue. A lot of it is about government, as I said, providing the framework and not necessarily coming up with prescriptive solutions to perceived crises in different sectors.

Mr McARTHUR—You mentioned in your submission the ‘Dutch disease’. We do enjoy the minerals boom, which this inquiry is about. What would you specifically recommend—that we reallocate that boom money back to manufacturing? How would we overcome this so-called Dutch disease problem that the Netherlands faced?

Mr Evans—We provide commentary on that, but we do not necessarily see that it is a problem. Obviously, a strong resources sector influences the exchange rate, but that also has major benefits for the manufacturing sector in that a lot of their inputs are cheaper than they otherwise would be. We do not believe there needs to be any RBA intervention on the exchange rate. We had that debate a long time ago. We are highlighting it and provide commentary on it as an issue, but we do not necessarily perceive it as a major problem. In fact, it has had some benefits for the manufacturing sector.

Mr McARTHUR—What about the movement of the labour force to the higher paid minerals export area? What do you say about that?

Mr Evans—I think that is a consequence of shifts in the Australian economy and there is nothing you can really do about that. It is influencing the way the manufacturing sector is evolving. We are moving away from labour-intensive type exports to higher value-add exports that require fewer labour inputs.

Mr KEENAN—Thanks very much for your submission, because I think it really gets to the heart of where this committee needs to go in its recommendations. We have had submissions that have said to us, in one sense, ‘The government needs to do more. We need to spend money doing this or that.’ And we have had other submissions, including yours, that have said, ‘Well, really what we’d like government to do is to get out of the way and let us get on with the job of doing what we do best.’ We will need to decide, when we make our recommendations, which way we will go as a committee. What sorts of dangers are there if we were to look at the reforms that have happened over the past 20 years and say, ‘We need to turn the clock back on some of these reforms,’ or, ‘These reforms have gone too far and we need to reregulate certain areas’? What would happen if we were to say, ‘We’re going to put some rigidities back into the labour market’? What would that mean for the ability of your members to employ people?

Mr Evans—For a start, we would be immediately signalling to the world that we are out of step with them. The rest of the world—the OECD, and our immediate neighbours in Asia—are doing the opposite and deregulating their economies, making them more accessible, more globally competitive, so the danger is that we would be putting ourselves out of the competitive race.

Mr KEENAN—Yes, and more regulation would essentially cost jobs.

Mr Evans—Certainly.

Mr KEENAN—What is the chamber’s view of the idea of having a new industry policy in Australia?

Mr Evans—I think what we are outlining today is industry policy and dealing with the fundamental design features: taxation, workplace relations, skills, less regulation and whatever. They are the sorts of things that we would like to see in an industry policy.

Mr KEENAN—But do you think the government should be sitting around and saying, ‘Look, we think there’s potential in this sector here, and we think this sector here has got potential, and we need to spend taxpayers’ money in support of that’?

Mr Evans—No, that would not accord with our general approach. However, there are good programs administered by the industry department that fill market gaps in the areas of commercialising technology, greater support for R&D et cetera, and we accept those. They are good programs. They can always be improved, but as a general rule we do not go down the approach of prescriptive policy responses to problems that may only be short term.

Ms GRIERSON—You said in your submission that the Australian export services sector is facing a difficult trading environment. I would like you to comment on that and also on who you think is faring worst or who is doing best. Generally, what is the picture out there?

Mr Johnson—I think many of the problems facing manufacturing also spill over into the traded services sector. They are quite analogous. Tourism has had a number of issues come together—SARS, high oil prices, high exchange rates—so that would probably be more affected than other industries, given the market fundamentals. We produce a lot of financial services and high value-added products and they tend to be less influenced by the problems I have just

mentioned. A lot of them tend to be the same solutions. Whilst they are quite different areas, we advance a high-level approach. We do see a role for government in promoting tourism and Australia as a destination.

Ms GRIERSON—But you do point out in your submission the problems of three tiers of government having that responsibility.

Mr Johnson—Yes. There needs to be a high degree of coordination. There are advantages to having local governments making decisions: they are the people on the ground and perhaps they understand the situation but you need better coordination between the three groups so that they are in step. That is part of the regulation and the harmonisation of decision making.

Ms GRIERSON—When I scan what support there is out there for the services sector exporting, I do not find much. In my own region—the Hunger region—I note that the Hunter Export Centre runs some wonderful courses, seminars and forums for its members on accessing overseas markets for goods, doing work in China and India, and all those sorts of things. They relate to the services sector very much, but they just have an export-of-goods focus. What has ACCI done, in terms of engagement with its membership, to improve that emphasis on the benefit of training for the services sector and assisting them to get into export markets?

Mr Evans—That has not been an specific issue of member feedback. But, as we understand it, if you seek to use the services of Austrade, it is as relevant as if you are exporting goods, as if you are exporting services.

Ms GRIERSON—I do not hear that. I get feedback that says it is not as relevant, particularly in the services sector—for example, education. Often they are very small companies, small entities, and they think that there is not enough service for very small companies and businesses and they look at AusIndustry and Austrade people as being perhaps not as helpful, because small companies do not have a lot of time or resources and they have to use online facilities et cetera. That is the feedback I get; do you get that sort of feedback? Do you have a view on that?

Mr Evans—In your elaboration, was that more about the size of the firm rather than necessarily the activity that it is involved in?

Ms GRIERSON—That would probably be the case in my region, yes. They are small companies—they are, for example, going into Pakistan with education services. This is a tough game, very tough for small companies, and they are doing quite well, but they are finding that they do not have much support there.

Mr Evans—SMEs have a more acute difficulty than larger and more sophisticated firms in dealing with government and understanding what programs are available. We recognise that and we do see that.

Ms BIRD—I think it is more than size. I think there is a lack of expertise in the service industry and in how we can export that to the world which, with all due respect, is reflected in your submission. You have 13 pages on the service industry and 43 pages on the manufacturing industry. You reflect, I think, what government reflects—that we have not yet really tackled and mastered the issue of the service export industry.

Ms GRIERSON—And its economic contribution is huge.

Ms BIRD—Yes. We talk about tourism and education—two big ones—but one of our biggest export earners is the Wiggles. We have not even touched on the entertainment industry and the capacities for that. It just seems to me that these fellows are out there doing it themselves and maybe all of us—government and non-government—need to start to take it on board.

Mr Evans—I hear what you say. But we believe that it is pretty hard to treat the services sector as a homogenous sector and have one policy response from government which deals with all their issues, because they are diverse, varying industries.

Ms BIRD—True.

Mr Evans—Your example was of the Wiggles: they seem to do fine without government help.

Ms BIRD—Yes. This may just come down to our very different approaches, because I understand that you are saying that you should get the levers right in the economy and then let people run. I suggest to you that that would mean that we should just close our inquiry today. I think there are particular points at which government can intervene, and it is not about picking winners; it is about identifying what good winners do and spreading that skill and information around the sector.

I understand the broad issue of what you are saying but I am saying back to you that I suspect there are still points at which a good program intervention could work. Some of the ones that you have already identified do work. My fear is that we will get captured into looking mainly at manufacturing again, because that is where the conversation has been for so many decades in this country, and we are going to miss the conversation we need to have on the service sector.

Mr Johnson—That is broadly correct. Where intervention is required, we would simply ask that it be transparent and robust.

Ms BIRD—Yes.

Mr Johnson—We would say, ‘Okay; make sure you have the levers set correctly.’ Then you would get an indication of the actual problem, rather than working off some distorted view. When you say we have done 48 pages on manufacturing, that is a fair point, but by the same token you have one manufacturing inquiry but you would need a number for the services sector.

Ms BIRD—I would argue that manufacturing is as diverse as the service sector. I just think that we are more familiar with manufacturing.

Ms GRIERSON—I will move on to infrastructure, because this inquiry is trying to look at the potential, post boom. I have mentioned earlier in this inquiry today that doing business overseas and becoming part of the global markets will be one direction that the country will take post boom. I would have thought that the boom necessitates an investment in infrastructure, but in a way it is allowing us to neglect the needs of our current infrastructure. So around the country local government is in big trouble because its infrastructure is deteriorating so rapidly; it

was mostly put in post war and the cycle has come where it needs to be replaced, replenished or maintained in a major way. So the deficits are huge.

In my own area of Newcastle City Council, \$630 million over 20 years is needed just to get all infrastructure up to standard. That is a story that we are hearing all over the country in terms of the neglect of infrastructure. With a priority on servicing the boom—whether it is manufacturing, services or whatever—infrastructure has been neglected, so I would think that post boom there will be a huge requirement to invest in infrastructure. Do you think we have a picture of that yet and do you think we have the capacity and the skills to respond if it all comes in a rush like that?

Mr Evans—You have highlighted some infrastructure deficiencies in an urban context. It goes back to some of my previous comments. In the past, the potential role of the private sector has been neglected and some of that urban infrastructure has been under the control of state instrumentalities that have had a requirement to return dividends to their respective governments and have, by the nature of their ownership and their operation, not reinvested in vital infrastructure and instead returned any dividends to government. That is what we mean when we say that there is greater need for the role of the private sector.

As an example, urban water is an issue that everyone is talking about. Potentially, there is a role there for the private sector to be involved and incentives for them to begin to recycle water and put it back into an urban water system. In the past that has not happened because of the dominance of government-owned instrumentalities. I think you are seeing that in all areas of infrastructure, including electricity generation and distribution.

Ms GRIERSON—Water and energy infrastructure alone would stand out as being a great opportunity.

Mr Evans—Yes. One of the issues that we highlighted in the paper was the importance of energy in the Australian context. Australia has a major competitive advantage over a lot of countries, and we would not want to see that eroded through reactive policies on issues in relation to the environment.

Ms GRIERSON—Thank you.

Ms BIRD—I want to come back to the services sector. Have you surveyed your service sector members on what barriers to exporting they experience?

Mr Johnson—No, not directly.

Ms BIRD—If you do that in the future, we would be interested to hear what they have to say. While I appreciate your approach to the solution, I suspect that most of your members would sit here and tell us where they want government to put money. One of the things that I hear from service sectors in my region concerns broadband. In the service sector you are often moving your product by those sorts of means rather than trains, planes and automobiles, and when dealing with some of the South-East Asian countries, where they have much higher speeds than we do, that is a bit of a barrier. I am reflecting to you the things that some companies in my area

have raised anecdotally. It would be useful, if you get any information on that, to forward it through to us.

Mr Johnson—We have done a pre-election survey for the last election. That highlighted more the cost of infrastructure rather than access to infrastructure. I do not believe that we split the data by sectors, and you are requesting the services sector. We still do have the information on our system.

Ms BIRD—Does it have the capacity to be split?

Mr Johnson—I believe so.

Ms BIRD—If it is possible, that would be great. Or perhaps if you are doing that survey again you could build that capacity in.

Mr Johnson—Yes. If you would like to put something in writing for us, we can address that issue.

Ms BIRD—If you could follow up on that it would be really interesting. Thank you.

Mr CIOBO—In your submission you talk about addressing skills shortages through possible expansion of the Australian technical colleges. Have you got any particular reflections on the ATCs versus the state-run TAFE systems and what some of the problems might have been there? Beyond that, do you have any comments about the way in which the Australian Apprenticeships scheme is operating?

Mr Evans—We are not trying to avoid answering the question, but it is not our area of particular expertise and there are other people more skilled in that area in ACCI. We can provide information on that. With respect to the ATCs and the state-run systems, we identified that there was a gap there and a potential for the technical colleges to address a particular problem. That is why they were strongly supported by ACCI. We can come back to you with more detail on that.

Mr CIOBO—Thank you.

Mr Evans—Can I just make a wider observation on some of the responses?

CHAIR—Yes.

Mr Evans—I would not want you to think—we may be presenting our position blandly—that we do not think there is any role for government in any of these issues and that the work of the committee is basically done. We have identified specific issues in the submission that we think the government needs to address. We also recognise, as I said, that there are legitimate programs that we wholly support in the industry and education portfolios which are addressing market gaps and are quite valuable. I wanted to assure you that our position is not as bland as you might have thought.

CHAIR—No, not all of the committee members would be critical of what you have said. I want to take you to some of the recommendations you have made in terms of R&D concessions.

You suggest raising those from 125 per cent to 150 per cent, indexing the EMDG budget to inflation, and a stepped rate of capital gains tax. On what premise do you make those recommendations? Do you have evidence to show, for example, that moving the R&D grant to 150 per cent is going to substantially alter the incentive to invest or that the export market development grant will stimulate more people to explore international markets? Is this rent seeking by ACCI or is it based on genuine research?

Mr Evans—One of the issues that we look at is the position of our competitors. For example, in the area of capital gains tax, those countries that have lower rates of capital gains tax have a greater formation of entrepreneurial companies and have companies that are prepared to take risks. When companies invest in a new venture, they are very exposed to risk and they want an adequate return for that risk. One of the things that may militate against making that investment is that much of any gain that they accrue will be lost in the payment of capital gains tax.

CHAIR—Are you basing this on page 23, figure 22, of your submission, about R&D by various OECD countries?

Mr Evans—Yes. It is really about maintaining our competitive position with countries that have more advantageous taxation systems which promote investment in R&D.

CHAIR—Ireland has less than we do—

Ms BIRD—And Finland.

CHAIR—but it has been held up as a model of all things good. I know that there are many other features—low taxation rates and so on—that have got something to do with it.

Mr Johnson—I believe the company tax in Ireland is quite low.

CHAIR—It is.

Mr Johnson—And they are quite close to the EU market as well.

Ms BIRD—But they have also had a fairly interventionist government program. It is a package.

Mr Johnson—Overall, I think our incomes are perhaps as high as Ireland, which, if you are looking at welfare for the nation as a whole, shows Australia is probably on the right track.

CHAIR—Yes. I am just looking at the list and trying to work out which ones with a high-level rate of tax subsidies stand out—which are the ones where it has really paid off for them—and it is debatable. Korea, perhaps, and Canada. Hungary is still in the formation stage. Is there an agreed position on this? I am certainly interested in what you have to say.

Mr Evans—I am not sure that figure 22 relates to overall taxation.

CHAIR—No; I understand that. I am sure that if you combined them all, it would be quite different.

Mr Evans—Yes. Maybe it is limited in terms of what you can interpret from it.

Ms BIRD—It may also reflect cyclical stuff, because some countries, trying to develop, will massively target research and development initiatives to get that part of their economy working and then, as it is working, will pull back to some extent. So when you capture one year, you do not always capture the policy cycle.

CHAIR—In terms of the EMDG, are you able to provide some indicators as to who gives more export assistance, and how it is provided?

Mr Johnson—There have been a number of studies conducted that have shown that it is beneficial. Are we talking about the EMDG?

CHAIR—That is right, yes.

Mr Johnson—That is the principle of the point we are trying to drive home. We are happy for these programs to be in place, as long as they are rigorously tested as being beneficial.

CHAIR—Yes. That is what I am trying to do with your recommendations. Perhaps you could come back to us.

Mr Evans—If we find any more work that has been done, we will let you know.

CHAIR—All right. In terms of capital gains tax and where we see Australia, you have indicated overall tax comparisons and a possible capital gains tax stepped rate schedule, but you have not actually separated out a capital gains comparison with other sectors. Is that available?

Mr Evans—With other countries?

CHAIR—Yes.

Mr Evans—We can certainly provide those for you.

CHAIR—That would be great.

Mr Evans—You may recall that that was part of the Hendy-Warburton exercise as well.

CHAIR—Right.

Ms BIRD—On the ATCs, my local information is that the biggest problem is getting local businesses to take a role in the ATCs, not the model of training to be offered by them, and I would have an argument about the per head cost of them compared to other sectors. Are your members giving you that feedback? My local businesses are saying they like the idea and they want to be involved, but sitting on boards and taking on that level of a role in an ATC is an unrealistic expectation of local business operators. Do you have any suggestions about the restructuring of that model, if it is not sustainable for local businesses to be doing that sort of thing?

Mr Evans—Thank you for that feedback. We can check that with our network of people.

Ms BIRD—I think sustainability—if that is where we are going to go with them—is an important issue. With the best will in the world, for a businessperson trying to keep their business afloat, being that involved in these organisations is hard.

CHAIR—Thanks very much. It was a very good submission that you made and I think a number of us would support the general thrust of the issues that you have raised and see the need to address some of the issues that you outlined. It will provide an important reference point in terms of developing recommendations and looking at the situation. If you can come back to us on some of those issues that we have raised, that would be useful. Sorry to give you that extra work. In terms of transparency and testing, that would be useful. We appreciate very much you coming before the committee.

Evidence for the Inquiry into the current and future directions of Australia's services industries was then heard—

Proceedings suspended from 12.01 am to 12.35 am

ARTHUR, Dr Evan Philip, Group Manager, Innovation and Research Systems Group, Department of Education, Science and Training

CHAIR—I welcome a representative from the Department of Education, Science and Training to today's manufacturing hearing. I am sure you have been through this before and know that this hearing has the same standing as proceedings before the parliament. We have not received a submission to this inquiry from you, but would you like to make a statement now?

Dr Arthur—Thank you, chair, but no. I understand that the committee has some questions they wish to pursue, so I am happy to provide what information I can to assist the committee. I do not have a particular statement I would like to make at the commencement.

CHAIR—Sorry? You have made no submission and you do not plan to make an opening statement?

Dr Arthur—We were approached. We were told that there were issues the committee wished to pursue with the department, particularly flowing from a submission made by another body, and we made ourselves available on that basis. We are delighted to help, but we did not have particular issues that we wished to place before the committee.

CHAIR—Right. There were various comments made this morning about funding for research institution commercialisation. Their submission was critical of publicly-funded research institutions undertaking commercialisation of scientific products and they claimed that the start-up and spin-off of companies has a low success rate. What data do you have in this area?

Dr Arthur—We have some data in this area—by no means complete data. Government has carried out a number of surveys of research commercialisation in Australia. There were two surveys covering three years: the first was carried out by the Australian Research Council and the second was carried out by the department, and so we have some data on the issue.

Before I turn to the data I will make some comments. I would certainly agree with the submission that there are risks in whichever choice you make in terms of commercialising intellectual property flowing from research. There are certainly risks flowing from the route of licensing technology and then setting up start-up companies. There are also risks from other mechanisms.

We are quite clear, in our own policies, that there is no single right answer to the path of commercialisation. The principles for the commercialisation of intellectual property which have been promulgated within government recognise that there are a number of paths to markets for innovation. It is certainly true that start-up companies, like all SMEs, have high failure rates. As you would be well aware, the turn-over rate of small businesses is very high, and start-up companies certainly share that high rate.

On the other hand, if you have a start-up company then the revenues flow quite directly—under licence agreements or whatever the exact terms of the incorporation of the company is—

back to the inventors of the IP, so you can get very high returns. There needs to be a balance, as in all these things.

Looking at the data, over time we see an increase in the number of patents issued by Australian universities. We see an increase in the revenue flowing from those patents and we see an improved but still relatively low survival rate for start-up companies. So we certainly agree that it is an important issue and that there are risks in that. We would not necessarily agree that that is the problem that we should focus most on in this whole area.

CHAIR—The group that we had here today from Science Industry Australia talked about this proof of concept. They said that there was an impasse in terms of the publicly-funded research centres developing innovations and so on and those out there in the private sector looking to develop them. There was a gap in terms of trying to trade. They talked about this proof-of-concept metric. I just wanted to know what you thought about that and a way of bridging the gap.

Dr Arthur—We are certainly very familiar with the concept and we are quite familiar with that work, both in general terms and in some detail. There have been a number of studies, many of which have been funded by the department, looking into impediments to the commercialisation process. Indeed, the submission from Science Industry Australia, cites a number of DEST-funded studies in the field. It certainly is the case that there have been identified, over time, a number of gaps and difficulties in bringing ideas from the initial concept through to full commercial application.

I will give you a bit of the history. The government, in Backing Australia's Ability package created a fund called the preseed fund, which was designed to address part of that issue of trying to provide some funding which would be available to take ideas through to a stage when the capital markets might be more likely to take them on. The particular proposition that is addressed in the submission is one that is currently being brought forward. It is referenced in the notes of the House of Representatives Standing Committee on Science and Innovation report and there is a recommendation before government at the moment to respond to that particular issue. I have a difficulty at the moment in that the government is yet to formally respond to that recommendation so I cannot actually say what it is going to be.

Ms BIRD—When was that report tabled?

Dr Arthur—I can say that the government response is well advanced and it is going through the normal processes in a number of government departments.

CHAIR—Are you writing the response?

Dr Arthur—We are coordinating the response.

Ms BIRD—When was report tabled?

Dr Arthur—We can certainly get back to you on that, but no-one here remembers the exact date of tabling.

Ms BIRD—It was a reasonable time ago?

Dr Arthur—We have been through one process where we have provided an interim response to it, saying that we are working on it and we will back on it. We are, as I said, in an advanced state of coordinating the government response.

CHAIR—Without wishing to tie you down, do you think, generally, that it would be a positive initiative?

Dr Arthur—It certainly is an initiative which, in broad terms, we think has some merit. But whether or not government thinks it is specifically willing commit some funds to it is a matter for government.

Ms BIRD—The other thing the association raised with us was the difference in the views of time by the education sector and the commercial sector. That is exactly the point they were raising.

CHAIR—The submission from Science Industry Australia discussed publicly-funded research organisations cashing out the intellectual property in a concept. Can this be overcome or is this inherent in the research environment?

Dr Arthur—I think I would go back to my previous answer that there are many ways that you can take ideas through to an economic return in terms of public policy—from the point of view of an economic return to Australia, or more narrowly, an economic return to the institution or institutions that are involved in generating that.

It is certainly true, as the submission indicates—drawing from DEST data—that, in general, universities get far higher revenues from contracting and consulting activities, in many cases drawing on IP that they have generated through their research activities. That is about 10 times higher as a revenue stream than is the stream from direct licensing. So it is certainly necessary for universities to make careful choices about what they do with intellectual property. Generally, it is much broader than the points put in the submission. The great bulk of ideas generated in universities are simply published. They go into journals and they become part of the international literature, and countries such as Australia greatly benefit from that.

You can seek to gain a specific revenue from a more narrow subset of that. And again, in a far more narrow subset of that, you can go through the quite elaborate routes of patenting—which involves cost—and then attempting to go into the licence stream. So universities have to make very careful choices about that. There are a number of risks involved, such as ‘the cashing out’, as the submission puts it—the circumstance where an idea is patented, a company is set up and that company then goes under and the asset is bought by someone else. That is one risk but there are other risks.

If you were, as a university, to take out a very large set of patents, very few of which earn revenue, you would incur the costs of that patenting far beyond return. In our interaction with universities we like to make sure that they have very good processes for making those choices, and that we are satisfied that they are bringing good expertise to bear on those processes. We do not want to get into the issue of trying to make those choices for them because they are the

people who have the information base and the appropriate level at which those choices need to be made.

CHAIR—What about the overall level of engagement between industry and the research organisations? Do you think it could be improved? How do you see that as ranking with other leading world economies?

Dr Arthur—Again, we do not have complete data on that, although we do have some data. I do not think that anyone would be so rash as to claim that the current level is optimal. I think that there are always areas for improvement. But looking at figures published by the OECD—this is an indicator which has some attraction—on the amount of money which business puts into research and development, Australian investments in government research—investments in CSIRO and other forms of government labs—we have a 5.6 per cent investment by business compared with an OECD average of 2.9 per cent. On the other hand, over all, business investment in research and development in universities over the 10-year period ending in 2004–05, which is the most recent period we have data for, has increased by about 180 per cent. That still leaves us in a position where we are below the OECD average.

Ms BIRD—Dr Arthur, is the nature of that investment usually the universities doing something and business deciding they are interested in it and forming an investment partnership, or is it that a business has a problem and goes to a university to research a solution? What is the dynamic that happens there?

Dr Arthur—It varies tremendously. That includes situations like cooperative research centres or ARC linkage projects, where government provides a certain amount of funds and says, ‘Come forward with some research projects that address particular problems, but, by the way, in coming forward you have to have a partnership between the public sector and industry.’ And there is contract revenue, which is entirely specific, where there is a particular problem and the universities will help solve it. Then there is your first situation where there is a general issue: ‘There is some general issue and I think it is useful if we research that general issue.’ They are all going to be circumstances that apply and I do not really have a breakdown of those numbers.

Ms BIRD—I was interested because, not so much for large industry, but for small-medium sized innovative companies which are developing but do not have real capacity to do their own research and development, the feedback I get is that they find it quite daunting and difficult, sometimes, to work their way through the university research sector.

Dr Arthur—We hear that too, and I think there is a great deal of truth in that. If you look at the Australian Bureau of Statistics innovation survey I think you will find that of firms that are innovating, only seven per cent cite usage of formal research from public sector research agencies as being crucial to their innovation. So that is certainly an issue.

CHAIR—Thank you very much. I wonder whether we could have the figures you quoted in terms of the investment. That would be useful.

Ms BIRD—Can I ask that, if there are any programs targeting that last problem that we talked about, you send them through. If there are not, perhaps you could give us a bit of background on where we are at with the issue of liaison with small-medium enterprises.

Dr Arthur—There are programs, however those programs are in the industry portfolio. I know they have made a submission to you. I do not know the sequences—whether they have appeared or will be appearing before you.

Ms BIRD—No problems.

Dr Arthur—The industry department is the organisation to ask those questions.

CHAIR—Thank you for coming today and providing some advice to us in this area.

Resolved (on motion by **Ms Bird**):

That this committee authorises publication, including publication on the parliamentary database, of the transcript of the evidence given before it at public hearing this day.

Committee adjourned at 12.50 pm