



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**

THURSDAY, 19 OCTOBER 2006

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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON ECONOMICS, FINANCE AND PUBLIC ADMINISTRATION

Thursday, 19 October 2006

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

Members in attendance: Mr Ciobo, Dr Emerson, Mr Fitzgibbon, Ms Grierson, Mr Keenan, Mr McArthur, Mr Secker, Mr Tanner

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.

WITNESSES

DODGSON, Professor Mark, Private capacity 1

Committee met at 9.39 am**DODGSON, Professor Mark, Private capacity**

ACTING CHAIR (Dr Emerson)—I declare open this public hearing of the House of Representatives Standing Committee on Economics, Finance and Public Administration inquiry into the state of Australia's manufactured export and import competing base now and beyond the resources boom. The inquiry was referred by the Treasurer, the Hon. Peter Costello, on 3 May 2006. To date, the inquiry has authorised 40 submissions from various parts of Australia and from a broad cross-section of interested parties. Copies of these submissions are available on the committee's website.

Australia's resources sector is currently experiencing an economic boom in resource commodities. The manufacturing sector has experienced benefits and challenges arising from the boom. The committee is inquiring into the robustness and preparedness for the future of our manufacturing sector and the impacts of or synergies from the resources boom. Today we will be hearing from Professor Mark Dodgson, Professor and Director, Technology and Innovation Management Centre at the University of Queensland.

I remind witnesses that, although the committee does not require you to give evidence under oath, this hearing is a legal proceeding of the parliament and warrants the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. The evidence given today will be recorded by Hansard and will attract parliamentary privilege. I welcome Professor Mark Dodgson to today's hearings.

Although the committee does not require you to give evidence on oath, I should advise you that these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the respective houses. Do you wish to formally present a submission?

Prof. Dodgson—No.

ACTING CHAIR—Do you wish to make an opening statement to the committee?

Prof. Dodgson—If I may.

ACTING CHAIR—Yes, thank you.

Prof. Dodgson—Have you ever heard an academic refuse that offer?

Mr TANNER—Less than 50 minutes!

Prof. Dodgson—I will keep it very brief. Thank you for inviting me. Yours is a very important committee and this is a very important issue for Australia. I would like to talk a little bit about why I am here and in what capacity I can speak. That is based around essentially 25 years of research into innovation and how it happens in manufacturing, services and all sorts of different firms. I have had the good fortune to study it probably in over 35 countries over those

25 years, especially in Asia. I have seen some remarkable developments in manufacturing industries that have been innovative.

In addition to my position at the University of Queensland, I also have a position at Imperial College, London where I work with the Innovation Studies Centre. I might have the opportunity to talk about a couple of research programs there which may be of relevance. One is the Innovative Manufacturing Research Centre program and the other is the Innovation and Productivity Grand Challenge.

Obviously I start from the position that manufacturing is important and that innovation is critical for manufacturing. Based on my experiences of travelling around the world and studying innovation in firms and government policies, I see more and more examples of countries and firms that are very good at innovation. If we are to retain and build our manufacturing sector in Australia, we have to be more innovative than those very good countries and companies. We need to be innovation leaders. This is at a time when manufacturing is changing drastically. There is new technology, new trading regimes and new corporate strategies which are being used to extend the range and the mix of manufacturing—what manufacturing is and what it does.

A couple of weeks ago I was in Dubai looking at a factory making bathrooms. It was a factory production line producing unit bathrooms which were then slotted into a hotel in this case. They were making 3,000 of these things. Traditional sectors are using manufacturing techniques. The scale of the projects involved there were absolutely astronomical. This was a \$3 billion project. In two weeks time, I will be in Japan at Toyota going with the head of a major building company who wants to learn to make houses like Toyota makes cars. So there are a lot of mixtures between all of the different sectors.

My classic example in this regard is Rolls-Royce, a company that I have done some work with, and which is renowned for its manufacturing capacity. Rolls-Royce now makes more money from its services than it does from its manufacturing. Everything has changed. Manufacturing is no longer the same as it used to be and you need new definitions of manufacturing. One of the best definitions I have ever come across is that it is a combination of management and technology which creates or improves processes to add value.

If you take that broader definition of manufacturing it has a number of really severe implications. Firstly, managers need to be much smarter and more strategic because they are mixing and matching various things and doing things in new ways. Secondly, policies need to be much more heterogenous. They are dealing with very different kinds of firms facing very different kinds of challenges. The final point is that these changes that are occurring in the manufacturing industry actually present really new and exciting opportunities. I think maybe one of the things that I missed from some of the submissions that I read—and I have not read them all—is that there is an absence of excitement about what is happening in the manufacturing industry. It is a really exciting area now which can attract creative young people doing things in new and different ways. I think it is really important that we build up that understanding of what manufacturing is nowadays to make it a much more attractive place and make it more innovative, which is, of course, essential for our manufacturing future.

ACTING CHAIR—Thank you for that. It certainly makes me think again about a concept of manufacturing. It is very easy for us to have in mind this concept of an assembly line or some

production process. Manufacturing, we know, is very footloose. Almost at the drop of a hat a company—say, in Taiwan—will say, ‘We’re going to relocate into China.’ That is going to increasingly be a reality in the 21st century. Should we think of manufacturing more as people who are capable of adding value in some sort of manufacturing process who might move around the world? If we wanted to encourage Australian manufacturing, are we really saying that what we want to do is encourage the process of manufacturing in Australia or should we be thinking about encouraging a lot of people to be involved in manufacturing which could occur in Australia or could occur elsewhere? The mobility is as much the people as it is the process.

Prof. Dodgson—I think it is actually both. The people, of course, are of huge importance and are increasingly mobile. People do tend to want to move to places which have a good quality of life. There is plenty of research that shows that people who are very creative and capable of working and designing products or services at the forefront get offers from very attractive places around the world. Lifestyle will increasingly matter. There is also a scale of activity that is needed. Despite the advances of information technology and immediate global communications, there is still a lot to be said for a mass of people working together collaboratively. Innovation is not an act of an individual; it is the act of a group or a team. It is not often the activity of an individual firm; it is the activity of a group of firms working together. So you do need some scale.

The way I see things changing is that if you think of a supply chain—which starts perhaps with research and development, engineering, manufacturing, operations logistics, services and then end-of-life management or dealing with the products—what is happening, because of the changes in technology and strategies that the firms, both large and small, are adopting, is that it is all being mixed up. So you can pick and mix; you can combine various aspects of that supply chain. The trick is to be able to do it in a way that your competitors cannot. In that box of tricks is the sheer act of production. If you can produce good quality products whilst getting some scale economies but producing for individual customers—so-called mass customisation—you have a very distinctive advantage. That provides a very great advantage for firms when they can do it, and they do it through a combination of having the right people in the right location.

Mr TANNER—Firstly, I apologise for the fact that I have to leave in 10 minutes because I have another committee meeting to go to. I was very interested in your submission and your emphasis on Australia’s relatively poor performance in recent times in innovation and manufacturing as being the key variable that we need to focus on.

I have a couple of questions. To what extent do you think the surge in new manufacturing—manufacturing exports, ETM exports and so forth—throughout the nineties was basically low-hanging fruit being picked and we have reached a kind of plateau where further expansion gets a lot harder? Or does the recent period of relatively ordinary performance—the last financial year’s increase in manufacturing exports notwithstanding, over the last five or six years it has been pretty ordinary—reflect the gradual disappearance of assistance programs such as the factor Fs and various other assistance programs that were put in place in the eighties and the nineties and, if so, to what extent? Finally, I am interested in any examples you might be able to cite of innovation in practice in Australian manufacturing that could give us things worth thinking about in the potential role for government in fostering this. We all tend to talk a lot about innovation, but often in the absence of hard data or clear substantive evidence about exactly what we are

talking about, where it has happened and where it has been a successful factor in a firm doing well here and internationally.

Prof. Dodgson—I think the final point you made is very important. There is really a paucity of good research into this whole subject. It is so important, yet we do not have independent research. We have a lot of interested parties doing research that helps their case but we do not have any independent research. I would contrast that very sharply with the US, the UK and European countries, which do a lot of research into this area.

To answer your first question about the low-hanging fruit, certainly, I think there was an opportunity to improve in that regard and we did move a bit of the way. The statistics, no matter how clumsy, did pick up on the general trend that we were getting a little smarter; we were not just selling raw materials, we were adding some value to them and sending them overseas. But I would contrast the performance of the majority of firms that I have studied in Australia with the firms I study in Asia and Europe. We are a very, very long way behind. There are numbers of manufacturing firms that I visit in Australia that have similar practices to those that I was studying in London 25 years ago. That cannot continue; those firms will not survive.

A recent research report I undertook looked at the innovation performance of a sample of small Australian firms and compared it with European firms. There is some progress—companies are improving their investments in process innovation, how they produce products more efficiently—but you are never going to win on cost. We are competing against China on cost, which is really not very sensible. You compete with China by doing things that they cannot, and that means being hyperinnovative—producing really exciting products that do new things, delight customers and combine services into products in new and exciting ways. I am looking for evidence of a movement from firms in that regard. Of course there are a few standout companies, usually in health products—the Cochlears and so on. If we are producing hearing aids or preventing sleep apnoea or something, we are actually very good at that. A lot of that is in the design but it is also in the production; we are very good at producing those pieces of equipment. But it is a relatively small market. So I think we have a very long way to go in order to be able to compete with the sorts of companies that I observe overseas.

As for what governments are doing around the world, I would again make that reflection that they are producing much more heterogeneous policies. There are different kinds of manufacturing firms facing different kinds of challenges. A lot of manufacturing firms, we have to admit, are never going to go anywhere. They are just going to bump along the bottom and never really grow—for purposes that their owners may intend; they do not want to grow. There are a number of firms that would do very well through getting more information. They just do not understand the need to innovate. That kind of firm needs policies which raise awareness and point to examples of firms in the same sector that have done well through innovating and point out the problems that will happen if they do not innovate. There are many examples of good awareness schemes around the world.

Beyond that, there are firms that are reasonably capable in a number of areas but perhaps do not have the whole suite of skills needed to innovate. You need a whole range of different skills. There you see policies which are very good at making connections. They help firms get in contact with other firms or organisations that can fill in the gaps. Right at the top you would have those firms that look after themselves pretty comfortably but their distinctive advantage

compared to the Chinese or some of the European manufacturers is really through doing design and research and development links with the research base very well.

To provide examples of policies at those various levels that I have seen work over time, at the top level—helping firms at the top end with developing advanced technologies—the best policy that I have probably seen is the Small Business Innovation Research Program in the United States. Last year it supported 4,000 firms and it put \$US2 billion into those innovative firms. That is more than the entire American venture capital industry. It is a government policy based on procurement which mandates that all government agencies that procure various components or services have to spend 2½ per cent of their budget on small firms.

Mr FITZGIBBON—It is always dangerous to use the US as an example in small firms, because their definition of small is quite different from ours. Can you define what they are using for ‘small’ in that scheme?

Prof. Dodgson—You are right; the definition is different. The average size of firms that have received money from SBIR, a program that has been running since 1982, is 25. It would fit within our definition of small.

ACTING CHAIR—Twenty-five employees?

Prof. Dodgson—Twenty-five employees.

Mr FITZGIBBON—That is surprising. I would have thought it would have been higher.

Prof. Dodgson—They do fund firms up to 500.

Mr TANNER—In return for this guaranteed business, in effect, what are they required to undertake?

Prof. Dodgson—The small firm?

Mr TANNER—Yes.

Prof. Dodgson—They have to provide the specified product or service that the large institution requires. It has been very successful. There are three stages that you go through. It is a contract written by the agency—it is very polished and well-practised now. There are various state-level schemes that feed firms in and improve their capacity to win these grants. There is a great deal of flexibility. You can hold multiple grants. You do not need to be incorporated before you win a grant; forming the company can be contingent on winning the grant. One of the other great benefits of this is that, once firms have been through this process of winning these contracts, they then get a great deal of legitimation from the venture capital industry and a lot of them receive further investment from venture capital afterwards. It is a very interesting scheme. I know that the UK government is thinking about trying to emulate it in the UK, because these budgets are enormous amounts of money.

Mr SECKER—Small Business—

Prof. Dodgson—It is the Small Business Innovation Research Program, SBIR.

Mr TANNER—Just before I scoot off, I will run a couple of thoughts past you and see what your response is. It seems to me that we would be better operating under the premise that Australia does not have a single manufacturing sector. In fact it probably has six or seven distinct and quite different manufacturing sectors, and it would be helpful for governments, in developing policies, to be conscious of that. You may need to design quite different policy approaches to make them appropriate. You are indicating that you think that is probably—

Prof. Dodgson—Yes, very much so. I would say that there may even be more than that, because of this ability to mix and match the various aspects of firms. You get some firms in very traditional sectors undertaking quite a lot of research and development, and then you get firms in so-called high-tech sectors which are doing very little development work at all. So it is a very mixed picture.

Mr TANNER—The more we have gone through this inquiry, the more I am coming to the conclusion that the traditional mentality that has prevailed in the debate about manufacturing in this country—that of adding value to our raw material products—is probably misconceived and that there is a kind of iron law that basically says the manufacturing of products is typically more likely to occur closer to final consumption markets than to origin of raw materials markets. In other words, if we are mining bauxite and the end product is aluminium window frames to be sold in Europe or North America then the true addition of value and the creation, particularly the manufacture, of the aluminium window frames is naturally economically more likely to be closer to the final market than to the raw material origin. Therefore the idea that that should be the focus of Australian manufacturing policy—‘Hey, we have all this iron ore, so that should make us big steel manufacturers’—is, I suspect, an out of date and misconceived view. Would you agree with that?

Prof. Dodgson—I would agree, yes. The idea now, with the kind of technology that exists in manufacturing in Australia, to design products along with the customer—to engage the customer in the design of their own products and then have the software which specifies how it is to be produced, the quality and so forth, and then sends it immediately down the wire—means there are a lot of high value added activities that can stay here in Australia without necessarily having to have the factories that produce the part. You can do a lot of clever stuff around the design, bringing in your knowledge of the materials that you have here and that might not exist elsewhere. We know a lot more about bauxite than perhaps some of the other countries that use it. So we could be a lot smarter in our conceptualisation. It is not as simple as either here or there. There are good ways of getting all the information you need from there to us to be able to design the things that they want.

ACTING CHAIR—That is really what I was getting at in my introductory question. The more this inquiry goes on, the more futile it seems to be to say that we are going to try to stop a particular manufacturing activity going somewhere else. It will go. We are thinking of policies to stop mobility, and separately we have members of parliament and the community saying we have to stop services going offshore to India. How is that going to happen? What policy instrument is going to ban Westpac from having its back office facilities go to India? We can gain political points by saying this is terrible and that we are going to stop it, but we are not going to stop it. I just wonder whether we should have a new concept of manufacturing which

says that we accept it is incredibly mobile and that we will have people, who may be mobile as well, involved in some parts of this full continuum of what in a modern world we would call manufacturing but what would not have been called manufacturing 50 years ago.

Prof. Dodgson—I agree absolutely, and of course we are not the only country in the world that is facing these problems. Many, many other countries are facing them. I can suggest one group I know that has done quite a lot of good thinking about this, which is a group at Cambridge University called the Institute for Manufacturing.

ACTING CHAIR—That sounds like we would probably have to take an overseas trip.

Prof. Dodgson—Well, don't go during the winter; it is the coldest place.

Mr SECKER—Is this Cambridge in the UK?

Prof. Dodgson—Yes. They are one of these innovative manufacturing research centres—or they have one of those in their remit—and they have been tussling with this idea of losing jobs offshore. They have been very successful in helping redefine what manufacturing is and trying to understand where value actually lies. When you start having these different kinds of lenses, you get different kinds of answers to the questions.

If you just enter the idea that manufacturing adds value for the firm—which it does—that gives you one particular frame. But, if you take the view that manufacturing adds strategic value in a country, it gives you an option for a balance between sectors—when they decline, you have some balance against them. They add strategic value because they are a source of great innovation and they attract a lot of links with research and development and improve the capacity of a country to respond to future challenges. If you think of the social value they add by providing jobs—good quality jobs, especially with the new kinds of manufacturing—then the whole notion of value opens up. I again refer to this Institute for Manufacturing at Cambridge, which is beginning to think about some of these things. The idea is actually to retain the high-performance value-added activities in the UK.

Mr FITZGIBBON—Something you said during your opening statement brought back fond memories for me of a book I read quite a few years ago. It was by AnnaLee Saxenian and called *Regional Advantage*.

Prof. Dodgson—Was this a book about Silicon Valley?

Mr FITZGIBBON—Yes. It was, I think you would agree, a book comparing Silicon Valley to Route 128 in Massachusetts and the relative successes or otherwise of the two regions. I think it would be fair to say it was a book about culture and how the different cultures of the two regions allowed Silicon to grow and the other to decline. Could I ask you just broadly about Australian culture in manufacturing and whether it is enhancing manufacturing or holding us back? Is culture uniform across the nation or are there particular regions in which the culture seems to more linked with innovation?

Prof. Dodgson—That is a really good question, because underlying that is the question of whether you can change a culture in an existing manufacturing region or whether you need to

just forget about that and move to a new one and start it again—the greenfield versus the brownfield site question. I think there is a cultural problem in manufacturing in this country. My 20-year-old son is a university student and I meet all his engineering colleagues and I talk to them about the sorts of things that I see in some factories and they are aghast. They have no idea about how much fun you can have in manufacturing: all the toys you can play with and all the technologies, all the simulation and computing. They have no idea. There is a cultural problem in that the industry is perceived as being boring—

ACTING CHAIR—Old economy, yes.

Prof. Dodgson—and old economy and there is no future in it. Actually, it is the absolute opposite. When you take these kids and show them some of these things, they really get switched on. They can play computer games all day designing products. It is fantastic for them.

I think there is a cultural problem in the sense that, from my research into small Australian manufacturing firms, there is not a real appreciation of the strategic value of innovation. It is still seen to be something you do piecemeal or one-off—you might need to have a new product here or there every now and again. It is not continuously part of the activities of the firm. There was a recent study undertaken by the Engineering Employers Federation in the UK of 500 firms. Two-thirds of them said innovation was their core defining strategy and 15 per cent said it was going to be soon. The vast majority of firms were making innovation their core activity. Innovation means continual change, excitement and new things happening. We do not do that. This is the perennial problem. One of the most marked statistics I found in the survey I did recently is the sheer short-termism of the firms that we looked at. Very few firms actually look over two years. Maybe 10 per cent of firms have a horizon more than two years. In Europe, about half have horizons up to five years. There are very marked differences. Again, that is a cultural issue which would worry me.

Mr FITZGIBBON—Is there any role for government in promoting a better culture?

Prof. Dodgson—I did not have a chance to respond to one of the final points there about another kind of policy. This might not be too well received, but one of the best policies I have seen in this regard was an Australian policy called the National Industry Extension Service—NIES. It was a really top scheme. What it used to do was raise awareness amongst small manufacturing firms about the importance of innovation. It said: ‘We will provide some support for you, we will provide some consulting and we will provide some advice, but in order to get some proper support from us you need to develop a strategy and we’re going to help you develop a strategy. We will do some consulting work and we will come in and help you develop an overall strategy for your firm.’ And it was a beautiful scheme. It was promoted by firms that had actually benefited from it. So it was not marketed by administrators, it was promoted by the people who actually—

ACTING CHAIR—NIES—National Industry Extension Service?

Mr FITZGIBBON—Who abolished that,?

ACTING CHAIR—It might have been the incoming government; I am not sure.

Prof. Dodgson—As I understand it, there were some issues between the states and the federal government.

Mr SECKER—I notice that in your preface you mention that in 1991-93 41 per cent of manufacturers innovated. 'Innovated' is a fairly broad term in itself; it would be interesting to break that down. In 1994-97 it dropped quite considerably from 41.7 per cent down to 36.4 per cent. In 2001-03 it went up again to 39.5 per cent but it was still not as high as it was in 1991-93.

So we have the problem; I would like to focus on how we can fix that problem. You have talked about NIES, you have talked about Small Business Innovation Research Program in the United States and about the Institute for Manufacturing in Cambridge. Is the problem to do with the tax regime? Can we change the tax regime to make it better? Is it because we have a smaller home market—there is not a lot we can do about that quickly—or is it because Australians do not educate about logistics as much as some other countries do? How can we fix it all up?

Mr FITZGIBBON—Can I add another question to that. Is it about lack of equity finance and too heavy a reliance on debt finance in these circumstances?

Prof. Dodgson—There are a few interesting questions there. The country is awash with money. There has never been so much money. I have never seen so much money around.

ACTING CHAIR—Including \$1 billion of super, where they are looking around.

Prof. Dodgson—So I do not think it is an issue on the financial side—the money is there.

Mr FITZGIBBON—Can I just clarify that. My experience is that smaller firms have difficulty getting access to equity finance as opposed to debt finance. The Acting Chair mentioned super schemes, but super schemes cannot invest in small manufacturing firms that are not incorporated and do not produce an annual report because they are required under the SI(S) Act to assess the risk, and you cannot assess the risk in a small firm because you do not have the data available to you to do it successfully.

Prof. Dodgson—Of course a lot of the investment that is needed for these kinds of firms in the early stage is sweat capital—capital that comes from family, friends or just your own hard work and saving. You do not need to go to a formal market at all. If you contrast that kind of small, start-up firm with a firm you would find in Taiwan then you would certainly see a lot more reinvestment in the firm in Taiwan than you would here. Whether that is a cultural issue or not is dangerous territory to walk on.

Mr SECKER—So you are suggesting that Australians like to spend a bit of their money on their own luxuries—maybe go and buy a boat?

Prof. Dodgson—I am not saying that is a bad thing, but it has a consequence for the economy.

Mr SECKER—Yes.

Prof. Dodgson—With regard to one of the other issues you raised about the lack of skills and lack of awareness of things like logistics—these kinds of issues—there is a tremendous amount

of ignorance about industry among the students I meet. I meet a lot of business students and a lot of engineering students and they do not understand industry. I think there is a fair amount of responsibility amongst Australian universities for not giving students that awareness, and there is a fair amount of blame that should be directed at Australian business schools, which have been training people to be consultants and employees rather than entrepreneurs.

That is gradually changing. We are beginning to see that. How will that change work through? I am beginning to see signs of movement. The universities are changing and we are beginning to see that employer bodies—the Business Council of Australia and the Australian Industry Group—are, somewhat belatedly, beginning to take this agenda seriously. That is very welcome. Gradually, things may improve. I hope they do, but there is still a long way to go.

Mr SECKER—You did not mention anything about the tax regime.

Prof. Dodgson—It is such a blunt instrument and there is no quality control. R&D is such a small part of the activities that we would include as innovation. Frankly, I think the term ‘R&D’ is past its sell-by date; I think we would be a lot better off if we got rid of it. There are a lot more interesting activities taking place which encourage innovation other than pure R&D. A tax system that is focused on R&D ignores a large amount of the problem.

Mr SECKER—When I was doing economics back in the early nineties we actually had one course that talked about innovation and economics but it did not seem to be available in other university courses around the place. You talked about culture; how do we change our culture? It is very easy to say that we have a different culture here and it is not good, but how do we change it? That is the big problem.

Prof. Dodgson—I am afraid that my views on that are probably very primitive and not worth airing in this atmosphere.

Mr SECKER—I do not know.

Prof. Dodgson—Parts of our culture are so important for innovation. There are things that we do so well in Australia, such as our diversity, being a bit of a mongrel every now and again, refusing to accept authority and questioning. These are hugely important issues for Australia and they do not happen in Taiwan or China and often do not happen in India. We will go to the end of the earth to find out how something works; it will drive us mad. We will try to figure out how to make it better.

Ms GRIERSON—We are problem solvers.

Prof. Dodgson—There are a lot of very powerful things about the Australian culture that will support us and give us a distinct advantage over other nations, but perhaps we are not so good at celebrating that and marshalling it. One of the most important organisational innovations that you see is this so-called high performance workplace idea. If we could capture some of the Australian characteristics in those high performance workplaces and celebrate those then I think we would move forward.

ACTING CHAIR—I was listening to the conversation involving Mr Secker and Mr Fitzgibbon about superannuation. It takes me back to what you said about the American procurement policy. Is it possible that one of the main values of that is that, once the businesses are hooked into the procurement—that is, the state, called the US government or whatever, identifies these businesses as capable—then venture capitalists come in and say, ‘This is where we want to put our money’? In other words, it is signalling. The information is generated by the procurement process. If you get one of these flags that say, ‘I got the tick for the procurement program,’ the venture capitalist now does not have to sift through a hundred possibilities out of all the millions of small businesses in the United States. The venture capitalist sees three possibilities. Maybe there is an enormous value in the signalling created out of that and maybe it is the most powerful aspect of all of it.

Prof. Dodgson—Very much so. They wear with pride the fact that they have won one of these. It is a great badge of honour and does open a lot of doors.

Ms GRIERSON—I was not here for that discussion. Is it an objective assessment to be found eligible for that?

Prof. Dodgson—Yes, it is.

Ms GRIERSON—Is it totally objective, and on quality and outcomes?

Prof. Dodgson—Yes. They have very well-oiled machinery for deciding which projects are going to be allocated. This is something that we continue to see with governments. Governments are always assumed to be a supplier of innovation—supplying research and education—when they are purchasers. A government buys more innovation—pharmaceuticals, infrastructure and IT—than any other actor in any country. The role of being a demanding and innovative customer has a huge impact on the amount of innovation that occurs in any economy. America has been doing this since 1982, and very successfully with that scheme.

Mr CIOBO—I am interested in exploring some issues on a micro level and some on a macro level. In the general discussion about nature versus nurture, which it seems to me is effectively what a lot of our discussion this morning has been about, I would be interested in your comments broadly on whether or not governments should be retreating from the field and leaving it up to the private sector to sort this out and drive innovation, whether or not that is occurring in some of the Asian countries you spoke about, some of the Middle Eastern countries and some of the European countries or whether it is the inverse of that and through particular schemes government is able to promote business. I am not saying they are mutually exclusive, but where should the emphasis be out of those two?

In addition to that, I would be interested in getting your comments on some specifics with respect to the role of, for example, centres of excellence, the importance of clustering, whether or not we need better industry integration with universities to drive innovation and whether or not grants like COMET and other programs like that are what we should be looking at—some general comments that perhaps give more direction to the committee on those issues.

Prof. Dodgson—Innovation occurs in firms. Firms have to make the decisions that bring innovations about. Government cannot tell firms how to do it; firms have to do it themselves.

They have to do it for their customers and to add value for themselves, and that is the fundamental driver. However, there are some things that government can do to help firms, to raise awareness that it is important to do these things or they go out of business. A lot of firms are still not aware of that.

Mr CIOBO—You do not believe the commercial imperative is strong enough to do that?

Prof. Dodgson—No. I do not think they have the information. There is an information shortage, and I also think there is a deficiency on the management side. The firms just do not have good enough managers. We do not have highly qualified managers. There was the Karpin committee report, done some years ago, which showed that the percentage of Australian firms that had graduates as managers was something like 30 per cent or 40 per cent. It was 90 per cent elsewhere.

Mr CIOBO—But internationally Australian managers are fairly well regarded, aren't they? We have seen some of the biggest global corporations managed by Australians.

Prof. Dodgson—I think in some sectors, yes, definitely. When it comes to maybe the media and certainly the management of large project engineering companies—with perhaps one exception recently—there is a perception that we are very good. But when it comes to starting innovative smaller companies and growing them—definitely not, no.

Mr CIOBO—So is it in entrepreneurship that you believe that we are lacking the key skill set?

Prof. Dodgson—Entrepreneurship is one piece of the picture. There is the start-up process, but it is also that continuing innovation, that continuing ability to come up with new ideas in larger firms, to work out ways of working with your customers better to give them what they want more effectively, to make your logistics and your operations more efficient and to promote and market yourself more efficiently. All those things are necessary throughout.

Mr CIOBO—So what are the key policy setting differences between Australia, where we do not have that, and, for example, some of the European countries you spoke of or some of the Asian countries, where they do have that?

Prof. Dodgson—I think firstly there is the sheer scale of activity—and that is not only absolute; it is a relative term as well. More money goes into these kinds of schemes and has done so consistently. If you look at Germany, for all the problems with the German economy it is still the largest exporter in the world and it still has the most highly regarded manufacturing sector in the world. A lot of the policies and schemes they have have been in place since the 1950s. They continue them. They adapt them and change them. When a policy is found to be successful, as NIES was, they do not close it down. If there is a problem with it they adjust it and continue it. They have a range of institutions—I am coming to your second point, about the role of groups of companies—which have been around for many years and are trusted by manufacturing firms to provide the right kind of advice at the right kind of price.

Mr CIOBO—Are they public or private institutions?

Prof. Dodgson—They are public mainly, things like the Fraunhofer institutes in Germany, which have been around for a very long time. But there are also lots of groups based around the chambers of commerce, which act as a sort of broker. You go to the chamber of commerce and say, ‘I have this particular problem,’ and they have experts working in the chamber of commerce who will package supports. They will say: ‘You need some financial advice, so we’ll talk to this bank. You need to do some research and development. These are the people you should talk to there. This is obviously a very risky thing, so let’s see if we can find a little bit of government money to give you help along the way and offset some of the risk.’

Mr SECKER—That sounds like a rethink by a lot of the chambers of commerce around Australia to do that.

Prof. Dodgson—To do that sort of thing, yes. But the point is that they do it and they have done it for a very long time. That is the first place a small firm would go to. It is an environment they know; they know the people there, they trust the people there and they do not have a university telling them they should be doing this or that. It is support packaged from a trusted source, which is important.

ACTING CHAIR—Does the Australian Industry Group attempt to do that at all?

Prof. Dodgson—Not to my knowledge, no.

Mr CIOBO—In your comments, specifically with respect to centres of excellence, clustering and the importance of integration with universities et cetera—

Prof. Dodgson—Those are important, of course, because, as I mentioned before, innovation does not happen in the confines of individual firms; it occurs through the interaction between firms and it is often assisted by labour mobility between those firms. If you look at the dynamic regions of the world—like Silicon Valley; the regeneration of Route 128, which has come back up big time; Cambridge in the UK; Sophia Antipolis in France, and Daejeon in Korea—you will see these areas are noted as having groups of companies that are collaborating but competing at the same time, and have huge, strong links to the core research base locally for the purposes of recruitment and social networking—just to find out what else is going on, what competitors are doing, what else is happening—

Mr CIOBO—But aren’t we doing that? I know that on the Gold Coast we have all of these things, so why is that not leading to the kind of culture that you are talking about?

Prof. Dodgson—Perhaps it is. I really do not know very much about the clusters on the Gold Coast, but shipping at the high-end of the yacht industry might be doing well as a result of some of these sorts of activities. I am afraid I do not have any examples apart from that, but that one seems to be doing very well. We have attracted a number of firms—

Ms GRIERSON—I would have to challenge that to say that in Newcastle, in my region of the Hunter, the cluster has lifted the game very much in innovation and has been supported by the excellent research work that the Australian Industry Group has done. I think the networks do work, especially if they are linked to universities et cetera, as well. I think there are some examples of very good models.

Mr CIOBO—Can I ask a final question. I am interested in your thoughts, if you have some, on labour force flexibility and whether or not that is a component of driving innovation or an irrelevant consideration?

Prof. Dodgson—I think that obviously there are some people who will never retrain and never move, but I am continually amazed at the number of people who can retrain themselves. Many years ago, when computer numerical control machine tools were introduced—which was basically putting a computer on a machine tool that cuts metal—there was an assumption that the people who had previously worked on the machines could not deal with the computer, so they created a separate computer department, recruited smart people and assumed that the person who had worked the machine before was going to be made redundant. It never worked. What worked was training the people who had worked on the machine tool in how the computer worked. The firms that did that employed more people and were much more successful. So people can be retrained; people can take on new roles quite satisfactorily. It is a lot of effort and not everyone can do it, but it is possible.

Mr KEENAN—I have been very interested to hear what you have had to say, but I am not sure whether you are telling us that the answer is more government intervention in the sense of us having industry assistance programs or helping with R&D. If you look at some of the successful manufacturing countries, the answer for them has been that they have not had very activist governments in this area. What would your take be on that? Do you think the answer is that there should be more or less government?

Prof. Dodgson—Smarter.

ACTING CHAIR—Perhaps, regulation with more government encouragement.

Prof. Dodgson—I think smarter government. The presumption that the state does not intervene in manufacturing in other countries is seriously wrong. American manufacturing depends completely on American government policies; procurement is one example that I have provided, the support of the defence industry and the support of a whole range of industries. In China, industry policy has been phenomenally important in the way that it has adapted lessons from others parts of the world and imported them into China. The Chinese government looked at the success of Taiwan and the small firm model based around research institutes; it lifted that up and dropped it into China. It looked at the success of Singapore in building up capacity by attracting direct foreign investment and it copied that. It looked at the success of the Korean model of the chaebol—the large conglomerates—and it has used that model for reforming its state owned enterprises. It is very interventionist, active and pragmatic in many ways.

In answer to the question of whether government should do more, It should do things more smartly. Those blunt measures with no quality control, like R&D concessions, can be useful but far more important are those kinds of policies that identify particular firms and particular challenges and help them with it. The idea is not perennial or continuing help. You go in and try and encourage a change in behaviour. When that behaviour has changed, you move out. That is the model that I think succeeds quite well in countries which face many similar problems, such as the UK. They have a lot of schemes which help to try and change behaviour. Once that has happened, that is it.

Mr KEENAN—Are there specific examples of schemes that we could look at in the UK?

Prof. Dodgson—Perhaps one of the most recent ones, which is quite useful, is the Innovation Advisory Scheme, IAS, which basically gives you 10 days of free consulting on this kind of matter.

Mr KEENAN—Do you purchase a private sector consultant or is it a government consultant?

Prof. Dodgson—It is the private sector. One of the key successes in the UK is the way that the policies are delivered through agencies that are trusted. One of the key agencies involved in this area would be the Production Engineering Research Association, which has been around since the 1920s. It is private sector, privatised, with private consultants and private quality control. They deliver government policies. Government says to them: ‘This is our scheme. If you can provide this kind of support then we will pay for it or subsidise it.’ It is using the private sector to deliver the kind of support that is needed rather than it coming directly from government.

Mr KEENAN—So when you get your 10 days worth of consulting, someone from McKenzies comes in and looks at your company and tells you what you should be doing?

Prof. Dodgson—It is a little more sophisticated than that. There are some very interesting lessons from German schemes. There is a German rationalisation board—the RKW board—which has been going since the 1940s where the consultants actually helping the firm have to go through a long period of training. They have to develop a plan for how the company will improve. They have to revisit the firm after a year to make sure that the changes were implemented; if they were not implemented—they are sent with someone to check that this is happening—then that person is no longer on that list of consultants recommended by that government agency.

Mr KEENAN—Hasn’t the German model run out of legs a bit, though? It was successful but it has not proved to be so successful in recent times.

Prof. Dodgson—They still have a very successful engineering and manufacturing sector. They still export more than any other country in the world—more than the United States and more than China. The quality of the companies that you see—the BMWs of the world—is just so good and so sustainable that it gives them such a distinctive advantage. At a time when the car industry is going to hell in a hand basket in the United States, Germany is doing really well with those companies because of the quality of their manufacturing and engineering.

Ms GRIERSON—Are you suggesting that that is assisted by government policy in those examples that you have given and that those sorts of policies are about embedding innovation, excellence and quality into those over the long term?

Prof. Dodgson—Those kinds of schemes are particularly important in Germany for improving the capability of the medium sized firms, the mittelstand, the suppliers to the major car industries. The government would not be able to help BMW, but the government can help those suppliers to improve their capacity to supply to BMW.

Ms GRIERSON—That is the other thing I wanted to ask you. I actually think there are great opportunities for Australian manufacturers to be part of global supply chains, and I have this difficulty in separating service and manufacturing industries. I use the example of CCI Pope, in my electorate, which does assessment tools and troubleshooting, mostly linked to the mining and engineering industries. But it also has a contract with Rolls-Royce engines because it has actually improved the blades of the engine and the configuration et cetera. That is a wonderful contract to have. We will never build Rolls-Royce engines or jets, but if we can get into international supply chains like that, that is a wonderful opportunity. Knowing that we have expertise in engineering and we have expertise in problem solving, I see great opportunities for us. Is there public policy that can assist in terms of global supply chains through trade agreements or whatever?

Prof. Dodgson—Nowadays the requirements of suppliers are very stringent. There are increasingly strategies on the part of large firms which try and source their innovations from external sources. It is called open innovation. Big companies like Procter and Gamble, IBM and all these other multinationals are increasingly looking to small firms to source their innovations. The challenge for the kind of company you are talking about is, firstly, to get into the chain, and there are now many mechanisms that these firms use to advertise and to promote the access of those firms into their supply chains and they can do that. But the challenge is to continue to innovate, to continue to be ahead of the other potential supply chains, which could be in Brazil, South Africa or wherever. That is where the links and the improvements in managerial capability—the more strategic approach—would help.

Ms GRIERSON—About your suggestion on the US system, which has these first-preference type suppliers or manufacturers, is that done in other places too? Are there other countries that have procurement policies that support the accreditation, more or less, of manufacturers, besides international standards and those sorts of accreditations?

Prof. Dodgson—For the government, I am almost sure there is, but there are also, of course, very marked corporate ones. Ford would go to a small supplier in Mexico or somewhere.

Ms GRIERSON—Yes, defence contracts often have that experience.

Prof. Dodgson—They would have these plaques up there about being an approved supplier to Ford. There is a lot of this kind of validation. The International Organisation for Standardisation's international accreditations are again very important. My survey showed that very few firms actually had the basic ISO 9000, which is a bit of a worry because that is basic entry-level stuff.

Ms GRIERSON—That is one area that government could assist in, isn't it?

Prof. Dodgson—As I said, there are many areas that you can help, but it does require crafting and packaging for particular kinds of activities, which change over time and vary across what are traditionally called sectors. It is a huge challenge, and the perennial problem is discussed by governments all around the world. You have the big, clumsy, relatively inexpensive to administer schemes like R&D supports or you have the more targeted grant type schemes, which are very expensive to administer. No-one has got the balance right. No-one knows what the balance is.

ACTING CHAIR—You just finished on a point that I was going to finish up on. What would you do with the R&D tax concession? Would you keep it and modify it or cash it out and convert it into some sort of grant scheme?

Prof. Dodgson—As I said, I think there are virtues and challenges in both. The R&D support had the benefit of being broad and relatively cheap to administer, but the consequence has all sorts of technicalities related to tax rates—in the way that certain games can be played, no doubt. And the balance with the grants ones is the opposite—they are expensive to administer but can be more direct. There is not an answer to that. The only thing that I would say is that to entirely rely to support innovation in Australia on a policy that is based on research and development is not going to go very far.

ACTING CHAIR—Can you say that again, sorry?

Prof. Dodgson—A policy that is primarily focused on research and development support is not going to go as far as you need in supporting innovation in Australia. Much more important is continuous improvement.

Ms GRIERSON—Our experience is that from a variety of tools or a variety of incentives the manufacturers will choose the one that suits their operations best and link into that. I find that they assess them now and say, ‘Well, it is just not worth my time pursuing that one,’ or ‘It is worth my time doing that.’ I think you have to give a broad range of options to manufacturers.

Prof. Dodgson—They all, of course, know their particular circumstances very well. They do not have a lot of tools to assess risks. Firms do not have a lot of the strategic tool kits needed to make decisions about what investments are necessary and what are not. So if you turned up outside the factory with a large cheque they would take it from you but whether they would be able to use it effectively is a very large question. Without that management skill, strategic plan or ability to assess the risks it is going to be completely wasted. So, unless you raise the capacity of the firm to make decisions and managers to improve the quality of their decision making, any government policy is not going to work.

Ms GRIERSON—What is the best policy you have looked at in terms of raising those entrepreneurial skills in strategic planning and strategic approach?

Prof. Dodgson—It is multifaceted. You start with education at school and university courses so that every engineer knows what business is about and every business student knows what manufacturing is about.

Ms GRIERSON—And, as Patrick said, courses should build it into university training as well.

Prof. Dodgson—You have quality control consultants who go in and provide support and make sure that—

Ms GRIERSON—Manufacturers are very suspicious of quality control consultants.

Prof. Dodgson—It is not just quality control; it is improving all the management issues around innovation. Have you got the right teams of people working together? Have you got the right organisational structure? Do the people designing the products talk to the people who are making the products so they know they can be made?

Ms GRIERSON—So there should be a holistic approach?

Prof. Dodgson—Yes. Those things are strategic and people need to be trained. Managers need to be aware of them. From my perspective there is a deficiency there.

Mr SECKER—With the free trade agreement with the US, which now allows us to be part of their procurement system, would you believe there is an opportunity and would you recommend that we have a small business innovation research scheme set up here in Australia to try and dovetail into that free trade agreement?

Prof. Dodgson—I certainly suggest that it is worthwhile looking at inquiring into that further.

ACTING CHAIR—Thank you very much for your attendance here today.

Committee adjourned at 10.43 am