

ECONOMIC DEVELOPMENT AND INFRASTRUCTURE COMMITTEE

Inquiry into Manufacturing in Victoria

Melbourne — 23 November

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Dr M. Trigg, Managing Director, Advanced Manufacturing CRC.

The CHAIR — I welcome Dr Mark Trigg, Managing Director of Advanced Manufacturing CRC to our all-party parliamentary Inquiry into Manufacturing in Victoria. Dr Trigg, could you please give us your name, your position — I know you are appearing as a business witness — the name of the business and the business address?

Dr TRIGG — My name is Mark Trigg. I am a Managing Director of the Advanced Manufacturing CRC, which is a cooperative research centre. It is situated in Hawthorn at level 2, 24 Wakefield Street, which is in Swinburne University of Technology.

The CHAIR — Thank you. It is over to you. Hansard would probably appreciate a copy of any evidence documentation.

Dr TRIGG — We have already supplied a submission to the inquiry, which I think you will have a copy of. We formulated a workshop, which was sponsored by Swinburne University of Technology, Advanced Manufacturing Australia, which is a peak body, CSIRO and ourselves. We put to them the questions that were laid out in the inquiry and then we collected their comments to formulate the document that was then submitted. One thing I should make quite clear is that I do not speak on behalf of Swinburne, CSIRO or AMA, because they are individual organisations. What I am going to present here and talk about is based on the findings of that workshop.

First of all, thank you for the opportunity to address this inquiry. I am not sure whether everybody knows what a cooperative research centre is. You will be pleased to know that they have been running for 21 years. There have been a couple of billion dollars spent by the Federal Government on them. There have been about 160 CRCs in total over that period of time. They typically run for seven years or longer, and the whole aim of cooperative research centres was to bring universities and industry closer together, and the Government did that by offering grants in tranches of seven years.

We are in the area of manufacturing and more specifically advanced manufacturing, which is addressing looking at new activities, new enterprises and mainly at addressing SMEs rather than large multinationals. We conduct and fund research and development in institutions such as CSIRO, Monash University et cetera.

In starting this I would just like to say that manufacturing plays a vital role certainly in the State of Victoria but also in Australia in general. In importance and a percentage of GDP it has been decreasing over the years, but it is still a large contributor to GDP, especially in the State of Victoria. One of the things that we think is vital to maintaining the value of manufacturing in the State of Victoria is to look at setting up and establishing sustainable, viable industries that are based on technology and innovation as opposed to cost-cutting measures.

With the onslaught of cheaper imports from overseas, especially China — and I think if one was to go into places like Bunnings wondering whether manufacturing is alive or not and look on the shelves of Bunnings, they would see that manufacturing is indeed alive and well, but most of the products on those shelves come from overseas and in particular from China.

China has taken over a lot of the low-cost manufacturing and manufacturing of commodity-based articles, and that is a concern for not only Australia but also a lot of western countries such as the US, Europe et cetera, where manufacturing is under increasing pressure from the emergence of these new manufacturing nations. We see that it is important for manufacturing to move up the value chain, if you like.

The CHAIR — That is the evidence we have been receiving. I hope you do not mind my cutting across, but I am looking at how many pages you have prepared to speak on, and I am really keen as Chair not to offend our witnesses but to keep them very much to 10 minutes and to go to their recommendations. So I forewarn you.

Dr TRIGG — Okay. You will be pleased to know that there is not a lot on each page. The issues are quite clearly cost down versus knowledge intensive; we have to move from that mentality. The days of bending brackets and drilling holes are over. You only have to look at the manufacturing firms that have shut down that have been involved in those cost-down-type activities. Either they go offshore or go out of business. Innovation is an important aspect of moving industry from, if you like, a cost-down mentality to a knowledge-intensive mindset.

I think one of the other things that we need to do if we are talking about stimulus to help industry and grants et cetera — and this is probably my own personal view, that we concentrate much too heavily on the input side of the grant rather than worrying about what the outcome from that grant is. We talk about the dollars that go into a grant, and we do not necessarily talk about the outcomes. We are very input focused.

Moving on quickly to these questions, to explore the necessary criteria used by businesses to transfer to Victoria, cutting to the chase, if we want to be successful, we have to create clusters. It is no good just helping an individual firm to be successful. You had a paint manufacturer in before. For that paint manufacturer to be successful they need to have a whole supply chain around them.

If they are the only ones doing the actual manufacture of paint, they will soon disappear. It might be somebody involved in nanotechnology making particles to go into their paint. If they have to import those and the master batches from overseas and they have to import the base chemicals from overseas, why not just import the whole lot from overseas? I think if we want industry to be successful, we have to establish those clusters that are sustainable.

Intellectual property: in my experience in both CSIRO and more recently with the CRC is that we are very naive when it comes to intellectual property. Most of us have absolutely no idea what it means, and we have no idea of not only how to protect it but how to exploit it, and that is an area where we need to up our game.

On probity you only have to have looked at the recent press about the synchrotron to see what can go wrong. There is an issue especially with a lot of publicly funded bodies and entities that they need to be more clear and transparent in their transactions. The question with the synchrotron is I think one of lack of clarity, where the board has made a decision and nobody knows why. That is played out in a number of our companies that are charged with taking on grants, administering grants et cetera.

The CHAIR — So your recommendation is what?

Dr TRIGG — When we are setting up companies like CRCs et cetera, we need to look very carefully at who is on the board, why they are on the board and what skills they bring to the board. CRCs are a classic example — I am not saying that advanced manufacturing falls into that category — and there are too many occasions where people get on boards like that for the wrong reasons. They do not understand what they are there for. They think they are there to feather their own self-interest as opposed to that of the company, and that is a big problem.

Assistance and incentives: everybody always says the government should spend more money on research and development. The reality is the government needs to target more what it spends on research and development. It needs to look very carefully at that it is not just providing inputs and a subsidy, that it is actually providing an investment to grow businesses and to grow wealth. We concentrate very much, as I said, on the inputs. We talk about a \$1 million project; we do not talk about a \$100 million benefit from that project. A lot of it is transactional.

The impact from the GFC is already in the report, and I will not go on to that. I think it is quite clear.

In conclusion I would like to say that we should focus on outputs and outcomes and not be preoccupied with imports, which is what we currently are with a lot of our grants and granting schemes. We need to develop manufacturing clusters so we have sustainable activity. We tend to take a shotgun approach and fund anything that moves, but we only fund it for the first part of that phase, which is usually the relatively cheap phase: proof of concept and development of the idea. When it comes to actually funding a proposal to go into production we then rely very heavily on overseas capital, and what usually ends up happening is that those technologies end up being manufactured offshore, because they are invested in from offshore.

We need, if you like, to stand up, put our hands on our hearts and say ‘These are the things that are going to fund’ and be hard about the activities that we are not going to be able to fund. There are some hard decisions to be made. The same applies very much in advanced manufacturing or future manufacturing, because we cannot do everything, so we need to focus. That is a role for government, helping determine what those clusters and what that focus should be, be it health, water, energy et cetera.

Just one last thing I would leave you with is that there is also the opportunity for government to provide leadership, and I use a case in point.

We are talking to a company called Blade Electric Vehicles to come into the CRC and to do projects. They will put in \$2 million, and we will give them another \$2 million to do research and development. What would be really nice is if we could actually offer them something that instead of just putting money in we could set up a scenario whereby, either through local councils or state or federal governments, instead of them getting a handout they actually got a future order, so we go to a procurement-type model. We say to them, 'If you can provide an electric vehicle at a certain cost, that will have a certain range et cetera, then you will have a contract to supply X number of vehicles'.

The next stage is to provide them with another set of KPIs so that they could get a larger order for a certain number of vehicles. That makes that company focus on delivering and producing a product rather than spending the money on consultants and research but not necessarily producing outcomes. Again, we need to look at getting those outcomes.

That is another case in point where you could look at setting up a cluster, because for electric vehicles you need someone to manufacture the batteries, you need someone to manufacture the control systems and you need someone to manufacture the electric motors that go into those. Within this country we have the possibility of doing all of those things, but if we fund every single great project that comes before us, we will end up doing nothing.

The CHAIR — I compliment you. I got scared when I looked at the volume of the sheets of paper, and you were actually 100 per cent right; there was not a lot on each page, but it was focused and very helpful. I am sure people will want to ask a range of questions. I want to hone in on that last example, which ties into one of your early points on grants being input focused and not outcome focused.

Ideally our committee report is based upon us all agreeing — most of the time we do end up with a unanimous report — and I personally would like to put in a couple of good examples of what might be practical ways forward on advanced manufacturing, and you have picked that electric vehicle one as an example. It would be useful if you would take this on notice. You have probably already got a proposal drawn up that says, 'If it were a priority in government, this is what it would look like in 3 months, 6 months 12 months, 2 years'.

I really liked your approach on the cluster, and I really liked your approach on orders — that is, if certain KPIs are met, and then if the order meets any tier of government requirements, then there is the potential for future orders. Would you mind giving that case scenario? If others agree it could go into the report, I would be grateful.

Mr LIM — I am really taken by your remark about intellectual property. You said that people are not exploiting it to maximum effect. Can you elaborate on that?

Dr TRIGG — A lot of our work is done through universities, and it is the old publish-or-perish-type scenario, so there is a pressure on the universities to get publications out at the expense of protecting the intellectual property. You will get cases where people will want to go to a conference — and this is not so much in the CRC, but in other areas I have been to — and at 5 o'clock on a Friday afternoon saying, 'I need to have some sort of authority or confirmation that I present this at a conference on Monday morning in San Francisco. Is that okay?', then you find that this person is wanting to publish a lot of the information which is the subject of a patent that has not been lodged yet. There is a very degree of naivety amongst our researchers about what intellectual property is and what is required to protect it.

Then on the industry side you get people saying, 'Intellectual property is not problem. We have got everything covered because we have got a patent'. Then you ask them, 'What do you mean?'. They say, 'We have lodged a provisional'.

Then you have the scenario where the industry is thinking they have carte blanche in this area when in fact they might not have anything except a lot of expense ahead of them. We need to increase not only the academia but also industry as well as to the value of IP, how to protect it and how to exploit it. That is not to say no-one knows how to do it, because there are companies out there that do it very well, but there are a lot of companies that are very naive — and researchers.

The CHAIR — If you were writing our report, what would be the recommendations put on IP? What should state governments do, or what should be put to a ministerial council? I do not think that these recommendations at the end of your report went into that much detail.

Dr TRIGG — In terms of the State Government giving any grants, such as STI grants that are currently coming out, I would be looking very carefully at the IP provisions to ensure that the benefits are retained for the benefit of Victoria in the first instance and Australia in the second instance. That does not mean that the Victorian Government needs to own the IP, but it needs to be quite clear that the IP is for the benefit of Victoria. That should be enshrined in agreements, and a variety of mechanisms could do that, not the least of which is the ownership issue, but that does not have to reside with — —

The CHAIR — Have you come across anyone — you do not have to give their name on the record — who is particularly good on this topic within the Victorian public service. You might like to give us that name afterwards. My personal view is it seems that the IP on IP tends to be in the major legal firms.

Dr TRIGG — Yes. In getting our projects up we have had input sometimes from people from the Victorian Government. Their main aim seemed to be getting the contract signed rather than worrying about the IP issue. The CRC has thought long and hard about how to address this IP issue. For example, the CRC does not seek to own the IP; it seeks to ensure that it is going to be used for the benefit of Australia. The Victorian Government can also look at doing that and enshrining in its agreements that it really is for the benefit of Victoria.

The CHAIR — You might like to take this on notice, but if we were to get a witness on IP, from your work who would you recommend we see or speak with?

Dr TRIGG — Either myself or the new CEO.

The CHAIR — It is all wrapped up in one parcel?

Dr TRIGG — Yes.

Mr ATKINSON — I am interested in your focus on fostering a number of small organisations rather than trying to attract large companies or companies with a large employment tally. I am interested in what is the focus of that particular view.

Dr TRIGG — One of the things about trying to attract, say, multinationals, is that a lot of the time, if you are looking for the innovation side of things, most of that innovation will be exploited elsewhere, outside of Australia. We have taken the view that we should be trying to help smaller SMEs grow to incorporate IP rather than offering a subsidy to a large multinational, which can have its research done anywhere and usually can do it much more effectively internally because it has access to large resources, infrastructure and so on.

A case in point, without mentioning names, would be if you were doing a project with General Motors Holden — probably not quite the case in point; maybe Toyota is a better example. We have to be very careful thinking that we can actually do a lot of groundbreaking research and development in Australia when you are taking on, say, a multinational like GM or Toyota or Ford where they are able to take any knowledge that you might generate and exploit it to make money out of it, and it is probably not going to happen in Australia. That is why we have looked at the SMEs. That is why we want to be involved with companies that are actually going to develop IP in Australia for the benefit of Australia.

Mr ATKINSON — Do you know to what extent some overseas companies have actually stifled or killed off Australian technology or R and D projects?

Dr TRIGG — Again, maybe I need to be a little bit careful, but I will give you an example that was in the automotive area and I will try to make it not too specific because some of the information is confidential. Going back about four years there were projects that were looked at getting up, which at the moment would be a very high priority for the automotive industry.

Those projects were not initiated within the Advanced Manufacturing CRC, I might add. Those projects were initiated and then they were shut down, because that research was decided not to be done in Australia. Now given that Australia already had a history of working in this area and it is looking at alternative powertrains for

automotive use, you have to ask the question is that in the best interests of Australia or is it in the best interests of that particular company, and I think it is the latter.

I think we have got to be very careful if we are trying to attract industry to Australia; it has got to be for the right reasons. That is not to say that we cannot have large multinationals here and benefit from it, but I think we cannot be naive and think that they are going to look after us or do the right thing, because you only get what you negotiate. If you do not negotiate a good deal then it will never become a good deal. We have to be careful, and we also have to be careful how we use government money — state and federal — and make sure it is actually being used for the purpose that it was meant for.

People have commented on things like the ACIS scheme for the automotive industry and so on, as to just how much benefit that has really provided the industry. Although it was meant for research it has really been more for product development.

Mr ATKINSON — I notice the level of funding into the CRC is about \$108 million, and the key strategic goal was of making a \$523 million impact on Australia. I wonder how you define that economic impact on Australia? I make the observation that that does not seem like a very good payoff of 5 to 1, and I wonder if that refers to the comments that you made before about the difficulty of commercialising product which is where the real payback is.

Dr TRIGG — The \$108 million is cash and in kind. The grant itself from the Federal Government is \$35 million to generate \$523 million worth of benefit. If you look at CRCs in general the amount of benefit is I think \$1.06 for every \$1 invested, so the actual return is very low. It has been recognised that CRCs return on investment is nowhere near what people would like.

The metrics of how that \$523 million will be derived will be from job creation, accretion of knowledge, education and training, it will also be to effects on the environment and so on. So there is quite a broad range of measures to get to that \$523 million. But CRCs are being judged much more now by their outcomes and outputs than what they were in the past, and I think, as long as it is done properly, that is actually a good thing, not a bad thing.

The CHAIR — How does a business or an individual get involved in a CRC such as the Advanced Manufacturing CRC? Do they have to be invited? Do they ring you? If they have got a good project do they get on to you?

Mr TRIGG — Thereby hangs an issue with the CRC program in general. A consortium will come together, it will pledge cash and in kind; that consortium will put a bid together and if successful will be awarded money from the Federal Government. What that then means is that it is very difficult for anybody else to come into that, because if they do they will dilute the original members. So most CRCs tend to be closed shop.

We have looked at how we can address that. Because SMEs do not necessarily want to sign up for a seven-year contract, we have a fairly large third-party arrangement where companies can come in and out on a project-by-project basis, as opposed to signing up.

The way that we find those companies is through the R and D providers themselves bringing in their pre-existing relationships into the CRC. We also talk to state governments about what projects they have on their books. We have also been talking to Enterprise Connect about how we can link up to those. We have also had discussions with COMET — the other Federal Government initiative — to look at how we can bring projects in.

Mr ATKINSON — Is COMET still operating on the same basis that it was?

Dr TRIGG — Yes.

Mr ATKINSON — Because that went through a review process.

Dr TRIGG — Yes.

Mr ATKINSON — So it has come at the other end and happy campers?

Dr TRIGG — I do not quite know, but I think it has another couple of years before it will probably be wound down.

As a case in point, one of our industry participants gave us notice that they wanted to withdraw because of the GFC. That has left us with a \$7 million hole. We have filled that \$7 million hole by getting \$2 million cash from a company that was a spin-off out of Monash University; we have got another \$2 million by getting in touch with one of the people from COMET who suggested we talk to one of the projects that they had been involved in, which was Blade Electric Vehicles.

We have also got a pledge of \$5 million from a company called MBD Energy, which was through the Queensland Government, and they just recently announced that Anglo American will put in \$10 million to get a 20 per cent equity of that company; so it is through a variety of sources.

We do not have, and have not sought to employ, business development managers et cetera, because instead of us funding activity we would be funding people to supposedly find new business. So we have sought to leverage off the existing capabilities. If you added up the 2 plus 2 plus 5, you will find that is of course 9, not 7. What that means is that one of our other participants who pledged \$7 million, ANCA, which is a company out of Bayswater, can reduce their contribution because they are suffering because of the GFC.

So it is through a variety of sources. To be honest I think the Queensland Government has been very proactive in talking with us to try to get engagement and that has been to their benefit. It will mean that there is now a potential \$10 million out of the CRC's \$49 million is going to be spent in Queensland, because MDB is working with James Cook University, and that is a pretty good coup for them. All of the state governments have the opportunity of working with the CRC in that way.

Mr ATKINSON — You mentioned before the difficulty of the commercialisation phase, which is really the Achilles heel of Australian smarts. I understand that you are not suggesting that governments should pick winners in actual projects and somehow try to move them to a commercialisation stage. I want to tease out what you see as some of the opportunities or solutions to address that commercialisation problem in Australia.

Dr TRIGG — I think there are three phases. There is the initial proof of concept which is pretty easy to fund — up to \$100 000. There is the next demonstration step which is up to say \$500 000 to \$1 million, and then there is the \$2 million to \$10 million for reducing it to practice. We fund the first one very well, the second one we sort of do all right, and the third one is like the valley of death. What we do is fatten them up to fall in a heap, unfortunately, because we do not want to spend the \$2-10 million supporting them.

I think it is critical for us, and I know it is not necessarily very good to say that we want to pick winners, but we should not be backing losers, if you like. We should not try to back everything and hope that one of them is going to rise to the top, because history has shown us that that does not happen, especially in Australia.

I think what we need to do, and I think this is where government can come in, is to offer the incentive and reduced the commercial risk down the track by getting involved in, say, a procurement type strategy as well as a funding type of strategy. For example, in terms of Blade Electric Vehicles, the commercial risk can greatly be reduced by the fact they know they will get a certain number of sales over a period of time which they can then amortise their research costs.

The other thing is they can then go out and get other sources of funding, including non-government funding, to fund the development phase of this project. Why? Because they know they will be able to get orders down the track. So instead of it being inputs, the government has to keep throwing in more and more money to keep these guys afloat, it should be more about the government being able to back it more on the promise. In the case of Blade, it is quite easy.

The CHAIR — And the Blade Electric Vehicles is an Australian company?

Dr TRIGG — It is a small Australian company.

The CHAIR — And we are putting a huge amount into — —

Dr TRIGG — We gave \$70 million to Toyota. Blade Electric Vehicles is a small company. What it does is it takes a Hyundai Getz, it takes the engine out, puts an electric motor in and puts the battery back in and is

looking to sell those vehicles. I am not warranting that they are the best. It needs to go through its due diligence. But it would seem to me that maybe we are better backing those guys than giving \$70 million to Toyota. I am told they did not even know what they were going to do with the \$70 million. That was bizarre to say the least.

Another example is the company we are talking to at the moment which is Ausanda Communications. They are looking at broadband. They have some technology where they can take a cable fibre optic network. Currently they run at about 10 gigabits per second. They have technology which they claim can go up to 100 gigabits per second through the same fibre optic cables.

So we are talking about spending 40 odd billion dollars rolling out broadband around Australia. Here we have got a company that has the potential, especially for metropolitan networks, of significantly upgrading the capability of that network without putting down the infrastructure. What are we doing? These guys are going off to the US to try to find \$2 million to \$10 million to go to the next step.

Mr ATKINSON — What is your relationship with — —

The CHAIR — Is this on the same point, because I want to build on that very last point. Where do Australian companies go? My impression from what you have just said and our evidence earlier is that when they are going to that next phase, there is just nowhere in Australia for them.

Dr TRIGG — No.

The CHAIR — If we are writing this manufacturing report, what would you write in that chapter, that paragraph or that section? You might like to take that on notice, because to me that is a key. Bruce has just asked a number of questions over the previous week or two to previous witnesses. It comes up over and over again.

Dr TRIGG — I have had people on our board, for example with this company, who have said, 'Look this is no good. Why are we backing these guys? Because they are going to manufacture in the US. Why? Because US investors have said, 'If you want our money, you are going to have to set up manufacturing in the US''.

The CHAIR — How do we get Australian investment or Australians who will? We have gone to Sydney and asked a number of those with venture capital and so on to give us some evidence, but quite frankly yours is the most, from my perspective, directed at actually nailing what is an issue and articulating the problem. We have got to come up with some kind of solution.

Dr TRIGG — We have got to come up with a solution. I think for example with Electron Blade Electric Vehicles, it is the procure of vehicles. State governments, municipalities et cetera could easily be entered into contracts, because there is a number around the country who want to take on electric vehicles into their fleets. That is the perfect place to manage that type of new vehicle where you can easily monitor it.

In terms of Ausanda Communications, you could get a university or a government to put in to use that technology in a network, a high-speed network, so you can actually develop the technology so that when you eventually roll that out, you have actually had all the bugs ironed out of it because you have done it in a controlled manner.

The last thing you want to do is to put an electric vehicle out on the market, and someone tries to drive it up to Townsville or somewhere and then runs out of energy somewhere down the Hume Highway and then complains it is no good. You need to do it under controlled conditions. There are ways of doing that. There are ways of doing that with Ausanda Communications if we think smart enough.

But we keep thinking about what we should put into the project. We do not think about what we are going to get out of it and how to exploit the benefits from the project. That procurement type model is not the answer for everything, but there are a number of projects we could look at where we, the government or whatever, could actually significantly reduce the commercial risk of that venture. Most of our projects are technical successes and commercial flops.

Mr ATKINSON — Can we have those as examples? Can we actually run with both of those as examples?

Dr TRIGG — Yes.

Mr ATKINSON — Right. Have you done any papers on the flexibility of the CRC model in terms of membership and the access of small business to the model?

Dr TRIGG — Not as, sort of, general publications. But it is quite easy to write something up.

Mr ATKINSON — If it is possible to have some more evidence on that, I think that is an interesting point for small business.

Dr TRIGG — The other thing is what we have done is we have also put out a series of articles just in the general press about this valley of death and how we see it is real problem. I mean, I know this might sound like heresy being a researcher and coming from a research background, why are we funding research when we do not get anything out of it or we get very little?

The CHAIR — We are with you. We can identify with that. We just want to help formulate some solutions.

Dr TRIGG — Yes, I think there are ways that state and federal governments can change their attitudes and encourage the commercial side of things. I mean one of the things that staggers me, for example — and maybe it is getting a bit off the track — is that we engage with universities et cetera. We sit down with them. We have these supposedly great projects. But they do not involve their business schools for example.

They do not involve anybody else; if it is an engineering project, it is just engineers. But if you look at the question, ‘Why do you not broaden it? What is the commercialisation strategy for the project? What is the IP protection strategy for the project?’ a lot of it in the first instance is that you just get blank stares.

We have gone to some lengths to try to tease that out. In the contracts we give out we want to know how it is going to be commercialised. We want to know who is going to own it and who is going to exploit it before we give the money. But I think the thing that is really missing here is that we can only find up to, technically, around about that \$1 million mark. What is really missing is to fund from the \$2 million to \$10 million. That is my frustration. I could not direct that amount of money into one project, because the way that the CRCs have constructed that, it would not work.

Mr ATKINSON — Again, if you can tease that out and provide us with some more information on that, that is interesting stuff. I think that is something we should cover but we are not going to get a chance to run a lot on that today. But that is a really important point as well. One of the companies that gave evidence to us, and we have touched on a couple of times, led direct evidence — I am not sure whether it was Varian or another company; I think it was another company — was about the VEDC model.

I have actually just been in Israel. I have been briefed, with some other members of Parliament, on a venture capital program that they have there which was quite impressive in terms of a system. It is a three-tiered program, but it certainly picks up the sorts of funding levels you are talking about in a model that does not pick winners as such and that actually has private sector involvement and primes a lot of these inventions or innovations for private equity or venture capital funding. I guess what surprises me is the fact there is still a reliance to actually get these things out. I like your procurement model to a point. I think there are some difficulties in terms of a closed tender for some things. But it is a model that is worth exploring.

I cannot understand why we are so reliant on government; why our venture capital people are not interested in projects that you have got through to that second stage and proven them. There is money to be made on commercialisation; I do not understand why it does not happen. Is a VEDC an option? Do you have a comment on that?

Dr TRIGG — What I would say is that a lot of the companies that I have been involved with over the years that have taken, say, venture capital money have ended up going out of business because the venture capitalists have ended up with their money and then they exit and there is nothing left.

I think the problem we have as a country is that we do not want to invest in technology or industry; we would rather invest in mining or bricks and mortar or something like that. When it comes to industry and technology, we are very risk averse. Case in point: when you talk about a project, how many of those projects involve people with a commercial background to be able to sell the project? Do they know what the path to market for that project is?

What will normally happen is they will extol the virtues of the technical merits of the project. That is fantastic but now tell me how you are going to make money? Tell me how you are going to get to the point of commercialising this? Who are your customers? Who are your customers' customers? Usually you will get, 'This is research. How could I possibly tell you all this?'. So it is research for research sake.

I think one way of getting other capital into this game is not to say that governments should fund the whole lot, because that would be inappropriate. History tells you that usually people who take other people's money are not very good at investing it. I think what we have to do is set up a scenario whereby the superannuation firms and the venture capitalists are quite happy to invest in these. Like with Ausanda; it is high risk but this is potentially huge, yet this guy cannot get \$2 million to \$10 million from Australia — and here we are talking about having billions of dollars rolled out.

Why can't we mitigate some of that commercial risk by offering a contract to this guy, and not just to this guy? We can make it competitive and say, 'We think this is a major initiative. We will take 5 or 10 companies and put them through a filtering-type process where we will stage gate it. We will take 10 at the beginning; they will have a set of metrics and then we will cut that down to say, 5, and then ultimately down to 3 or 2 or 1 or whatever the case may be. Ultimately it is that last one that will secure that tender.

There is a way of doing that if government is proactive but not necessarily writing out the cheques. It can offer a contract at the end, because it is going to want to procure those services or products anyway so why not do that in advance but encourage the actual development to be in Australia.

The CHAIR — I think you might be able to get a copy of your evidence sent to the federal minister and the shadow minister as a result of the composition of this committee with a 'with compliments' slip.

Mr ATKINSON — I have one last question. You led of your own volition some evidence on the synchrotron. Why did no-one in the private sector cough up money for the synchrotron? Essentially its funding has been almost totally government agency; in fact I think it is exclusively government agency. I do not think anybody in the private sector has participated despite an expectation — —

Mr DAVIS — There might be some material on the web about it.

Mr ATKINSON — Yes. But there was an expectation that the private sector would take up a position in that. I do not know whether that has led to some of the tensions of the last few weeks and the result of that. You made some comment on it. I would be interested in teasing out a little bit more of your expertise on that or comment on it.

Dr TRIGG — Obviously I am not privy to what has gone on. But looking from the outside it would seem as though you would have a board making a decision to remove their CEO when, if you like, their science advisory committee was more than happy with the performance of the CEO and it would appear to be the case that the board is disconnected from both the CEO and also the users and maybe the other stakeholders of the synchrotron. I think that is where some of these probity issues come from.

I certainly do not know the composition of the board but if it was me, I would be looking at those board members to see whether they are the right people to have on that board and to find out why they took the actions that they did.

Mr DAVIS — Or the right mix of people.

Dr TRIGG — Yes, to have the right skills. Too many boards do not have the right skills. People might have high profiles but have they got the expertise of the business at hand. Running the Commonwealth Bank or Telstra or something else is not like running a very small focused business that has a high level of compliance. I think that is what we also need to look at: we are not serving self-interest, we are actually looking at benefit.

Mr ATKINSON — We also spread some of our high-fliers pretty thinly by giving them lots of appointments.

The CHAIR — You made that point at the beginning when you were saying, in terms of your recommendations in general, we need to look at who is on a board and why they are on a board. We need to

understand that it is not about self-interest and I use the term 'common good'; that was not the word you used. So that is relevant to the CRCs.

Dr TRIGG — In general. We get \$35 million from the Federal Government and we do not have a representative from the Federal Government on our board.

Mr DAVIS — On your CRC board?

Dr TRIGG — No.

The CHAIR — Dr Trigg, we are going to have to conclude there because the Committee has quite an extensive agenda to cover in the next little while. Thank you very much. I think you have picked up from the level of interest and engagement and the questions, that we found that very helpful.

Mr DAVIS — We may come back to you.

The CHAIR — I am pretty sure we will be coming back to you.

Dr TRIGG — Who do you want me to send my information to?

The CHAIR — To Vaughn or Yuki, thank you. As part of this meeting, we might have a bit of a chat about whether, if you gave us permission, we could come out. Is it possible to see your CRC in action? Would it be worth our while or is it more out there — distributed?

Dr TRIGG — It is distributed. We are a virtual organisation.

The CHAIR — Virtual. Okay. Thank you for the tour of your virtual organisation.

Dr TRIGG — Look at any open plan office and you have seen the CRC.

The CHAIR — Okay, thank you. A proof version of the transcript will be provided to you in about a fortnight. I personally undertake to forward your evidence with a 'with compliments' slip to those in the Federal Government that it might be of interest to in relation to that info technology.

Mr ATKINSON — Can I also say with the models that I have asked that you flesh out a little bit for us, which is fantastic, we would be interested in any alternative models that are floating around that perhaps you are not so interested in being an advocate for. But as part of our work in teasing it out, it would be interesting to know some of the different models that are being thought about by somebody.

Dr TRIGG — Yes.

Mr ATKINSON — To have you tease out a couple of those things that we have talked about would be really valuable.

Dr TRIGG — Yes, not a problem.

The CHAIR — Thank you.

Committee adjourned.