



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

**HOUSE OF
REPRESENTATIVES**

STANDING COMMITTEE ON SCIENCE AND INNOVATION

Reference: Pathways to technological innovation

FRIDAY, 5 AUGUST 2005

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HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON SCIENCE AND INNOVATION

Friday, 5 August 2005

Members: Mr Georgiou (*Chair*), Mr Quick (*Deputy Chair*), Mr Hayes, Mr Jenkins, Dr Jensen, Miss Jackie Kelly, Mr Price, Mr Tollner, Mrs Vale and Dr Washer

Members in attendance: Mr Georgiou, Mr Hayes, Mr Jenkins, Dr Jensen, Mr Price, Mr Quick and Mrs Vale

Terms of reference for the inquiry:

To inquire into and report on:

Australian technological innovation and pathways to commercialisation, with particular reference to examples of successful Australian technological innovations that demonstrate strategies to overcome potential impediments and factors determining success.

To assist in its inquiry, the Committee seeks to compile a series of case studies of successful technological innovations, and the pathways to commercialisation. Submissions are sought detailing successful examples of Australian technological innovations.

Submissions are also sought with particular reference to successful innovations, on issues such as:

- pathways to commercialisation;
- intellectual property and patents;
- skills and business knowledge;
- capital and risk investment;
- business and scientific regulatory issues;
- research and market linkages;
- factors determining success; and
- strategies in other countries that may be of instruction to Australia.

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Committee met at 9.30 am**COCHRAN, Mr Michael Anthony, (Private capacity)**

CHAIR (Mr Georgiou)—I declare open this public hearing of the House of Representatives Standing Committee on Science and Innovation inquiry into pathways to technological innovation. The committee is engaged on a program of public hearings and this is the sixth. I welcome Mr Cochran. Mr Cochran, do you have any comments to make on the capacity in which you appear?

Mr Cochran—I am here as a consultant in a personal capacity, having an interest in the subject of commercialising innovations.

CHAIR—Mr Cochran, the committee does not require you to give evidence under oath, but these proceedings are formal proceedings of the parliament and warrant the same degree of respect as proceedings of the House itself, and it is customary to remind witnesses that giving false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. Do you wish to make a public statement or a brief series of comments before we proceed to the discussion?

Mr Cochran—I will give a brief introduction to my submission in order to give a little background, and take it from that point, if that is okay.

CHAIR—Please.

Mr Cochran—Thank you. First of all, I would like to thank you for giving me the opportunity to express my views on ways in which I think that we can help commercialise our innovations in Australia. My submission is basically about a process. It is about a process of commercialisation. It is not necessarily looking at ways in which we can improve our innovations with grants and so forth, but it is about a process. It is more about the ‘how’ part of the business of commercialising one’s innovations. In that process I focus on relationships, commercial negotiations and means of adding value. It is about trying to get the commercialisation right for our innovations, and I am basing my submission on my own experience of 25 years in industry. The other thing about my submission is that it is focused on a coaching model or a mentoring process.

I have identified the need for a model such as that which I am proposing, based on my experience. The model is designed to present a structure for commercialisation and a standard for commercialisation, particularly for commercial negotiations. It is based on the need for the process to be effective in achieving standards and in establishing relationships; it is based on the need for it to be efficient in delivering outcomes to stakeholders, investors and the innovators themselves; it is based on the concept of adding value to the innovation; and, finally, it is based on fostering knowledge within the organisation that develops the innovation.

How has this need been identified? Firstly, it has been identified basically from my own experience, from what I have seen in the commercial world. Secondly, I have seen other negotiation consultants or facilitators in the same business, but what I have seen is basically limited to negotiations, influencing and dispute resolution. In my case I have broadened it to the

broader commercialisation aspect, so it is a little bit different in that regard. Thirdly, it is as a result of talking to people in the industry. I have found that, once you start talking to commercial marketing people in the industry, there is quite a deal of interest and they have often identified some problem with their negotiating style, with developing relationships and so forth. I thought that, if we develop a structure or process for helping commercialisation, that just may facilitate the process. Finally, I add the point that my approach is commercial-specific.

I also add that I recently noticed an advertisement in the paper from the Department of Defence. They were advertising for project management coaches. I thought that was quite interesting because it does reinforce the role of coaches and bringing expertise into the commercialisation process. I have a copy of that here if anybody would like to see that.

The process that I am advocating is a four-phase process based on developing relationships, developing options, which I tie in with preparation for negotiation, the negotiation process itself, and focusing on outcomes. I have coined that as 'RONO' as a convenient way of expressing this process. I see these as critical phases in the commercialisation process and, as I say, it is based on my experience and on what I have learnt in industry over the past 25 years. Most of my submission is focused on how that process can help in commercialisation.

Has this model been tested? Not specifically. It is based on my own experience and I can talk from that point of view; but I am sure that, if you were to show this model to any commercial managers or businesses, they would be able to identify the process. What I have done is to define the structure.

Marketing versus commercialisation: I see marketing as a little different to commercialisation. I see commercialisation as a broader concept than marketing. Marketing seems to be limited, but it is all-encompassing in many ways. I could give you examples of commercialisation from my own experience, as opposed to marketing. There are others who are taking a similar process of coaching. I have mentioned to you that there are other consultants, like Scotwork, ENS and so forth, who do this type of work.

If there were anything that I would like the committee to take away from my presentation, it would be that effective commercialisation of an innovation is a structured and rigorous process which requires skills to enhance relationships, especially at the front end of the transaction, and to understand the commercial negotiation process. That is number one.

The second thing is: a structured commercialisation process enables an innovation to obtain its rightful value and to attract quality and interest. The third thing is: coaching and mentoring in commercial negotiations and a commercialisation process can drive, guide and deliver sustainable outcomes for Australian innovations in global markets. That concludes my introduction.

CHAIR—Thank you very much, Mr Cochran. I understand that this is a sort of systematisation of your experience.

Mr Cochran—Yes.

CHAIR—What do you see it achieving? How do you see it being implemented?

Mr Cochran—I see it being implemented as a coaching and mentoring process for an organisation. For example, if a particular innovation has been identified, the question is: how is it commercialised? You get an expert in to help with the commercialisation process. That person will come in and, having had the product identified, will help the customer or the client to define the market, or maybe the markets will have been defined already, but have they developed the relationships well enough?

One of the constant themes that I have been seeing in many of the submissions to this committee so far is preparation and customer development, getting close to the customers at the front end. This model advocates very strongly working well with the customer to have that relationship developed before you become involved in any serious negotiation process. Having established that relationship, in that way you will define the drivers of the customer. You will understand his position, he will understand yours, and you will have established your credentials. That is a focus. I am saying that the front-end relationship development is important in this model.

Then I go into what I call options. The standard question is: what are your options? I see it as part of the preparation process. I have found that people do not spend enough time maybe thinking outside the square and developing options. An option is not just the number of customers that you might have. It could be the terms and conditions which you are negotiating. What are the options within that? Having options gives you flexibility and I think that is where you add value to the commercialisation process.

Then you get into the negotiation process itself. There is a lot of published work on how to handle negotiations and so forth. I do not place much emphasis on that because I think there is ample literature on that already. However, there are some basic defences and so forth, particularly when dealing with Asian cultures or overseas cultures, where I have a lot of experience.

The fourth angle is the outcome. The outcome of a negotiation, I think, is just as important as any other outcome. For example, one of the hardest things I have found in negotiating is identifying when is the time to strike the deal. I think that is one of the hardest decisions to make in negotiations. And then, often when you are dealing with people, you strike the deal—at least, you think you have got a deal—and then they go back on that deal. How do you handle that?

How do you handle the customers during this process? You might home in on one customer. Maintaining that customer relationship all the way through is important, and other customer relationships as well. Even if your key customer did not get the business, you still maintain that relationship after the business. I find that process is very important and is part of the structure which I am presenting on commercialisation. I will be there saying to the innovators, ‘Here’s how you can go about your process.’ It might be a long process, over six months, or it might be just a couple of hours a week, just offering the experience factor.

CHAIR—Could you develop that. ‘I will be there telling the innovators A, B and C.’ How do you get there and what are you proposing happens with RONO?

Mr Cochran—Someone has got the innovation. They have an idea of which markets they will go into.

CHAIR—How do they get to you? How do they get to somebody with access to this approach?

Mr Cochran—If it has not been commercialised yet, they will come to me, and I have a resource document which gives all this information. In my submission you will see I have got subheadings and I have expanded on those subheadings in the principles. You would just go through that as a check list. That check list also offers touches of advice. There is a little example on page 7 of my submission where I talk about competitor analysis. You talk about that to your customer. You say, ‘What’s your competition like? Have you done research? Where is your competition coming from? Do you have market knowledge? Have information channels been set up for your research? Understand your customer’s position. Where is the customer coming from?’ You will be able to help him on this. It is really a check list. That is the procedure that I always use, and I have got snippets of information there. For example, putting yourself in the customer’s shoes is a simple process of understanding the customer’s drivers. That is how I do that.

Dr JENSEN—You mention the issue of relationships being important at the front end. In terms of mentoring, how do you teach some scientists and engineers, who can be exceptional at their scientific work at the innovation stage but, in terms of personal communication, are quite lousy? Obviously, the development of relationships would mostly be word of mouth and so on.

Mr Cochran—That is fair enough. I understand that point. Relationships are about making face to face contact with people. Personality comes into it to quite a degree. If you are a shy person, if you find it very difficult to relate to people, it would be a little bit more difficult to develop that relationship and so maybe further assistance needs to be given in that area—giving people encouragement to have face to face contact, to go across to the States or Japan or wherever to meet the customer to understand where they are coming from, to spend time with them. I find that the time factor, face to face, is a way of developing that relationship.

With scientists, who have maybe not had experience in developing relationships, these are factors you might be dealing with. As a mentor, you can help them break down the barriers to developing a relationship. You can say, ‘Meet the Japanese. Don’t be afraid to speak with the Japanese about this, or to handle it this way, or to handle cultural issues this way.’ I think that is about the only way you can do it, because if someone is limited by personality, that is just a fact, and what you try to do as a mentor or as a coach is to help that person develop that relationship. Yes, some people develop relationships better than others. Some have very cosy relationships and maybe it gets back to their personality, but I think you just try to help in that process, to show the significance of relationships. Does that answer your question?

Dr JENSEN—Yes. At which stage should the mentoring process start? Before the product is ready to go or at the time that the product is ready to go?

Mr Cochran—The manufacturer has got the product ready to go, he has in mind a particular market, so he would have to identify the customers, and you as the coach will come in and say, ‘Have you identified all the customers?’ He might only have one customer. ‘Are there other customers that might be interested in this?’ You would ask him that question and try to develop other customers because then that creates an option. It might add more value. The other customer may value that particular invention more. Having identified that customer, you say, ‘Go out and

meet him face to face. Develop a relationship. Understand what he would use your invention for, how he can help you and how you can help him.' It is a matter of developing that guideline.

Dr JENSEN—This mentoring process that you are talking about is more specific than generic?

Mr Cochran—I think once you have got into the situation of a particular innovation, you just have to become a little more specific, but you are relying on generics to paint a picture overall, if I could use that phrase.

Mr QUICK—Does AusIndustry or Austrade, who deal with overseas countries, have anything like this in their bag of tricks when someone comes along to Austrade and says, 'Look, we've got something that we think the Chinese or the Filipinos might be interested in. You've got the contacts in those countries. Can you show us the pathway'? Do you see this as complementary?

Mr Cochran—I see it as complementary. I imagine that they would look at this type of model and say, 'Yes, we do that in some form or another,' and so I would say that they probably would do much of what I am advocating here, except all I am doing here is putting it in the form of a structure that can go to other people as well. That is just the simplified program. I do not know the answer to your question specifically, but I would speculate that in some ways they would be acting on similar sorts of principles. Whether they would emphasise the front-end relationship as much, I do not know.

Mr QUICK—Assuming the process works—and obviously you have great belief and faith in it—do you see yourself as a sort of Dale Carnegie: 'This is the way to do it,' put it out in a book, it is out there on the bookstand, and you lecture through universities? We noticed yesterday in Melbourne that there is a master's degree in entrepreneurship at one of the universities. Do you see this theory being woven into the whole issue of innovation and commercialisation or do you see yourself having agencies in each of the states and territories, there for the innovators to knock on your door or for you to knock on their door?

Mr Cochran—First of all, I have not really set it out to be a lecturing or a training course. It is focusing on one to one coaching. It can be adapted for that, but that, I imagine, will be down the track and I do not particularly have that in mind because I believe the coaching process is more effective than a two- or three-day course. It is better that you come into the organisation and help that organisation through. I have not really planned or had in mind to put this in the form of a training course, although I guess it can be adapted to a training course. Where I am coming from is basically providing a service to the community, to the enterprise, to industry, saying, 'Look, if you need help in your commercialisation process, here's a structure,' and I would help in the coaching process.

Mr QUICK—What if there are 47 innovators in Melbourne who suddenly are ready to go?

Mr Cochran—At the moment I am the only one who has got this process.

Mr QUICK—That is right.

Mr Cochran—Down the track it can be expanded to incorporate other people, but I think the other people would be facilitators. I am here to facilitate or to coach. They would also have to have experience. You need to have that experience in the international markets, as I have, to be effective in implementing a program like this. I think it would be a mature businessman, who could use that experience and who could use this structure in helping those innovators.

Mr QUICK—The process works for the my product and that is going well in Asia and I suddenly have a brainwave and have got a second product. How will the process change for subsequent products that I want to put out in the market once I have established my relationships with China and India and Japan and they are going really well? I have a new product. How will the process differ?

Mr Cochran—If it is from the same company, I would presume that the same person or people in the company who were involved, after having been coached in this process and being successful in one innovation, should be able to duplicate the same principles in subsequent innovations. It is a transfer of knowledge from me or the facilitator to those people so that they can apply the principles in developing other innovations as well.

Mr HAYES—This is not so much directly relating to your submission to the committee, but, noting the fact that you have been in associated industries—a couple of which I have worked in, such as Santos and others—for over 25 years and working as a consultant in those areas, what has been exercising my mind is: as someone who can stand aside and be dispassionate about it all, apart from what is in your submission what role do you see for government in helping to commercialise innovation?

Mr Cochran—For government?

Mr HAYES—Is there a need?

Mr Cochran—There is a structure that I am offering here. We are looking at the government being able to say to innovators, ‘There are resources available to help you in your commercialisation process.’

Mr HAYES—I want to take you away from the submission, from being somebody who has obviously an interest in this as a coaching tool. As someone who has actually seen innovation being commercialised, do you see that there is a deficiency there, or, even if there is not a deficiency there, do you think there is a role for government in assisting the commercialisation of innovation?

Mr Cochran—I would say so. Did you mean a feature like this as opposed to, say, grants?

Mr HAYES—As I say, I am seeing you as somebody on the sideline who has witnessed all this happening. Do you see, as a consequence of being an observer and a witness to commercialising projects, that there is a deficiency in the way government approaches that? Alternatively, is there a need for government to have greater involvement or to give greater assistance? Harry has mentioned Austrade. Are there other areas, from your own personal experience and observation over that period of 25 years?

Mr Cochran—Whether or not it is the government, I think there is a need to involve a source. I would not say there is a deficiency in the government. I could not comment, because I have not had direct dealings with that, but I do see a need, particularly for companies who have developed innovations and do not have on board the commercialisation experience. The government facilitating that commercialisation experience, having expertise, being able to offer assistance through the commercialisation process, I think could be relevant, yes, through someone like Austrade or through other agencies. I think there could be a role there. I do not know about the deficiencies. I just have not had any experience on that.

Mrs VALE—Thank you for coming, Michael, and explaining to us your negotiation tool. I wonder if you could give us an example where the application of RONO has actually contributed to the successful commercialisation of an Australian innovation.

Mr Cochran—Yes, I can give you an example. It mainly relates to my time with my previous employer. I will speak in generic terms rather than be specific. There was a particular time where my company—which is involved in the oil and gas business—had the ability to produce certain feedstock for a particular application. We were not specifically making this feedstock but we had the ability to refine it just a little bit more for a particular application, and this particular application was in the Hong Kong market—in Asia.

We thought, ‘Okay, if we change our operations to be able to make this product, is there a market out there for it?’ Before investing in and embarking on the change of operations, we obtained the market first. When we found a market, we then got a contract in place, and then we altered our operation so as to be able to supply that contract. To develop that market, we had to really get close to the customer. They had to see us. They had to see what we were like, make sure we were credible. We had to make sure they were credible. They were big companies, so it was all fairly easy in that regard.

However, when it comes down to ultimately doing a deal, I think personalities and the negotiation play a big role, so we focused quite a bit on that front-end relationship. Having got our relationship, we established our credentials, and then we were able to go in and prepare for the negotiation. We went through the preparation of the contract, then into the negotiation process and then focused on the outcomes.

Mrs VALE—What you are saying is that you are concentrating on building a relationship between the major players?

Mr Cochran—Yes.

Mrs VALE—Do you see that this is very important in Australia or mainly in the markets which Australia will have to access? It is my understanding, Michael, that there are some cultures where the relationship basis is important. Perhaps it has not been so much in Australia in the past, but do you see it as something that some of the cultures which we are going to actually have to access—

CHAIR—Be very careful!

Mr Cochran—I agree with you, yes. I will just make a blanket statement that I think having your relationship in place right at the beginning is very important, be it Australia or in, say, Asia.

Mrs VALE—This is my understanding. I am told that, even when accessing markets in China, the relationship connection to start with is vital to successful outcomes.

Mr Cochran—It is. It is the same with Japan, the same with Korea, the same all throughout the Asian market, and I would say Australia as well. Because of my dealings with, particularly, Japan in the past, I think there is a lot of the Japanese culture within this model. I think, for example, that if you are going to develop an innovation to go into China, you establish your contacts first, and you might need to go up there several times before you start talking about the actual business.

Mrs VALE—Before you talk business.

Mr Cochran—That is right, particularly in China, where you have to have your connections in place. If you go up there once, do not expect to come back with the order. I think you would need to go up there several times, and vice versa—bring them down—so that you have that relationship, so that they can see what you are like. Things will just normally flow from that, I find. But having that front-end relationship, which is exactly what you are referring to, I think is critical, particularly in the Asian market. They focus on that more so—the famous phrase ‘the long-term relationship’—particularly in Japan. That is very important, and I am sure you will have heard the same thing from other submissions.

Mrs VALE—Were there other critical factors that you identified that really had to follow on from that initial relationship building exercise?

Mr Cochran—Another critical factor is maintaining your integrity. Integrity is very important. Another is establishing your credentials, which is part of that relationship development, and then, having decided that there is a fit and that you can match, that you have an innovation which is suitable for that particular customer or for that particular market, getting that party to the table to be able to start the negotiation process so that you can commercialise that arrangement.

Mrs VALE—And it has been your observation that in our past perhaps we have not done that relationship building nearly as well as we could have.

Mr Cochran—There is always room for improvement, I would guess, just from my own experience and from what I hear and read in the media. As generations come up and so forth, I think it all comes down to developing that experience. Having been there and done that, I could say I had to go through a learning process as well and, as new people come through, they just need to be aware of that. There should be a bigger emphasis perhaps on relationships at the front end.

Mrs VALE—We should create an awareness of the importance of relationship building up-front.

Mr Cochran—I think so, yes.

Mrs VALE—Are you aware of other similar models to RONO that are out there in the marketplace?

Mr Cochran—No, but that could be because I have not done all that much research on it. This is really just straight from the heart and the idea was to just put something down and say, ‘Well, I’ve got all this experience. How can we put it in a frame?’

Mrs VALE—It is based really on your empirical knowledge?

Mr Cochran—That is correct, yes, and from my background, from what I have seen of other organisations.

Mrs VALE—And you have seen it work.

Mr PRICE—When do you see the research side tapering off and commercialisation commencing?

Mr Cochran—That is an interesting question, isn’t it? The commercialisation process has to get to a point where, once you have developed a relationship—

Mr PRICE—No, I mean when does it start?

Mr Cochran—You need the innovation first. Then you have got an idea of your market. It could start fairly early into the piece—I think once you have identified who your customer base would be.

Mr PRICE—If the committee were able to make recommendations to improve the commercialisation of innovation, what sort of impact or order of magnitude do you think we can effect in Australia by having better commercialisation?

Mr Cochran—I think you should be able to make a reasonable impact.

Mr PRICE—Setting aside the two largest research institutes, which are Commonwealth run, in terms of the market we are looking at, is it multinational companies that are in Australia, is it indigenous Australian companies? Who should we be working on or who will be impacted by our recommendations?

Mr Cochran—I would say those companies that have a strong technical content, who may not be structured or set up as well for the commercialisation process. You have to look at the organisation and ask, ‘Have they got a focus on the commercialisation aspect?’ Look at commercial managers, for example, in an organisation. Have they got an effective commercial manager that can implement a program, and is there sufficient experience?

Mr PRICE—In your view will there be a preponderance of multinational companies in that category, or will they be indigenous?

Mr Cochran—I would be inclined to think they would be more indigenous.

Mr PRICE—Sorry—Australian, I guess.

Mr JENKINS—Chair, I am in a little bit of a quandary because Mr Quick's first question was my only question at the time. It wrong-footed me for a little while, because I thought, 'Why are the two Harrys on the same wavelength'! A corollary of Mr Price's questions is about size of organisations. One of the things I have been thinking about your model and the importance of the relationship issue is that sometimes we look at it as if we are dealing with somebody who is doing 'an innovation'—just one—whereas we have had other people come through saying this is a continual process. Some put it to us, 'Once we've established our brand name it's easier to get credit and to go forward and have that face to face dealing.' I am wondering if there needs to be a model where we have as the basis the need for that: that a firm that is commercialising is in the business of doing that, and that, say, the one-offs should go through those types of organisations or structures. I am just wondering if you have a comment on that.

Mr Cochran—Maybe this is answering Mr Price as well. Generally, I would argue that larger organisations—such as the types I have had experience with—would have their commercialisation processes in place. If you were to go to a large organisation and say, 'Well, look, here's a model upon which to base your commercial negotiations,' there might be resistance. With a smaller organisation you should find it better. However, in saying that, I can remember quite clearly that in the last organisation I worked for the CEO was quite emphatic about setting standards for negotiation. What he was saying there was, 'Do we have the structure for negotiation? Is there a standard for negotiation? Is it just that anybody goes out and does the negotiation or commercialisation process?' That is where I see there being a role like this in the large organisation: in providing a structure or a standard of negotiation.

Mr JENKINS—Do you see yourself as an entrepreneur?

Mr Cochran—Reasonably so.

Mr JENKINS—The question I then want to ask is: who coaches the coaches and who mentors the mentors? You seem to have had a classic route through to where you are, in that you have come through businesses and things like that, and in one answer you talked about your length of experience—whilst acknowledging that you are still learning, and I would hope that everybody would think like that. But a witness yesterday, who is running a very successful business, after he gave evidence introduced me to his business consultant. In that case the business consultant had just organised his business and it was not really into this end of the discussion, but it made me think. Where do we get our next generation of business consultants? Or shouldn't I worry about it because it will just happen in the way that it has happened?

Mr Cochran—From my observation, business consultancy seems to be on the increase, whether it is a wave as a result of the baby boomers moving into that phase, or whether it is interest, or whether it is just business development. I have got the experience, which I am trying to articulate. How much experience do you require to articulate to the extent that I have? Five years, 10 years, 15 years or 20 years? It comes down to how much time is required or what sort of experience is required to get to this position.

Who coaches the coaches? The more experienced, more mature, will coach the young ones to get that business. There is obviously a role for business mentors and this I would see as a

segment of that mentoring process. It is not a total model—it does not look after the books, for instance—but it is a segment of that process.

CHAIR—Mr Cochran, thank you very much for appearing. Do you have any concluding comments or anything that you would like to say that we have not drawn out adequately?

Mr Cochran—No. I feel that some of the questions were quite challenging and I appreciate the opportunity to answer those questions. I do not know if I have been able to answer them as fully as I may have liked, but I do appreciate the opportunity, and I do believe that, in a situation where you may be able to get structured commercialisation, there is the opportunity of being able to pass on that experience to Australian innovators.

CHAIR—Mr Cochran, thank you. You have given us food for thought.

[10.08 am]

PORTER, Mr Graham Robert, Chief Executive Officer, GRP Technology

CHAIR—Mr Porter, thank you for coming. I should advise that the committee does not require you to give evidence under oath, but this is a proceeding of the parliament and it should be treated with the same respect as proceedings of the House itself, and false or misleading statements could be treated as a contempt. Would you like to make an opening statement or an abbreviated summary of your submission?

Mr Porter—GRP Technology is in the business of designing and developing products and taking them to a commercial conclusion. I have made a summary to add to what I have already submitted. I have made a summary of my background. I have scanned through a lot of the other submissions and often had a bit of worry working out who are these people—what are they and what is their real background—from the submission itself.

Basically, I am originally a chemical engineer. I come from New South Wales. I worked in a very large organisation that was in the plastics, coatings, chemical and engineering industries and we were linked to companies who were marked leaders around the world. I spent about 20 years there. We turned over a few hundred million dollars a year. I came to Adelaide to get away from the ‘corporate stuff’. My experience started in research and development, technical service, process control, quality control, automated production, computer process, plant construction, product design, marketing, financial control, profit centring and company management. I have been involved with over 50 industries and have a fair knowledge of how to get a product through the system. I am in the business of trying to make money for people, and that is not as easy as it looks.

You have probably by this time worked out that this is a pretty complicated subject and I have just picked two areas, marketing and cost, as a focus—marketing because if you do not sell it you do not get anywhere. Essentially, a lot of Australian companies simply do not start off focusing on the customer. It all starts with the customer. If you do not get that marketing process to work and start thinking about that right at the beginning, then you are basically heading for a destination that is very questionable.

Essentially, it comes down to the adage of, ‘Start with the end in mind,’ which I bring back to more basic terms. It is like at school when you had the maths book. You look up the answer in the back of the book and you work towards the answer. A lot of people go down the track and then they eventually find out that the product that they have been developing is really not the product that the customer wants. There are a hell of a lot of aspects to that. It is not just physically the product. It may be the packaging of the product. It may be the way it is distributed. It may be aspects of how it is used that people miss. These things are often responsible for pulling the rug right out from under the whole project.

The other aspect is cost. If you do not get your cost right you have severe problems. Innovators especially are often not aware of the actual consumption of money that goes on between them and the customer. Normally the ratio is three times. After it leaves you or you

arrange to have it manufactured, it winds up being three times by the time it reaches the commercial market. In some cases, where you are looking at television promotion and very heavy marketing promotion, it is up to six times. That means there is a hell of a focus on getting the pricing right. If \$1 equates to \$3 to \$6, it is quite a bit. In our situation, in basically a very small market, a long way away from people, we do not have the economies of scale, so we have to figure out every angle to try and get this formula right, otherwise we are in real strife. There are products, we know, that are not cost sensitive, but most are. The big marketplace out there gives you the volume to get your cost down, but you need to use strategies to work very carefully on this pricing, and a lot of Australian companies simply do not do it right.

The other issue I want to go back to on marketing is that there is this notion—and I have mentioned it in my presentation elsewhere—the Aussie notion of the level playing field, which is just a lot of nonsense, and the other bit of nonsense is that the best product will win, because the best product does not necessarily win at all. It is usually about the fifth-best product that wins and it wins because it is well presented, well marketed, focused on the customer and has all the bits right in order to reach the end result. The idea that just because something is good it is going to succeed is something you really need to dispense with very quickly. Of course, it makes people feel a bit gloomy to think that they have got the best but the fifth-best is winning.

The Americans are winners in this area of marketing because they have a marketing mentality. It starts with little kids, at about five or six. We just do not have it. That does not mean to say that we have to take on board their culture completely, but there are aspects of it that we need to be conscious of and pay careful attention to.

The other issue that ties in with marketing is distribution. If you do not get effective distribution then basically you are dead. We have two clients at the moment who have, essentially, products that have won a gold medal in Geneva—the innovation headquarters—but that does not, again, mean anything.

One of these we are working with, to get a group together. There is an entrepreneur who is currently settled in Sydney. This couple managed to move in America, in the first three years of operation, \$1 billion worth of product. But, again, it comes down to having established the entree into the Wal-Marts of this world, and links with other people at director level, so that they can go straight in if they have got the right product and get the system to work. It is getting that effective distribution that will be the be all and end all to the whole deal. When you can get that sort of volume, you can get your costs down, so the two tend to work hand in hand.

I have focused a bit on China here because we have got product for another client who again is a gold medal award winner. We have got, particularly in this state, some very lean, mean manufacturers. We have product being made in England, Ireland, China and America.

In the American case it is interesting to note how they have gone. The case I am talking about at this point is an engineering company. They operate at Cleveland and have faced the issue that in so many products they are just not able to compete with the Chinese, so they established a Chinese end and, where they have a labour intensive product, they farm it straight of to their Chinese end to cover that particular end of the track so that they, one way or another, get a share of that business; they do not miss out.

In terms of using the Chinese end, the problem of course is intellectual property and, as I have alluded to here—and it has been through the UK and US parliamentary inquiries—it is not that China does not have legislation; it is getting it enforced. We are about to gear up again and have another hard look at a few Chinese connections, but you come down to strategies of, ‘How do I deal with these people who have a culture of copying the product? How do I work out a strategy whereby I have managed to get the system to work and get my prices down?’

We had one set of quotes for tooling in plastics and metal industries. The tooling is a very big aspect of your cost. We had one client recently who had a whole series of components quoted and the pricing from China was in the order of one-fifteenth of the price of the tooling in this country. You cannot ignore this. You can put your product into America and within five minutes someone in America has gone to China and had it made. Where do you go?

On the issue of patent protection you have to remember that, when it comes to patenting, it has really got not a hell of a lot to do with whether you are right or wrong. It is just a question of whether you have enough money to put the thing in court and keep it there. I have had a number of clients spend \$200,000 or \$300,000 on patent protection cases. Even though they were in the right, it does not necessarily mean they won.

In the case of China, there are ways and means. We could make one part here and another part over there and bring them together, and use various strategies to try and use this as a tool to take advantage of the high labour component of the process. There are some things you can do here and there are other things you are simply pushing to do, but when you look at the volume, if you go from here to America, you go up 15 times; if you take in Europe, you are 30 times the volume. It is a hell of an argument for doing business if you can get the price right.

CHAIR—Thank you. It was a very interesting submission. I get a bit literal at times. You made the point again in your presentation, and you say that in fact it is about the fifth-best product that actually sells in the marketplace. I like the sentiment, but what are you saying?

Mr Porter—What I am saying is that if you do not have your cost right and your marketing strategy right you may not even see the light of day. The fact that you have a good product here does not mean to say that it is really going to get anywhere. You have got to get it out into the real world. You have to find some effective means of distributing it. You have to put a deal in place with a variety of people to get that distribution. You need to package it properly.

CHAIR—Without being argumentative, you are not really saying it is the fifth-best product. You are saying that having a good product does not necessarily mean it will sell.

Mr Porter—Yes.

CHAIR—That is all you are saying?

Mr Porter—Yes.

CHAIR—Which is a bit different as a proposition.

Mr Porter—The point that I suppose I am making here really is that if you take on board that you are not automatically going to win, then you start thinking about why and asking, ‘What do I do about it?’ Do you know what I mean?

CHAIR—Yes, that is fine. We are understanding complexity and sometimes complexity gets lost with simple and assertive statements. The second thing is that you talked about the American approach of going to the customers before the product. Once again, getting literal, what do you actually do? You have a product and it is a matter of finetuning it for a market.

Mr Porter—You have thought up a product today and you have got together with your fellow compatriots and looked at it and said, ‘Yes, this looks interesting.’ The next step is really to go and look carefully at what the customer’s end is and start focusing on what massaging needs to occur here to get it to the right price with the right feature benefits to get it across there. You also look at the potential competition out there, what it sells for, how it is presented, how it is distributed. You ask, ‘How do I actually reach the customer who is going to buy it?’ In some cases it might be a hang-on-the-hook job. It may be an industrial-selling job. When you know that avenue—getting back to the answer in the back of the book—you can work out what costs are involved, the style of distribution, and how much you are going to have to produce it for. Do you see what I am getting at?

CHAIR—Yes.

Mr Porter—If that formula does not work, then you say, ‘Well, it was a good idea, but what a pity it’s twice the price’ or ‘doesn’t really have the key features that the current marketplace demands’.

CHAIR—I thought the Dyson illustration was really interesting. They have a more expensive product and they are still doing very well.

Mr Porter—It is a classic. I was mentored way back when in Sydney by a guy who used to sit in front of customers where there was a hell of a lot at stake and talk up the price to get a premium. To do that, you have to have a better product, a better service, whatever. Dyson has got a good product. It performs well et cetera. But here he is, going into the world’s biggest market and knocking off Hoover, the world’s biggest vacuum company. He knew that in order to do that he had to have his pricing structure right, but also pay attention to his marketing approach. They got it on *Friends*, they got the exposure. It is one thing to put an ad in a magazine or a paper; it is another thing to get physical exposure out there. They put a lot of money into it, but they also got it into the right areas, where it is spoken about and people look at this thing.

Let us face it, this thing flies in the face of two areas: the cost, because it is expensive, and design. Dyson’s attitude to design is that he really does not care much about styling, which is really against the trend to some degree. His focus was on performance. In the process of doing this, you have had the issue of 800 people in England who were terminated, but the 1,200 that are still there have just a vastly bigger base to work on.

CHAIR—I think the styling is quite good, actually. Is the performance a lot better than Hoover?

Mr Porter—Yes, it is good.

CHAIR—It is transparent that that is a better product?

Mr Porter—It has very good feature benefits for the end use. When you consider that it is about three times more expensive—up to four times—than some of the other cleaners on the market, it is not bad going.

Mr QUICK—But does it say something about American culture? I would be worried if Australia focuses on the Wal-Mart concept of world supply. From the examples of innovation and measured market capture that we have seen since the inquiry started, it seems to me that we are very successful in that, rather than in wondering whether we can supply the Wal-Marts, the Coles and the Woolworths that tend to dominate Australia and the rest of society. This American approach worries me a little bit, because you look at their car industry. General Motors are almost in section 12 or something. They have built this culture of, ‘We’ll build it and you’ll buy it,’ and their response to what the Japanese are doing, that the price of oil is going through the roof, that SUVs cannot sell and the like—

CHAIR—That was a generalised look at American culture!

Mr QUICK—Do we favour the American approach to salesmanship?

Mr Porter—You notice I qualified that comment about not taking on board all of American culture, because there is a dreadful side to this as well as a good side, but essentially a lot of the things we are arguing for are really the commonsense issues. These guys do it and they do it well, but they suffer from problems, like all organisations from government downwards. The General Motors in this world are producing a car that costs several times more to manufacture than the Japanese equivalent. If you look at the numbers at the moment that are out, General Motors are in a lot of trouble because their costs are way too high. They have been asleep at the wheel for a long time and the Japanese have moved ahead of them. You have to keep regenerating all the time. The bigger organisations get the more efficient they get, and you basically have to keep using a vacuum cleaner on the system and keep it moving instead of letting it glug down to become a costly beast.

Mr QUICK—What can we learn from something like the Australian wine industry? You cannot really compare our capacity to produce to the overseas capacity, and yet we have been innovators and marketers.

Mr Porter—We have got some good guys with good product and, if you look at the industry itself, they pioneered efficient ways of producing wine. Look at the European scenario, the old ways used to make wine, compared to a lot of the processes and equipment for the wine industry here. There has been a hell of a lot of equipment sold from Australia overseas, basically because it allows them to produce the product at a fraction of the price. I was watching a movie that deals with the Californian wine industry. They are out looking at people manually picking grapes off vines. Not our guys.

Most of our guys use machines to pick grapes off vines, because if we want to pay people a reasonable wage, we cannot have them picking them off by hand. It is just the same as primary

production. It basically runs on the same innovation wheel. If you want to grow a plant, you look to the best genetics that gives you the best yield, and the best way of getting the product off the vine or off the tree or whatever. If you do it the smart way, we can all get a reasonable wage out of it and, hopefully, a good-quality product at the same time. These guys, as I say, have sold their processing information, as well as not being constrained on getting quality product.

Their marketing is very important and they have done a reasonable job of it. They still have a distance to go, but they are doing well at it. It is a good exercise for other people to look at it. Can you imagine, essentially, for volume production, going back to taking it off the hard way? You cannot get X hundred dollars a week by doing this. This is what I was getting at on cost here. I have been into an awesome number of factories, and you look and you think, 'Well, how long are they going to last?' You have someone picking in place, doing this sort of job. With Australian wage rates, you will make no money. It just does not work. 'Why don't you use this machine to do that? There is a machine available to do that.' 'Oh, I'll get around to it.' 'Why don't you have a special machine constructed to do that particular thing there? It can be done. We're not talking about rocket science. It can be done.' Then you come back a year later and have they done anything? No. Essentially, there is a certain element of survival of the fittest, of people being prepared to get off their behind and do it.

You see the same thing in a rural industry as you see in a manufacturing industry. There are some very smart people out there doing things in the rural industry. When you look at farmers now who can grow a crop on the basis of rain they got six months ago, in dryland farming, it is pretty smart stuff. If other people want to sit down and get a government handout over it, and cry and weep, fine—if they got caught and they had done all the right things. But if they do not get their act together, eventually you have to say, 'Well, look, fellas, I'm sorry. Here's the baton. If you don't take it up, we're not going to keep funding you.' The same applies to manufacturing. It is the same deal.

Dr JENSEN—Graham, you bring up an interesting point on costs, but one thing is quite interesting, and I think that this might be where the Dyson and Hoover examples comes into it. In a way, Dyson and Hoover are countering your argument, because Hoover has this brand name, it has the marketing and so on, yet Dyson has come in with this better, more expensive product.

Mr Porter—Hoover have been sitting still. As I said, they were sitting still for a long time.

Dr JENSEN—But part of the point is that sometimes the lower price for a product can be counterproductive in terms of your ability to market the product because it is perceived as cheap and therefore not good.

Mr Porter—This is where you open that whole can of marketing. Yes, we have products at the moment where people perceive that if it is not at a certain price, there must be something wrong with it.

CHAIR—Or something right with it.

Mr Porter—Yes. But there are a hell of a lot of other examples where it just has to meet a certain barrier and that is it, and the two apply. I have been through this issue with consulting. I

come to you and I say, 'Look, my service is available for X dollars an hour,' and you say, 'That's terribly cheap. There must be something wrong with this guy.' Do you know what I mean? I am serious.

CHAIR—I understand that.

Mr Porter—I have even been involved in the Canberra thing way back when. Someone said to me, 'How much are you going to charge?' He said, 'Well, the other guy charges three times that.' I said, 'Well, I don't have any difficulty in being four times better.' But it is perception; it is marketing. Women's cosmetics is a classic: the number of people who thought they were going to set the world on fire by selling cosmetics for a low price and, even though they were a better product, they have gone bust. Put the price up and they sell more. But it does not apply to everything.

Dr JENSEN—You make an extremely good point about marketers, but marketers and innovators are usually different groups of people.

Mr Porter—Dead right.

Dr JENSEN—How do you marry them?

Mr Porter—It is a real issue, and I would like to make a comment. I have scanned through a lot of the other submissions and, whilst it is out of the scope that I put here, I would like to make a submission. Dennis, you are an ex-CSIRO man, aren't you? I grew up in a big company. I am basically a bit of a troublemaker and I have made a lot of money, right? And the reason is that we focused on the customer. At one stage I went overseas and looked at how big organisations handle this problem of pure research versus the real innovative stuff on the ground—the single guy versus the big organisation. We had hundreds and hundreds of projects and our problem was that we started a hell of a lot and finished very few. How do you get that to work?

I went through some of these submissions—and they are a pretty rough bunch—but Roach hit a lot of nails on the head. You really have to come down to giving it to the marketplace. There is a research situation and there is a development situation, and researchers hate financial constraints. They cannot stand being tied down to numbers and performance.

Years ago I spent some time with the people at the British Ceramic Research Association in England, which is centred where all the potteries are. I had lunch with a guy there. We had little squirrels playing outside in the snow and it was a lovely spot, and I said, 'This is a great spot here.' 'Yes, I walk to work,' and all the rest of it. I said, 'How are things going now?' and he said, 'Well, it's a bit sad, because there was a day when we could come to work and we could basically work on things that we felt needed to be done, the idealistic approach of, "Wouldn't it be lovely to find out why a particular ceramic does this?", but these days we have to sit down and fill out a piece of paper which says, "Here's what we want to do, here's the sort of return we can get, here's the time we will do it in and here's the amount of money we need to spend on equipment." It is constraints. Researchers hate that sort of thing.

At the other end of the track you have the innovator, who quite often does not have many skills at all in some directions, but on the development side, if you are going to get effectiveness

for your money, you still have to bring the dollar factor into it. In terms of the innovator who has a product—and I deal with these guys all the time—a lot of them will never make it because they do not have the basic skills in the first place. They do not understand the need for the basic skills and they actually believe that their product is the best. They believe that because of that it is going to win, and it is not.

CHAIR—You should tell them to go into politics!

Mr JENKINS—Dr Jensen's point about brand name marketing is interesting, in that all that Dyson wanted was the Americans to Hoover their carpets with Dyson products. It is a quite extraordinary example. In the marketing sense, for Australian companies is 'Australia' a brand name?

Mr Porter—Yes, I think it is. As you know, the mind-bending wine success was the Yellowtail brand that was sold into America and overtook everybody else on the planet. I forget the magic number at the moment. It was the biggest grouping there of overseas imported wine. These guys started off budgeting to sell, I think, 200,000 cases and sold about five times that amount in the same period. They have had an absolutely awesome end result. They picked the type of product that they were going to sell for the type of market, but my own belief is that Americans were buying a bit of Australia with that bottle, with the Yellowtail—the good news story; those smiling people. I think that is a hell of a big issue in the whole equation.

Mr JENKINS—There can be examples where there is really no need to have domestic credibility?

Mr Porter—Yes, but Australia is a good brand—no question at all.

Mr JENKINS—Many have put to us—and I think it is what you are saying—that we really need to be dominated by market pull rather than technological push. Is your observation that there is a move in that direction? Others have said it is a fairly static situation and we still have not learnt the lessons. You are emphasising that we need to get our heads around what the customer wants and be driven by that, but my question really is: is that being taken on? Are people getting the message?

Mr Porter—Slowly. I do not want to buy into the argument about Telstra, but the reality is that the new man at Telstra made that statement right at the beginning, talking about the customer. If you have been a customer and had a problem with Telstra and rung up Telstra—forget about the people in the bush—boy, can it be a very sad experience. An organisation like that just totally loses touch with the customer and how to interact with the customer and solve their problems. That is what gets people onside. You can feel good about Telstra but, believe me, when you have actually got to ring them up and follow a problem through and go through a merry-go-round it is not a very exciting event.

CHAIR—'Don't bleed on our table'!

Mr Porter—Yes.

Mr JENKINS—The marketing mentality that you are talking about is across the board. It is not just to do with innovation.

Mr Porter—Yes, the whole thing. It is the beginning and end of it. And when you bring up the issue of costs: I could have given some other examples that I have dealt with, but I deliberately put in the Dyson one. Yes, I know it is not perfect. It is an expensive product, and that is another whole area of mind-set as well, but it brings up this issue of these people operating in England. They had the English market with 60 million people. Sixty million doesn't equate with 300 million. You go to America and, boy, your volume goes up. Dyson knew that. He wanted to improve his manufacturing operation. I did not get too deeply into it, but I seem to recall the issue of trying to enlarge his factory, and there was red tape and drama and trouble and Lord knows whatever else, and the unions wanted to lynch him at one stage as well. I do not know about the fact that he went to Malaysia, but the point was that the cost in Malaysia of labour is a lot cheaper. It is certainly not as cheap as in other places, but basically he knew he had an expensive product and he knew he had to do something about the dollars.

As I have said, you go in and look at clients' factories and you say, 'Well, look, guys, there are a hell of a lot of things you can do about improving your cost structure here,' but a lot of Aussie industries do not necessarily do much about it. Neither do farmers and neither do others. The attitude is, 'It's been going nicely. We'll just let it toddle along.'

Mrs VALE—Further to the line of questioning that interested Harry, you say that one of the good things that comes out of America is this instinctive ability to market. Is that something that we can learn? Is it something you can teach? Is it really only an instinct? How can we go about encouraging this market instinct in Australians? Is there any role that government can play in creating that instinct or is it something that has to come from the business sector itself?

Mr Porter—I do not think you can change people's basic make-up. If you have a conservative Englishman, you will not necessarily massage him into a non-conservative shape. But you can make people aware of the issue. You can make them aware of the fact that, if you want to really sell a product or a service or whatever, you have to be conscious of this, therefore you have to take it seriously. It needs to start off in all avenues. Particularly, all government programs should be directed to the fact that, 'If you guys haven't addressed the marketing aspects then you've got a problem.'

In terms of education, you really have to make people conscious at a reasonably early stage of good marketing, a good approach. You see it in five-year-olds in America, how they can put a story across, how they can approach things in a positive way. But I do not think we will change people. We can make them conscious of the fact that there is a difference.

Mrs VALE—In marketing itself, is marketing actually meeting the customer's needs or convincing the customer that this is what they need, that your product is what they need?

Mr Porter—A bit of everything, yes. You get into positive thinking, of talking what is the fifth-best into the best. There is a positive approach to putting a story across, and there is a negative approach, and the positive approach is part of good marketing, of seeing the bright side: the cup is half full rather than half empty.

Mrs VALE—You were speaking before about good products that were much cheaper when they did come to the market and actually failed—even products that were superior to dearer products. It is an old adage, is it not, that people have said—grandparents have said—'Let price be your guide'?

Mr Porter—When you have a price issue, you can sell a product up if you can talk about the feature benefits. I say to you, 'Look, this microphone is a lot better than that one over there because I can adjust it in different ways. It picks up better.' I can start to go through the features of the thing, and quite often the other person may not have spent the time or made the effort to extol their features.

Mr PRICE—Just a different line of questioning, if I could. I was interested in your comments about patents and patent protection. It is an underdone area when we are looking at innovation and commercialisation. Do any other governments overseas take action to assist people in lodging and protecting their patents?

Mr Porter—I prefer not to comment on that.

Mr PRICE—Okay. Are there things that you think the Australian government should look at?

Mr Porter—I was at a meeting with I think the ambassador involved in Austrade—a woman from China. She had commented that Austrade are prepared to give people help in trying to protect their patch. What degree of help I do not know and to what level I am not sure. The trap with patents is that even if in this country—we had someone have a major fracas over patent infringement recently—it does not have a lot to do with being right or wrong. It is really to do with economic muscle—'I've got more money than you have.'

Another issue is that quite often patent attorneys will take the money. Someone has made a point in one of those submissions about looking at the intellectual property and looking at whether it is really worth it. A lot of patents essentially, when you look at the claims, will not really stand the light of day. That does not mean the attorney has not accepted the money for it and is quite prepared to accept more money when it comes to defending it. This can be an absolute frightener. I have had people spend up to \$300,000 on defending and fighting patent applications. Believe me, at the end of it, it has nothing to do with who is right or wrong.

We have tried to get clients to sit down and talk to the other party but the attorneys want to keep people at a distance. My prime advice to people is yes, put a patent on it but treat it as a marketing tool. Register the design and treat it as a marketing tool. Do not think this is going to hold everyone at bay but it will discourage people. You want to discourage people from moving onto your patch but, when it all comes down to it, not many innovators have the funds to really defend an effective challenge, even if they are right.

Mr PRICE—We are always concerned to look at intellectual property but if you made a fair analogy of research and innovation in Australia, or a caricature of it, it is that we do the research, we get a product up and running, then not too long after that we sell that to an overseas company. As a country we lose the intellectual property and the longer term benefits. I tend to think the FIRB look at it as a straight economic issue. Do you think there needs to be a government accounting of the loss of this intellectual property with these sales?

Mr Porter—One view is that if you have something of value, you need to market it. There have been a lot of important innovations whereby people have tried to look for support here and have not got it. In the end they have been forced to more or less sell it off. With effective promotion and marketing they may have been able to sell it to the real marketplace, which is not here. They get to the stage where they run out of funds and essentially give way and sell it off to someone else overseas who really does make the money.

Mr PRICE—Should there be a tracking of the loss of these innovations overseas? At the moment I do not think there would be any government department that could tell you what it is that we have lost in the last 12 months, the last five years or the last 10 years.

Mr Porter—But can they tell you about the financial effectiveness of the money that we spend and what we actually get back? Yes, you can do it, but you can also look at how many million dollars the federal and state governments spend on helping innovation and what actual return we get for it. It is the feedback loop. Should we be spending this?

Mr QUICK—We have heard evidence of people involved in the associated pharmaceutical industry. The only big players are the Pfizers and Glaxos that control basically the whole world, when it comes to that. They are the marketers, if you can get in with them and have a joint venture.

Mr Porter—The Faulding case was a classic one. They had a strategy of saying, ‘We’re not going to go head to head with these guys. We’re going to find all these niches which to us represent an awesome amount of money,’ and they did it very effectively. There was a lot to learn from how they went about it. To develop a drug these days costs about \$800 million to get it through the circuit. Not a lot of people have that. The Faulding exercise was a really good example of how to go about it in a smart way.

Mr HAYES—Going back to Roger’s issue about IP, what has been put to me in the past is that if you were considering manufacturing out of China because of lower cost of production et cetera, you would have to have in the forefront of your thinking that if the product was straight manufacturing and did not require innovation, and was not necessarily capable of being obviously copied or counterfeited over there—in areas where I have been involved, companies had to make decisions about whether, in the longer term, there was capability of entering into some sort of commercial arrangement in terms of equity with a Chinese company or Chinese state, or alternatively be prepared to lose the technology. Notwithstanding the fact that you could produce so many widgets there, if the widget is capable of being varied, modified or commercially counterfeited, it is a risky decision.

Mr Porter—It is terribly risky but when you look at the up-front cost of tooling and the price structure arrangements, you have to make a weighed decision. I have alluded to a few mechanisms for trying to stand people at bay. The first one is that you have the distribution. If you file a patent in China, patent attorneys will accept the money for filing in China. It is not cheap because they want the full tote odds, not the low-cost Chinese IP option. But you cannot protect it, so why bother? So you file in the countries where you are going to sell the product. If you have the distribution system in those countries, that counts more than anything else anyway. We are doing a few of these at the moment and we will get this made here and something else

made there, and we will bring it together over here. We never quite let them have the full picture, if you know what I mean. As soon as they have the full picture, you have a problem.

Someone took an innovative approach—I think it was Sunbeam and I vaguely alluded to this here—and what they do is come to you and say, ‘Look, we’ll make this Mixmaster in your factory at the right price, and we want a certain volume of that product but we’ll license you to sell it anywhere else you can sell it, so long as you don’t cut across various agreements we have.’ They are accepting the fact that someone will try and sell it and they figure they will make a percentage of it, which is not bad. We are innovative people here; there is no question of that. We just have to use our heads around this. Secondly, if you have labour intensive bits, you farm them off. If they are non-labour intensive, put the equipment in and set the factory up. Do not try and hold back the wall of water when you know you cannot produce at the right price and you have everything going wrong. Just go about it in the smartest possible way. The guy that controls things in the end is the guy who has distribution. That is the end control.

Mr HAYES—And hopefully some control over licensing.

Mr Porter—Yes.

Mr HAYES—There is another thing that interests me. If you are producing a widget, you want to do it in the most efficient way. If labour costs are a significant thing, you are going to shop around and get the cheapest labour costs. To what extent should an Australian company be worried about effectively outsourcing its manufacturing? Does that lead to strategic deficiency within that company? It seems to me that it is almost irretrievable once you commit to go offshore to—

Mr Porter—This is effective for ‘America Ltd’ at the moment. There was a very interesting article written recently about American industry, talking about machining operations and other things. There are a lot of facilities that do not exist any more because they have outsourced the lot. It is pretty serious stuff. There is a point to consider: do you have to maintain some sort of capability in some areas? In many things you have to and in other cases it really does not matter a lot.

CHAIR—Mr Porter, this has been fascinating. Do you want to make any concluding comments to touch on things that have been triggered?

Mr Porter—No.

CHAIR—One final question: do Dysons have a distributor in Australia?

Mr Porter—Yes, they do. They are very effective.

CHAIR—Thank you very much. We might come back to you with some questions before we finalise it.

Mr Porter—Thank you.

CHAIR—We are now going to take a short break.

Proceedings suspended from 10.57 am to 11.04 am

ANDERSON, Dr Susan Mary, Research and Technology Manager, BAE Systems Australia

CHAIR—Would you like to make an opening statement?

Dr Anderson—Yes, I would, thank you.

CHAIR—Please go ahead.

Dr Anderson—Firstly, thank you for the opportunity to meet with you and present the submission to your committee. I am representing BAE Systems Australia. I am the research and technology manager. My role involves managing the internal portfolio for the company, as well as managing relationships with external research providers, such as DSTO, CSIRO, universities and our company's research establishment in the UK.

BAE Systems is an international company engaged in the development, delivery and support of advanced defence and aerospace systems. BAE Systems Australia and our predecessor companies have been designing, integrating and maintaining military systems for Australian defence. We have over 2½ thousand employees within Australia. Our prime sites are in Adelaide, Canberra, Sydney, Williamstown and Melbourne. Our employees have key skills in engineering and systems integration.

Our strategic intent is to become the Australian Defence Force's through-life capability partner in integrated military systems and support solutions. Our strategy is executed through five core business units, which include information architecture, force awareness and protection, military air support, airborne early warning and control programs and operations. We are a matrix organisation and have functional units to support these business units. As R&D manager I sit with the engineering function and report directly to the director of engineering.

BAE Systems R&D activities are focused on applied research in niche areas, as opposed to basic or fundamental research. Our aim is to increase the technology readiness level of research products to a point of maturity, such that they can be exercised and exhibited in CTD or capability and technology demonstrator programs.

In Australia research activities are managed through distributed special purpose research and development teams embedded in the business units. We do not have a research cell as such or a research and development department. The entire portfolio is managed essentially through myself. It is a full-time position and we use all the project managing processes to manage each project. We plan our research on an annual basis. The company business planning process establishes an R&D budget. Headline investment areas or key strategic capability areas provide us with a top-down approach to determining our research portfolio. We also receive detailed R&D proposals which provide a bottom-up approach. We have a research and development board which meets regularly to assess proposals and allocate funds. We also have a strategic science and technology advisory board. The acronym is SSTAB for that. We have external memberships and that board evaluates long-term strategic direction for our investments.

Our aim is to allocate funds across all capability domains. This is a real challenge. Another challenge of course is ensuring that we demonstrate the bottom line value of our research investment. We recognise the benefit of collaborative partnerships with other research institutions as I have mentioned before—DSTO, CSIRO, universities and our international overseas establishments. In our submission we presented two successful examples of the commercialisation of technological innovations, the ship air defence model, or SADM, and the ongoing development of the Nulka active decoy missile.

These are my opening remarks. I hope I can answer any questions you might have regarding them.

CHAIR—Thank you very much. I still do not have a clear perspective on the company. You have 2,600 employees in Australia.

Dr Anderson—Yes.

CHAIR—What do they do?

Dr Anderson—Our strategic vision is to be the through-life capability partner in integrated military systems and support solutions. There are five business areas. Information architecture provides communications and command support intelligent aspects of network centric warfare. Our core capabilities are in communications, engineering services, maritime electronic support systems and command support intelligence.

CHAIR—Sorry: 2,600 people doing what? You have 2,600 employees.

Dr Anderson—Within Australia. A thousand are in Adelaide, and 1½ thousand are distributed around the country.

CHAIR—What do they do?

Dr Anderson—They are mainly engineers. There are software engineers. We are systems integrators. We provide also support solutions to the defence industry. Our main customer is the defence industry.

CHAIR—I will try once more because I genuinely do not—

Dr Anderson—Sorry, no, that is okay.

Mr QUICK—You manufacture the various—

Dr Anderson—We manufacture. We are prime contractors on certain projects. We integrate systems. We develop software for defence systems and military systems.

Mr QUICK—We are a bunch of pacifists. Do not worry about it.

CHAIR—Can you just tell us a bit about Nulka. You say you maintained the patent. What does that actually mean? Somebody else developed it. The Americans essentially developed it, right, and you have maintained—

Dr Anderson—It was a combined effort. It was separated into two different areas. The Americans developed perhaps the electronic component of the Nulka. The hovering rocket part was an Australian invention.

CHAIR—What does it mean that you maintained the patent?

Dr Anderson—That means financial, I think, just maintained, so the patent did not run out. Our main involvement in Nulka at the moment is in manufacturing components for it and also upgrading various components. We have a contract to manufacture the thrust control vector unit, or electronics; not the main electronics, but the flight control units, the various components of the—

CHAIR—So essentially updating and keeping the patent current.

Dr Anderson—Yes.

Dr JENSEN—I will throw in one for the committee work and one technical question. As far as Nulka is concerned, can you enunciate the conception of the idea and how you went through the idea to market? I realise some of this is prior to the time of BAE Systems but I guess there are companies—GAFF, for instance, which is now part of BAE, is it?

Dr Anderson—I suppose the key employees within GAFF came across to BAE. We have a number of key employees—

Dr JENSEN—Can you go through the innovation path from the conceptual idea to actually selling these things.

Dr Anderson—Sure. The system is designed to protect naval ships from the threat of any ship missiles. It started perhaps in the early seventies when they needed to rethink about how they could protect these sorts of ships. The system uses a unique combination of the hovering rocket motor, as well as electronic warfare technologies. It was developed over a period of about 30 years. I suppose the main innovation from the Australian point of view was the development of the hovering part of the rocket. As you know, most rockets, when you light them, tend to go off at a rapid pace. This rocket required a slow-moving speed and required a vertical hover manoeuvre and a slow manoeuvre away from the ship, so that the innovation came in the design of what we call the thrust vector control which controls the movement of the rocket.

As I said before, the electronic warfare, the smarts part of it, which basically emulates the signature of the ship, was developed internationally. Developing the smarts for the hovering rocket was one thing but getting support for it to become a commercial reality was another and, as I indicated in the submission, only when we received high-level support from within the company, within the government, within Defence, did it become a reality. That is a very top level, rough overview of the development; the technology was there, the people were there to develop this.

Dr JENSEN—And there was a perceived need?

Dr Anderson—Yes.

Dr JENSEN—Now for the techo question. I alluded to this earlier. The problem with a system like this is that ships do not act in isolation; they act in groups. Having Nulka's spoofing missile away from your ship might be actually seducing it onto another ship.

Dr Anderson—Sure.

Dr JENSEN—What measures are being taken to—

Dr Anderson—That is all about situation awareness. You would not obviously shoot a Nulka decoy into the surroundings of another ship. In terms of the rocket itself, it has a certain control path but its situation is that it is with other ships in that area which will make it steer away from that. In terms of controlling the decoy accurately, improvements are always going on with that. In terms of being aware of your surroundings, that is another story, if that makes sense.

Dr JENSEN—Yes, it does. I guess there is a slight problem there in behaviours of missiles and so on.

Dr Anderson—Yes.

Dr JENSEN—It is a very complicated situation.

Dr Anderson—It is.

Dr JENSEN—But Harry asked for a techo question so I thought I would put in a techo question.

Mr JENKINS—I thought Ms Anderson answered it very well.

Mr QUICK—The customer focus: the defence industry, what you represent in the way of science and innovation, is completely different from any of the other evidence we have taken because—

Dr Anderson—We are focused.

Mr QUICK—you are focused. But from my reading there is almost an unlimited budget. Let us put it this way: the American defence industry seems to have an unlimited budget in their spending and involvement with someone like BAE Systems. What sort of company is it? Is it responsible to shareholders?

Dr Anderson—Yes. We are an international company and I think if you are referring to US defence and US spending, we do have a US arm of the company. I am referring to BAE Systems Australia.

Mr QUICK—Yes, because there would not be too many companies where you would have a lead-in time of 40 years and still be finetuning something, and yet you have a guaranteed sale, irrespective of how long it takes, because there is a licence to print money in the defence industry—like your vacuum cleaner or whatever widget you decide. There is heaps of money in research and development. That would be unlimited because there is a potential. We are building two or three destroyers here, which cost hundreds of millions of dollars. After the Falklands thing where the Exocet, or whatever it was, put the frighteners up everybody, we are prepared to spend whatever it takes to develop some sort of system to prevent that happening.

Dr Anderson—Sure. I will just pick up on two points. If you are referring to the US budget versus the Australian defence budget, it is vastly different. That is one point I will make.

Mr QUICK—But you must work in collaboration because it is something that we do to add to their product. What sort of value do we get out of that? Do we have half the value or a third of the value because we can design the hovering rocket part of it and they have the other part? How does it work?

Dr Anderson—The IP for all of that is retained between the Australian and US governments for the development of that. It is normally through joint collaboration; in rough terms it is fifty-fifty for the IP sharing. I am sensing a bit of mixing between government funded things. We are a commercial organisation and we do have to be competitive for various projects.

Mr JENKINS—I suppose it gets back to the chair's original question about what maintaining the IP means, because we have the 30-year history where DSTO was our agent and the US Navy was the American agency, but it then got to a stage of 'product development' that was being put in place, and then you as a corporate entity come in and you have described it as maintaining the IP.

Dr Anderson—Yes.

Mr JENKINS—We are trying to come to grips with what is the commercial relationship between ourselves and the people that hold the patent. Do you do work under licence?

Dr Anderson—We are the prime contractor for Nulka within Australia. Our contracts and our funds come through the Australian government which, as I said, is probably a joint US-Australian fund or budget. But we are basically the prime systems integrator or prime contractor for the Nulka within Australia. We also developed the smarts in terms of that.

CHAIR—Who owns the patent?

Dr Anderson—It is a joint US-Australian—

CHAIR—But who owns it now?

Dr Anderson—I could not answer that question. I can take action to get that.

CHAIR—It is just that I am not sure.

Mr JENKINS—It would be helpful, to the extent that you could clarify that, to understand how BAE Systems Australia get involved. Are BAE Systems Australia the only people that manufacture Nulka or is it manufactured elsewhere?

Dr Anderson—We manufacture part of the rocket. As I said, there are about 100 different components.

Mr JENKINS—You are developing the hovering rocket.

Dr Anderson—Yes. The actual rocket element is manufactured elsewhere and it gets assembled in a plant in Victoria. We manufacture some of the components, we get some of the components in from the US, other components are manufactured in Australia. We assemble it in a plant within Victoria.

Mr QUICK—When they are sold, is it fifty-fifty between us and the Americans?

Dr Anderson—When they are sold?

Mr QUICK—To the navies around the world?

Dr Anderson—I would not be able to answer that question in terms of split.

CHAIR—I think we probably have acquired the patent because Australia has never been very good at protecting their patents, especially Defence.

Dr Anderson—I would love to take action to find out.

CHAIR—That would be good, if you could advise.

Mr QUICK—I have been desperately trying to think of a peaceful use for the hovering rocket, getting back on the vacuum cleaners. We have the hovering rocket.

Dr Anderson—It is peaceful in that it is meant to thwart—

Mr QUICK—I understand its situational awareness and readiness and all that. Whether these sorts of things lead to a certain market or not could be debatable, because somebody could come up with a better part of a whole product and put you guys out of business, whether it is the hovering part or the part that would allow us, in Dr Jensen's situation, to put up one rocket and not have it flying around hitting other people; so there would always be improvement. Regarding the sort of skill set that either works directly for you or in collaboration, to what extent does Australia provide a skilled work force for that, and to what extent does Australia provide a skilled work force that then can put that research to practical use?

Dr Anderson—You are referring to the Nulka?

Mr QUICK—Or any other examples that you have, not just particularly to the Nulka.

Dr Anderson—Following on from Nulka, Australian resources developed, as I said, the hovering rocket in the mechanism to keep this thing stable, which is a very difficult thing to do. That has led on to other work in other missile programs. That is an in-house capability. The flight control unit, the smarts or the algorithms behind keeping it, is now an in-house capability. As I said, we have received other contracts based on that resource capability.

Mr QUICK—Other contracts? What sort of products?

Dr Anderson—The Evolved Sea Sparrow Missile is another that we support; any ship missile.

Mr QUICK—So it is an attacking one rather than defensive?

Dr JENSEN—It is defensive.

Dr Anderson—It is an antiship.

Dr JENSEN—Because with enemies attacking you, you shoot down either their missiles or their aircraft.

Mr JENKINS—What missile is that?

Dr Anderson—ESSM is the acronym. It is Evolved Sea Sparrow Missile. That requires a really fancy manoeuvre to do what it has to do. The thrust factor control unit, which is the unit that actually controls the direction of the rocket, and the flight control unit, the smarts to do that were developed within the country, within BAE Systems.

Mrs VALE—Susan, we note that you work very closely with the Australian government, particularly the Australian Defence Force and DSTO. Have you been able to take any advantage of any government programs for innovation or for commercialisation of your product? Have there been any government programs that have assisted you?

Dr Anderson—The CTD program—that is, the DSTO capability and technology demonstrator program—is a very effective program for us to, as it says, demonstrate any capability that we have. We currently have a couple of CTD programs with Defence. We are entering into more each year if we apply and are successful in doing it. That is one area. I know an R&D Start application was prepared but not submitted, so it may be something we look at in the future. All eligible research investment is also claimed under the R&D tax concession scheme. While that is not a driver it is an enabler and it does help us in our path. We do use that.

Mrs VALE—When you actually do take the government's assistance programs, is there any responsibility on behalf of BAE Systems to negotiate the IP in any way? I ask that because I think it is in the Nulka program that IP is actually owned by the US and Australian governments. When you develop systems that are obviously important for our defence purposes, is there any government interest in maintaining some IP control?

Dr Anderson—From our point of view we cannot hope to own all the IP of things that we work with. As I said, we are systems integrators, so we generally put a lot of different systems

with a lot of different IP ownerships together. We have to understand the technology. Having effective ownership is what we need to be able to take whatever it is into the operating environment. It is effective ownership of IP, I suppose.

Mr HAYES—In terms of your 2,600 employees, I understand a fair portion of those are engineers or scientists involved in the developing and maintaining of programs. How difficult has it been to attract that level of scientific knowledge into the organisation? Is it sourced in-house or do we have overseas people coming in for it?

Dr Anderson—We have a mixture. We recruit local. We have an active recruitment campaign within universities. I think there are two competing factors: we are in South Australia in a defence hub, so it is a positive factor. Our location within South Australia, being relatively remote, is perhaps a negative factor. We do, as I said, recruit actively within Australia. We also have some international people but in the main it is within Australia. In a lot of cases we realise that graduates or people coming in need training to get up to the level that we require within projects, so getting a skilled work force is good but we also have a heavy emphasis on educating.

Mr HAYES—So working collaboratively with other bodies also helps that work?

Dr Anderson—Yes, definitely with universities and DSTO.

Mr PRICE—Getting back to the chair's question but framing it in a different way, how many engineers and scientists do you employ?

Dr Anderson—What is the split?

Mr PRICE—You can take it on notice.

Dr Anderson—I will take it on notice. I would say the bulk, about 80 per cent, would be engineers and scientists.

Mr PRICE—What is the percentage of your turnover that the company spends on R&D?

Dr Anderson—In terms of the R&D tax concession, or the eligibility criteria for that, we are at approximately 15 per cent.

Mr PRICE—Fifteen per cent of your turnover?

Dr Anderson—That is how we measure it.

Mr PRICE—Internationally is that about average or below average?

Dr Anderson—For the type of company that we are, that is about average.

Mr PRICE—In terms of exports, what is the value of your exports?

Dr Anderson—That is again something I will have to take on notice. I could not give you an absolute value or a relative value.

Mr PRICE—Over the last decade or so it is fair to say that there has been quite a bit of change in DSTO and the recognition of bringing people in earlier. Do you have any comments to make to the committee about the relationship you have with DSTO? Are there things that we can still further improve to get products commercialised?

Dr Anderson—We currently have an industry alliance agreement with DSTO. We have had it for three years and we are looking to renew it to a strategic R&D alliance agreement. That provides a mechanism for us to collaborate with DSTO from top-level management down to working groups. Over the years we have been improving our relationship with DSTO under that alliance agreement, that arrangement.

Mr PRICE—Pardon my ignorance, but is there a difference between an alliance and a strategic alliance?

Dr Anderson—Yes.

Mr PRICE—Is it a higher level?

Dr Anderson—I think it is. It essentially means the same thing but under the strategic R&D alliance agreement there are more mechanisms for interaction. That is my understanding of the main difference between the two. It is somewhat of a name change but I think also the deal is that there are more mechanisms and things for interaction. That is a good thing because we find that relationships are born over a number of years and through regular interactions with DSTO. On our front, going and talking to researchers at the working level as well as talking to their bosses and the director of the labs is the way to go. We have been doing that more actively this year.

Mr PRICE—In terms of cultural cringe, we are always being told we are two per cent of the world market for everything and therefore we should not expect to be able to innovate and have products. If you look at, say, what the Israelis are doing in defence science, research and innovation, it would be fair to say that we lag somewhat behind. Our strategic circumstance is somewhat different to theirs. But why is it not a fair criticism by the committee to say that both DSTO and its commercial alliance partners are really failing Australia because we do not have the same level of product development in this country compared to a much smaller nation like Israel?

Dr Anderson—You probably hit the nail on the head with your first comment by saying our strategic position is different. We do not have the same immediate level of threat as Israel or any other country like that.

Mr HAYES—How does Australia increase the level of self-sufficiency in some of these military products beyond what is being done today?

Dr Anderson—You are asking why don't we invest more?

Mr HAYES—Yes. Why don't we have more products?

Dr Anderson—I would say that we have an active and healthy budget investment. I am not sure how to answer your question.

Mr HAYES—What I am saying is that we import so much of what we are. It is very fashionable for people to argue for overseas and off the shelf is best and, whilst our strategic circumstances are different, there may come a time when we cannot ring the Pentagon and start ordering things off the shelf. Then we may be in some difficulty.

Dr Anderson—Are you talking about increasing the capability in-house now?

Mr HAYES—Absolutely. What is the satisfaction level we should have? How do we judge how well we are doing? You referred to Nulka, and I have forgotten the name of the thing, but there is an equally famous system that failed and was closed down after costing about \$300 million. Whilst we celebrate Nulka, we do not track the failure. I cannot think of its name.

CHAIR—Nobody remembers failures.

Mr PRICE—No. I watched it, but sometimes you can learn from failures. Sorry, but I am not satisfied. You are saying you have this great relationship with DSTO; you are a good company doing good things.

Dr Anderson—We are improving the relationship, yes.

Mr PRICE—I accept all of that. But what benchmark do we use? It could be possible, if we look at the way the defence industry performs today, that we are underperforming significantly. We should be trying to develop more in-house capability.

Dr Anderson—I suppose that comes back to the Defence budget and how much money they have to spend. We of course contract based on the Defence budget and the procurement profile et cetera that Defence dictate. In terms of me commenting on Defence's strategic—

Mr PRICE—Defence always argues an acceptable premium of five or six per cent for Australian manufacture. We still buy a lot overseas. Okay, getting nowhere.

Dr Anderson—Sorry.

Dr JENSEN—Susan, your business is very different to a lot of other submissions that we have heard because effectively you have a captive customer and relationships that are well developed. Is there a lot of work done in developing additional relationships, let us say, overseas in other markets; maybe not even military markets—looking at some 'peaceful' applications of the technology?

Dr Anderson—Our main thrust is the defence market, Australian defence primarily, and then international defence agencies.

Mr PRICE—Do you think the hovering technology has a household application?

Dr JENSEN—They are searching for it. Some of the systems integration work and so on could be quite useful in other areas as well. Do you simply see your relationship in terms of Australian defence as the core business and basically, if Australia decided to halve the Defence budget tomorrow, your company would effectively go belly-up, or are there contingencies? Are you developing other markets?

Dr Anderson—The defence market is our primary customer. We do not figure that defence will go away overnight. But it is a competitive environment; we are not the only defence company.

CHAIR—That is certainly true, and your aspirations are fantastic.

Mrs VALE—This committee has identified a new market: that would be for a hovering vacuum cleaner! With regard to your industry alliance agreement that you have with DSTO, does that also include the IP of your end product?

Dr Anderson—That is on a case by case basis. It is normally discussed up-front with DSTO and any other organisation. It depends. As I said, it is really effective ownership that we are after. We want to be able to use it, to take it into the operational environment, whether it is a licence or a full ownership.

Mrs VALE—You do not mind as long as you get—

Dr Anderson—It is effective ownership.

Mrs VALE—I understand.

Mr QUICK—Susan, you say there is no centralised research cell. Who decides the proportion of research funding to be allocated to the various things? Is it success driven—someone has done something so they receive more—or does everyone get 20 per cent out of the fund?

Dr Anderson—It has to be in line with our strategic intent, to start with. We have a certain budget delivered out of our business plan. We have a certain budget to work with every year, which is decided on a merit basis. If it has a past history performance, that always helps, but it is decided on an annual basis. We have certain capability areas that we want to enhance.

CHAIR—Susan, we are sorry. We are politicians and we have misled you: we have one last question.

Mr JENKINS—I did not want to offend Roger by talking about peace! I am interested in the IP and maintenance stuff. I take it that takes some input from patent lawyers?

Dr Anderson—This is the IP relating to?

Mr JENKINS—Just keeping it up to scratch would require submission of updates or something.

Dr Anderson—We do not have many patents in terms of IP. But we have a commercial department and a legal department and we have agreements.

Mr JENKINS—You do it in-house?

Dr Anderson—Yes.

Mr JENKINS—That is what I am seeking. You are of a size that you can adequately cover that by in-house people?

Dr Anderson—Yes. We have commercial and legal people to do that.

CHAIR—Thank you very much. Are there any concluding remarks that you would like to make?

Dr Anderson—Just to thank you for the opportunity. I will also follow up on the action I—

CHAIR—We would be grateful. In terms of patents, we would also like an elaboration of what you mean by ‘effective ownership’.

Dr Anderson—Okay.

CHAIR—That is quite important in the case of defence organisations. Thank you very much.

Dr Anderson—Thank you.

[11.40 am]

TAYLOR, Mr Robert James, Director, Robert Taylor and Associates Pty Ltd

CHAIR—Thank you for coming, Mr Taylor.

Mr Taylor—Thank you. My background is I basically ran Techsearch at the University of South Australia for a number of years, so I have been involved in that interface between a research organisation and industry, and making a dollar out of that activity on behalf of the university.

CHAIR—That is good to hear. Would you like to make an opening statement?

Mr Taylor—The trick in all of this is getting better social interaction between the players, whether they be in industry or in the research organisation sector, in terms of local community development. It is essentially that around the future of the institutions and within a region the players who are involved in business formation have a much closer interaction with the knowledge supply side. We have not had a great history of building those relationships. We tend to come from a culture where, if it is in a university or a research organisation it is over here; if it is in a company or a business it is over here.

To get the benefit of the investment that the federal government makes in knowledge information within the public research sector, more attention needs to be paid to getting those relationships at the interface, which is a local contact sport endeavour. It is not about publishing and media stories. It really is about the interface between people. Recognising where a piece of technology or research or science might have an application requires familiarity with the marketplace, as well as familiarity with the technology. The supply side does not often have a great knowledge of application. There can be a multitude of applications for the same technology, which then brings a bearing on the commercialisation and business sense of the research organisation in dealing with its intellectual property. You can segment the application and the opportunities for deal flow-on and cash back into the institutions by being smart about managing that.

One of the difficulties that arises in terms of the operations of units that have been given the responsibility in the public research sector in terms of getting technology out is access to funds for that early stage prototype development activity, which is always necessary. Whilst pre-seed and VC fund support is being provided by various governments, generally what tends to happen is once you set up the fund then the fund manager moves to a less risky position, which does not help in the very early stage of demonstration and evaluation. There has always been a propensity by the federal and state governments to feel that it is risky to allow the institutions to go too far down that pathway because they do not know how to manage the risk effectively and it will always be better done by the private sector.

There is no argument about that but it is a matter of doing that together, recognising that the fund manager has risk criteria about how they invest their funds. Going into the very early stage engineering prototype development within the lab is a little bit out of their normal business risk

management portfolio and experience. We need to recognise that. When the pre-seed funds were originally proposed, it was proposed on the basis that the funds would somehow be managed by the commercial arms of the universities. In the event, the venture capital industry basically convinced the government that was not such a smart idea. We have ended up with another source of finance which does not effectively help in terms of a broad approach to commercialisation within the university and public research sector.

CHAIR—How would you address that issue? How would you go forward and fix it?

Mr Taylor—We can go forward and fix it. The other thing is that within a government sector what happens is we have this gap in between. That is because we generally have fairly clearly defined industry portfolios and education, science and technology portfolios. This gap is created between the two portfolios. The argument is always about, ‘Does it fit within our portfolio or their portfolio?’ and in the middle is no man’s land. It is a characteristic of many programs. Historically, federal government programs in what we would class as industry development were open to universities and commercial arms, but increasingly over time they have been moved right into the industry and business sector.

That is fine but nothing is being done at the bottom end in terms of encouragement of the universities which used to use those programs to write grant applications on behalf of their customers to enable the customers to get access to the funds which then came back through the research organisation but built a relationship with a company.

Like the teaching company scheme, for example: in the early stage you will start grants and a number of grants have moved to separate. Education, Science and Training is now reviewing how far it goes down the commercialisation track in terms of funding. We have the current conversations in Canberra around third stream. Maybe we should be funding another program within the public research sector which recognises that we need the universities and CSIRO to go a little bit further down that path—‘So here’s potentially some money for that purpose’—and to do it on a partnering basis. I think that is the likely outcome. It will come from Education, Science and Training to try to build that bridge into industry. I do not think it is going to come from the other direction—that is, industry backed.

CHAIR—But the universities and CSIRO have been pressing over quite a few years now about the need to focus on commercialisation. They claim to have embraced it with both arms but we need more funds to actually get them to embrace it even more tightly.

Mr Taylor—Yes. The reality is that over time we have certainly moved from a policy point of view from new knowledge for new knowledge’s sake to encouraging alignment with the economic development strengths of the country, which is entirely appropriate for a country like Australia, which has a very small population. There are a lot of countries around the world that are pumping a lot of money into basic knowledge. Our focus should be on applications. The Rural Development Corporation is fantastic, because that builds a buyer pool. What has changed there is that now they are taking a much deeper interest in the intellectual property and commercialisation pathway, which is fantastic, but that is an industry pool mechanism, and that is what we have to build into the funding programs. Commercial-ready is great but the commercial arms or entities that have an ownership structure in which a university or a public research sector organisation has equity cannot take advantage of those granting schemes. We

create these artificial fund barriers that are creating difficulties with those relationships and effective transfer of technology.

CHAIR—How do we address this?

Mr Taylor—If policy and programs are going to be put in place by government, then the portfolios that overlap have got to come together and have a sensible resolution in conjunction with the players who are actually involved in this business day to day. Commercial arms of universities survive on a business model, otherwise they do not receive funding from their owner.

Their business model is about transactions that can be about collaborative R&D, consultancy testing, licensing, equity and start-up, so they have a very broad ambit of activity, all of which contributes to the running cost which supports their IP portfolio, their licensing, legal people, their patient people and their financial management people. We have to get into our heads that these organisations are truly businesses. They are not different to companies out there in the commercial sector. They are really commercial operations. It just happens to be that their resource is intellectual property, intellectual capital. They are turning into revenue streams for the institution.

Importantly, those revenue streams are building up relationships which provide opportunity. The core outcome of an institution is new graduates. The problem is that if we do not build a demand side pool for career development for that product, we end up being a net exporter of smart people and that is not what we want. It is all interconnected.

Dr JENSEN—I think you call them leadership groups in your submission. How do you go about generating these groups that effectively commercialise innovations and how is the method of generating these groups different with large and small organisations? In terms of large and small organisations, what sort of make-up should they have to be effective?

Mr Taylor—I think we need to look at some of the communities in other places and see how they have structured themselves, and this is where it comes back to a local challenge. That is around the networks who have the business experience, the business smarts, who have been involved in developing markets for products in a private sector capacity. These are the people who need to be tapped in locally. Larger companies' receptors are much more sophisticated and can deal directly with the research supply side. The SMEs are more limited in terms of funds available and generally expertise. That is a challenge but that must be built on a local basis.

For example, what we have been doing at Mawson Lakes with the University of South Australia and DSTO and SA Water and with the local government and the state government is to endeavour to start building that community which interacts not only with large companies but the small companies, because you can build that supply chain, cluster, whatever you like to call it, and you have an environment which is engaged on a continuing basis. That is where the soft social stuff is extremely important. Perhaps we do not recognise how significant that is. If you go into, say, university towns in the US, San Diego has a wonderful history of how it built this local community and interaction between capital, business and research organisations over a period of time. This does not happen quickly.

One of the other challenges I think we have is because of our political cycles, where programs come in and out of favour according to change in government, and we absolutely need a bipartisan approach and appreciation of the challenges that face us so that programs like this, which are built around regions, actually continue on. The stakeholders in the region have to come together and commit to it and get onto the same page. You cannot do this if you have a lopsided approach which is basically reliant upon just the research institution or reliant just upon the government or reliant just on business interests. It just does not happen. We have to find a way of knitting those interests together on a localised basis.

Mawson Lakes is a magnificent example in the process of growth over 20 years. It is at quite an advanced stage now but still has a long way to go in terms of soft infrastructure. We have Technology Park, a new urban environment, a university with major strengths. We have a lot of defence companies and electronics ICE companies all in the same geographic space. But there are still challenges in terms of building bigger, better, stronger relationships between existing players and also an environment which encourages new players. Most of the economic development in such communities in the states is derived from businesses that grow out of existing businesses, not out of business that are grown straight out of universities. They are complementary, they are part of the knowledge diffusion network that most of the new business ideas are going to come from: existing knowledge intensive companies.

By the way, a very important component of all of these communities in the States is the business school of the local university. The right leadership is there, because they tend to deal with the people who are investors, who are in business and so on. If you can build that, pull that back into your science and technology side, then you have a chance of mobilising. The University of South Australia is looking at locating the entrepreneurship program into Mawson Lakes, which then becomes an active interface contributor—not the only one—as part of the total environment.

You need to get your Business Angel network together, you need to get your next stream of finance investors, because everyone is looking for a qualified deal, and I am sure Amanda will talk to you about that next. It is so important in that pipeline that the investors all have their own separate criteria. You need as many seeds going down this pipeline as possible, because you're always going to lose a number along the way, but as you build around the opportunity, you have to get the team together that is capable of taking that opportunity. That team is not the same team. It is a different team for each opportunity, which means you must bring in more talent, particularly from the business side, with that kind of experience, and they take it up through the stages of growth through the enterprise. It is all fairly straightforward but getting those interfaces and getting those relationships right is the major challenge.

We have been quite fortunate in South Australia that Craig Fowler was recruited to DFEEST and the Science Technology Innovation Secretariat and he has produced quite a visionary document to challenge the communities here to develop an holistic approach to knowledge diffusion and business development commercialisation by focusing initially around precincts. Adelaide is quite fortunate in that we have a north, a south, a centre and an eastern concentration, and to reinforce these concentrations in terms of their global competitiveness. Then what you have to do is to build that competitiveness into your economic engine as well; forming these communities and then tying the communities.

Many of the niche opportunities for new business come through the intersection between other technology fields driven by applications and people who can recognise applications. That is why pulling the business side is an integral part of improving our output overall.

Mr QUICK—Do you see six state and two territory versions of what you are doing in South Australia superimposed by a national one basically controlled by CSIRO?

Mr Taylor—Wouldn't it be nice? I do not know that CSIRO can ever control it because CSIRO is trying to learn in the same space as well. The policy in relation to CSIRO has to increasingly co-locate, so in Adelaide in the centre we have the division of biowhaters. That is knitted quite nicely into the University of Adelaide, IMVS and so forth. Out at Waite we have a conjunction of CSIRO interests with the University of Adelaide and the Australian Wine Research Institute cohesiveness. At Mawson Lakes we are attempting to relocate the CSIRO manufacturing division, which needs to get onto that campus otherwise we will lose it from South Australia. That is the way you have to play this game.

Mr QUICK—But politically, like we saw with the shipbuilding contracts, how do you develop in the national interest? Looking at appendix B—if I were someone wondering, 'Where do I go', especially on page 4, organisation acronyms—to me there seem to be too many players. How do we simplify it? We have a population of 20 million. There are huge markets out there. All these groups of people are being funded by state government, federal government and industry.

As I said, on page 4 there, a small business person wants to get out and sell the widget; but all these acronyms and business services and commercialisation value change positions and the like. Will we have six state and two territories and it is all there in one spot? That is where you go, one stop shop: things will improve? Or will they, like CSIRO, become a monster that keeps sucking it in? It is like a black hole. They are never satisfied. You try and divide them and relocate them where they should be; they are too big and politically they can kick up a fuss.

Mr Taylor—In terms of these various networks that are out there and very thin on the ground in any place, the starting point has to be in terms of local concentrations.

Mr QUICK—But who decides that? Does the University of South Australia decide?

Mr Taylor—No, it cannot decide.

Mr QUICK—Does the state government decide?

Mr Taylor—This is where it has to be a business/government/research organisation. You have to have that mix, otherwise you will never get a sensible resolution.

Mr QUICK—Which of those three is the deciding point about whether it is here, in Victoria or based in Brisbane?

Mr Taylor—What are we talking about?

Mr QUICK—Say, for example, it makes sense to have the Antarctic CRC based in Tasmania.

CHAIR—The logic would be fine.

Mr QUICK—Yes, I know; and fishery research. You have someone up in Queensland, you have some in South Australia. Does it make sense to relocate the whole lot? You have the Maritime Museum in Launceston, you have CSIRO and CRC in Hobart. Who decides that it all ought to be dragged together, the research funding and the research fellows? There is a national benefit to having it in one place rather than all over a country the size of Australia.

Mr Taylor—Yes, but the CRC program is a means of pulling concentrations together and connections nationally because it brings business, government money and the best researchers together. You have a headquarters but you are likely to have satellite nodes that are feeding into that. That is a competitive situation which creates those concentrations.

Mr QUICK—What is the difference between having Mawson Lakes and having a CRC? Do we have more CRCs or do we have no CRCs and a larger Mawson Lakes in each state?

Mr Taylor—You are going to get both and I do not see that as an either/or. Basically what you need is get the local economic development thrust. It is a local gain.

Mr QUICK—At what stage are we commercially and innovatively competitive? How many hundreds of billions of dollars have been expended by state and federal government departments? We are still, to my mind, pussyfooting around about what sort of model we set up in order to maximise the innovative capacity of our scientists and our inventors.

Mr Taylor—There are various bits out there as opportunities for local communities to tap into. The competitiveness of a region is going to dictate what happens. Those regions that can get that mix together are going to emerge as stronger economic development regions across the country.

Mr JENKINS—Without wishing to put words in your mouth, I think what you are saying is that it is not necessarily a one size fits all, and that we should be flexible in our approaches. You have given a list of examples in the international situation and at your appendix C you flesh out some of them. You mentioned the San Diego one earlier and you have things like the IRC network in the European Union. The interesting thing there is you just concluded your last answer about the competitiveness and the local advantages, whereas there is also the importance of that sort of collaboration and transfer of knowledge to assist innovation.

I am again not wanting to put words in your mouth but I think you are saying that on balance you need that flexibility as well, where we have the advantage of the competition but we also have an advantage if we put in place structures that lead to the greater collaboration across regions and localities.

Mr Taylor—What the CRC program does, for example, is create a national concentration, which is what we want because otherwise you get isolated groups within universities, within states, that are basically saying the same story. If you elevate the argument to a national level, then you are getting a national competitive position which reduces the misuse of funds because you are aligning with economic development across the country. That should, at the end of the day, be the major issue here.

CHAIR—Is that because of the bidding process?

Mr Taylor—Yes. The players have to come together and say, ‘Yes, we’ll back these people because we can work with them.’ That is the culture change. That is linked to being able to work with partners outside of the research supply sector.

Mr JENKINS—Chair, I had been going to ask about some other international examples but I might be able to research them myself, unless Mr Taylor wants to highlight anything: things like the Ben Franklin program, the Scottish Enterprise program that I think might have been touched upon in evidence yesterday, Steinbeis and, because of my surname, I do have to mention the Wales Technology Centre. I think there are probably various ways of doing things. I do not think that they are similar. They have different approaches.

Mr Taylor—That is right. They all have the same sort of objective but cultural issues locally have an impact on how you put it in place. You cannot just take what is working somewhere else but you can identify the basic elements and say, ‘Can we build a similar approach in our own community,’ which takes the Australian situation into account. These relationships need to be built in a global context as well as a national context because of the change in globalisation that is driving this. You cannot be good at everything.

Mr HAYES—I understand the argument about almost having research incubators, but it seems to me over the last number of years, and you have probably seen it yourself over the last 20-odd years, that we have lost a lot of R&D capability in the country as a lot of materials are developed offshore now. To establish this sort of internal capability, like Mawson Lakes, to what extent does the business partnership have to be up-front in it as opposed to being government led in terms of investing in public sector resources?

Mr Taylor—Perhaps I can give you an example. The University of South Australia was an institute of technology. When it was promoted to the university league, of course it had no horses in its stable that were in the weight for age class—that is, that could tap into ARC, the NHMRC, the top level funding available from the government at the time, which is all about knowledge for knowledge’s sake and peer review and into the international publications arena—so we had to adopt a different strategy. We chose to develop relationships with industry which led us into other portfolio funding which was non-traditional, like into the industry portfolio.

Our strategy was to build the competence of the university in terms of its research and development capability on the basis of relationships. We took a conscious decision to create environments out at Mawson Lakes which were a halfway house between industry and the university. In conjunction with the state government and various other agencies, we built buildings out there which were not funded by DEST. They were funded on the back of collaborative relationships with government, business and university investment. The Ian Wark Research Institute, which is a stand-out national research organisation which has never had any access to CRC funding but generates over 70 per cent of its funds from relationships, started as a three-person business unit in 1985 and now employs almost 200 people.

This is a business which happens to be within the context of a university but it is built on the back of relationships with major mining companies in this country and major mining companies around the world. Where we started was flotation chemistry. The basic science is particles and

their behaviour. The business of the Ian Wark Research Institute now is across manufacturing and into the biosciences that overlap.

All of that was built around and driven by relationships with industry. The Ian Wark now gets significant funding from ARC funds because it built this reputation that was driven by industry, which was building the intellectual assets of the Wark, which then meant that we attracted outstanding scientists from around the globe because they wanted to come into this environment. They exercised their ability to grab this pure research money. What happens to that? It basically goes into investigating the basic science which supports the applied science, which is being bought by industry clients. We did the same in the telecommunications area and in the advanced manufacturing area. That essentially is the thesis: we can do it but it is done over time and by being smart about grabbing access to various government programs to build that community.

Mr HAYES—How do you distinguish that in terms of where CSIRO is now going with this flagship development?

Mr Taylor—Flagships are the right way to go because part of that is about linkages with the universities, which is about access to graduates and postgraduates. It has to be done in conjunction with business. That is potentially a macro CRC structure. The question is: how does industry pull effectively to get inserted at the front end of that? My belief is that it is being driven by a very strong demand. That might be a community demand, like salinity or something like that, but out of that a lot of opportunity will spring.

Mr HAYES—But what you are saying is that it requires public sector investment in that to drive that model in the first place to attract industry?

Mr Taylor—It ought to go hand in hand but, yes, it can be done that way. That is what the CRCs basically have done. Federal government money: you bring to the table business and the best researchers and develop a program, and I—government—will invest in that because it is going to build relationships. It pulls through graduates and PhDs who potentially can then get employed down the track, which builds a career opportunity in this country and attracts the brainpower. That is the game.

CHAIR—Mr Taylor, thanks very much. Can I make one suggestion? Can we find another word other than ‘relationships’? It is redolent of relationship breakdowns and a whole different sphere of life. Is there anything that you want to re-emphasise or that you may not have touched on?

Mr Taylor—No, but just bear in mind that there is a major national event in Melbourne in June next year, which is a marketplace of technology research with industry that is supported by DEST. It is a major attempt by the federal government to demonstrate outcomes that have economic opportunities and relationship development opportunities.

CHAIR—Thank you very much.

[12.19 pm]

HEYWORTH, Ms Amanda Elizabeth, Chief Executive Officer, Playford Capital Pty Ltd

CHAIR—Thank you, Ms Heyworth. You have heard the prelude about this being part of the parliament; no misleading or deceptive statements; contempt et cetera. Would you like to make an opening statement, please?

Ms Heyworth—Yes. I would like to make a number of points. The first is the big one. It is probably undeniable that Australia is pretty good at ‘R’ but not so great at ‘D’. For me that is the fundamental issue that we face. The Commonwealth government certainly puts a lot of money into ‘R’ and nobody is really genuinely happy with the amount, the commercial outcome that we get at the end. I acknowledge that there is a variety of pathways to commercialisation. Intellectual property can be licensed to companies for their own use or to an industry, which is often a CRC model. They can be licensed to companies in order to create products that then get sold to the market, or it can be used to create new business venture. My focus is on the last one but I acknowledge those other things exist.

Why do I care about new business ventures? I think that is fairly obvious. If the intellectual property has enough strength that it can support a new business and execute that well and achieve the result, we capture in Australia more of the value chain than we otherwise would. Some of that is subtle. It is jobs where people are actually in command of their future, rather than working. They are usually very internationally focused, generate exports and basically, hopefully, make a lot of money as well.

It is worth saying that there is a lot of woolly thinking about intellectual property. It is really important not to be tender-hearted about this. Not all intellectual property has commercial potential; most of it does not. Of the subset that does have commercial potential, most of it does not have enough potential to support a new business venture. It is more appropriately transferred to industry into existing companies than trying to create start-ups. It is a narrow part of the funnel that we are talking about but still very important, for the reasons I said before.

In thinking about these issues you really need to be very clear in distinguishing between intellectual property products and businesses. One of our big cultural issues about being poor, about development, is many inventors and researchers do not understand well the difference between a product and a business. A business has a product. It is necessary but not sufficient. What it must also have is market opportunity and the capacity to execute and make sales—and sell the business—with a business model and pricing that delivers profits for the investors involved. That is a big hurdle to get across.

Playford Capital is a South Australian based seed fund. I am happy to elaborate on Playford’s structure. We do have Commonwealth government money, and that is probably fairly relevant to you, under the ICT Incubators Program. I am happy to come back to that if you would like me to, but speaking more generally about seed capital, there is a market failure in the availability of seed capital in Australia. The economics of venture capital means that it is hard for an unsubsidised venture capital fund to put money into an early-stage business unless they have the

potential to have a \$100 million exit within a three- to five-year time frame. Only a very tiny proportion of opportunities meet that kind of hurdle. I have provided your committee secretary with some background modelling and information on that which I believe she will share with you later.

That is why government gets involved in providing capital to all the different venture capital programs out there: the ICT Incubators Program, the Pre-Seed Fund program, the Innovation and Investment Fund program are the main ones. The best way to think of that is by providing subsidies to those programs, the commercial decisions are being made but it is lowering the required return hurdle rate. You are actually broadening the funnel of what can be funded, therefore creating more business than the market could otherwise create.

Mr HAYES—Could you repeat that, please?

Ms Heyworth—I hope so! Where the government subsidises a venture capital fund, it effectively lowers its required rate of return on any individual business. Therefore, the number of businesses and the funnel of businesses that can be funded increases. In effect what we are doing is saying if the hurdle was a \$100 million exit with no subsidy, that is a very significant business that can achieve that in such a short time frame. The effect of the subsidy is to lower that hurdle from \$100 million downwards, thereby allowing the next best of the opportunities through.

CHAIR—What is the relationship between that and reducing the risk?

Ms Heyworth—It does not reduce the fundamental risks associated with the businesses. What it does is allow the venture capitalist to accept a lower return on investment. In fact the government is subsidising that return on investment. I believe quite strongly that there is ongoing permanent market failure in the very early-stage market. There is a role for government subsidies to permit a larger number of potential businesses through the funnel. You need to recognise that not all of these businesses will succeed. That is part of the game. It is a triage process.

If I go back to Playford Capital's model, we are a very small seed fund and we would put \$300,000 or \$400,000 into an opportunity, and work very hard. It is very important at the very early stage for the people running a fund to have business development, rather than financial engineering and merchant banking skills. You need hands-on, seat of the pants, 'How do we close this sale? How do we manage cash flow? What are we going to do, because we can't make payroll this week?' Hopefully we know more than a week in advance on that one.

Ongoing market failure is exacerbated in the Australian market. Right now we have a serious problem where the superannuation funds and institutional investors are directing more money to what is called the private equity alternative assets sector. Because of the outstanding success of things like the Repco and Pacific brands floats, all that money is going to later-stage MBOs. It is not coming into the early-stage market. Not all but many of the early-stage venture capital managers in Australia are having a lot of difficulty raising further funds. There is no doubt in my mind that the availability of early-stage venture capital is going to be significantly diminished for the next two or three years at least, if not longer, unless the government takes some action. The government is obviously considering what it might do as part of its venture capital inquiry which is under way at the moment.

Mr QUICK—What sort of amount of money are we talking about?

Ms Heyworth—That is not a question I can answer off the top of my head.

CHAIR—When venture capitalists say that the reason why there is not enough venture capital is because the risk is too high, in fact it is because the returns are too low?

Ms Heyworth—That is a good way of expressing it. The risks are also very high. When we do our modelling we take into account the fact that of every 10 investments you might only get two or three successes.

CHAIR—That is the intersection.

Ms Heyworth—That is the reason why it is hard to achieve the return.

CHAIR—How much do you invest?

Ms Heyworth—Playford Capital? I will move on and talk a little bit about what we actually do. Playford Capital is owned by the state government. Our investment money comes from the federal government's ITC Incubators Program, which most people still call the BITS program, which was its old name. Our operating costs are subsidised by the state government and our investment money comes from the federal government. Our real focus is on new business formation but to do it in a commercial way. Philosophically, if you look under the cabinet of Playford, we are totally reliant upon government subsidies to operate. We cannot fund as a commercial organisation and survive.

What the government subsidy allows us to do is invest in earlier-stage things that would not otherwise be possible. It allows us to take more risks than would otherwise be possible. It allows us to put in more actual individual effort, as in my staff can spend more time working with the companies to help them achieve what it is that they want to achieve than would otherwise be the case. I am not really in competition with even the innovation investment funds because we go in earlier than them. We are usually the first professional investor that any company has had.

Mr HAYES—But do you have a public sector dividend out of that? I know you are saying you could not run commercially, but does the state get a return on its investment?

Ms Heyworth—The first thing to say is that it would actually be unrealistic to expect a dividend except in a 10-year time frame, and we have been investing this fund for four years now. Nobody would pay a dividend in that time frame, given the risk and the time frames involved in what we do.

Mr HAYES—Not an imputed value either?

Ms Heyworth—Please stop putting ideas into the state Treasury's head! No. We do not pay a dividend and it would not be realistic to expect us to do so.

CHAIR—It is a Labor government. You are safe!

Ms Heyworth—It so happens I used to be a Commonwealth Treasury officer, so I do have sympathy to the other side of the equation, but I would be arguing on economic development grounds that we are assisting with new company formation, which is absolutely vital to a regional economy like South Australia that does not have nearly enough of that sort of activity.

CHAIR—I suppose the line where you stand depends on where you sit.

Ms Heyworth—Yes. I could argue the other side if I needed to. We are investing seed capital in new ventures. We sit outside of the Public Service. We have an independent commercial board. There is no government influence over the commercial decisions that I make, and that is absolutely essential to what we do when you think about the fact that we reject maybe 90 per cent of applications, which of course is a lot more than a real venture capitalist would do—they would reject 99 per cent of all applications. But nonetheless the majority of applications are still rejected.

We put \$300,000 to \$400,000 in the first round. We work really hard on the business-building and to get those skills inside the companies, because that is usually the biggest issue, and it is a triage process in the circumstances where we can actually back up and put further rounds of capital into the company, provided it is progressing, but not everybody who gets to the first round will proceed to the second round. It really is a funnel, and that is a good way of funding commercialisation because those things that are proceeding work.

We are a very small fund, so the amount of money that we can put into those companies is not nearly enough for them to succeed in international markets. I am focused on ICT or technology and if an opportunity is a significant opportunity, you generally have to invest millions of dollars in order to develop the product to market readiness, and the most expensive part is opening up the markets, and the business acumen and the business development skills, and the contacts you have to develop in order to close sales internationally. Where a lot of these companies fall down is not on the technology but on the business acumen side of things.

Because I cannot put in enough money to get them there, I have the issue of turning down really interesting opportunities that I think have significant market potential unless I can find a co-investor who will come along for the journey. My problem is that, if I am going to put in \$300,000 or \$400,000 but it needs \$5 million, all I do is build a jetty into the river instead of a bridge to the other side, the company ends up being stranded and I, in fact, have not helped them at all. When I say I have not helped them at all, the reason is that I am very focused on commercial outcome. I do not think collaboration is an outcome in itself. I think businesses selling things is an outcome—and employing people, and exporting.

We have done a pretty strong job of that. In the last four years we have invested \$6½ million. That is 19 ventures. The companies we have invested in have raised more than \$30 million worth of private investment and about \$6 million worth of Commonwealth government grants, mostly R&D Start grants, for which we are extremely grateful.

CHAIR—Are they still going? Are your investments still alive?

Ms Heyworth—I have had two of those companies fail, out of 19, which we believe, given the risks that we have taken, is fewer than you would expect. There are a number of them that

might be categorised as the living dead that will not have achieved what we expect, but I would argue that if none of our companies failed we are not taking enough risks and we are not actually doing our job. Seriously, you have to accept that there will be failures if you are going to do this.

On the other hand, if I do not make profits on a proportion of the companies I invest in, I also would not have been doing my job, but I am pleased to report that I am extremely confident that at the time we exit some of our investments we will actually be able to generate profits, which—and this is the nice part of our model—is available for reinvestment. We do not return it to the government. It is a continuing fund.

Mrs VALE—You say that you only accept 10 per cent of the applications that come to you. When your board makes a decision, what are the key criteria that you look for when you decide, ‘Yes, this company is worth investing in’?

Ms Heyworth—If you look at what we actually do, you would describe it as a standard venture capital model. We look at the usual basic things, and they are: the quality of the management, the extent of the market opportunity, the financial model and the protectability of the international property or the product. They are fairly standard business things. The difference between me and a true venture capital fund is that I will accept more flaws in those things. But, no, if it is deeply flawed I cannot accept it.

Mr QUICK—You have the sole responsibility for South Australia?

Ms Heyworth—As in our fund?

Mr QUICK—Yes.

Ms Heyworth—Yes. There are no other ICT incubators located in South Australia. It is worth saying that we are the only one owned by government. All the others interstate are private sector. It was a competitive tender that we won.

Mr QUICK—Is your model better than the other states? Should you be replicated in other states?

Ms Heyworth—I will probably take a step back and say, just talking about models generally, that it is not horses for courses. I know that is a problem from a policy perspective, but if you accept that there is a case for government subsidy, then perhaps the way to think about it is some sort of tender process where people put up models and you decide to fund a number of them, rather than saying, ‘This model is better than that model.’ When I talk about ICT incubators specifically, Allen Consulting reviewed us in 2004. We got the top possible rating in that review, which is pretty curious when you consider that you would not necessarily expect that of a government owned agency, but it really reflects how commercially we run outside of government. They did say that we were a model that was a preferred model that should be considered, but really what they were referring to was the fact that we are getting significant subsidy from the state government source and that was making the Commonwealth money go a lot further.

Mr QUICK—Is larger better or are you at the right size?

Ms Heyworth—If you do the modelling, the minimum viable size for a very early-stage fund is probably \$40 million or \$50 million, so we are not at a viable size, no.

Dr JENSEN—You said early on that in Australia there is a market failure in seed capital. That would obviously be related to the risk-reward ratio. You have spoken about mitigation of risk, particularly with regard to government subsidies and so on, but is there an issue in terms of the market value of seed capital in the ability of the seed capitalist to actually identify potential success? Are the seed capitalists effective in identifying the factors that relate to success? And why is it that some nations, then, have more seed capital than Australia has, given this risk-reward? Is it simply that there is more money in their societies in general? Australia is quite wealthy, so why is it that there is more seed capital in these other nations?

Ms Heyworth—I will answer that by describing a typical successful start-up company in the United States, where they do a lot more of this than we do. The first thing to know is that it only happens in California and Massachusetts in any significant way. It happens in those places because they have an ecosystem where they have significant concentrations of high-value industries and those industries mean that they can supply staff into these start-ups, that from day one they have a rolodex of customers that they can call up straightaway and a really deep, intimate knowledge of the vertical market that they are trying to sell into, so their ability to get to sales means that risk is much lower. Because of that, their success rate is higher and the funding comes. I think it is just as hard for a start-up in Ohio as it is in Sydney, perhaps, and that it is harder again in Adelaide.

Mrs VALE—The buzz words—if I can say that without risking offence to our chairman—that we have heard today have been ‘relationships’ and ‘building relationships’. When you make the assessment of investment for a new venture enterprise, how important are the kinds of collaborative relationships that it might have within its own particular industry; therefore—from what I understand and have heard this morning—its ability then to capture in a more positive way the markets that it is seeking?

Ms Heyworth—Ability to sell to those industries is more important than collaboration with them. However, good salespeople, especially with complex product development, will very frequently have collaborated along the way and so the development does need to be market driven as well.

CHAIR—Amanda, thank you very much. I particularly liked the analogy with Ohio. I think that it is really important that we get this perspective on the world: that it is all a bit different, but basically we are talking about some exceptional environments. We might come back to you. And congratulations on leaving Treasury! Thank you. That was very instructive.

Resolved (on motion by **Mr Hayes**):

That this committee authorises publication of the transcript of the evidence given before it at public hearing this day.

Committee adjourned at 12.45 pm