

VERIFIED VERSION

PUBLIC ACCOUNTS AND ESTIMATES COMMITTEE

Inquiry into Effective Decision Making for the Successful Delivery of Significant Infrastructure Projects

Melbourne — 22 March 2012

Members

Mr N. Angus

Mr P. Davis

Ms J. Hennessy

Mr D. Morris

Mr D. O'Brien

Mr M. Pakula

Mr R. Scott

Chair: Mr P. Davis

Deputy Chair: Mr M. Pakula

Staff

Executive Officer: Ms V. Cheong

Witnesses

Mr R. Fowler, Marketing Manager,

Ms I. Brown, Partner, Commercial, and

Mr D. Hodes, CEO and Founder, Ensemble Partners.

**Necessary corrections to be notified to
executive officer of committee**

The CHAIR — I declare open the Public Accounts and Estimates Committee hearing on the inquiry into effective decision making for the successful delivery of significant infrastructure projects. On behalf of the committee, I welcome from Ensemble Partners Mr David Hodes, CEO and founder; and through the telephone conference facility Mr Richard Fowler, marketing manager; and Ms Inge Brown, partner, commercial.

Members of Parliament, departmental officers, members of the public and the media are also welcome. In accordance with the guidelines for public hearings, I remind members of the public gallery that they cannot participate in any way in the committee's proceedings.

This hearing is being webcast live on the Parliament website. All evidence taken by this committee is taken under the provisions of the Parliamentary Committees Act, attracts parliamentary privilege and is protected from judicial review. However, any comments made outside the precincts of the hearing are not protected by parliamentary privilege. This committee has determined that there is no need for evidence to be sworn; however, witnesses are reminded that all questions must be answered in full and with accuracy and truthfulness. Any persons found to be giving false or misleading evidence may be in contempt of Parliament and subject to penalty.

All evidence given today is being recorded. Witnesses will be provided with proof versions of the transcript to be verified and returned within two working days of this hearing. Verified transcripts and PowerPoint presentations will be placed on the committee's website within two weeks of this hearing. I ask that all mobile phones be turned off.

I now pass to Mr Hodes for any opening comments, no longer than 4 minutes, if desired.

Mr HODES — It must have been a breathtaking experience to have been amongst those earliest scientific revolutionaries of the modern era, Copernicus and his immediate successors Kepler and Galileo, as they first began to grasp the stupendous truth of the heliocentric theory. To have it suddenly dawn upon one that the great earth itself, the most obviously stationary and immovable entity in the cosmos, upon which one had lived in changeless solidity all one's life, was in fact at that moment moving freely through space: through the heavens, spinning and circling around the sun in an immensely expanded universe, as had been assumed since the beginning of human consciousness, but rather a planet, a wanderer, an exalted celestial body in a new cosmos whose dimensions and structure and meaning were now utterly transfigured. Such a revelation must have filled the mind and spirit with an awe seldom known in human history.

Honourable ladies and gentlemen, what we have shared with you with regard to critical chain project management may not reach the lofty heights of the shift from the geocentric to the heliocentric world view described by Richard Tarnas, but we do invite you to consider the implications of the fact that what we can demonstrate through both powerful reasoning and an increasingly overwhelming body of empirical evidence is an equivalent jump when it comes to the domain of project management.

Our argument rests on the assumption that the advances that have been made in the development of arrangements for large complex projects have perhaps been necessary but have certainly not been sufficient. Alliance contracting, one such development, makes the assumption that by creating a contract that looks to redress the traditional adversarial way of managing the burden of risk through innovative gain and pain share mechanisms, and further providing explicit assistance in the development of high-performance cultures, the best possible outcomes can be achieved.

Our issue is not with the intent of existing methods of managing large complex projects but resides in the deeply hidden assumptions about what is required to translate an aspiration for a more systems-oriented approach to the reality of managing the complexity of these endeavours. Existing thinking perpetuates what is equivalent to the geocentric world view.

By contrast, the theory of constraints contains an extraordinarily simple hypothesis: that any system or enterprise has a constraint, proof being in the fact that if this was not the case, we would be able to achieve an infinitely good result. Since no system produces an infinitely good result, the hypothesis must be true. The flip side of that idea is that therefore non-constraints by definition have capacity available. It is this radical proposition that flies in the face of the deeply held and invisible assumptions that stand behind some of the most holy cows of existing approaches to the management of complexity.

If you do not believe me, witness the weight and effort given to sanctifying a measure such as earned value and probe what behaviours are driven when those measures at each and every level of work, from task participant to project director, busy themselves more with the performance of the parts rather than giving proper weight to the profound insight that it is at all times the constraint that governs the rate at which value is delivered to the whole. Metaphorically speaking, it is the equivalent to measuring pressure with a thermometer — it is the wrong instrument. Knowing what the constraint is, getting the most out of it and having everyone else support that proposition consistently delivers a result that materially improves cost, schedule and quality performance whilst at the same time reducing risk.

But I did not come today to speak only of theory and our powers of reasoning. We are deeply pragmatic in our application of theory constraints and its associated project management methodology, critical chain. I personally have been applying these insights over the last 15 years and am proud to say that not that long ago we were invited to put our shoulder to the wheel of the Victorian desalination plant. Without exception, the response has been positive with regard to what we have to offer, and I quote:

On behalf of the TDJV team —

of the Victorian desalination project —

I would personally like to thank you and your team for your hard work over the past three months.

The deployment of critical chain project manager has enabled the electrical team to achieve a productivity factor of 1.01. This significant result on the TDJV project was achieved by providing detailed scheduling, real-time monitoring and critical task tracking capability, causing reduction in lost time, and made visible our blockages and dependencies. These factors enabled our project team to commit with confidence to the project due date. I will certainly be implementing CCPM in my next project.

As a proud citizen and taxpayer, albeit of New South Wales, I believe it would be un-Australian of me not to do all I can to popularise the theory, methods and tools that have a proven track record of delivering better ways to do better work. I thank you for the invitation to attend.

The CHAIR — Thank you very much for your opening remarks. In the remaining time we have available we will try to drill into some of the core issues that are in front of the inquiry. Clearly the way in which you respond is in your hands, but we are seeking to relate the observations from people engaged in the private sector — such as yourself and your partners who are sitting somewhere else in the world — to our core function, which ultimately is to advise the government on incremental change to the way we are delivering projects. Part of that is around the issue of skills in particular. Therefore, just to open discussion, in relation to your experience with critical chain project management can you advise what new competencies and skills are required at each level of project management for the effective use of the model you attest to?

Mr HODES — Firstly, one must make a distinction between what level of work you are talking about. If you are a program director or if you are a task participant, and the range of all those things in between, there are skills appropriate to each of those levels. I do not think one can say there is a blanket set of things; it depends on what the level of work is. The basics of project management are almost taken as a given. The project management body of knowledge would be taken as a given, while I would argue that the competencies that would come out of the national training framework, and what the Australian Institute of Project Management acts as assessor of, would be fundamental.

In addition, one of the significant things I would say that is required is a shift in mindset to a systems thinking point of view as against something that is the traditional way of managing complexity that is reductionist in its outlook. By way of recent example — this particular TDJV is the Thiess Degremont Joint Venture; Thiess is the construction company involved — we are currently talking with Thiess about the road-rail link from Geelong as part of which they have a significant package of work. Just last week we were talking about how those packages have been split. I think there are seven or eight packages altogether, of which theirs is the most significant. Then there is a coordinating and governing body, but it is not particularly well thought through as to how they are actually going to coordinate this.

In the absence of systems thinking in the first place, there is every likelihood that the companies will sub-optimize for their own ends and that will cause a sub-optimal result for the system as a whole. You may have one section ready and another not. You may have internecine warfare between them in terms of what might be to the advantage of one and not the other. In the first instance it is about creating a mindset and a view

in which one can see win-win-win — so it would be a win for the government and the public in terms of the outcomes of that expenditure. It would be a win for the partners within whatever alliance arrangement there might be — be it alliance, be it joint ventures or be it whatever that arrangement might be — and a win for the companies themselves that have not only that project, for example, as the locus of their attention, but also others and where they have shared resources that exist between them. That is the first step.

No. 2 would be an understanding and a development of thinking around what we call constraint accounting — what is the measurement system? Here I alluded metaphorically to thermometers and pressure gauges. The measurement system has to be one that encourages behaviours that are consistent with what is doing good for the whole as opposed to doing what is your own part, and that then requires an almost fairly radical shift in terms of how contracts are set. An example of what I mean by that is that for the most part contracts will be set with contractors where there will be milestone dates that people have to achieve. If you find there is a benefit for acceleration, one way or another, how do you contractually sort that out? How do you ensure that there is a fair means by which you can actually measure and signal what is for the benefit of the whole?

Like I said, in alliance contracting the innovation of having three limbs of pricing and all of that is very good. The idea of having and building high-performance culture is very good, but my argument about it being necessary but not sufficient is that the very underpinnings — the means by which you actually measure performance and by which you make sense and decisions — is fatally flawed because it encourages behaviour around what is best for the parts rather than the whole. I would suggest that a capability in respect of a suite of competencies that are in the domains of management accounting and then the specifics of what theory of constraints and its associated methodology of critical chain would be a requirement.

Mr PAKULA — This committee's terms of reference are fairly broad. We are looking at what recommendations we can make to improve both on time, on budget aspects and the quality of the delivery of important public infrastructure. As I read your response to the terms of reference, and I have looked through them all at some length, you continue to go back to CCPM as being the answer to A, B, C, E, F and so on.

I suppose what I am wondering is whether you have any broader comments to make about the topic — whether it be about skill retention or the delivery of infrastructure — and what governments and their private sector partners can do to improve the delivery that does not necessarily just go to CCPM, or, as far as you are concerned, is it the answer to every question that we are considering?

Mr HODES — I wish it were so. Yes, I think that is a valid point, and the honest answer is that these are complex questions, and I do not practise in the domains of contract law. I do not practice in many of the other domains that would apply to this as well, and I would always argue that whatever the intervention is that we might bring in CCPM would itself be necessary but not sufficient. One has to have the full range of things that are there.

However, I do plead special cause for the theory of constraints, and the reason I do that — and it helps to have a construct which talks to theory, method and tool, the tools being the technologies that support the information management, the method being the critical chain. On the theory of constraint I plead special cause because it is falsifiable hypothesis. It is something which you can and do apply scientific method to, and it is both reasoned and there is sufficient empirical evidence that it delivers a better result. So my answers are not all — it is CCPM in the context of theory of constraints because I would argue that, as a starting point, if you do not take that as your starting point, if constraints exist — and they must do because we do not complete projects in zero lead time or with zero cost — traditionally the constraints have been seen as the critical path, for example.

So, QED, constraints exist. Therefore we have two choices. Either we manage it, or it manages us. So as a foundational, necessary condition — and I repeat, not sufficient; and I am not skilled or versed or educated or practised in many of the things that one would need to do — I think I can mount a defensible case to say that it is at least necessary to have such a thing if you want to achieve a different result.

Mr ANGUS — Thank you for your presentation. In relation to some of the experiences that you have had and that you have noted in your paper, you have mentioned some foreign jurisdictions. You have mentioned Japan, and I just wondered, in relation to that experience, whether you would think that would be representative in other jurisdictions as well — the gains that you have documented that have been made there by using the system and so on, and whether that would apply across other jurisdictions?

Mr HODES — I cannot see any reason why not, but again I would caution — and I keep coming back to the formula of saying, ‘necessary but not sufficient’ — in that the context in which that is actually put needs to be sufficient. So as you read in Japan, even there what was interesting was that they did not and could not mandate it. They could not turn around to people who were contracting on behalf of the infrastructure ministry to do work, but they could recommend it. They were able to say that those people who use it, because it provides a better level of signal and a more true representation of where attention needs to be put, what needs to be escalated and at what level, it would get their attention because it is a valid signal. It is not a false negative or positive.

So I do not see any reason — and again it might help in that the way that I view it, my representation of it at least metaphorically, is that it is the operating system level that we are talking about. It is agnostic about what is the application or culture that sits above it, but it provides for: ‘Okay, so this bit of data has to go over there, that has to go there. There is the operating system of the computer; likewise here is the signalling system that arranges and synchronises and makes sense to support good decision making for whoever is involved with that way of working’.

Mr ANGUS — If I could just ask a supplementary question, just in relation to tertiary institutions, academia, do they have a view, either here or in other jurisdictions, in relation to your modelling and so on? Is it becoming well entrenched in that regard, or what is the view there?

Mr HODES — There are universities in the United States and South Africa, there are certain academic enthusiasts, if you want to call them that, and there are doctoral theses that have been written about it and everything else like that. Theory of constraints itself is a fairly large body of knowledge that covers production, project management, distribution, management accounting and has with it a critical thinking process as well. So people will have come across it, for example, in management accounting if they are doing finance. In certain faculties in Australia somebody will have come across it. They will have read some of the texts and things like that. I think that it is, shall we say, not yet mature.

Mr SCOTT — I seek a clarification about what has been said today. From what I can understand — and I did read through it but, I would be grateful for some clarification — and from the comments you have made, is the basis of theories of constraints, which then produce critical chain multi-project management, essentially that the traditional reductionist approach of engineering and large-scale management misallocates the likely cause of risk to the project? Is that essentially what you are saying? So there should be a greater focus on what is constraining productivity rather than the process of production itself and then breaking that up into manageable bits, which is the traditional approach. Is that in essence what you are saying?

Mr HODES — In essence, I would say that is it. To put it a slightly different way, the only condition under which the whole is equal to the sum of the parts is when there is no uncertainty or risk in the parts; therefore trying to achieve that is an absolute impossibility, and you are far better applying your effort to that thing which governs the rate at which value is created.

Mr O’BRIEN — Thank you for your presentation. I read through it. I am not sure if I followed all of it, but I endeavoured to. The stuff about buffers and control was interesting to me. I should say I am aware of critical time paths in management. There was a lot of that in the building industry, and time efficiency goes back a long way. It seems to be related to just-in-time delivery and those sorts of concepts. What I am querying is to what extent you advocate this method as a methodology that needs to be adopted. I do not have any disrespect for you in saying this, but also in relation to your firm’s particular expertise in relation to this — and it may be hard for you to do this — I do not think you claim any proprietary ownership over this method, do you?

Mr HODES — It is public domain.

Mr O’BRIEN — It is a widespread method which you are practising.

Mr HODES — Yes; correct.

Mr O’BRIEN — I suppose, picking up on what the Deputy Chair said, you face challenges, and I am happy for you to answer this at this point, if you are convinced it is the answer to all these questions — and there is nothing wrong with you being convinced, because you may well be right or you may be right — or you may be wrong. But as a government, if we were to, for example, explore recommendations towards adopting this, we

need to be very clear about what we are recommending: the methodology, your expertise and specific projects, and you mentioned desalination. We will be looking at individual projects, and certainly empirical evidence for any of this stuff is important. In terms of our task as a committee, could you give some more specificity in relation to your existing recommendations, even if you have got existing contracts or departments you are dealing with that we can explore et cetera?

Mr HODES — As places where you can go and do field studies of where this is occurring?

Mr O'BRIEN — No. It is more what sort of recommendations et cetera would you be seeking from this committee so that we can be more specific as to what it is you are actually recommending within the knowledge of your field?

Mr HODES — In a sense if I was sitting in your chair?

Mr O'BRIEN — Yes.

Mr HODES — What would I be recommending in these terms of reference?

Mr O'BRIEN — On the assumption — I am not saying it is an assumption that we have — that we agreed that your methodology, your critical chain management, is something that needs to be considered perhaps along with a whole range of things, how does that translate into specific adaptation in the context of where you stand as a firm?

Mr HODES — In the first instance where I would be going is to the ministry of education and looking at all levels of project management. I want to make this point: sure, I want my company to succeed and do what it has to do, but I think this is way bigger than anything that my company has. It is the equivalent of Toyota production system and lean management and things like that. It does not belong to Toyota any more, but it is there. This is in the public domain; we are just real practitioners of it. Putting aside whatever particular bias I have in favour of that, what I would seriously be doing as I sit in here as an Australian citizen, a taxpayer concerned about where my tax dollar is actually being spent, is I would absolutely mandate it in the curricula of the TAFEs and universities — those levels of project management — so, if nothing else, there is profound knowledge about what it actually is and how it offers something that is different. I would without question be recommending that one conduct a pilot or a prototype where you can actually assess it under the spotlight.

Interestingly enough, I ran my first critical chain project in Johannesburg. We got some funding from the National Productivity Institute, and it was good. The condition of the funding was that they could go and do an infinitesimal work study to see how it is different. It is always difficult, because you do not have a controlled experiment. You cannot say, 'Okay, we will build one desalination plant over here using this method, and we will do another one over there using that method'. They could undertake their study. That would be a recommendation as well — to be able to do that. I think we recommended in here that it would be well worthwhile to go and visit and see what is actually happening in action so that you are seeing how this thing is actually working at all phases of project management of these large infrastructural projects and the complexity that that all has.

I really do believe in my heart of hearts that people would want a better way. If it is about being educated and if it is long term doing that kind of thing, so that it is in the TAFEs, institutes and universities and all levels are seeing and having this kind of mindset, frame, methods and everything else like that, they will then choose that. I do not think people want to screw up on projects. That is certainly not my view, and there is no sort of conspiracy out there that project managers are trying to dud everyone and whatever it is. They would be my recommendations.

Mr O'BRIEN — A quick supplementary, if I could; thank you for that. What do you see as the present chief obstacles, both within this state and other states — other jurisdictions — for this being accepted as standard practice? I am not doubting your conviction, and I am not trying to doubt your methodology; I am trying to take that to the next step.

Mr HODES — In other words, what is the constraint?

Mr O'BRIEN — What is the constraint, yes. Well said!

Mr HODES — I have to tell you that somebody told a quick little anecdote, a story that he got asked in to see the chief executive, who said, ‘You are the constraints person? I want you to go and tour around the project, the factory and the shop floor, talk to everybody and come back to me in two weeks time and tell me where the constraint is’. He comes back into the office two weeks later, and the person turns around to him and puts his arm around the CEO and says to him, ‘Mate, the bottleneck is where it always is: at the top of the bottle’.

What is the impediment? I think there are probably two things to it. Having quoted that piece from Richard Tamas about the heliocentric view versus the geocentric, if you live in a paradigm all the while which saw the earth as being the centre and everything else going around it, it is easy for us to imagine now, knowing what we know and being educated the way we are, to say that is simply not true, but it would be inconceivable that that was the case if you were living in the 16th century and somebody came along and said, ‘That it is the case’. You would say, ‘That cannot be, because this is what I see around me’. In many ways what we do not see is our own culture and our own deep, hidden assumptions. I think that the constraint in the first instance is about a recognition that it is a genuinely different thing, so that will happen at the head level. People can get to that and understand what that is.

I think that following close behind that is like, ‘Okay, so indeed the earth does go round the sun; so what?’ and then it goes, ‘Oh, my goodness, I’m going to have to up-end everything that everybody thinks about how things are done and how work is conducted’. In relation to entrenched interests, again by way of anecdote, one of our major clients — in fact it is in here as a case study, so I can talk about it — is the BHP Billiton iron ore expansion in Port Hedland. We get this terrific result out of what was there and this was half a million dollars an hour of additional iron ore coming out. It was a huge number. I go to the project director and I say, ‘Here’s the result and it’s fantastic, and isn’t this wonderful? Why don’t we take it to the next level?’. He goes to his drawer and he pulls out this huge pile of contracts and he points to the building across the road and he says, ‘All those guys over there: they make a living out of this stuff. That’s what they do’. I think that it is those two things: one is about what is the mental model — —

Mr O’BRIEN — I do not want to cut you off there, but I should say I know about contracts in Port Hedland and efficiencies. I hope you have not said anything you regret, but anyway I just needed to let you know that. I think you have almost answered — —

The CHAIR — I think we actually need to wrap it up.

Mr O’BRIEN — We’re out of time?

The CHAIR — Yes. We have actually come to the end of our time regrettably — and regrettably more particularly because while there has been a discussion going on in this room, we have not heard from Richard Fowler or Inge Brown. I am sorry about that, but I daresay that they have listened intently to the discussion. We offer you the opportunity to make any follow-up remarks in relation to today’s discussion or indeed any other evidence that you hear. As I said earlier, this inquiry has been webcast for the last few days, and you may be interested to have a look at the transcripts which will be on the website in a couple of weeks, and there may be some issues that you would like to come back to us about if that is the case. Importantly, we are grateful for your input. Thank you for your submission. Thank you for your oral presentation. That concludes this hearing. Thank you very much.

Witnesses withdrew.