TEAMWORK AND TECHNOLOGY IN THE AMERICA'S CUP :

How did we really win the America's Cup

by

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"Thankyou Ian, and good evening ladies and gentlemen;

I am pleased to come down here - it is only the second time that I have talked the South Island, and its a lovely town, especially on a day like today - I'm looking forward to another week; am going down to Wanaka tomorrow morning; going to enjoy some skiing.

Now the title of my talk is "Teamwork and Technology in the America's Cup" and if you are going to have a subtitle, it would be "How did we really win the America's Cup".

And I'm going to talk a little bit about that and see if we can't explore some of the answers; I may not tell them to you very well, but you might be able to glean them from the way I speak.

It is more than a year since we beat the Americans and even though we are starting to look forward to the next America's Cup, it's I think still worthwhile to look back and hang on to the lessons from the last Cup. So what I am going to do.. I had a little bit of fun while I was preparing the talk; I started reading what other people had written about us and so I am just going to cover quickly two points of view by Americans who explained what we did; and then I am going to talk about technology, the way we saw it, and the way we faced up against American technology and how we overcame various disadvantages, and of course I will go on from that to the Teamwork; I will spend a little bit of time hitting at few of the key points that I think made a difference, and then I will throw the whole thing open and let you ask all sorts of questions about whatever you think I may have missed out.

Let me start by quoting from a couple of individuals and they are both heavy hitters in the USA. The first is a guy named Paul Kaminski; her is the Under Secretary of Defence for Acquisition and Technology; he was voted into his job by the Senate, and he basically buys an awful lot of stuff for the Military from various suppliers. He was talking last October to a group of people at the International Test and Evaluation Symposium and he talked a lot about Team NZ. His talk is up on the Internet, and so I downloaded a copy and had a little read, and he says a number of things about us, but the one that struck me.. (he says we did marvellous things by the way); he says we gained a competitive advantage by reinventing the yacht design process ; and I think that's true, but not in the way he thinks. He says we used work stations rather than tanks and tunnels, and that's not true, but he was reading the brochure put out by the computer company. Obviously .. I will quote to you from what he said, because this is outrageous:

"As many as several hundred simulation designs were analysed each night. The next morning, they chose the two best for a component and had them manufactured in the machine shop next door, installed on two identical boats, and raced to test which performed better. With the aid of the simulation they isolated which factors helped the winning boat go faster and which ones slowed the loser down. The designers, testers, and sailing crew worked side by side to perform about 10,000 simulated iterations over a two month period."

When I read this I was stunned - I thought I must have been sleeping when this went on But it is true to some extent, and it is interesting to see how these guys see us. He went on to say that every member of our team focused on the bottom line, which was winning the America's Cup and that is very true. And in summary; he basically was preaching to these guys, that they should be following the lessons that we had demonstrated, and all his ..

he said you should have an integrated simulation which provides continuous insight, and we tried to do this, as we went along, the whole time we just kept saying where are we in the big world of designing a faster yacht, and so the simulations which we did on the computer, the testing we did in the tunnel, the tank and on the water, we basically kept looping back. Now we weren't doing it as dramatically as he described, but at least we were doing it, and we were trying to get continuous insight.

He said we had an emphasis on prevention over cures, and I think that's true too, and a focus on overall program success rather than what he calls "suboptimum functional area performance".

And that is actually true - and I'll tell you - I can illustrate that with a various number of things, but basically when the whole team was together, we focused on the bottom line, what will win the Cup, not "will I be the best navigator, or will my sails be the fastest, or is our yachting team going to be brilliant."

I remember hearing the goal, for example of the Australian Yachting Team, what was their goal.. it was to win 60% of the races in a slower boat. And we heard this and we just had to laugh, because it was outrageous, I mean you would be lucky to win any races in a slower boat. But the fact that they could have that as a goal? Just a minute - what was the connection with the design team? Our sailing team felt responsible for the speed of the boat and so if they had had a slower boat they would have been blaming themselves, rather than blaming the design team. So the way we set up goals was quite different

Anyway here is another one:

Jim Clark was the founder of Silicon Graphics, and he left Silicon Graphics about a year and a half ago, and co-founded Netscape, which is a big browser company, and he was a big help to us, and he was quite close to the team, because he is a keen yachtie, and he is now the syndicate head for the Saint Francis Yacht Club challenge. And he was interviewed by a girl called Barbara Lloyd for the New York Times, and her article which I also got hold of says among other things that: "Clark personally made sure that the team had four of the firm's high-powered Indigo computer work stations dockside in San Diego. Much was made of the prowess of those machines, super-computers as they were in an alien environment. But Clark said he was surprised by how relatively little the Kiwis gained from the technology. "They actually didn't move nearly as far ahead as I expected," he said. "They seemed to rely more on experimental ideas with the boat, mostly practical things."

So there you go - which one is right and which one is wrong - what did we do? I got picked up on this by a French journalist, who sent me an email and pointed out to me about this article in the Times and said "What was the story" So I got hold of the article and I wasn't sure what to say to him - he said off the record, tell me what really happened - of course there is no such thing as off the record, so I said to him that we just felt at the time that we used a reasonable balance between theoretical and experimental techniques, and we would try to do better next time.

So anyway that got me thinking - you know these guys look for a reason for our success - because we are successful in the Cup we are assumed to be successful in everything - you know Team New Zealand has been winning awards - we have been winning export awards, sports awards, I have been talking to groups like yourselves as, if you like, an expert, on a wide range of subjects; next week would you believe, I am talking to an MBA class and now I am expert in project management!

In actual fact, we are expert in none of these things, but we did win the America's Cup, and so we have got to look at that and see how it happened.

So I'll go on and have a look at how we saw the technology, and how we worked on it.

As we looked the Cup, the team of us from the beginning, the whole America's Cup is a technological battle ; it is our yachting technology against yours, and that is the way it has been since the Schooner "America" went to England; and said our boats are better than yours. And she was. And the English kept trying to do battle, and that is kind of the underlying, key goal of the America§ Cup, so if anybody talks about having identical boats, and match racing in them, you can say well that is fine, but it wouldn't be the America's Cup.

And so we sit there and say, "How can we match the American technology" People tried very hard in 1992 as you are all aware - their strengths are pretty obvious and they are quite daunting. They have got a big Aerospace industry - it is huge - there is not just the Government part, the defence industry and the space industry, there are all the commercial companies, Boeing, Lockheed, McDonnell Douglas, etc.

They've got a big computer industry; most of the sensible software that is written, the high tech software, originates somewhere in the US, because that is where the money is.

The Automobile industry is big. You know we had sponsorship from Toyota, but the

Americans not only had sponsorship., but they had access to wind tunnels, design engineers from the car companies.

They have got many testing facilities to choose from, right throughout the defence industry again, the aircraft, the Navy, and the commercial ones.

And their infrastructure is great - in the States you can get things done - you can walk down the road and find a computer shop that can fix your computer. I remember in 92, my computer went down, and I was going off to Maui for a holiday, but I wanted to take my computer along and do some work. I walked into a shop and said, "My computer is broken", and the guy said, "Well OK I can get your hard drive out and give you another computer (with your hard drive in it) and you can go away and I can fix it while you are gone."

So he did that and off I went with this other computer and took it to Maui, and it was just the same as if I had my own computer the whole time; I came back, and gave it back to him, and I was only down for about 2 hours when I handed it to him at the beginning and another two hours at the end and the whole thing cost about 160 dollars. I was really amazed. And they take that sort of thing for granted. There are shops like that everywhere.

So we are facing that, so what are our technology strengths?

Small resourceful companies, and we recognise these as strengths - we have lots of little companies such as Southern Spars, High Modulus, Fibres, and of course we have lots of little one man bands, engineers, and designers around-

A good boating industry; and that's true - probably as good as the American industry for example.

We have good design experience throughout the country; we felt comfortable designing sails; we have got good mast designers, good boat designers, and we have got a very experienced sailing team.

So we said we are not completely downhearted. We have got the bare bones of what we can take.

But we've basically got to move from here to win the America's Cup. So we figured how can we overcome these problems, take advantage of our skills, but overcome the disadvantages. And so we worked on staying focused - we used the fact that we didn't have a lot of money as an advantage. Because you have a limit on your budget, that forces you to prioritise, and that forces you to judge and evaluate every single thing you do, and you are doing that all the time, and we figured that would be good for our decision making, and it was.

And we decided right up front that we didn't have any time for any "blue sky projects" - what I mean by that are projects which don't really have a guaranteed outcome, in other words research rather than development. Peter is against it - he had been involved in a few - in 1992 they had quite a number and so we decided that we couldn't afford these.

And so we would just kind of basically build a journeyman's yacht, if you like - a simple boat using what we know now, and we would just use testing techniques, but we wouldn't try to come up with some scheme for the most fantastic sail you could imagine, or the most fantastic mast, or come up with a weather project for measuring the structure of the air, for the first 5000 ft or something like that.

And that is the sort of thing that America's Cup teams get involved with. The Australians for example hired a guy from America who runs big CFD codes that attempt to model the flow around the entire yacht - not just little bits of it but the whole flow included the waves that are made by the yacht, and he attempts to come up with a number for the drag of the yacht and then use that as a design tool, and this is obviously something that you would be interested in, but we looked at it and decided that we weren't even going to have a part of it and just ignored that whole exercise, and decided that we would just build a boat by testing physical models and maybe on ten years time when these programs become better we will use them.

The next thing we figure we would have to do is to make better decisions, and so that's the next thing I will get on to, which is our teamwork, because I think that was really what made the difference between us and the other foreign syndicates.

Our philosophy was simple - we didn't really try to be the - we didn't want - we didn't say that we were going to build a boat that would win the America's Cup.

Well, no - what did we say?

We didn't say we have got to be the best at everything, because it is easy for people to do that - to say that and then it is such a daunting prospect that they always come in short; we said let's just build a nice, sound, strong simple boat that can win the America's Cup, and try to match everybody in each department, with the boat the mast and the sails, and personnel, and then we have got a chance.

And we said "let's build a challenge in which we can be proud"

We thought that was a good Vision. In other words if we have done it right, in each of these areas - then we'll have a good chance of winning, and even if we don't win, we'll be - proud of ourselves.

And so we built up a team, and we decided - we did "reinvent the yacht design process" as Kaminski states, but we didn't do it by using supercomputers - we did it by integrating the design team right into the bigger team, so that the designers were operating with an open door, all the time, and everything they did, even as they started drawing lines, was subject to scrutiny, by their peers.

You know there are 4 groups in a big team like ours. There are the yacht designers - the designers, the sailors, the production people, the guys who build the boat and build the sails, and build the masts and there are a few Admin. people, PR types and .. - people who run the thing.

And so we basically put all of these people into the room, and so when we made design decisions, and (when) design discussions were held, we had everybody involved.

So let's run through a few of the advantages and disadvantages, because they are not obvious

The advantages include the fact that we have a wider idea pool. So when we are talking about things to do with the way the boat is sailed, the way it is built, the way it is designed, we have got everybody listening and asking questions, and out of these come ideas -

We avoid the syndrome you can get in typical teams with a "them" and "us" - I mentioned this Australian sailing goal "we are going to win 60% of the races in a slower boat" - it just didn't sit well with us - we basically figured that we would all feel responsible for the boat and that we would all feel responsible for the way it sailed. And we were basically sitting there together all the time

We set up a customer-supplier structure - if you can imagine - the ultimate customers are you, the people of NZ and you are represented by the media, who are talking to us all the time, and the sponsors, and also by person to person contacts with people in the team. And then the customers in the team are the sailors - they are the ones who finally take the product of the team out and go and race with it, and their suppliers are the boat builders, and theirs are the designers.

And normally the power starts off with the design team, who know all the answers, and they bleed these out, a little bit, and if you ask them questions, they say "look, I am busy - come back next week, and I will have the lines for you and then you can ask me questions."

So we tried to set that up totally differently, we tried to make it even, and flat , with the idea being the customer is always right and the designers have to , you know, feed the customer's needs. And by having everybody in one group, we sort of forced that to happen and it happened really well.

You get better problem solving, because you have full empowerment - in other words, it is surprising, even though the designers might have a problem, then quite often the solution can come out of the sailing team because the sailors say "Oh, we can adapt, or we can adjust - the problem has gone away" and vice versa, so then when you have everybody in then sometimes problems do go away, and even when they don't go away, you have got different people helping to come up with the answers.

You get multi-path communication - you know, when you have separate teams it tends to be the team leader that does the talking to the other team leaders, or a couple of spokesmen. But when you have one big group, then of course any individual on the design team might be pals with an individual on admin., or a sailor, or one of the boat builders, and so they will be chatting away over a beer, and this sort of thing can lead to quite a few improvements.

You get peer review of ideas, so in other words, as ideas were going, you know they have this saying you shouldn't criticise unfinished work, but we were allowed to, so as the work was unfinished, it was still being reviewed as you went along by people who were equals, and so the designers, as they were thinking about the next model, they were sharing with the sailors, opinions and impressions about the existing tests and why something was working better, and why they were going in this direction.

And they had to of course explain these things to the sailors as they went along, and that made life difficult, but it also meant the ideas were really well tested before they got carried out., And of course an explanation requires an understanding on the part of the person doing the explaining. As you know teachers learn more about their subject often than their pupils, while they are busy trying to figure out how to explain it.

And another one that came out that I hadn't expected was that there is safety in numbers -you get a kind of gang mentality and you can actually make bolder decisions, and I will give you one illustration of this that affected me, it was the mainsail. We made our first main, and it was successful, which was good, and I was keen to make a mainsail with a big top, which came out from the mast at the head and went back for quite a long way before coming down. And this is an idea that I had been thinking about for a long time - and it is endemic in the wind-surfing fleet.

If you have noticed, all the wind-surfing sails are like that. None of them are pointy headed, and it's not just fashion. They have been like this for years and years and they test a lot of shapes. And I had a lot of good theoretical reasons; I had tried it once before with Spirit of Australia, and it Haddon□really worked but I still was kind of keen so what I did was got the other guys involved in discussion, and I said I am keen to do this - here are the options, and we made a few little models of these sails and looked at them and I said I am going to do what everybody thinks is the right decision, so we made various extreme models and less extreme, and everybody sat around and finally the vote, if you like, was for one of these big headed mainsails.

And it worked out - and that was a group decision, and I had the confidence to go out and make that main sail knowing that if it worked out it well was our mainsail, it wasn't mine any more, and if it didn't work out, well, it was our mistake, it wasn't mine any more.

You know, whereas if they had said to me "Tom, you are the expert, you make whatever you think is the best mainsail ", they wouldn't have got the same main sail. Because I wouldn't have been as brave - I would have made them a half way main.

And that was something that really came out - some of our other decisions on the boat came about the same way - we were braver than isolated teams would be, so that was a big benefit.

The problems - You have got to ask people to surrender territory - and that is a problem, and it disqualified, if you like, some people from being in the team, They said " I can't be a part of that"

You have got different personality types; normally you know, you get little groups, and it is hard enough to organise a group of 3 or 4, but when you are trying to have a meaningful discussion in a group of 12 or 15 on a regular basis, then it is tricky. Some people just don't work in big meetings, so you have still got to adapt your process to take account of these people who are kind of quiet when they are in a big room and then later on they go, "well I didn't really like what we were talking about there" So there is a lot of massaging to do and a lot of work around the edges.

There is less insulation for people who are a bit sensitive, because you are out there and we have got quite a few strong personalities within the team, and our discussions got to be like family fights, almost; but we built up this ethic, where you could actually talk like that without really people having a reason to feel sensitive, because in a way it was all harmless.

We obviously had slower decision making - as you can imagine - a little group could work away and come up with an answer, but when they kept going back to the team, and say "Well we are doing this and doing that", and the team would say, " Well what about such and such?" Everything took a while, and things had to be discussed, but generally the slower decision making made for better decision making and that was our goal.

And of course people have different languages for talking about things, and this is one of the struggles that you have between a design group and a yachting group, and you have to work on your communication skills quite a lot when you are starting these so that you can actually find a common language, and in a way that was part of my job as the design co-ordinator , was helping with the communication,- even though I made very few design decisions, I worked flat out and I will continue to work flat out, trying to understand what different people are saying, and explain that to the others so that we are basically on the same page.

So we started out with this idea that we were going to have a team, and of course when you have a team you have got to make rules, and you can't just - I can't make the rules and impose them. Even if they were brilliant rules - the team has to make its own rules because that is the way they are going to be followed.

So we sat around and had a series of meetings at the end of May '93, and we worked out how we were going to operate as a group, and these things I have talked about earlier were hammered through at these meetings.

And we decided we were going to have a simple vision, that is to build a challenge in which we could be proud. We thought if we can do that, if we can be proud of everything we have done, then it probably means that we have been doing the right things, and then we might win.

And, I had been travelling at one time across the US, reading a business magazine, and a lady was being interviewed, and she was a successful businesswoman, and started out after raising a family, I think she was widowed or divorced, and she started this business and it got bigger and bigger, to the point that these business magazines were starting to ask her the secret of her success; and she said "Running a business is not much different from running a family - if you can just get them to play nicely together and share their toys then you are half-way there."

So that struck me when I read it - I thought it was great, so I mentioned this at the meeting and we took it on as one of our rules, because everyone understood what it meant.

I mentioned earlier, surrendering some territory - that is exactly what "sharing your toys" is in our context. Your "toys", if you like, are your skills, your abilities, (your knowledge), the things that got you the job you have got, and you see people tend to hang on to them, because if you surrender them, if Russell Coutts, for example, starts teaching the other people in the team how to match race then he is giving up a little bit of his competitive advantage to his other team-mates.

So you have to have a very non-competitive, secure environment, before you can encourage designers to lay their design philosophy right on the table, and so on and we recognised that and decided that if people were protective, which is natural enough, we would remind them, "Well, you are not sharing your toys".

And then we said "Well OK, how are we going to design the boat?"

We worked on the idea of simplicity - we said, "We already know - we already have a good yachting team, who know how to sail; we have got a lot of experience" - I didn't mention that earlier as one of our technological advantages, but it we knew we had a lot of experience, we had been in plenty of America's Cups before -

"Let's not re-invent the wheel" in other words "If we know that a certain method is a good way of doing something, then let's just do it that way"

A lot of syndicates get caught up in trying to perfect every single thing; as Kaminski said "sub-optimal - whatever is was.. "suboptimum functional area performance" -you know "my area being absolutely mint" -

We knew because this had happened in the past - in '92 the guys were irritated because at once stage they had had a "bow job" - the boat had been taken out of the water and the bow had been replaced from a point somewhere just in front of the mast. It took about a week and a half, with everybody working hard; it went back into the water and the sailors couldn't tell the difference, in the way the boat sailed or anything. But they had lost a week and a half of their program. Now the boat may have been faster; I am quite sure the designers; they knew it would have been faster; but it was not enough faster that it was worth doing. - so you have a suboptimum area performance there, but not winning the America's Cup

And - we figure we just have to keep focusing on the big picture, whatever that means - in other words, let's not lose sight of the wood for the trees, and in this case the wood is the Cup.

So when the sailors said to the designers - "we want a boat", their brief was a nice, honest, strong boat that can win the America's Cup. Not a monument to the design team.

And so our boat was for example a little bit overweight in its construction, because we asked for reliability - one of the ways to win the America's Cup is to do lots of days sailing, and you can't sail if something breaks.

And so we didn't say we wanted the boat to be the absolute optimum, minimum weight, right there on the safety margins which is the sort of thing that some America's Cup guys do. We wanted it to be you know comfortably strong, and rugged, and robust, and a side effect was that we didn't sink and of course
part way along we discovered that length is important, as you are probably aware, and the stronger boat bends less, and so we started thinking that it is almost a trade-off.

If you build your boat stronger, and you add some more material through the middle so it bends a bit less, then sure you might not have quite - you'll have a little bit more weight up here, and a little bit less weight down in the bulb, and that slows you down a little bit, but the fact that the boat stays in a straighter line cuts down the drag, so that we decided it was a toss-up

We also wanted to encourage creativity - in other words we decided even though we were emphasising simplicity, people were allowed to come up with ideas, we were finding all the time and even though you might laugh at them, when you were trying to explain them in advance to yourself and to each other, then this wasn't a reason to go off committing suicide.

So the experts took the lead by coming up with some of the silliest ideas early on, so everybody felt comfortable.

So that was our "Teamwork" -so there we were - we basically we ran that way for a year and a half, our PR strategy was really simple - we had no PR strategy - and you have probably noticed that it is a bit the same now. That is Peter's style - he said "Let the results do the talking " and so there was really almost nothing said until we started winning races, and even then we used to say, well there was still along way to go, and "it is just another race, and we tried to dampen down the enthusiasm, because last time the PR had been quite strong, and you may recall, just before the red boat hit the water it was

touted as a "breakthrough boat", and that everybody in the team; I think they may have felt happy with that at the time, but now 3 years later, looking back at it , they felt unhappy with that, and said we don't want to have any "breakthroughs" If we do, let them find out about it; we are not going to tell anybody.

And that was significant - we went into the first race of the round robin with quite a humble attitude - we thought "Oh well, we might win some, we might lose some" you we were comfortable, we were happy that we had made a lot of forward progress, but we weren't expecting anything great.

And later on, I was talking to a friend who sailed one of the Australian boat - he wound up steering Syd Fisher's boat.

Syd believed, he had been told by the design team, that he was going to come either first or second in the round robin. If it was light winds, then Bertrand would win and he would come second and if it was fresh wind, he would win and Bertrand would come second. And the rest of them weren't really a factor.

Now they had quite a good first round robin I thought but they came 4th and 5th, not 1st and second. Syd was really devastated, he stopped spending money, fired the skipper, and generally shut down.

Whereas we, if we had come 4th, I think that we would have just knuckled down. Our attitude was that we thought we were just in there and that we could eventually win it. So we were surprised to win by big margins. And then we kept tying to pretend that it was something fragile and that we didn't want to bank on it.

I'll run through again some of the key factors I think that made the difference. I mentioned teamwork, and you can't overestimate that, and it is hard to achieve. I think that we will struggle to build the same team again, even with the same people. Because we are not the same people.

I mean I wasn't giving talks like this starting the last America's Cup, and we weren't having people in the US making speeches to large scientific bodies quoting what Team New Zealand is doing. Nobody knew what we were doing at all, and we just pottered along. So we are all different, but we have got to hang on to that, because it was a big valuable part of it.

Our flat structure. It is hard to hang on to that too, because people tend to like a feudal structure. Where we basically allowed ideas to come from everywhere and we tried as much as possible to equalise the importance of people in the team . I mean the whole idea is why pay 50 people if you are only going to listen to 3 or 4. Yet people do it all the time, I mean in companies you see it - it is normal.

One of our decisions, which was to delay the first boat, and to build two boats in an overlapping way, oh it just grew up over months and our final meeting to decide it involved almost everybody in the team. We sat there and went through the pros and cons

of the shipping dates of these boats and the building dates, and each person, or each division guy spoke on the subject, about the way it sort of hinged; so the sailors said "this is how it affects us" and the design team said "this is how it affects us" and the boat builders said "this is how it affects us" and the guy who is responsible for shipping said "this is how it affects me" and eventually every single person in the room got a chance to make a little 5 minute speech on what he thought, and then out of the end of it the answer sorted of floated up.

And so that was part of out flat structure. We figured that if you are making good decisions, the decisions themselves should float to the top - they shouldn't be mandated by anybody, and if you can't - if you are still struggling to come up with a decision about A or B at the end of then it means that you still don't understand it so you have to go back and work at it again, But the other thing we often did was that we decided that if A and B weren't much different then we would just say that it doesn't matter - would just do whatever was easier. And that happened quote a lot too, in our testing.

The customer-oriented culture I have mentioned before, and that is hard. But I mean it worked for us, Naturally the supplier likes to be dictating terms all the time, saying "this is it, I am the boss, I know what I am talking about - trust me - I know what I am doing" whereas we had the other way around with the customer saying "are you sure this will work", and that went.

The focus and the common sense. We knew that we knew so much and so we said "why re-invent the wheel? Just keep going at it - let's not clutch at straws and let's not TRY to make something perfect. Stick with what we know to be right." And most of the time we did that . We would just buy a standard instruments off so and so, whereas in the past the syndicate would try to BUILD a brand new, unique, instrument system which had all sort of bells and whistles.

In '92 a grand effort was made for example to have real time monitoring of sail shapes. It's a thing you would love to have on a yacht. Where you can be sailing along, you have a video camera looking at the sails' In theory it is
easy - the video camera looks at the sails; it runs this signal into board on the computer and you have what you call a "frame-grabber" which grabs this image. Then you have another little computer program that is clever enough to run around this picture and identify the stripes on the sails, and then measure the curves of the stripes, and then print out an answer. And, honestly, you can spend hundreds of thousands of dollars on this and I think you should be able to do this for about 5000 one day. So that was something which we did in 88 and again in 92, but we abandoned it for 95, we decided that it was still too difficult.

We had two equal boats and this was a big key - a practical thing, we were the only ones , really that had this and this is something worth thinking about because we started out with a program which was gong to be the same as everybody's:

The idea is that you build a "trial horse". Then you do a lot more work, and you test out the trial horse, and then you build a race boat. This is what the Japanese did, what the French did - the Australians. And it is what Bill Koch had done in the past, and we were about to do it.

And then we started thinking long and hard about this trial horse and what we were going to learn from it. And, you know, we were ready to start building on September 93, I guess. We had a set of lines, and we thought this would be fun, to build a boat and sail it next Summer.. But then we figured out, now it is going to take us quite a long time to learn this boat, to learn whether it is fast or not, and we won't really know - I mean one of the advantages of building a trail horse is in theory you build it and sail it and see if there is something wrong with it and you fix it. And then you make the second boat.

But we decided that - even it there is something wrong with we might not find that out. You may recall in 92, that NZL 20 hit the water, was raced for 3and a half months and only after that - 3 and a half months of intensive racing, did people start to suspect that she wasn't the fastest boat.

So how are we going to learn this in Auckland, in one summer of sailing? So after we went round and round with this for a couple of months we decided we weren't going to learn much from THE boat in THE water. So why have the boat in the water?

So we delayed the building date until March - we started building in March, so we launched the boat in September, and the second boat was launched in October, a month and a half later. The two boats were built in parallel, with a nice overlap so that the boat building team could move from one to the other, and that efficient and saved us money. And it meant that we didn't learn anything from the first boat that we could use in the second. Except a few boat-building tricks along the way. But we decided that the extra time that we could spend in the towing tank and thinking about the shape - the first boat would be better, for that reason, and it was.

And our first boat was excellent, and when we came to do the second boat the first boat had only been on the shed for about 6 weeks, and we didn't really have any better ideas for the second boat. We had been back in the towing tank, but we had learned a couple of things but they weren't really significant. There was some talk about making the second boat absolutely identical to the first But a few of the sailors said - that would be terrible, we can't do that; it would be too boring to go out with two identical boats.

We had ideas about how we could make it faster, a little bit but not very much. You know, like - 20 seconds around the track - by making it a little bit further along the lines that we thought. But at that stage we started getting nervous. We felt pretty comfortable that we made some breakthroughs ourselves, but we said "what say we are wrong? We could be in trouble!"

So in actual fact instead of going further away, making it faster we actually made it deliberately back towards where we thought the rest of the fleet would be. And according to our theory it meant that the second boat would be a slightly slower, and that is how it turned out.

But not very much.

But we went into the trials knowing that 32 which was the first boat was actually slightly faster than 38, and we started racing 38 in the first round robin, thinking " Oh, well, we've got this other boat up our sleeves. And we will change to it in the second round robin."

But of course we won, and we won every race, so we decided to race 38 in the second round robin and we won every race in that which was even better. So we kept on using 38, and we were able to improve 32, because during the gaps in between the round robins we were testing with the two boats, and we had ideas on the keels and were changing rudders and wings.

We spent quite a lot of time improving 32 while we were racing with 38, and when we finally trucked out 32 for the semis it was amazing, the uproar. All of our friends back in New Zealand, who were experts of course, rang us up and said "Have you lost your mind? You have been going so well and now you're going to use this old boat" - and we said - "Trust us, we know what we are doing"

But having two equal boats meant that our testing really was high quality. Now I talked to some of the other guys from other syndicates, since then and they struggled - the Australians for example had a huge campaign, and they did a lot of testing early on over in Queensland, and I think they learned something from that, but not a huge amount, but once they got to San Diego, they did very little testing really. Their first boat was like a throwaway boat. It was a year and a half old and their second boat was the race boat.

And the two boats may have been different enough in performance that testing wasn't as good - actually there was quite a lot of pressure to get the second boat ready for racing, and it didn't last much longer than a month, and I don't think they respected speed as much as we did.

And that was the other thing that was important about our contest - we all respected speed, including the sailors, and the sailors worked really, really hard to make the boats go fast. It might sound obvious but it is not obvious, Some sailors are there to be better sailors. A case in point is Paul Cayard, with Il Moro, back in 1992. He had the chance of having a bigger or a smaller rudder, in the boat. A big rudder means you can steer the boat more easily, which gives you some advantages when you are manoeuvering, in the pre-starts, and it makes you look good, if you are the skipper. But it is a little slower around the track, because you have got to drag this volume, and wetted surface area upwind and downwind, all day long.

Anyway Paul chose to have a bigger rudder. Whereas Russell, to his eternal credit, said " I'll just somehow struggle along with the smallest rudder we can get away with it, if it is faster."

And so, that is what we had, and you probably saw us, I think in the fourth round robin that was the worst case, where we had shaved the rudder down, it had a pointy leading edge, and you could hardly steer the boat, and we were just about colliding with the other boat, and the committee boat during the starts; we had gone too far there then

But we survived, and we fixed it up just a little bit, and it came back to being quite good.

We had strong industry backing - we had clever people back here, building, not only the masts - our masts were the best masts there, and that made a huge difference to our sail program and to our speed, and that is the sort of think that really carried us through and is just part of the effort..

I got a phone call from one of the American designers, interestingly, just the other day, and he said, he was with America Cubed, he said he thought that their "Mighty Mary" had about the same inherent speed as our boat; the difference was everything else, the appendages, the crew, the mast and sails, , and the way we sailed the boat.

And he added that they had actually slowed their boat down, they thought, between one and two tenths, from when they first put it in the water, until when they finally raced in the last race, against Dennis. So that's a bit embarrassing.

We didn't do that - we had a good respect for speed and good quality decision making right through the testing, and that is hard.

So we did those things to win and then of course we have got to remember that the opposition made it easy for us - to some extent - and I'll just mention a few of their "excuses". If you like.

There was a weak defence, compared with 92; and compared with the American Challenge in 1987. The locals had got a but bored with defending the Cup. You know, Koch was fighting San Diego Yacht Club over venues, saying "I want to take the Cup back to my yacht club if I defend it successfully".

And Dennis had said "I would rather put the money in my back pocket". He took in a fair bit of money in, but put a lot of it in his back pocket, and spent a fair bit of it on sponsor fulfilment, in other words, running the sponsors around - he had a big tent show and lots of hardware and software and clothes, and not a lot of money on designing. That is why he wound up using the Pact boat.

The A-cubed guys were inexperienced as you know. They had a girls team as you know., There is nothing wrong with a girls team, except the only one of them had sailed in the America's Cup. If you are going to put up a team and say that only one of these people

are allowed to have sailed in the America's Cup before, then you are there on a learning curve, not on a winning curve.

And Pact was a wee bit short of both money and experience. They didn't have nay money in their back pockets - they were really limited. They only had one boat.

It was a good boat. I would say it was roughly equivalent to 38, in other words not much slower than 32 in terms of the basic boat. But because they only had one, and their mast program wasn't any good, and their sail program suffered because of that, and they couldn't test, their appendage program was a little off the pace, and their sailing skills were not so good; they wound up not making the.. they weren't the defender and we wound up beating their boat.

Now the other challengers, -- some of them looked fearsome to start with, but they all seemed to have an "Achilles' Heel" in hindsight.

Bertrand had a big team - he invited me to join him early on; in fact I was dickering between the two teams for along time, even while we were getting ready for our meetings in May, I was pretty well uncommitted because I had figured I was gong to sail with John Bertrand before Peter Blake even got the challenge going. As early as the Olympics in Barcelona, which was only about 2 months after the 92 defence, John said we were off and going; I didn't think at that stage that there was room for me in a New Zealand challenge and so I said oh yeah that sounds good. But eventually the Kiwis invited me to help them and I worked away on what you call a "best intentions" basis in other words I said I will work away as if I was going to stay with the team, and they trusted me to not to carry ideas away, for example. And we worked like that for quite a while and I decided that I would be happy. And one of the reasons was that Bertrand's team was getting too big; he just added too many people and I didn't really feel there was room for me to have an impact in his team, and that is - I think that is significant; because I think that is the sort of thing that motivates a lot of people, just the feeling that they can make a difference

I mentioned early on that the American's had a huge aerospace industry and that this was a problem, but it wasn't necessarily a problem, because there is such a big aerospace industry that in fact there is an over-supply; there are an awful lot of people in that industry that aren't involved in the America's Cup and they just love it.

So we found that we could go and buy expertise. We could buy software; just by saying to these people that we need it, we need help, "We are just a bunch of
Kiwis who don't know anything about this, can you help us?"

And they said, "Sure"

Because the fact is that yachting is technically really interesting. And a lot of these guys who have been working on aeroplanes for years, they consider themselves experts, and they are - when they discover how complicated a yacht is, bouncing up and down on the interface between water and air, and they look at the complexity of the aerodynamic problem, they get excited, they realise they can make a bigger contribution in the New

Zealand team, and these guys in the States, all of them didn't have any contribution to make to the defenders because they weren't being asked, and so we were able to tap into quite a few.

So Bertrand had a feudal structure, too He wasn't rational - when I say he - I mean the team - the structure didn't seem to be rational. Some of the decisions just came spurting down from a couple of people.

That happens in a lot of America's Cup syndicates, and you'd hear little bits of scuttlebut coming back. So they weren't an effective team, even though they had a bigger budget than us.

Dickson? He had a good strong effort, but of course it was tiny in the sense that he came in late; had one boat, quite a small, pretty cheap, design program, and they just launched there boat only a week or so before the trials.

Yet, in spite of that he was very strong, The boat was sound, I think it was a good design, and they raced it pretty well and they nearly made the Challengers' final.

The Japanese? They really struggled; they are an interesting group; they have been in the America's Cup twice now, and they have worked very hard for a long time. Their boat in 92 was good.

Then they seemed to build a slower boat for the start of this challenge, it looked a little like their version of NZL-20, and we heard that it was struggling to match their other (old) boat. They sailed with it for the rest of the year. And then they went out in the Worlds in 94 and got soundly beaten by the Australians, so they made a decision to build a copy of the Australian boat.

Their new boat which was coming along, was reasonably similar, and they took the old boat , the existing boat, into the shed, and totally rebuilt it - it came out looking like One Australia.

And that was OK, it was an improvement, but then they struggled with their testing. We talked to a couple of New Zealanders who worked for the syndicate afterwards, and they said, they went fast in one round robin, then they put the wings on, then they put them on the wrong way, then to a slower rudder for the 4th one, A lot of their moves were either sideways or backwards. And they started with a boat which was really only about as good as America Cubed, and so they weren't going to win the Cup.

The French were a mystery to us. We saw their first boat, and I don't know whether you have seen pictures of it - it is hugely wide, and this came out really early on, and we looked at it oof!

"Either we are wrong or they are wrong, because we are so different we can't both be right. And sure enough they were wrong. We still don't know what they

were smoking to do that, honestly.

Because we designed our boat using a towing tank but even that, we bought a VPP that you can buy for about a thousand bucks, and that VPP would have told you that the French boat was a lot slower, even without going to the towing tank. You could just draw the boats in . Maybe they had their own - obviously they had their own VPP. And some of their - part of campaign was a bit scandalous. They spent a lot of money - lot - maybe, nearly twice as much as what we spent for example, just a huge budget, and with nothing to show for it.

Syd Fischer - well you know Syd; he comes in, borrows a boat off One Australia, and goes out there - he thought he was going to win, and he didn't. So he, basically - I don't think he will ever be a strong contender, so you can't count him.

And the Spanish, were in a similar category. They didn't really have a lot of money; they only had one boat.

So there we were racing against 3 weak defenders, and potentially some strong challengers - we thought that the French would be strong, that the Australians would be strong, the Japanese would be strong and we thought that Dickson would be strong.

So we thought that there would be those 4 plus 3 good defenders, all quality, and we hoped to match them

In the end we wound up beating them by quite a bit, so that was how we won the Cup.

In summary - I went down and summarised the things - let's make sure

One of the things to remember was that this was the culmination of ten years of effort, not just one, or two or three; in fact we learned a huge amount from all of Michael's campaigns, not only in designing, but how to campaign, how to make decisions.

And our sense of priorities, which we felt we got right, and as I say, we struggled to keep them right.

Good decision making with the personnel. This was quite important. It took a long time to pick a team - you know several campaigns before we got a mix, of people that could really work together as a team.

And a strong focus, and then in the end: - Teamwork, teamwork, and teamwork.

And so we won 5 nil; an average of 2% in each race, which is way more than we ever imagined. We would have been happy to win, with an average of ?% or ?%.

So that is enough of me just going on about the America's Cup. I am going to stop talking about it formally now and throw the floor open to questions and let you ask me about things that you figure I have glossed over, or missed out, and I would be happy to answer questions about any part of it..