

Ladies and Gentlemen,

I would first like to start by thanking you and the Institution of Surveyors Australia for giving me the opportunity to speak to you at such an important event as your golden jubilee.

The face of the world is changing. We have new technologies to at our disposal which have and will continue to challenge our values and practices in the future.

I am sure that there is not much that I can tell you about your profession, so I would instead like to talk to you about what I, as an engineer and a young professional, believe is the role of surveyors in the community and the exciting future that you have ahead of you. Tonight I would like to talk to you about two concepts, socially conscious surveying and surveying with a vision.

Surveyors were once the innovators, the explorers. In the early part of the last century, surveyors were held in the highest esteem by members of the public for their knowledge, talent and vision.

As you all know, there have been many surveyors of historical note including John Oxley, Thomas Mitchell, William Wills and William Light to name just a few. My father used to joke, not untruthfully, that every one of his relatives was either involved in engineering or surveying, and he sealed my fate when he named me after Dr JJC Bradfield, my great uncle who built the Sydney Harbour Bridge.

So when I was asked to speak here tonight I decided to do a little investigation into my own history, and discovered a great surveyor, my Great Great Grandfather, George Phillips.

George Phillips was born in 1843 and immigrated to Australia from England when he was just a boy. He started his career as a lawyer, working with Mr Edmund Barton, but soon decided that he wanted some more exciting or fulfilling things to do with his life. So he became a surveyor!

In his career this unsung hero of the nation did many things that I can only marvel at. He discovered the Western and Diamantina rivers with William Landsborough, served three years in the gulf district exploring rivers and inlets too numerous to name, laid out walks and defined parks, and was in charge of all railway surveys in the southern divisions. He even supervised construction of most of the railways in Queensland, and even patented the worlds first steel sleeper, some of which are still in use today. He was a politician, a member of the boards of numerous companies, and was even the president of the Queensland Institute of Surveyors. You can't get a life much more exciting than that!

But I ask myself what has happened in the intervening years between when my great great grandfather was charting rivers and building railways and now. Is surveying still seen as the exciting path for a young person to follow, or do we find more exciting prospects as a lawyer in Canberra?

I believe that the time has come for surveying to again become the well-regarded profession that it once was. Surveyors were the people who built this country, and who have the knowledge and skills to take us forward into this new millennium.

My two main passions in life are space and the environment. Space, because I think I watched Star Wars too much when I was a child, and environment because the more I looked out to the stars, the more I realised that we only have one planet, and its resources are finite. In the environment I do a great deal of work with the United Nations, especially looking at issues such as sustainability and using our resources more intelligently. In the space arena I am working to build Australia's first satellite in 30 years, FedSat. Both pretty important things that I am very passionate about. However, it is the link between space and the environment that really excites me, and surveying and spatial information is at the centre of that link.

I am fortunate to be currently undertaking a PhD at ANU in Strategic Management Theory, or the theory of innovation. One of the best things about doing a PhD in strategic management theory is watching people's eyes glaze over when they try to work out what exactly that is, but it is also great as it teaches you a lot about the way that the world is moving, and gives you a glimpse at what the future might become.

Innovation theory was basically invented by an economist called Joseph Schumpeter. He was the first person to recognise the link between technology and the economy – previously technology was just seen as an ineffectual complication. He identified what is now known as “Waves of Innovation”. Since the industrial revolution there have been a number of these waves, five in total. You can tell a wave because it signifies a large amount of growth for the economy, with thousands of new patents, companies forming and fortunes being made. We may think that the current ICT wave was amazing, but it has happened before, from cotton milling, to steam power, to motorisation and through to the microchip. At the end of a wave of course, everything starts to consolidate, you see dominant designs and the world goes through a global depression, hopefully not too deep this time as we see the end of the present ICT wave.

Each wave is brought on by some sort of “enabling technology”, like the Internet. So the big question is: “What is going to be the next wave of innovation?” and if you can be at the forefront of it you can make an enormous difference to the world, let alone a lot of money. The three main candidates for the next wave are Aerospace, Environment and Biotechnology, but what is the enabling technology that will make these occur? This is where surveying comes in.

Surveying, or spatial information is the enabling technology for sustainability. Remember the IT revolution? We may very well be witnessing spatial information taking the same sort of significance and growth, as information becomes more available, relevant and accessible and location-business grows through the enabling technologies of GPS and remote sensing systems.

We now know more and more about the planet, where to find water and how to beat salinity. With spatial information we understand how to manage our resources more effectively and where to focus our efforts. Spatial information makes all of this possible, and by engaging the community, can help move the planet towards sustainability. This is

what I call socially conscious surveying, surveyors who are seen to be directly helping the community through their knowledge, skills and the intelligence that they provide.

However, surveyors need to be proactive in communicating these skills. To stop being seen as disintegrated and irrelevant you need to market your knowledge and talents through cohesive marketing campaigns and focus on a vision for the future of the profession. It is time to change mindsets, to challenge the paradigms of the past and focus on what surveyors can offer the community.

Yet surveying is not just about communicating the amazing role that socially conscious surveyors have to play in the community, it is also about the role that surveyors have to play in the future, and this is where space technologies come in.

As I mentioned earlier, I am currently engaged in what is the biggest event in Australia's space industry in three decades - the FedSat satellite - as the systems manager. I believe I have the best job in the world, as I am helping Australia to build new technologies and create a new industry sector.

Space applications are giving us new tools and data to help the spatial information industry. The modern surveyor is confronted with the introduction of a new powerful technology including scanning technology, both terrestrial and airborne, satellites that produce high-resolution images, and increasing numbers of satellites dedicated to positioning on earth. Interestingly, geodesy, which played a key role in the past, remains important because of the increased application of satellite systems such as GPS.

I am also a member of the Government's International Space Advisory Group and you will be interested to know that we see Spatial Information or Remote Sensing to be one of Australia's core roles which we can play in the international space community. Spatial Information is the market for space, and we know that we need to help build this industry before we can launch Australian Multispectral imagers or Synthetic Aperture Radars.

However, surveying with a vision may be even more than working with space and satellites in low earth orbit. We are starting to explore other planets, to understand the universe, and to once again be the explorers. When we finally settle on Mars who do you think they are going to ask to do the cadastre?

It was Mark Twain who said "Information is not knowledge, knowledge is not wisdom". Surveyors have access to the information, and through spatial information sciences they have the ability to turn it into knowledge. By working with the community and having a vision we have the opportunity to turn this into wisdom.

So my advice to you is that you must demonstrate to our communities how important surveyors are, by actively putting forward new visions of sustainability and thinking up new ways in which your expertise can be employed in socially conscious ventures to the benefit of the profession, the country and the entire planet.