

# PRESENTATION TO SSC LAND SURVEYING COMMISSION SEMINAR – 7 FEBRUARY 2008

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Words of introduction...

Some of you may have heard me make the remarks that follow to the Association of Consulting Surveyors last year, but I think they are worth repeating.

The question posed for today's seminar is 'are surveyors an endangered species?'

I believe that surveyors do have a future.

In fact, position, and therefore surveying and the surveying profession, is fundamental to Victoria's spatial information management framework.

But there is a major paradigm shift underway in the way we think of spatial information generally and positioning in particular.

And this shift will challenge surveyors – and the whole spatial information community.

While the survey control network has been the framework's mainstay, the advent of satellite navigational systems and GPS are rapidly becoming the basis for determining position, and are providing opportunities for the advent of new applications such as Location Based Services.

And the rate of change is accelerating – in surveying alone, the changes that have occurred in the last 50 years are equivalent to all the change that had occurred since surveying began. Looking to the future, it has been estimated that the changes that will occur in the next 15 years will be equivalent to the changes that occurred in the previous 100.

As a result of this change, more and more people are accessing spatial information in an increasing variety of ways. GPS receivers and Google Earth are obvious examples, but there are many others.

### **Opportunities for using spatial information in new ways**

A wide range of spatial information applications are being developed and made publicly available, supporting new and more sophisticated innovations. People are using spatial information in new and novel ways.

For example, Google Maps provides a mapping feature that enables users to create their own custom maps.

Or there is the ‘GeoCommons’ web site, which aims to be a repository for spatial information available to anyone to create so-called mash-ups. It provides the capacity to upload, download and search for spatial data, and create new applications by combining data from numerous sources.

Through what is known as Web 2.0, or the ‘participatory web’, greater numbers are involved in creating location based applications. Google Maps is an example of a Web 2.0 application. Through the free API software provided by

Google, numerous value added services in the form of mash-ups have been created, linking Google Maps with other internet accessible data sources.

As a result of such changes, non specialist users are now able to access information without the need for any specialised hardware, software or training.

These users are increasingly expecting up to date, quality data at the time of their choosing.

These and the many other initiatives that are being released on what seems a daily basis present challenges for the whole spatial community, including surveyors, to deliver the services that users are demanding.

The Victorian Spatial Council is working to find a way to define the future of the industry and meet the challenges presented by these changes.

### **The paradigm shift in *location* information**

The paradigm shift occurring in spatial information generally that I referred to earlier applies equally to the way we think about ‘position’ or ‘location’, as evidenced by the increasing use of mobile devices to identify and locate many types of objects, such as manufactured goods, animals, and even people.

Radio Frequency IDs, sensor networks and intelligent objects are just three examples of this trend.

Consider RFIDs.

RFIDs use electric or magnetic fields at radio frequencies to transmit information. They can be used to identify many types of objects. RFID readers wirelessly communicate with the tags to identify the item connected to each tag.

The European Union has estimated that worldwide there were 1.3 billion RFID tags and two billion mobile service users in 2005.

And, the RFID market is expected to grow rapidly over the next ten years. If the main technical and economic challenges are resolved in the near future, the global RFID market might grow exponentially to be almost ten times the size in 2016 that it was in 2007.

Using sensors, RFIDs etc, 'location' not only relates to the position on the ground, but what is happening within an object (a good, an animal, the environment) at a particular location.

The use of RFIDs, as well as robotics, GPS and the like, facilitate a level of tracking of people and goods at previously unthinkable levels of precision.

Another example of where position, and spatial information generally, can play a role in delivering solutions is in dealing with fundamental issues such as climate change, water availability, emergency management, environmental management, and welfare delivery.

Spatial technologies and information will play a vital role in detection, quantification, decision making support and monitoring.

The potential for these technologies can be seen in new approaches being adopted in the way we manage and value land and the impact of our activities on that land. Such potential includes:

- Improving crop yields and reducing soil erosion and water losses through use of GPS and wireless technologies to manage farming inputs and yields at very precise intervals.
- Economic approaches are being used to better understand the relationship between environmental resources and land use by creating markets that give land owners incentive to invest in environmentally sound practices. These markets are in part based on spatial information that facilitates the modeling and visualization of the effects of land use change in geographic regions.
- The emergence of sensor networks such as those of the CSIRO's 'Farming 2020', which aims to create wireless networks capable of monitoring land quality and the tracking of livestock.

### **Victorian Spatial Information Strategy 2008-2010**

Over the last 12 months, the VSC has been developing the VSIS to try to respond to the questions

- what do these and other changes and the pace at which they are occurring mean for the spatial industry as a whole – including surveyors?
- And what are the strategic and policy directions needed to meet the challenges these changes provide?

People are using technology and information in new ways to create new ways of interacting with each other.

They are buying houses and day to day items, and finding jobs through the use of information devices.

Until recently, spatial information has been traditionally focused on mapping and the cadastre, and within a specialist community and industry.

However, with growing bandwidth and computer power, information creation is growing exponentially.

And many of these advances are coming from non-traditional players, who have little regard for specialist traditions and standards – they are creating their own, or use ‘what is good enough’ – but they get products and services on the market and encourage their users to contribute improvements.

These developments are creating new possibilities for ‘spatial enablement’ – ie embedding location or ‘place’ into whatever we do.

But these possibilities will not be realised without the right integrating frameworks and technologies.

VSIS aims to identify what these are and recommend the course of action to put them in place.

The vision is to create an environment that enables us all to

- **Locate** – people, places, services, businesses and points of interest.

- **Connect** – systems, services, businesses, partnerships and link with other industries.
- **Deliver** – quality services, standards, framework and what users want.

Four integrated strategic directions are set out.

The first is *‘creating a framework in which the use of spatial information can flourish’*.

Under the Strategy, this framework will incorporate **standards**, clearly articulating the **roles** of all sectors, public sector agencies taking a **whole of Victorian Government approach** to sharing of and access to its data – including standard approaches to data management and greater collaboration between agencies; and **legislation** – to modernise the current information management arrangements.

The second is *‘adopting an inclusive approach to the management of spatial information’*.

Here we are encouraging the development of ways to enable contributions to the updating and maintaining of data to a range of notifiers – for example Councils and CFA volunteers.

These ways may include standard editing environments, on-line tools for metadata creation and management, and tools for notifying changes or modifications to attributes.

The third strategic direction is *‘developing the spatial information community through collaboration and partnerships’*.

VSIS will encourage alliances and joint ventures within and between the industry sectors, and outside the traditional spatial industry – such as the games industry.

The aim is to see greater collaboration, capitalising on our strengths and sharing our expertise.

And, Government should support industry by providing access to its spatial data to enable it to develop new services delivering that data.

Finally, the fourth direction is *‘maintaining the foundations for Spatial Information Management’*.

None of the developments I have alluded to earlier will be possible without fundamental ingredient – ie the spatial data.

All of the challenges and strategic directions VSIS has set out must be underpinned by a robust approach to the management of that data.

This will require

- Ensuring data is fit for purpose
- Licensing models that facilitate access
- Development of technical solutions that encourage accessibility
- Awareness raising
- Enabling data to be ‘discovered’

and

- Availability of the data

The implementation of VSIS will be based on achieving each of these directions, together and separately, and with the contribution of all members of the spatial community – not least surveyors.

VSIS provides key signposts, but will need everyone's participation to make it successful.

The VSC will play its part through communication and education – about what is needed; advocacy – targeting the right 'influencers' in government, the private sector and academia; and facilitation.

### **Concluding remarks**

Such changes as those that I have outlined above are making the attainment of position simpler, and as a result are opening up the market to new players.

And they are serving a much broader user base – which is increasingly expanding to cover policing, vehicle fleet management, farming, and the collection of spatial information.

Such a changing environment requires changing responses – those that embrace the new and let go of the old.

Why should we do this?

Because our evolution is the key to our survival.

Because Google is not made up of a group of surveyors, but it is satisfying so many of our traditional clients' requirements with their on-line services that

reduce the need to invest in data collection and hardware and software. These clients are demanding solutions, and the likes of Google provide them – by making access to data simpler, and providing the services and tools that enable users to develop their own applications.

Position and location have not lessened in value – on the contrary, they are now more widely recognised and more important than ever.

This brings significant opportunities as well as challenges.

The challenge will be to take our unique competencies and use them to create solutions demanded by the market.

The Victorian Spatial Council recognises the importance of this challenge.

And I invite you all to join us as we take the challenge offered and set our future course.

Thank you.