crc•si

ANNUAL REPORT 2007-08

"Ready and timely access to spatial information – knowing 'where' people and objects are – is essential to Australia's continued development in the information age. It is a critical tool in informed decision-making on key economic, environmental and social issues."

CRC for SPATIAL INFORMATION

Established and supported under the Australian Government's Cooperative Research Centres Program

CRC AUSTRALIA

'a user-driven, public-private research cooperation

With successful outcomes in adoption and commercialisation and education

across an emerging industry for structural, economic and national benefit'

Those who wish a deeper knowledge of CRCSI activities are referred to the corporate web pages and are welcome to contact the CRCSI office.

CRC for Spatial Information

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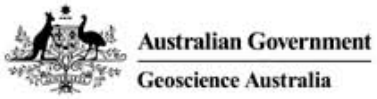
Core Participants



CRCSI is established and supported under the Australian Government's Cooperative Research Centres Programme

Support Participants

43pl members

AAMHatch
Advanced Spatial Technologies
Alexander & Symonds
Apogee Imaging
AquaSpy
Brazier Motti
Brown & Pluthero
C. R Hutchison & Co
CR Kennedy
CSBP Limited
CTF Solutions
D.M. Gerloff & Associates
ERMapper (now Erdas)
Fugro Spatial Solutions
Geogenx
Geomatic Technologies
GIS Jobs International

gpsAg
iintegrate Systems
Industrea
Intergraph
Land Equity International
Leica Geosystems
Lester Franks Survey & Geographic
Lisasoft
Logica
McMullen Nolan & Partners
Navigate
NGIS Australia
Omnilink
Omnistar
Pitney Bowes MapInfo Australia
Position 1 Consulting

PSMA Australia Ltd
QASCO Surveys
Reeds Consulting
Scanalyse
Searle Consulting NQ
Sinclair Knight Merz
Spatial Information Technology Enterprises
Spatial Vision
Sundown
SuperAir
Survey 21
Trimble
Twynam
V-TOL
VPAC
we-do-IT
Whelans

"More than 80% of respondents expect the **CRCSI will add value** to their business in the future and expect that the future **competitiveness of their business will be enhanced** through their participation in the CRCSI"

Third Year Review independent industry survey of non-university CRCSI participants

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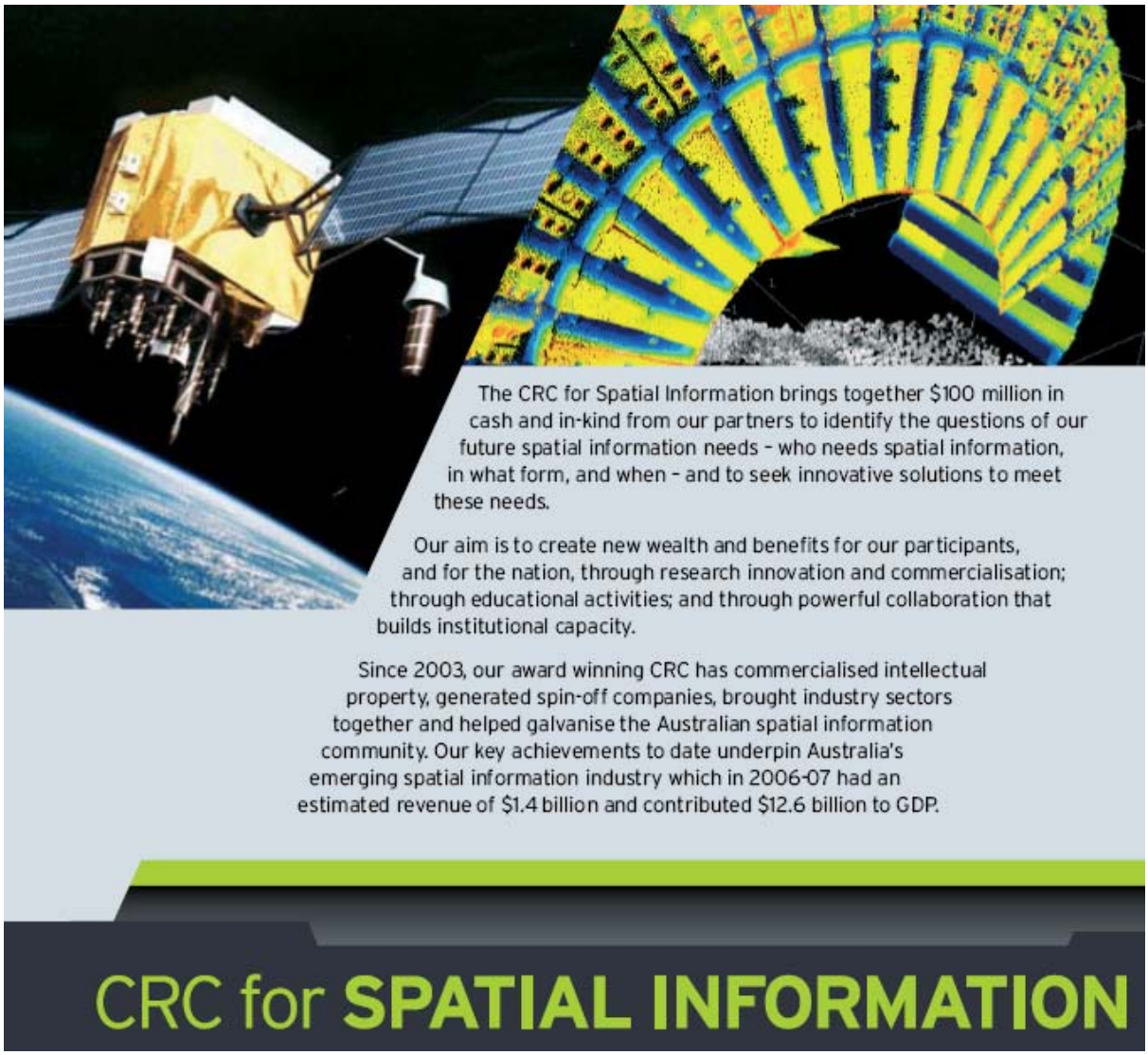


CRC for Spatial Information

Vision

To make the CRCSI a world leader in spatial information applications that is affordable, useful and readily available to all — at any time and in any place.

The application of the vision is the holistic representation of the vast array of information about our world in three dimensions and at any useful scale. In simple terms this means one can remotely access map-based information, combine it with information from other sources, conduct analyses, view the information in three dimensions, conduct forecasts, analyse historic trends, supply information and analyses to others, and know one's geographic position. Moreover it provides us with the ability to convey this position to others, at any time. Spatial information and its enabling technologies are therefore linked through this vision.

Statement of Purpose

To create new wealth for the participants of the CRCSI and for the nation, through research innovation and commercialisation; through educational activities; and through powerful public private collaboration to build institutional capacity.

4.1 Executive Summary

Industry wide impacts and achievements

The key activities and achievements of the CRCSI over the past year are set out below.

Australian Spatial Consortium

The Australian Spatial Consortium (ASC) was conceived by 35 of the nation's leading spatial thinkers at the CRC for Spatial Information's 2007strategic planning retreat. They agreed that the nation needed to develop ... "A consortium that seeks to accelerate the unlocking of the potential of spatial information for economic, environmental and social benefit for Australia within key industries, and the development of tools, new technologies and capabilities relating to the fundamental future needs of the nation." It's key objective will be to accelerate the rate at which spatial information and related technologies move to become a ubiquitious presence in Australian life.

The core business of the ASC will be to address those issues that can (best and only) be tackled through partnerships across the sectors (private, government and university/research) and which are of high national interest. The ASC will 'value add' to the existing spatial organisations and their individual outcomes, and not duplicate or detract from the current success of the present organisations and structures involved in spatial information.

Membership includes the Chairs of ANZLIC (Chair of the ASC), ASIBA (immediate past Chair), SSI, CRCSI, PSMA, 43Pty Ltd and the CEO of the CRCSI. The ASC is currently developing its strategic thinking. It held its first 'Insight' Forum in Sydney, bringing together a group of leading Australian's to help it position itself, and its members, for the decade ahead. The ASC will also play an important role in guiding the development of the CRCSI's new bid for a second round CRC.

Contribution to Government Reviews

The CRCSI made submissions to a number of important reviews during the year including the Cutler Review of the National Innovation Systems, the O'Kane Review in the Cooperative Research Centre Program, the Senate Committee in Economics Review into Australia's Space Science and Industry Sector, and the Inquiry into the National Health and Hospital System Reform.

The CRCSI's submission to the Cutler and O'Kane Reviews strongly supported the continuation of the CRC Program, acknowledged the need to reinstitute public benefit to the objectives of the Program, and made a number of detailed recommendations about improvements to the CRC Program and to the system of innovation in Australia including sharing observations about the management of sme's and their participation in public-private R&D partnerships.

In its Senate Economics Committee Inquiry into Australias Space Science and Industry Sectors the CRCSI argued for a fundamental review of Australia's space science policy and strategic planning on the basis that Australia has no sovereign control over the flow of space based spatial information, specifically remote sensing and global navigation satellite systems information. It also argued that Australia needed to develop a new strategy for space and space science that sets up strong drivers to link innovation, education and industry.

The CRCSI worked closely with a number of other organisations in their submissions to the Cutler and the O'Kane reviews including the Australian Spatial Consortium and CRC Association, and provided material for CSIRO, ASIBA and NICTIA (the National Information Tele-communications Industry Association).

CRCSI / ANZLIC Spatial Information Economic Impact Study

The CRCSI, in conjunction with ANZLIC – Australia's Spatial Information Council, commission ACIL-Tasman to undertake a comprehensive study into the impact of the spatial information industry on the Australian economy. The report found that in 2006-07, the spatial information industry contributed between $6.4-$12.6 billion to GDP (0.6%-1.2%), increased household consumption by between $3.6 - $6.9 billion, increased investment by between $1.8-$3.7 billion, had a positive impact on the balance of trade with exports increasing by up to $2.3 billion, and increased real wages by between 0.6% - 1.2%. This is the first time that such a study had been undertaken in Australia and it provides a valuable benchmark for further reviews, including those that will seek to measure the impact flowing from improvements to the management of innovation in the spatial information industry as a result of the activities of the CRCSI. The CRCSI was also grateful for the support provided by ASIBA (the Australian Spatial Information Business Association) in this work.

Research, Commercialisation, and Adoption

Two of the CRCSI's first spin-off companies are doing well. Scanalyse Pty Ltd won the West Australian Inventor of the Year for its innovative laser scanning system, MillMapper, which detects the rate of wear in mineral ore processing mills. iintegrate Systems Pty Ltd, with its Indji Watch system (formerly known as HazWatch), has now made a number of significant sales including Powerlink, Transgrid and SP Ausnet. IndjiWatch now monitors all transmission assets in the interconnected power system from Queensland to South Australia and Tasmania. IndjiWatch is a multi-purpose web-based solution for the management of information for real-time emergency incident management.

Other initiatives in the CRCSI pipeline

The CRCSI has a number of other research investments that developing promising outcomes:

InSAR – a radar image analysis service and suite of intellectual property have been developed and a market already found for detecting and mapping land subsidence and for DEM generation. NSInnovations (the commercial arm of the University of New South Wales) are currently seeking investment to build the business further with a view to a spin-out company.

Barista – is our powerful and inexpensive software package for correcting and analysing satellite imagery. Several licences have already been sold both locally and overseas. 43pl company SKM has become a distributor.

iii-loka – a mobile universal positioning and telecommunications device is being developed through 43pl company Geomatic Technologies.

Utilisation, Communication and Education

A global Google search confirms that the website of the CRC for Spatial Information is the most popular site on the internet for the search phrase 'spatial information' with over 15,000 visitors a month. Its Education Portal also ranks at number one, and was adopted as the 'National Clearing House' by the Australian Spatial Education Advisory Committee in April 2008. We are providing information on the opportunities our platform technologies offer to the wider community at unprecedented levels.

The CRCSI has enrolled 25 PhD and Masters students, and there were 21 PhD students participating in projects over the past year. Within the past year there were also 10 successful PhD and 2 Masters completions. The total number of PhD and Masters

completions to June 2008 is 12 and 3 respectively and there are currently a number of students who have their doctoral theses under examination.

Online courses have been released on the Education Portal, one of which is fee paying, and numbers of enrolments are growing. One of the free courses is for school teachers. All have Continuing Professional Development points accreditation through the Spatial Science Institute.

In 2007 the Board approved a change in strategy for the short course activities, away from a stable of face to face courses towards supporting the Spatial Sciences Institute in its provision of courses. In particular we are looking to asssit in providing online content across the industry and across the country through the CRCSI Education Pportal. We maintain a small fund to support one-off CRCSI partner initiatives.

The CRCSI Education Portal has been adopted by Australia's Spatial Education Advisory Committee as the national clearing house for education and training initiatives, a clear recognition of our industry-wide contributions. Interestingly, half the visitors to the portal are from America (although Australian traffic is increasing strongly). Our contribution to improved community education includes our web sites which inform the public as well as the technical community on spatial information: we are now getting over 16,000 individual visits a month.

Awards, special commendations, CRCSI highlights

Commissioned Research of National Significance

Global Carbon Monitoring Scheme.
This Department of Climate Change plan looks ten years out and will involve the use of multispectral satellites, hyperspectral satellites and radar imaging for forest monitoring and carbon modelling. It will involve substantial training and capacity building with collaborating nations.

National Elevation Data Framework
In April 2007 the Coalition of Australian Governments decided that Australia needed a comprehensive framework of quality digital elevation models to help the nation address the our coastal vulberability to the threat of sea level rise. Soon thereafter the CRCSI was commission to prepared a Green Paper on the Science Issues inherent in this framework. This paper was subject to extensive national review including a national workshop for all affected organisations convened jointly by the Australian Academy of Sciences and the Australian Academy of Technological Sciences and Engineering in March 2008 at the Dome in Canberra

The Department of Climate Change have now set up a national governance framework to oversee the development of the NEDF. They are doing this through ANZLIC and at Federal Ministerial level. DCC has let an initial $2 million dollar contract to CRCSI to commence the R&D behind the acquisition of high priority data and to undertake the critical research needed to support this program.

43pl

43pl is our unit trust that brings all of our sme participants. It continues to grow and prosper. It has now grown to 55 members from a starting base of 43 in 2004. It's Chairman Mr Mark Judd and our Communications Director Mr Michael Ridout undertook a series of national briefings with 43pl members as part of our ongoing process of stakeholder consulation for the purpose of continual improvement of our operations. 43pl members re-affirmed their support for the CRCSI and its future directions. This support by 43pl members is also expressed through their cash and inkind contributions, both of which have nearly doubled in aggregate on an annual basis since inception.

International Activities

Spatial Information Network of Networks
Together with Canada (GEOIDE) and Korea (KLSG – the Korean Land Spatialization Group) the CRCSI is leading the development of a new international organisation for 'super' collaborations in spatial information research. This organisation, when formed in 2009, will bring together the most powerfull networks of spatial information reseachers from around the world for the purpose of working together to tackle the some of the most pressing issues facing the world. Other nations (and groups of nations including the European Union and South America) have also expressed interest in joining.

Chinese Academy of Sciences
The CRCSI has developed strong international links. In China we have established the Joint Centre for Spatial Information with the China Centre for Earth Observation and Digital Earth (CEODE). CEODE is a $1 billion initiative of the Chinese Government designed to significantly increase its science capacity in spatial information. It was formed in 2007 and we are its first international Joint Centre. We also have an MOU with the Chinese University of Hong Kong and through it have received over $100,000 of satellite imagery in addition to other benefits.

International Society of Digital Earth
Australia, through the CRCSI, is a founding member of the International Society of Digital Earth (ISDE). The ISDE was founded in 2006. It International Secretariat is currently run by the Chinese Academy of Science. It is based on Al Gore's concept of Digital Earth. Mr Gore is the patron the ISDE and its purpose is to improve the use of advanced technologies in tackling issues of global sustainability.

GEOIDE
We have a long standing and growing collaboration with GEOIDE, one of Canada's Network of Centre's of Excellence program. GEOIDE is one of the largest and oldest CRC-like entities in the world, having recently celebrated a decade of successful research collaboration with its 150 partners. We also have an MOU with the Canada's Alberta Province who are creating a CRC-like entity in 2008-2009 and the CRCSI has been invited to join their board as the international representative.

A brief outline of the industry context

Spatial Information Economic Impact Study

The CRCSI commissioned and released the world's first authoritative analysis of the impact of Spatial Information on a nation's Gross Domestic Product. Spatial Information is at the core of a number of platform technologies and services, from traditional surveying to contemporary technologies like GPS and location based services.
The CRCSI, with support from ANZLIC, Australia's Spatial Information Council, commissioned ACIL Tasman to conduct a rigorous, independent, Treasury-standard study on the impact of Spatial Information on Australia's economy in 2006-07.
The study, titled "The Value of Spatial Information," conservatively estimated that industry revenue in 2006-07 was of the order of $1.37 billion. It found that the spatial industry

- contributed between $ 6.4 and $ 12.6 billion to Gross Domestic Product (0.6 % and 1.2 %)
- increased household consumption by between $ 3.6 and $ 6.9 billion
- increased investment by between $ 1.8 and $ 3.7 billion
- had a positive impact on the balance of trade with exports increasing by up to $2.3 billion

increased real wages by between 0.6 % and 1.2 %.

4.2 National Research Priorities

The National Research Priorities (NRPs) are thematic and are underpinned by 'priority goals'. There are four priorities:

1. An environmentally sustainable Australia
2. Promoting and maintaining good health
3. Frontier technologies for building and transforming Australian industries
4. Safeguarding Australia.

Geo-information, a synonym of spatial information, is highlighted in federal government descriptions of designated NRPs as an example of a Priority Goal, namely Breakthrough Science. Projects within the CRCSI's portfolio are also aligned with other NRPs, and especially the Priority Goals of Smart Information Use, Frontier Technologies, Critical Infrastructure and Transformational Defence Technologies.

Spatial Information is a platform technology and as such it is very relevant to all NRPs. In particular, the CRCSI work in remote sensing and earth observation is contributing to natural resource management and related environmental work. Our location based services research and development is helping build what has been called the "fifth infrastructure", that of location.

DIISR Table 1: National Research Priorities and CRC Research

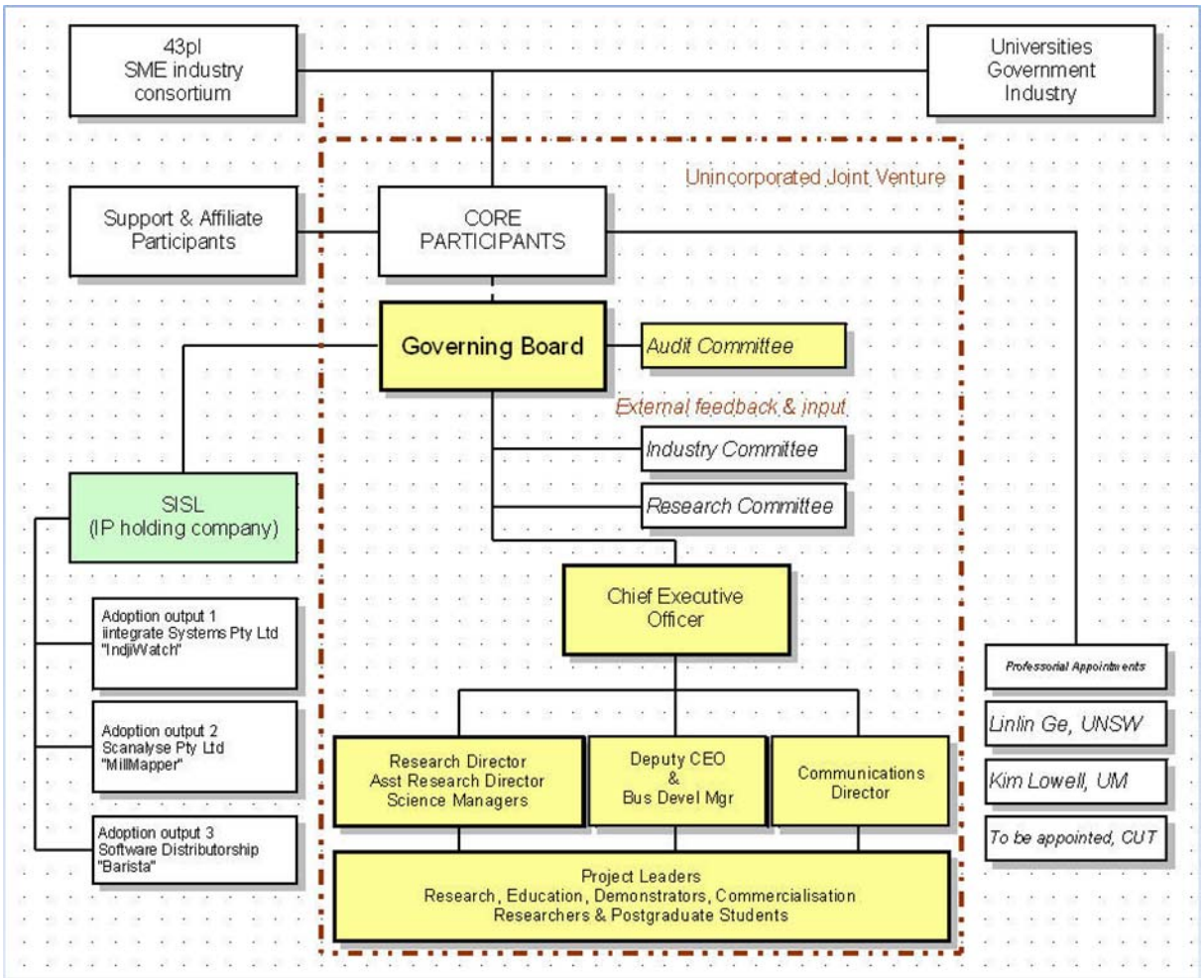
NATIONAL RESEARCH PRIORITIES	CRC RESEARCH (%)
AN ENVIRONMENTALLY SUSTAINABLE AUSTRALIA – *Transforming the way we use our land, water, mineral and energy resources through a better understanding of environmental systems and using new technologies*	
Transforming existing industries	20
Sustainable use of Australia's biodiversity	5
FRONTIER TECHNOLOGIES FOR BUILDING AND TRANSFORMING AUSTRALIAN INDUSTRIES – *Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research*	
Frontier technologies	30
Smart information use	20
SAFEGUARDING AUSTRALIA – *Safeguarding Australia from terrorism, crime, invasive diseases and pests, and securing our infrastructure, particularly with respect to our digital systems*	
Critical Infrastructure	20
Understanding our region and the world	5

4.3 Governance and Management

The CRCSI is an unincorporated joint venture. It has an eleven member Board comprising four independent and seven nominated members. The Research and Education Advisory Committee, the Industry Advisory & Commercialisation Committee, and the Audit & Compliance Committee advise the Board.

Management comprises an Executive and support staff, four Science Program Managers, and some twenty Project Leaders. The Executive are employed by the company Spatial Information Operations Ltd. An Education Reference Group that meets regularly and Project Management Groups that meet quarterly to review each project make up the key management structures.

There were no changes to Core or Support Participants during the year.



Roles and Accountabilities

Board	Executive	Science Managers	Project Leaders
Strategic direction Policy Budget Achievement of Strategic Plan CEO appointment	Strategic Planning Operational Management Business Development Commercialisation Ensuring programs interconnect and link to the market Member and client relations	Independent project input and advice (project development; work quality; technical and commercial networks) Internal links Market interface Research utilisation	Research leadership Project stakeholder communication and relations Project mgt (staff and budget), esp. meeting milestones & reporting Internal liaison

Governing Board

CRCSI is ultimately managed by the Governing Board of directors, which meets five times each year. There is a maximum of eleven directors, some of whom have alternates:

- an independent Chairman
- three independent directors including the CEO
- two representatives from each of 43pl and university colleges
- three representing the government college

Each college operates independently and confers amongst itself so that views of any participant can be brought to consideration in a Board forum. Not all Members have Board seats, but all have equivalent access through rotation of Directors that represent participants. Directors are made fully cognisant of the obligations of Corporations Law, which dictates that the interests of the CRCSI be placed above those of their own organisation while acting as a director. Comprehensive governance protocols have been designed for the CRCSI by Mr Henry Bosch AO.

Audit & Compliance Committee

The Audit and Compliance Committee met once this year. It supports the audit process and CRCSI fiduciary and other protocols. Membership at 30 June was Tony Burns (Chair) and Bruce Thompson, with a further appointment to be made. Pitcher Partners is the auditor for the CRCSI, SISL and 43pl.

Research & Education Advisory Committee

This independent committee provides advice and recommendations to the Board on the research and education activities of the CRCSI. It met twice in the year, jointly with the Industry Advisory and Commercialisation Committee. The REAC Chairman is an observer at Board meetings. Its membership at 30 June was

Clive Fraser	CRCSI Research Director (Chair)
Arthur Berrill	Pitney Bowes MapInfo
Peter Loughfrey	ESRI Australia
Graeme Wright	Curtin University of Technology

Industry Advisory & Commercialisation Committee

This committee advises the Board on industry and commercialisation matters. It met twice in the year, jointly with the Research & Education Committee. The IACC Chairman is an observer at Board meetings. Membership at 30 June was

Jack de Lange	Australian Spatial Information Business Association (Chair)
Tony Burns	Land Equity Pty Ltd
Hun Gan	Starfish Ventures Pty Ltd
Bill Richards	Fugro Spatial Solutions Pty Ltd
Grahame Searle	Landgate WA
Chris Pigram	Geoscience Australia

Spatial Information Systems Limited (SISL)

CRCSI established SISL to hold its intellectual property and oversee its exploitation. SISL acts as the commercial agent for the CRCSI participants to identify, protect, use and commercialise the Centre Intellectual Property. The SISL Board met twice in the year. The Board of SISL comprises

Bill Charters	Independent (Chair)
Tony Burns	Land Equity Pty Ltd
Les Field	UNSW
Roland Slee	Oracle Corporation
Warwick Watkins	NSW Dept of Lands
Peter Woodgate	CRCSI CEO
Jack de Lange	Industry Commercialisation and Advisory Committee Chair, and Australian Spatial Information Business Association

43pl – the SME consortium

43 Pty Ltd, or 43pl, is a company established as a construct to efficiently manage the large number of small to medium sized enterprises (SMEs) to participate in the CRC. It has a board that oversees the trust, in which member companies hold units proportional to their aggregate cash subscription. Board directors come from each state involved in the CRCSI. Two 43pl representative directors on the CRC Board are elected from nominations by the membership of 43pl.

43pl is a core participant in the CRC. The proprietary limited company brings together over 50 small to medium enterprise companies through a unit trust deed. Each SME is a unit trust holder. There are five shareholders in the 43pl company, one from each of Tasmania/Victoria, Western Australia, South Australia/Northern Territory, New South Wales/Australian Capital Territory and Queensland. A company from each state/territory provides the Director for the Board of 43pl. At 30 June 2005 the 43pl Directors were Mark Judd (Chair, Victoria and Tasmania), Jack de Lange (Queensland), Dean Howell (SA), Bill Richards (WA), Tony Wheeler (NSW & ACT). All states and territories with the exception of the Northern Territory have headquarters of 43pl members.

The name 43 Pty Ltd derives from the 43 companies that initially expressed interest in being part of the CRCSI bid for establishment. During the year new companies joined CRCSI through 43pl bringing the total at 30 June 2007 to 53. In addition the CRCSI won the 2007-08 STAR Award for Small Business Engagement in recognition of its work with the 43pl companies.

"bouquets for the CRCSI – I have been involved in five or six CRCs, and this one is the most professionally run and rigorous in governance and management"

Third Year Review independent industry survey [of non-university CRC participants]

Industry is a key part of the CRCSI. 43 Pty Ltd (43pl) is a company set up to facilitate CRC participation by a large number of SMEs. Award-winning 43pl breaks new ground in small company engagement in the CRC Programme. 43pl now has 53 company members spread across the nation – over ten percent of the number in the whole Australian Spatial Information Business Association. 43pl companies are embedded in all CRCSI strategic planning, governance, research, and commercialisation. Other interactions occur at the annual networking conferences and through special 43pl and user workshops.

"43pl gives us an unprecedented opportunity to bring the small corporates and researchers together in a rapidly growing industry"

"The CRCSI's use of the innovative 43pl structure to engage a large number of SMEs is noteworthy within the CRC programme, as well as being of vital importance to the fledgling SI sector and to the CRCSI."

"Most 43pl members would not have participated in large-scale, cooperative research programs without a 43pl-type mechanism. Thus, 43pl remains of paramount importance as a vehicle to gain SME engagement in the CRC's research, to provide a path for adoption of the CRC's research findings and to gain user input to the strategic planning and conduct of research."

"At least ten organisations are implementing new ideas from the CRC."

Quotes from our independent third year review survey of industry and government users

DIISR Table - CEO, Governing Board Members and Committee Members

Director *Alternate Director*	Organisation	CRC Position / Role & Key Skills
Mary O'Kane **Independent** (Director, M O'Kane & Assoc)		**Board Chair** Intellectual Property management, Negotiation, Capital Raising, Computer hardware and software knowledge and experience, Financial Management, Australian R&D environment , Business Management, Governance, International experience, research management
Bill Charters **Independent**		**Board Director** Negotiation, Capital Raising, Financial Management, Marketing, Business Management, Governance, Australian R&D environment, International experience, research management
Peter Woodgate **CRCSI**		**Chief Executive Officer & Board Director** Intellectual Property management, Licencing, Spatial Industry experience and technical knowledge, Business Management, Australian R&D environment, and applications, research management
Grahame Searle **Landgate, Western Australia** *David Hartley Dept of Agriculture & Food WA*		**Board Director** Negotiation, Intellectual Property management, Spatial Industry experience and technical knowledge, financial management, Australian R&D environment, business management, research management, government policy
Graham Wright **Curtin University**		**Board Director** Negotiation, Intellectual Property management, Australian R&D environment, business management, research management
Roland Slee **Independent** (Oracle Corporation Australia Pty Ltd)		**Board Director** Negotiation, licensing, Computer hardware and software knowledge and experience, Spatial and computing technical knowledge, Financial Management, Marketing, Business Management, International experience
Bill Richards **43pl representative** (Fugro Spatial Solutions Pty Ltd) *John Lazarus Managing Director, Fugro Spatial Solutions Pty Ltd*		**Board Director** Negotiation, Spatial Industry experience and technical knowledge, Computer hardware and software knowledge and experience, financial management, Business Management, Governance, International experience
Tony Burns **43pl representative** (Land Equity Pty Ltd) *Chris Grant* *Land Equity Pty Ltd*		**Board Director** Intellectual Property management, Negotiation, Spatial Industry experience and technical knowledge, Marketing, financial management, Australian R&D environment, business management, International experience
Bruce Thompson **Dept Sustainability & Environment, Victoria** *Tai Chan Dept Sustainability & Environment Victoria*		**Board Director** Intellectual Property management, negotiation, Spatial Industry experience and technical knowledge, financial management, business management, research management, government policy

Steven Jacoby **Dept Natural Resources & Water, Queensland**	**Board Director** Negotiation, Spatial Industry experience and technical knowledge, Marketing, financial management, Australian R&D environment, business management, research management, government policy
Warwick Watkins **[Deputy Chair]** **Director-General, Dept of Lands, NSW** *Des Mooney* *NSW Dept of Lands*	**Board Director** Negotiation, Intellectual Property management, Spatial Industry experience and technical knowledge, financial management, Australian R&D environment, business management, research management, government policy
Les Field **University of NSW** *James Walsh* *University NSW*	**Board Director** Negotiation, capital raising, licensing, intellectual property management, Marketing, financial management, Australian R&D environment, research management

DIISR Table - Program Leaders

Name	*Organisation*	*CRCSI Position / Role*
Chris Rizos	Uni NSW	Science Program Manager 1
Clive Fraser	Uni of Melbourne	Science Program Manager 2 & 3 CRCSI Research Director Chair, Research & Education Advisory Committee
Tony Milne	Uni NSW	Science Program Manager 4
Ian Bishop	Uni of Melbourne	Science Program Manager 5
Phil Collier	Uni of Melbourne	Assistant Research Director
Peter Woodgate	CRCSI	CRCSI CEO
Graeme Kernich	CRCSI	CRCSI Deputy CEO & Business Manager
Michael Ridout	CRCSI	CRCSI Communications Director & Education Director
Jack De Lange	ASIBA	Chair, Industry Advisory & Commercialisation Committee

DIISR Table - Changes to Participants

Participants Name	Commonwealth Approval
none	none required

4.4 Research

The CRCSI defines research to include the innovative use and application of emerging technologies as well as the development of new technologies. The CRCSI undertakes world-class research that will lead to new applications of spatial information and enabling technologies that can be used to generate new wealth for its participants.

The Vision of the CRCSI will be realised when spatial information is made useful and available to all – at any time and in any place. Implicit in this vision is that the needs of SI users will be met through the development of the necessary supporting products and services. These will provide accessibility and knowledgeable use of SI within a favourable environment of regulatory policies and institutional frameworks. An enhancement of industry and user capabilities is essential if the broad spectrum of SI needs within society is to be satisfied. New developments in the acquisition, analysis, synthesis and delivery of SI are being continually called for. This in turn requires active research and development in the science and technologies of positioning, modelling and data processing, integration and archiving, and dissemination and visualisation of SI.

In forming projects the CRCSI focuses on the needs of the user of SI and is responsive to the future needs of Australian industry. This demands early stage planning for user adoption and utilisation of research outcomes, along with commercialisation of technological innovations for the benefit of CRCSI participants, the wider industry and the nation.

4.4.1 Research activities and achievements

Key research achievements

Highlights of the research year included the migration of project outputs and expertise into commercial and national benefit initiatives of high potential. The former include “loka deva” and Barista software, with other initiatives such as MillMapper and HazWatch consolidating their commercialisation. The latter is represented by the outstanding global aid work done in response to the Sichuan earthquake crisis where the CRCSI project 4.09 team provided data to rescue missions within 24 hours that identified critical aspects of the region affected, derived from satellite data.

A common factor in these, and indeed all, CRCSI developments is the involvement of end-user knowledge through their active participation in projects.

Each key achievement is addressed in the sections to do with commercialisation and with utilization sections. Up to date information is provided on the website.

Nature of major external contracts and their contribution to the CRCSI

4.09 Urban DEM project with Department of Climate Change

Sea level rise and increased storm surge are a major risk to Australia’s settlements and infrastructure. Highly accurate three dimensional models of these coastal areas will give us a better understanding of the impacts of future sea level rise and storm surges. These “digital elevation models” (DEMs) allow the necessary computer modelling to assess inundation risks to our population and built infrastructure, and identify ways in which the risks can be reduced.

CRCSI is developing a DEM of selected highpriority urban areas under a $2 million contract for the Commonwealth Department of Climate Change. Initial work will focus on Perth, Adelaide, Sydney, Brisbane, Melbourne, the Gold Coast and the NSW Central Coast.

The high resolution Digital Elevation Model builds on the Federal Government’s current mid-resolution digital elevation model investment which identifies areas of likely exposure to climate change risks. Airborne laser scanning and high resolution digital airborne imagery, together with advanced analysis techniques, will help identify which

infrastructure and areas of high population density are most at risk. The project will be implemented in collaboration with other key national organisations such as the Australia and New Zealand Land Information Council (ANZLIC), Geosciences Australia, CSIRO as well as relevant state government agencies and commercial terrestrial mapping and monitoring companies.

Project 2.05 - Shallow Water LADS Analysis – Victoria DSE

Concerns over climate change and global warming are driving increased interest in the inter-tidal zone and adjacent areas. In Australia, the inter-tidal zone is mostly unmapped. Topographic maps typically stop at the high tide mark and hydrographic charts stop at the low tide mark. The project analysed data acquired by the laser-based airborne shallow-water bathymetry system, LADS to assess its potential and suitability for mapping near-shore water depth along the Victorian coastline

Proejct 1.07 - GDP contribution of high-resolution positioning in automation

The single most significant constraint to Australia's Gross Domestic Product in the next fifty years is considered to be work force capacity or, more precisely, work force shortage. One countering influence is automation, most commonly in industrial processes. This project will determine, and quantify, the potential for positioning services to contribute to Australia's GDP through enabling automation of a range of occupations and activities

Project 4.12 - Guidelines on Digital Terrain Data for Emergency Response Management Planning

The aim of the project is to develop standardised guidelines for the GIS component of flood studies. Digital flood intelligence is available in many forms and is increasingly being sourced from remotely sensed data. To ensure the accurate capture, visualisation and interpretation of these data, robust and repeatable methods that can be applied State-wide are required. It is envisaged that the guidelines will become a standard component of future flood studies undertaken by the relevant Local and State Management Authorities.

In addition a number of consultancies were conducted under commercial in confidence terms.

Any changes proposed to future research directions

The CRCSI is preparing an R&D program to submit to the anticipated 2009 funding round of the CRC Program. This will capitalise on the successes of the first CRCSI and move the science and technology into new areas of application, for instance into the health arena. The same name will be kept, as it has achieved significant brand recognition internationally.

4.4.2 Research Collaborations

CRCSI has many participants across Australia – over 60 companies had formal collaborative arrangements with CRCSI activities in the year, along with a dozen government departments and six universities. There is a great diversity in organisation type and size. Respective organisational cultures differ, and are a potential source of friction and misunderstanding, amongst various government agency structures; small service companies and manufacturers; R&D based enterprises and universities. Fostering a CRCSI culture is important to the Governing Board and management. CRCSI is above all a collaborative enterprise and this is practised in various ways, as described in the following sections. The independent industry survey of the Third year Review concluded "SMEs are engaged through 43pl, which is both innovative and successful" and that "end-users are well satisfied"

Internal

The CRCSI has achieved great progress in developing collaborative linkages within the CRC. The CRCSI is vertically integrated in that leading edge customers are engaged with technology and service providers. In addition many of the customers are also suppliers of the data and infrastructure used by the market in devising new products.

Cooperation amongst geographically spread activities and entities is assisted through regular telephone and other conferences, coordination of physical meetings by the Board and the executive. The website has become increasingly important to connect participants with CRCSI activities and events. The Annual Conference and state based get-togethers are perceived to be of high benefit by our participants.

A comprehensive Communications Strategy adopted by the Board provides a central role in fostering collaboration. This has seen the independent industry survey of the Third Year Review conclude that "the CRC's communications and networking are both a strength and a principal value."

Other CRCs

Cooperative arrangements with other CRCs are selectively sought where resources allow and mutual interest is found. Over 30 CRCs have interests in and applications of spatial information. Contact and occasional joint activities are held with those of obvious relevance, eg CRC for Sensor Signal and Information Processing and the two Biosecurity CRCs, and the Cotton Catchment CRC (with a common scholarship program). Focused workshops have developed formal collaborations with the Bushfires and Forestry CRCs. In addition we have working links with NICTA and CSIRO.

National

Strong Links have been established with key stakeholder groups, notably the Australian Spatial Information Business Association (ASIBA), the Spatial Sciences Institute (SSI) and the peak government body ANZLIC – the Land Information Council. Mechanisms include board invitations, joint board meetings, membership, committee representation, and invited presentations, shared web links, and collaborations on important initiatives such as the national Spatial Education Advisory Committee; leadership roles within the NCRIS AuScope and related activities; and the commissioning of an independent study "economic impact of spatial information on the Australian economy". These relationships are important to give strategic advice and context to the CRCSI on the one hand and on the other to very effectively convey the work of the CRCSI to the broader spatial and user communities.

International

The CRCSI plan in this area emphasises quality over quantity. It is recognised that considerable resources have to be devoted by each party to make such collaborations work. Three international collaborative alliances were maintained during the period with strategic advantage sought for specific projects. The following international links are being pursued for strategic reasons and net benefit to our shareholders.

- GEOIDE Network based at the University of Laval in Quebec, Canada (analogous to a CRC, funded as a Canadian 'Networks of Centres of Excellence' (http://www.geoide.ulaval.ca). – *strategic link of CRC-wide benefit*
- Chinese Academy of Sciences - A collaborative research agreement underpins joint activities that are being developed.

In addition the CRCSI is a founding member of the international "Network for networks" This new organisation has five core members joining CRCSI: Canada (GEOIDE), South Korea (KLSG), Mexico (Centro-Geo), South America (through IPGH) and Europe (through AGILE of the EU).

4.5 Commercialisation & Utilisation

4.5.1 Commercialisation and utilisation strategies and activities

The CRC for Spatial Information has been established

'to create new wealth for the participants of the CRCSI and for the nation: through research innovation and commercialisation, through educational activities, and through powerful public-private collaboration to build institutional capacity.'

This purpose is entirely consistent with the objective of the CRC Program

'to enhance Australia's industrial, commercial and economic growth through the development of sustained, user-driven, cooperative public-private research centres that achieve high levels of outcomes in adoption and commercialisation'.

The CRCSI Commercialisation and Utilisation Plan outlines the strategies for maximising the industrial, commercial and economic impact of CRCSI activities.

Commercialisation of CRCSI Centre Intellectual Property

Spatial Information Systems Limited (SISL) is the holder of Centre Intellectual Property (CIP). It is responsible for the commercialisation of CIP, including marketing, seeking potential licensees and seeking other commercial applications.

If SISL intends to commercialise any CIP, it must advise each CRC participant in writing and each participant has a period in which to express a desire to commercialise or participate in the commercialisation of the Centre Intellectual Property. Through the structure of 43pl, all of the SMEs involved can bid for commercialisation rights. If no participant desires to commercialise then SISL is free to commercialise the CIP in the manner it sees fit. The details of the commercialisation plan for the CRCSI, including the patent and licensing strategies, is documented within the CRCSI Commercialisation and Utilisation Plan.

Projects

The CRCSI strategy for technology transfer is inherent in the way it selects and funds its activities. The technology transfer and commercialisation strategy must be built into a proposal before the Governing Board will approve CRCSI funding and formalisation into a CRCSI project agreement contract.

Criteria for project funding approval include a requirement that prospective commercialisers and/or end users have significant involvement in the project; that there is a clear and credible route to market; that the work plan reflects market awareness; and that it is aimed at a demonstration of the project output.

Every project is governed by a Project Agreement which details intellectual property ownership, the proposed route to commercialisation / application, and the role to be played by the entities involved. All parties to the project sign the Agreement. The Project Management Group pro forma agenda for quarterly meetings includes consideration of any commercial aspects pertinent to project progress and output.

Where commercialisation within a project is evident, our strategy is simple; identify potential technologies for commercialisation early through the project proposal process; develop a business case, through quarterly project management group meetings, for presentation to the Governing Board. If approved, this is passed for implementation to the CRCSI commercial agent, SISL. An expression of interest to develop the commercial proposition is then sought from CRCSI participants.

Key Commercialisation Activities

Those organisations selected by the Board to lead the commercialisation of CRCSI opportunities are chosen on the basis of two principles; firstly preference is given to those who have played a lead role in the research and development phase, secondly the choice of the commercialiser must be in the overall best interests of all CRCSI partners. The strength of the business case presented for commercialisation is a key factor in helping the Board with its final decision.

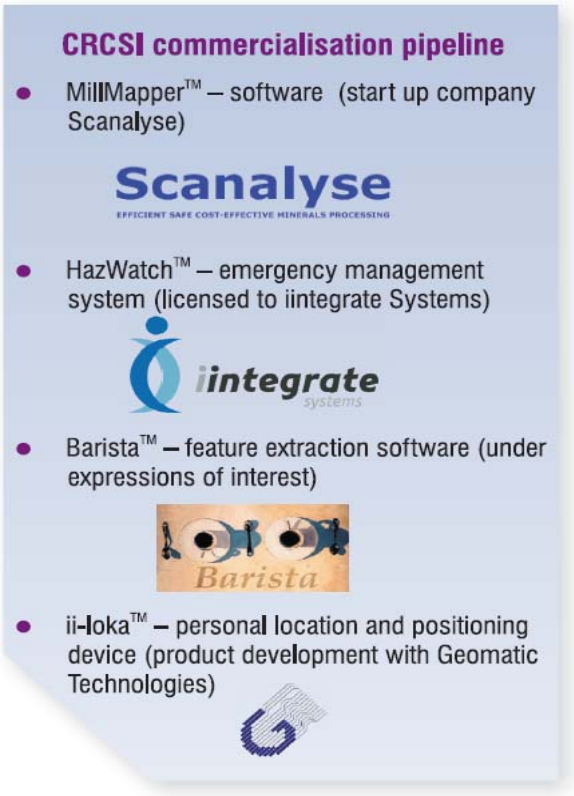
There are several commercialisation-utilisation activities and results that have been developed and or built on this year, as described below.

A review of all research and demonstrator projects by a CRCSI Panel at the annual conference, and ongoing monitoring of projects within the quarterly Project Management Groups, has kept focus on commercialisation aspects.

A pipeline of commercialisation / adoption opportunities has been generated, with business cases prepared for the Board to commercialise several project outcomes. Several projects indicate promising results and commercial opportunities are being explored. The three most mature commercialisation activities of the CRCSI are below.

HazWatch – start up company "iintegrate Systems Pty Ltd"
HazWatch is being commercialised through iintegrate Systems Pty Ltd. This is a subsidiary of NGIS Pty Ltd, the 43pl member company that played a key role in the CRCSI emergency management demonstrator project 6.1. The company is a specialist geospatial software developer offering a portfolio of advanced products including the GeoSamba© location server. GeoSamba provides HazWatch the ability to connect many types of information, previously locked away in private and public databases, and to make it available in real-time to emergency response teams from many different agencies and jurisdictions in various locations. The CRCSI has licensed the HazWatch IP to the company and also negotiated equity in the company.

MillMapper - start up company "Scanalyse Pty Ltd"
Scanalyse is developing laser scanning technology products to improve the efficiency of mining and mineral processing operations. The first product, Millmapper, significantly reduces the maintenance cost of grinding mills by providing unique wear detection, monitoring and predictive intelligence. The CRCSI has negotiated commercial terms for an ongoing role in the company. Scanalyse now employs 7 people and has gained investment for further expansion and growth.



Barista - software
An output of Project 2.1 is Barista, a low-cost software system for data processing and metric geoinformation extraction from high-resolution satellite imagery (HRSI). Barista has been designed to have commonly needed image analysis and measurement functions, which makes it an ideal tool for practitioners and non-specialists seeking to extract spatial information from HRSI, especially from single images from the Ikonos, Quickbird, SPOT5 and ALOS satellites. Barista's strength is that it offers easy-to-use, commonly needed spatial information extraction tools which are currently available only in high-end specialist digital photogrammetric workstations. Commercial sales have begun. Initial sales have been made to Infoterra of France and further negotiations are underway.

4.5.2 IP Management

The effective management and commercialisation of intellectual property (IP) is fundamental to achieving the CRCSI purpose and the CRC Programme objective.

The CRCSI IP Management Policy provides a framework to the CRC participants and researchers to permit the utilisation and commercialisation of research outcomes of the CRC. The policy sets out ownership rights and the responsibilities of researchers and participants. It provides guidance on the identification, protection and commercialisation of CRC IP. The policy is based upon the IP ownership and management principles outlined in the CRC Centre Agreement, Commonwealth Agreement, and Centre Intellectual Property Trust Deed.

An IP register of Centre IP, Background IP and nascent IP has been disseminated to all project leaders. Each quarterly Project Management Group meeting discusses commercial issues, concepts and opportunities. These are also considered at Project Leader fora and at the annual conference. CRCSI has considerable internal expertise to advise projects on IP and related strategies, accessing expert inputs when required, including that of the CRCSI Advisory Committees.

During the year the CRCSI's IP holding company SISL handled the IP transactions described in the Commercialisation Activities submitted electronically to DIISR. Each transaction is reviewed with considerations of national benefit as well as reflecting the inputs of organisations to the CRCSI activities.

SISL is aware of the National Principles of IP Management and related guidelines and incorporates these into its considerations and strategies

All PhD students and some early career researchers have received specialised training in IP and commercialisation culminating in a two day "Bootcamp," and students and staff of 43pl have been offered subsidies for undertaking the eGrad course on commercialisation.

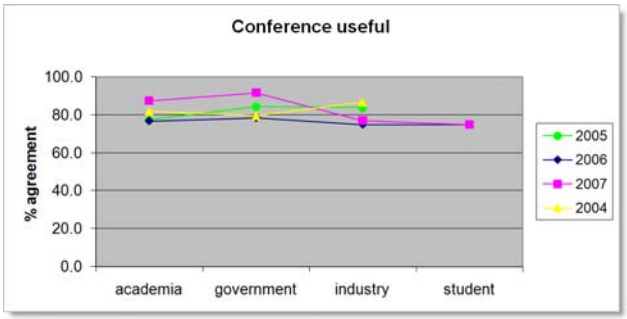
4.5.3 Communication Strategy

A comprehensive Communications Plan was adopted by the Board at the outset of the CRCSI. The independent industry survey conducted as part of the Third Year Review commented favorably on the CRCSI's performance in this regard: "The CRC's communications and networking are both a strength and a principal value"

Communication strategies include

- Regular workshops or "get-togethers" in each state to bring all participants views into strategic planning, and to encourage understanding across sectors. Specific workshops are also held with participants and with sectors
- Annual Conference of participants for wide-ranging technical discussion and personal interaction
- Annual "stakeholder survey" to maintain and understand the engagement of parties
- Regular correspondence and newsletters which include summaries of board minutes immediately following Board meetings
- Project involvement is sought and encouraged for all participants, and projects must have representatives from each area of participants – govt, corporate and academic. Project Management Groups of wide and diverse membership meet quarterly to discuss project progress and ramifications and potential applications. Dissemination of project progress reports through a closed web system allows appropriate information flows and encourage organisational interaction
- Communications Director to drive and resource these strategies, and to nurture relationships amongst 43pl SME consortium
- Research Director and Assistant Research Director with wide remit to draw players together through program and project seminars for instance

- Board representative seats – for instance two SME representatives sit on the Governing Board. Representatives on research and industry advisory committees – for instance an SME representative chairs the Industry Advisory & Commercialisation Committee, and both committees have members form each sector in the CRC
- co-location of R&D and management personnel and activities in the CRCSI offices
- reliance on a strong web platform for project and other communications. The website is now getting some 16 thousand visits per month and is top of the Google ranking for "spatial information" for the third year in a row



Strategies for Developing SME Links

The CRCSI has a unique structure for its SME consortium: members purchase units in a unit trust through which each can participate in the CRC with appropriate flexibility. A resourced set of strategies to engage with these companies is implemented through the Communications Director position. New members of 43pl are encouraged and 5 new companies joined. Two of the founding members have merged.

The Australian SI industry has many SMEs. From the outset it was recognised that there was a need for SMEs to be integrated. ASIBA, which has some 400 members, played a strong role in the formation of a unique CRC structure to achieve this. A representative company 43pl is the trust manager. This company is a CRCSI core participant; companies wishing to participate in the CRC buy units annually (as their cash contribution through to the CRC). A beneficial interest in the trust assets held by 43pl and hence of CRCSI joint venture is held by each in proportion to their contribution amount each year. The structure provides limited liability and ease of entrance and exit, two important factors to the SME.

The CRCSI provides finance, administration and communications functions to the company and its board of directors. The consortium is a major platform for the CRCSI to achieve industrial development, which is a core outcome of the CRCSI and enunciated in the Strategic Plan.

The 43pl value proposition includes

- Access to R&D initiatives and IP
- Neutral ground to meet clients and suppliers
- Growing the business (technical, professional development)
- Meaningful networking into government & academia
- Market development; kudos

4.5.4 End-user involvement and CRCSI impact on end-users

End users are involved in all aspects of the CRCSI. As required by the Commonwealth guidelines the following tables list "research users" with active and meaningful engagement in the CRCSI during the year. The nature of activities is reported in the project descriptions. Strong SME engagement is a particular strength of CRCSI and is reflected in all aspects of the CRC operation.

With regard to wider anticipated benefits to users, the CRCSI annually conducts through KPMG an independent confidential financial survey of the 43pl companies. The survey continues to reveal growth above industry norms. Key indicators include average revenue growth of 27%; current ratio of 9; 20% growth in number of employees.

Importantly, the Third Year Review's industry survey commented very favourably on the CRCSI engagement with end users, noting that "end users are well satisfied with their engagement levels" and "SMEs are engaged through 43pl, which is both innovative and successful"

Furthermore it concluded that the CRCSI was "vital to the organisation of the fledgling SI industry, and as creating a cross sectoral collaborative framework that will lead to economic and social benefits to the nation in the long term."

Industry is a key part of the CRCSI. 43 Pty Ltd (43pl) is a company set up to facilitate CRC participation by a large number of SMEs. Award-winning 43pl breaks new ground in small company engagement in the CRC Programme. 43pl now has 53 company members spread across the nation – over ten percent of the number in the whole Australian Spatial Information Business Association. 43pl companies are embedded in all CRCSI strategic planning, governance, research, and commercialisation. Other interactions occur at the annual networking conferences and through special 43pl and user workshops.

"43pl gives us an unprecedented opportunity to bring the small corporates and researchers together in a rapidly growing industry"

"The CRCSI's use of the innovative 43pl structure to engage a large number of SMEs is noteworthy within the CRC programme, as well as being of vital importance to the fledgling SI sector and to the CRCSI."

"Most 43pl members would not have participated in large-scale, cooperative research programs without a 43pl-type mechanism. Thus, 43pl remains of paramount importance as a vehicle to gain SME engagement in the CRC's research, to provide a path for adoption of the CRC's research findings and to gain user input to the strategic planning and conduct of research."

"At least ten organisations are implementing new ideas from the CRC."

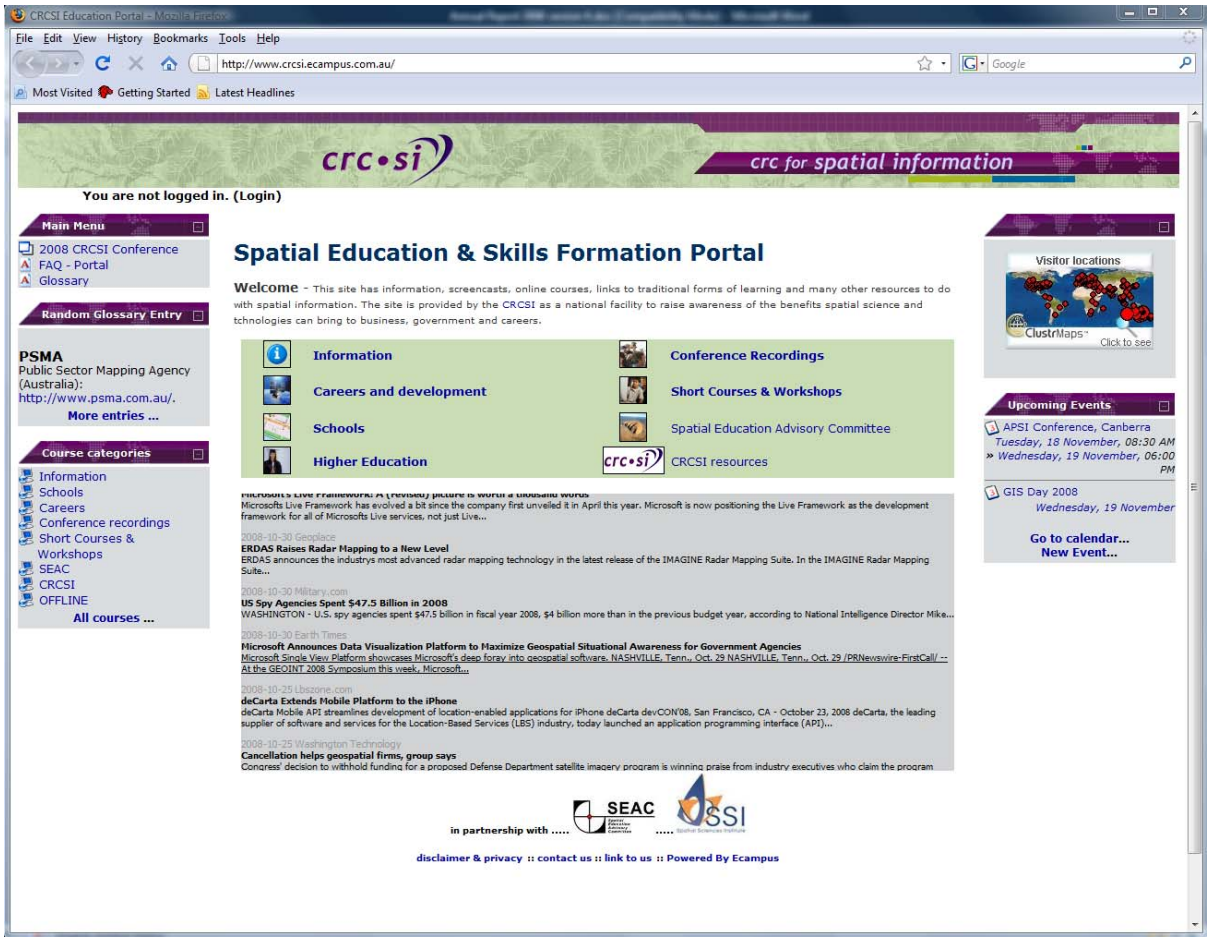
Quotes from our independent third year review survey of industry and government users

DIISR Table - End-user Involvement in CRC Activities

"End-users" and the basis of their Interaction	Type of activity and location of activity	Nature and scale of benefits to end-users (eg increase in exports, productivity, employment)	Actual or expected benefit to user (where possible, include benefits accruing in $ terms)
Core Participants			
Dept Agriculture & Food, WA	Research User and contributor. Based in WA, with field stations throughout the Wheatbelt. Participation in CRC wide planning workshops.	**Contributing to the development and trialling of CRC research (project 4.3 in particular) with a view to increased farm management efficiency and productivity.**	
Dept Sustainability and Environment, Vic	Research User and contributor. Participation in CRC wide planning workshops. Victoria, with regional facilities.	**Trialling outcomes of Project 1.2.** **Principal contributor to Virtual Australia Standing Committee** **Project engagement**	
Geoscience Australia	Participation in CRC wide planning workshops. Project 4.1 Leader Canberra, Perth	**Enhanced product (accuracy)** **Trialling of project outcomes** **Project engagement**	
Landgate (was Dept of Land Information) WA	Project participant Project 6.1 Leader Trialling Project 8.1 outcomes Perth	**Enhanced product; Trialling of project outcomes ; business efficiency; support of other operations (viz Shared Land Information Platform); technology awareness**	
Dept of Lands, NSW	Project participant Participation in CRC wide planning workshops. Sydney, Bathurst	**Business efficiency; technology awareness;** **Trialling of project outcomes** **Project engagement**	
Dept Natural Resources & Water, Qld	Project participant Participation in CRC wide planning workshops Brisbane	**Business efficiency; technology awareness;** **Trialling of project outcomes** **Project engagement**	
Dept of Primarry Industry, Victoria	Project participant, Rural and urban Victoria Participation in CRC wide planning meetings, Melbourne		
43 Pty Ltd – see below	Project participant Participation in CRC wide planning workshops Australia wide	**See below**	
Ergon Energy	Research user & contributor Project 6.7 Leader Participation in CRC wide planning workshops	**Increase in productivity and decrease in operational costs, estimated in the millions of dollars**	
Support Participants			
ESRI Australia **Support Participant**	Project participant Perth		
Defence Imagery and Geospatial Organisation	Participation in CRC wide planning workshops Canberra, Melbourne		
Intergraph	Project participant REAC member Melbourne, Perth		
43pl Participants			
AAMHatch	Project participant [and leader] Workshop participant Perth, Sydney, Melbourne	Importantly, the Third Year Review's industry survey commented very favourably on the CRCSI engagement with end users, noting that "end users are well satisfied with their engagement levels" and "SMEs are engaged through	**Furthermore, the independent survey of end-users of the Third Year Review reports** **"…the level of engagement between the CRCSI and respondents is high"**
Alexander & Symonds Pty Ltd	Project participant Workshop participant Adelaide		
Apogee Imaging International	Project participant Workshop participant Adelaide		
Advanced Spatial Technologies	Workshop participant Perth		
Brown & Pluthero Pty Ltd	Workshop participant Surfers Paradise, Brisbane		
Beveridge Williams & Co	Melbourne		
C. R Hutchison & Co	Melbourne		
CR Kennedy	Project contributors Melbourne		
CSBP Limited	Project participant Workshop participant		

	Perth	43pl, which is both innovative and successful" Furthermore it concluded that the CRCSI was "vital to the organisation of the fledgling SI industry, and as creating a cross sectoral collaborative framework that will lead to economic and social benefits to the nation in the long term." Reasons given by 43pl members for CRCSI participation: o Access to R&D initiatives and IP, technical expertise o Neutral ground to meet clients and suppliers o Growing the business (technical, professional development) o Meaningful networking into government & academia o Market development; kudos o Technology awareness and "horizon watching"	**" … ten respondents acknowledged that their organisation had already attempted to implement a new idea from the CRC's research … and several expected to start implementing such new ideas in the near future"** **" … more than 80% (45) of respondents expect the CRC will add value to their business in the future and 36 expect that the future competitiveness of their business will be enhanced through their participation in the CRC."**
D.M. Gerloff & Associates	Port Headland		
Fugro Spatial Solutions Pty Ltd	Project participant Workshop participant Board director 43pl director Perth, Sydney, Brisbane, Melbourne		
Geomatic Technologies	Project participant Project leader Workshop participant Melbourne		
Glenndew Pty Ltd	Melbourne		
GISjobs International	Workshop participant 43pl director Adelaide		
Iintegrate Systems Pty Ltd	Project participant Commercialising agent Perth		
Intergraph- Mapping & Geospatial Solutions	Project participant REAC member Melbourne		
Land Equity International Pty Ltd	Workshop participant; Board director Wollongong, Perth		
Lester Franks Survey & Geographic Pty Ltd	Project participant; Workshop participant Devenport, Adelaide		
Lisasoft Pty Ltd	Project participant Workshop participant Melbourne, Adelaide		
LogicaCMG Pty Ltd	Melbourne		
Pitney Bowes MapInfo Australia Pty Ltd	Workshop participant Brisbane, Canada		
Max Braid Surveyors Pty Ltd (now Survey 21)	Workshop participant Melbourne		
McMullen Nolan & Partners Pty Ltd	Project participant Melbourne		
Navigate Pty Ltd	Sydney		
NGIS Australia Pty Ltd	Project participant; Workshop participant Commercialising party Perth, Sydney		
Omnilink Pty Ltd	Workshop participant Sydney		
Omnistar	Project participant Workshop participant Perth		
Position 1 Consulting	Supplementary Bid Brisbane		
PSMA Australia Ltd	Project participant Workshop participant Canberra		
QASCO Surveys Pty Limited	Project participant Workshop participant Brisbane, Sydney		
Reeds Consulting Pty Ltd	Melbourne		
Scanalyse Pty Ltd	Project participant Commercialising agent Perth		
Searle Consulting NQ	Project participant Workshop participant North Qld		
Sinclair Knight Merz Pty Ltd	Project participant Workshop participant Sydney		
Spatial Information Technology Enterprises	IACC Chair Workshop participant Brisbane		

Spatial Vision	Melbourne Project Participant	
Sundown	Brisbane Supplementary Bid	
SuperAir	Brisbane Supplementary Bid	
Trimble	Brisbane Supplementary Bid	
Twynam	Brisbane Supplementary Bid	
VPAC	Melbourne	
V-TOL	Brisbane Supplementary Bid	
Webmap Pty Ltd	Workshop participant Brisbane	
we-do-IT Pty Ltd	Workshop participant Melbourne	
Affiliate Members		
i-Delve	Project engagement and contribution at arm's length	
GeoSpatial Research (NZ) Ltd	Project engagement and contribution at arm's length	



4.6 Education and Training

Summary
The CRCSI has exceeded PhD enrolment targets, with over 24 scholarships awarded and as many students affiliated with activities. Many of these students are now graduating and joining the workforce. All have found employment within the spatial industry, mostly with our participants.

A unique partnership with the Spatial Sciences Institute (our professional association) is delivering strong skills development throughout the spatial information industry including into remote and rural Australia.

A national online Education Portal has been established, supported by the wider industry, and is recognised as the national 'clearing house' on skills formation issues. The CRC for Spatial Information is a key member of the Australian Spatial Education Advisory Council, which has representatives of all major spatial interest groups.

New university subjects have been put online and industry short courses held.

The CRCSI established an Education Reference Group under the Chair of Sue Moffat (CSU). Members are Clive Fraser (Chair, CRCSI Research & Education Advisory Committee); Mike Ridout (CRCSI Education Program Coordinator); Bert Veenendaal (Higher education leader, CUT) and Geoff Taylor (Short courses leader, UNSW). This operational group meets as required to drive forward the various education initiatives. UNE and QUT representatives will join in the coming year as their universities join the CRCSI.

Good progress was made during the year. A key achievement has been the establishment of the **Education Portal**, a dedicated web site that offers information and links for all the community as well as being able to offer online education courses through the internet. This will grow in the coming year and provides remote and regional Australia with access to educational resources through modern learning technology methods. Other organisations, such as SEAC, SSI and ANZLIC, can use the Portal facility to maximise the benefits to the spatial information industry.

The CRCSI is a key member of the **Spatial Education Advisory Committee**, a national forum with representatives from SSI, ASIBA, ANZLIC and other industry bodies. This means that the initiatives of the CRCSI can be checked against the interests of the wider community and our activities are informed by national input from all relevant educational interests. The CRCSI is a prime delivery agent for industry skills formation and is involved in ongoing discussions with the academic and organisational sectors to coordinate as much as possible CRCSI offerings.

The **Postgraduate Courses** program led by Bert Veenendaal has developed six on-line Masters units

The **Short Courses** program was restructured in response to demand and the presence of a growing SSI capability. Accordingly, the Board approved a move away from the CRCSI organising its own courses to supporting the course delivery through the SSI regional administrative structures in each state and region. This allowed extra funding to be applied to the electronic capture of learning events, for distribution through the portal. Courses are credited with Spatial Sciences Institute "Continuing Professional Development" points.

In addition to the short courses for industry, several **workshops** involving 43pl and other user participants are convened, focussed on new R&D project generation and on specific topics where new technologies may bring new business opportunities.

The Annual **CRCSI conference** was held in Sydney……., with very good feedback from the two days' events. It highlighted the commercial and adoption achievements of the CRCSI and its participants. Pleasingly, the 175 attendees included a significant proportion of 43pl staff.

Of the PhD and Masters students who receive full or top-up **CRCSI Scholarships,** and are being supervised with industry and end-user input, 19 have completed requirements for degree

conferment and several others are in the process of writing up. Students are brought to a professional and networking day associated with each CRCSI Annual Conference. CRC Participant organisations are encouraged to bring their own staff into higher degrees by coursework research.

We have exceeded our Commonwealth Agreement targets for education and will continue to produce a high rate of completions. Industry involvement in supervision is strongly encouraged.

Our first graduates are finding employment, with our first PhD and Masters completions going to 43pl companies. Details are below.

CRCSI Scholarship Students

These students have graduated, or have submitted their thesis.

David Belton — Classification and feature extraction of Terrestrial Laser Scanning point clouds

Supervisor (Academic)	Dr Jon Kirby, Curtin Uni Dr Kwang-Ho Bae, Curtin Uni
Assoc Supervisor (Industry)	Chris Earls, AAMHatch
Completion Date	***submitted***
Source of Funding	Doctorate Top up scholarship
Project affiliation	Project 2.2, Project 2.06
Now working for	Dept Spatial Sciences, Curtin University, WA

Anna Boin — Exposing Uncertainty: Communicating spatial data quality via the Internet

Supervisor (Academic)	Dr Gary Hunter, Uni Melb Dr Matt Duckham, Uni Melb Dr Allison Kealy, Uni Melb
Assoc Supervisor (Industry)	Duncan Brooks & Susan Brown, Vic DSE
Completion Date	August 2008
Source of Funding	Doctorate Full scholarship
Project affiliation	Project 5.3
Now working for	Biomedical Multimedia Unit, University of Melbourne

Mark Broomhall — Near real-time Aerosol Optical Depth Retrieval from Satellite Measurements

Supervisor (Academic)	A/Prof Merv Lynch, Curtin Uni
Assoc Supervisors (Industry)	Dr Brendon McAtee, Dr Stefan Maier, Landgate WA
Completion Date	***submitted***
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 4.1
Now working for	Bureau of Meteorology, Melbourne

Michael Hsing Chung Chang — Interferometric Synthetic Aperture Radar

Supervisor (Academic)	Dr Linlin Ge, Uni NSW Prof Chris Rizos, Uni NSW
Assoc Supervisor (Industry)	Mr John Douglas, Apogee
Completion Date	***submitted***
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 4.2
Now working for	School Surveying & Spatial Info Systems, University NSW

Nicholas Davies — Comprehensive standards for the best practice and quality control

Supervisor (Academic)	Dr Derek Lichti, Curtin Uni
Assoc Supervisor (Industry)	Lester Franks
Source of Funding	Masters Scholarship
Project affiliation	Project 2.2
Now working for	Lester Franks

Weidong (John) Ding

Integrated positioning and geo-referencing platform: development

Supervisor (Academic)	Dr Jinling Wang, Uni NSW
Assoc Supervisor (Industry)	Mr Doug Kinlyside, Dept of Lands NSW
Completion Date	***submitted***
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 1.3
Now working for	NSW Road Transport Authority

Martin Hale

Identifying and Addressing Management Issues For Australian State Sponsored CORS Networks (pdf)

Supervisor (academic)	Dr Philip Collier, Uni Melbourne Dr Allison Kealy, Uni Melbourne
Assoc Supervisor (industry)	Mr Peter Ramm, Victorian Dept of Sustainability & Environment
Completion Date	December 2007
Source of Funding	Masters Scholarship
Project affiliation	Project 1.2
Now working for	Dept Lands, Vic

Sue Hope

Integrating Spatial Datasets of Different Quality (pdf 7.9MB)

Supervisor (academic)	Dr Allison Kealy, Uni Melb
Assoc Supervisor (industry)	Geoff Menner, Logica CMG Jessica Davies, Geomatic Technologies
Completion Date	July 2008
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 5.3
Now working for	Dept Industry & Regional Management, Vic

Abida Iqbal

Integrating spatial data sets using road networks from heterogeneous and autonomous data sets (pdf)

Supervisor (academic)	Mr Ian Bishop, Uni Melbourne Mr Christian Stock, Uni Melbourne
Assoc supervisor (industry)	Hemayat Hussain, Vic Dept Primary Industries
Completion Date	September 2007
Source of Funding	Masters Scholarship
Project affiliation	Project 5.2

Wing Yip Lau

Landslide Recognition and Prediction using Spaceborne Multispectral Data (pdf)

Supervisor (academic)	Dr Linlin Ge, Uni NSW Dr Xiuping Jia, Aus Defence Force Academy
Assoc supervisor (industry)	Hemayat Hussain, Vic Dept Primary Industries
Completion Date	July 2006
Source of Funding	Masters Scholarship
Project Affiliation	Project 4.2
Now working for	Intergraph, Hong Kong

James McIntosh

Comparison of the Spatial Accuracy of Disparate 3D Laser Point Clouds in Large Scale 3D Modelling and Physical Reproduction Projects for Large Cultural Heritage Structures (pdf)

Supervisor (academic)	Dr Derek Lichti, Curtin Uni
Assoc supervisor (industry)	Sinclair Knight Merz
Completion Date	December 2006
Source of Funding	Masters Scholarship
Project affiliation	Project 2.2
Now working for	Pitt & Sherry, Tas

Dana Meng

Filtering Technique for Interferometric Phase Images (pdf)

Supervisors	A/Prof Eliathamby Ambikairajah, Uni NSW Dr Linlin Ge, Uni NSW
Completion Date	August 2006
Source of Funding	Masters Scholarship
Project affiliation	Project 4.2
Now working for	Matlab Australia

Alice Nairne O'Connor

Integrating environmental visualisation with spatial data (pdf)

Supervisor (academic)	Prof Ian Bishop, Uni Melbourne Dr Christian Stock, Uni Melbourne
Assoc Supervisor (industry)	Mr John Creasey, Geoscience Australia
Completion Date	July 2007
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 5.2
Now working for	Geomatic Technologies, Vic

Joanne Poon

Spatial Information generation from high-resolution satellite imagery (pdf)

Supervisor (academic)	Prof Clive Fraser, Uni Melbourne Dr Jochen Willneff, Uni Melbourne
Assoc Supervisor (industry)	Mr John Cazanis, Spatial Division, SKM
Completion Date	December 2007
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 2.1
Now working for	SKM, Vic

Noor Razig

GPS Deformation Monitoring of Engineering Structures

Supervisor (academic)	Dr Philip Collier, Prof Clive Fraser
Assoc Supervisor (industry)	Mr Peter Ramm, Victorian Dept of Sustainability & Environment
Completion Date	2008
Source of Funding	Doctorate Top-up Scholarship
Project affiliation	Project 1.2

Zaffar Sadiq — Data models to support regional variation in spatial data quality

Supervisor (academic)	Dr Matt Duckham, Uni Melb
Assoc Supervisor (industry)	Geoff Lawford, Geoscience Australia Rob Morrison, Vic DSE
Completion Date	***submitted***
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 5.3
Now working for	SKM, Vic

Asghar Tabatabaei — GNSS Interference

Supervisor (academic)	Mr Andrew Dempster, Uni NSW
Completion Date	***submitted***
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 1.1
Now working for	University NSW

Martin Tomko — Generation of Granular Route Descriptions based on City Structure (pdf)

Supervisor (academic)	Dr Stephan Winter, Uni Melbourne
Assoc Supervisor (industry)	Maurits van der Vlugt, NGIS
Completion Date	August 2007
Source of Funding	Doctorate Full Scholarship
Project affiliation	Project 3.3
Now working for	Dept Geography, University of Zurich

Current Scholarships

Hao Hui Chen — Application of rural landscape visualisation for decision making and policy development

Supervisor (Academic)	Mr Ian Bishop, Uni Melbourne Mr Christian Stock, Uni Melbourne
Assoc Supervisor (Industry)	Christopher Pettit, Vic DPI
Commencement Date	February 2008
Source of Funding	Doctorate Top-up Scholarship
Project affiliation	Project 5.04

Tao Chen — Augmented reality integration and live communication between GIS and SIEVE

Supervisor (Academic)	Mr Ian Bishop, Uni Melbourne Mr Christian Stock, Uni Melbourne
Assoc Supervisor (Industry)	Christopher Pettit, Vic DPI
Commencement Date	March 2005
Source of Funding	Doctorate Top-up Scholarship
Project affiliation	Project 5.2

Michael Day — Hyperspectral remote sensing for land management applications

Supervisor (Academic)	A/Prof Geoff Taylor, Uni NSW Dr Ray Merton
Assoc Supervisor (Industry)	tba
Commencement Date	7 April 2005
Source of Funding	Doctorate Top-up Scholarship
Project affiliation	Project 4.4

Aiden Deem	Regional Integrity (details to come)	
	Supervisor (Academic)	Dr Yanming Feng, QUT Dr Rob Walker, QUT
	Assoc Supervisor (Industry)	
	Commencement Date	2 July 2007
	Source of Funding	Doctorate Top-up Scholarship (with APA)
	Project affiliation	Project 1.04
Anna Donets	Detecting and mitigating multipath in structural monitoring using GNSS	
	Supervisor (Academic)	Dr Phil Collier, Uni Melb Prof Clive Fraser, Uni Melb
	Assoc Supervisor (Industry)	Martin Hale, DSE Vic
	Commencement Date	13 Feb 2007
	Source of Funding	Top up PhD Scholarship
	Project affiliation	Project 1.2
Peter Feng	Content-based image retrieval and its application in GIS	
	Supervisor (Academic)	Dr David Tien, Charles Sturt Uni
	Assoc Supervisor (Industry)	Mr Tony Hope, Dept of Lands
	Commencement Date	Dec 2004 ***Currently on leave of absence - 2008***
	Source of Funding	Doctorate Full Scholarship
	Project affiliation	Project 5.1
Simon Fuller	Quality Control issues for real-time positioning	
	Supervisor (academic)	Dr Phil Collier, Uni Melb Dr Allison Kealy Uni Melb
	Assoc Supervisor (industry)	Peter Ramm, Vic DSE
	Commencement Date	1 March 2004
	Source of Funding	Doctorate Full Scholarship
	Project affiliation	Project 1.2
Nilmesh Halder	Communications tbc	
	Supervisor (academic)	Dr Maolin Tang, QUT Dr Yanming Feng, QUT
	Assoc supervisor (industry)	Steven Simpfendorfer
	Commencement Date	2 December 2007
	Source of Funding	Doctorate Top-up Scholarship (with QUT)
	Project affiliation	Project 1.04
Matt Hutchinson	Development of an Intelligent Geocoder	
	Supervisor (academic)	A/Prof Bert Veenendaal, Curtin Uni
	Assoc supervisor (industry)	Dr Derek Milton
	Commencement Date	May 2004
	Source of Funding	Doctorate Full Scholarship
	Project affiliation	Project 3.2
Li Jiang	Intelligent object placement and scaling in virtual decision environments	
	Supervisor (Academic)	Mr Ian Bishop, Uni Melbourne Mr Christian Stock, Uni Melbourne
	Assoc Supervisor (Industry)	Jean-Philippe Aruambout, DPI
	Commencement Date	1 January 2008
	Source of Funding	Top up Scholarship
	Project affiliation	Project 5.04

Marco Marinelli — Assessing error effects in critical application areas

Supervisor (academic)	Dr Rob Corner, Curtin Uni Prof Graeme Wright, Curtin Uni
Commencement Date	April 2005
Source Funding	Doctorate Full Scholarship
Project affiliation	Project 5.3

Steve Mills

Supervisor (Academic)	
Assoc Supervisor (Industry)	
Commencement Date	
Source of Funding	Top up PhD Scholarship
Project affiliation	Project 6.07

Alex Ng — Persistent radar interferometry

Supervisor (academic)	Dr Linlin Ge, Uni NSW Prof Chris Rizos, Uni NSW
Assoc Supervisor (industry)	tba
Commencement Date	Jan 2007
Source of Funding	Doctorate Full Scholarship
Project affilation	Project 4.09

Mahd Faizul Omar — Communications (details to come)

Supervisor (academic)	Dr Maolin Tang, QUT Dr Yanming Feng, QUT
Assoc supervisor (industry)	tba
Commencement Date	25 Feb 08
Source of Funding	Doctorate Top-up Scholarship (with QUT)
Project affiliation	Project 1.04

Eric Richards — Use of high resolution satellite data

Supervisor (academic)	Dr John Trinder, Uni NSW
Assoc Supervisor (industry)	Mr Andrew McCleave, SKM
Commencement Date	Jan 2006
Source of Funding	Masters Scholarship

Adam Roff — Hyperspectral imagery for vegetation management

Supervisor (academic)	A/Prof Geoff Taylor, Uni NSW Dr Ray Merton
Assoc Supervisor (industry)	tba
Commencement Date	March 2005
Source of Funding	Doctorate Top-up Scholarship
Project Affiliation	Project 4.4

Peter Wang	Automatic building of interiors for security purposes	
	Supervisor (Academic)	Mr Ian Bishop, Uni Melbourne
	Assoc Supervisor (Industry)	tba
	Commencement Date	February 2008
	Source of Funding	MSc Scholarship
	Project affiliation	Project 5.04

Kui Zhang	Advanced InSAR Technologies	
	Supervisor (Academic)	Dr Linlin Ge, Uni NSW
	Assoc Supervisor (Industry)	David Abernethy, NSW Dept Lands
	Commencement Date	1 January 2008
	Source of Funding	Doctorate Full Scholarship
	Project affiliation	Project 4.09

Affiliated Students

These students are involved in and benefit rom CRCSI project activities but are not in receipt of direct funding through a CRCSI Scholarship per se.

Brendan Cosman	Copyright and Digital Content	
	Degree	Doctorate
	Supervisor	Brian Fitzgerald Anne Fitzgerald
	Commencement Date	1 July 2007
	Support	
	CRCSI project affiliation	Project 3.05
Rakhesh Devadas	Analysis of wheat productivity using hyperspectral and multi-temporal satellite data	
	Supervisor (Academic)	A/Prof David Lamb, Dr David Backhouse, UNE
	Assoc Supervisor (Industry)	Dr Steven Simpfendorfer
	Commencement Date	21 Sep 2005
	Support	Doctorate Top-up Scholarship
	Project affiliation	Project 6.08
Jennifer Joi Field	Cultural Mapping	
	Degree	Doctorate
	Supervisor	Prof Bert Veenendaal, Curtin Uni Mr Peter Woodgate, CRCSI
	Support	Aboriginal Land Trust, WA

Brooke Phelps	An Assessment and Evaluation of Current PA tools: Commercial Broad Acre Applications to the Irrigated and Rain-fed, Cotton and Grains Industry in Northern NSW and Southern Qld	
	Degree	Masters
	Supervisor	A/Prof David Lamb, UNE
	Commencement Date	
	Support	CCC (Cotton Catchment Communities) CRC
	CRCSI project affiliation	Project 6.08
Jack Jianguo Wang	Integration of GPS/Pseudolites/INS to Geo-Reference Airborne Surveying and Mapping Sensors	
	Degree	Doctorate
	Supervisor	Dr Jinling Wang
	Support	ARC Linkage APAI
	CRCSI Project Affiliation	Project 1.3

Performance Measures

DIISR Table: Progress on Performance Measures (2002 Round CRCs)

PERFORMANCE MEASURE	06-07 ACHIEVEMENT	07-08 ACHIEVEMENT
CRC Programme Objective 1: To enhance the contribution of long-term scientific and technological research and innovation to Australia's sustainable economic and social development		
Centre Objective 1.1 Position the SI industry as playing a key role in supporting the delivery of economic development, environmental management and social equity in Australia		
Recognition of the CRCSI role within a longitudinal study of the uptake and impact of SI in the wider community	Recognised as one of the four pillars along with ASIBA and ANZLIC and SSI "The CRCSI is seen as being vital to the organisation of the fledgling SI industry, and as creating a cross-sectoral collaborative framework that will lead to economic and social benefits to the nation in the longer term. [Conclusion 6 of the Y3R independent survey of CRCSI end-user participants]	ACIL Tasman report on the economic impact of Spatial information to the Australian economy finds that "the spatial information industry contributed between $6.4-$12.6 billion to GDP (0.6%-1.2%), increased household consumption by between $3.6 - $6.9 billion, increased investment by between $1.8-$3.7 billion, had a positive impact on the balance of trade with exports increasing by up to $2.3 billion, and increased real wages by between 0.6% - 1.2%."
Key role played in the ICT CRC Council	CRCSI CEO on ICT Council	CRCSI CEO Deputy Chair CRC Association
Centre Objective 1.2 To provide innovative World-class research which will provide the science and technology infrastructure to enable applications to develop and expand		
Invitations and paper presentation at national and international forums (2 in Yr 1, an average of 3 per year thereafter)	Invited keynotes presented by CEO at several conferences each year. 4 chapters; 17 published or accepted refereed articles; 64 refereed conference papers.	Invited keynotes presented by CEO at several conferences 30 other invited keynote presentations 6 book chapters; 21 published or accepted refereed articles; 25 refereed conference papers;
International recognition and participation in international programs of benefit to Australia and the region (5 in total)	5 international collaborative alliances	Founding member of the Network of networks, an international chain of 8 R&D organisations in Satial Information. Alliances with Chinese Academy of Sciences; GEOIDE International speakers at every conferendce eg Director of Microsft Virtual Earth @ 2007
Recognition as "an outstanding CRC"	Key role in organising Perth CRCA conference and workshops Analysing the Year Three Review DEST comments that "the CRC has done an outstanding job in bringing together and working with industry, government and research participants, and integrating research projects into the Centre's overall strategy and goals" "bouquets for the CRC - I have been involved in five or six CRCs, and this one is the most professionally run and rigorous in governance and	CRC Program 2007-08 STAR Award for Small Business Engagement Education targets exceded 43pl SME consortium widely recognised as a stand-out – with 7 formal briefings on its operations requested by and given to other CRC ventures

	management" respondent to independent survey of the Third Year Review	
Centre Objective 1.3 To enhance the growth and use of spatial data infrastructures at all levels for national benefit		
Research outcomes which inform the policy and regulatory framework (a formal position on at least one of the ANZLIC working parties)	Several projects with ANZLIC engagement and leadership as well as others with strategic guidance form ANZLIC members	Key role in formingf Australian Spatial Consortium Major input to and from ANZLIC policy makers at CRCSI Annual Conference
Centre Objective 1.4 To support the objectives of the Australian Spatial Information Industry Action Agenda (ASIIAA) "Positioning for Growth" 2001		
Annually monitor the output of the CRCSI against the objectives of the Industry Action Agenda	Covered within the CRCSI Strategic Plan for the year, which has had all targets met or exceeded	Covered within the CRCSI Strategic Plan for the year, which has had all targets met or exceeded
Involve external assessors to provide qualitative feedback biennially	Year Three Review [two international and two national experts] reviewed all extant projects and provided feedback to leaders and managers	Mike Goodhild visit March 2008; Vincent Tao [Microsoft] September 2007; Nasser El Sheimy et al [Canada] May 2008
CRC Programme Objective 2: To enhance the transfer of research outputs into commercial or other outcomes of economic, environmental or social benefit to Australia		
Centre Objective 2.1: To investigate and develop appropriate policies to address current legal, regulatory and institutional limitations to the access and use of SI		
Number of policy recommendations or standards developed on improving access and use of SI	Contribution to ANZLIC and other bodies' policy formulation. Initiated project on digital access to spatial - and other - information.	Major impact in area of Public Sector information access and Digital Rights Management ACIL Tasman study and Innovation study and the CRCSI Conference contributing to the thinking of ANZLIC policy makers
Centre Objective 2.2: To foster industry capabilities and growth, and the level of commerce in SI in Australia		
At least two stakeholders participating in each program	Achieved in all projects with the majority having more than three, and all including end-users [particularly 43pl companies]	Achieved in almost all projects with the majority having more than three, and all including end-users [particularly 43pl companies]
7 initiatives developed or initiated by the CRC taken up by stakeholders	""At least ten organisations are implementing new ideas from the CRC" [Conclusion 8 of the Y3R independent survey of CRCSI end-user participants]	Standout potentials are the start-ups Scanalyse Pty Ltd and iintegrate Systems Ltd and SKM with Barista.
Contribution to sustained industry growth of 10% pa averaged over the next 7 years	KPMG annual benchmarking survey of 43pl companies shows growth in excess of this level "… the CRCSI is very well placed to deliver economic benefit through 43pl Members to the SI industry" [Conclusion 9 of the Y3R survey of CRCSI end-users]	KPMG annual financial benchmarking survey of 43pl companies shows growth in excess of this level. ACIL Tasman report on the economic impact of Spatial information to the Australian economy finds that "the spatial information industry contributed between $6.4-$12.6 billion to GDP (0.6%-1.2%), increased household consumption by between $3.6 - $6.9 billion, increased investment by between $1.8-$3.7 billion, had a positive impact on the balance of trade with exports increasing by up to $2.3 billion, and increased real

		wages by between 0.6% - 1.2%."
Centre Objective 2.3 To be a player of significance in the international SI community, both in technology development and commercial innovations		
$3.125m of additional research and consulting contracts attracted by the CRCSI over the life of the centre (consistent with Schedule 3 Table 2)	We are at $1,570,000 (cash) against the 2007 FY target of $900,000 14 research contracts & consultancies	We are at $1,127,000 (cash) against the 2008 FY target of $1,100,000 8 research contracts & consultancies to the CRCSI worth $335k plus the award of the coastal Vulnerability study at $1,600,000 in May 08
Centre Objective 2.4 To provide education and training to support an internationally competitive SI industry		
70 students, researchers, industry & end users attending courses on average pa	15 technology transfer courses 3 technology transfer workshops were also held. 136 attended the annual technology transfer CRCSI conference in Perth 25 students and early career researchers attended the commercialisation Bootcamp course	18 technology transfer workshops 175 attended the 2 day Annual [technology transfer] CRCSI Conference in Sydney 25 students [and 3 early career researchers] attended the Student Day in Sydney in September 2007 and the Annual Conference
CRC Programme Objective 3 To enhance the value to Australia of graduate researchers		
Centre Objective 3.1 To develop the research capability, capacity, skills base and research talent pool to develop and enhance applications and to support the adoption of SI as required for internationally competitive business		
Number of graduate students completing PhDs and Masters degrees in the CRCSI (total 25 by year 7)	2 completions 22 underway	18 Completions 18 underway [with 2 on leave] 5 Affiliated studnets
90% of graduate students produced by the CRCSI who wish to be employed are employed by user and end user stakeholders	1 PhD and 2 Masters employed by end users	Over 90% completed students now working with 43pl companies or CRCSI end users [see tables above]
Centre Objective 3.2 To increase the efficiency of research training through effective collaboration between universities, government and the private sector		
Over 90% of graduate students having joint supervision and/or close interaction during their research training with stakeholders	75% co-supervised 100% end user interaction	60% co-supervised (others still to be advised as at early stage of engagement) 100% end user interaction
100% projects with key stakeholder input	100% end user interaction	100% end user interaction
CRC Programme Objective 4 enhance collaboration among researchers, between researchers & industry or other users, to improve efficiency in the use of intellectual and research resources		
Centre Objective 4.1 To create long term partnerships of SI providers and users, and of the private, government and academic sectors		
More than 95% of projects involving different categories of participant	100% achieved	100% achieved
Centre Objective 4.2 To provide an innovative environment for commercialisation of new SI technologies		
4 new SI technologies incorporated into commercial ventures due to the CRC	On target – Barista [radar measurement and i-loka and position++ in development] adding to HazWatch and Scanalyse frm prior year 100% projects have a commercialisation plan.	On target – Barista; MillMapper through Scanalyse; hazWatch through iintegrate Systems; i-loka through Geomatic Technologies; Radar Services through a start up company to be established. Other technologies under review.

"Given the ill-defined and fledgling nature of the Spatial Information industry sector, it is commendable that more than half of the research users believe that the CRCSI has a high level of understanding of the industry's research needs" [Conclusion 7]

"… the best thing about the CRCSI's research is its end-user focus" [Conclusion 14]

"70% of users, and particularly the SME end users, are well satisfied with their level of access to CRCSI's research and expertise" [Conclusion 5]

"At least ten organisations are implementing new ideas from the CRC" [Conclusion 8]

"… the CRCSI is very well placed to deliver economic benefit through 43pl Members to the SI industry" [Conclusion 9]

"CRCSI's research users highly value the increased networking opportunities provided by the CRCSI. The Annual Conference remains a highlight of the research user's networking strategy and the CRC's communication mechanisms are highly regarded. [Conclusion 18]

The CRCSI is seen as being vital to the organisation of the fledgling SI industry, and as creating a cross-sectoral collaborative framework that will lead to economic and social benefits to the nation in the longer term. [Conclusion 6]

Glossary and Acronyms

43pl	43 Pty Ltd, a company representing the CRCSI's national SME consortium
ACC	Audit & Compliance Committee
ANZLIC	ANZLIC - the Spatial Information Council … formerly known as the Australia and New Zealand Land Information Council
ARGN	Australian Regional GPS Network
ASIBA	Australian Spatial Information Business Association
ASC	Australian Spatial Consortium
ASIERA	Australian Spatial Information Education and Research Association
CORS	Continuously Operating Reference Station
CRC	Cooperative Research Centre
CRCSI	Cooperative Research Centre for Spatial Information
DEM	Digital Elevation Model
DInSAR	Differential Interferometric Synthetic Aperture Radar
GB	Governing Board
GFI	Global Forests Initiative
GIS	Geographical Information Systems
G-NAF	Geocoded National Address File
GPS	Global Positioning Satellites
IACC	Industry Advisory & Commercialisation Committee
INS	Inertial Navigation Systems
InSAR	Interferometric Synthetic Aperture Radar
MOU	Memorandum of Understanding
PSInSAR	Permanent Scattered Interferometric Synthetic Aperture Radar
REAC	Research & Education Advisory Committee
SDI	Spatial Data Infrastructure
SEAC	Spatial Education Advisory Committee
SISL	Spatial Information Systems Ltd
SME	Small to Medium [sized] Enterprises
SSI	Spatial Sciences Institute

FURTHER INFORMATION
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