Spatially Enabling Australia

The Next Decade

Peter Woodgate

ISDE Beijing September 2009

Key Challenges

Create a new infrastructure for Australia

precise positioning

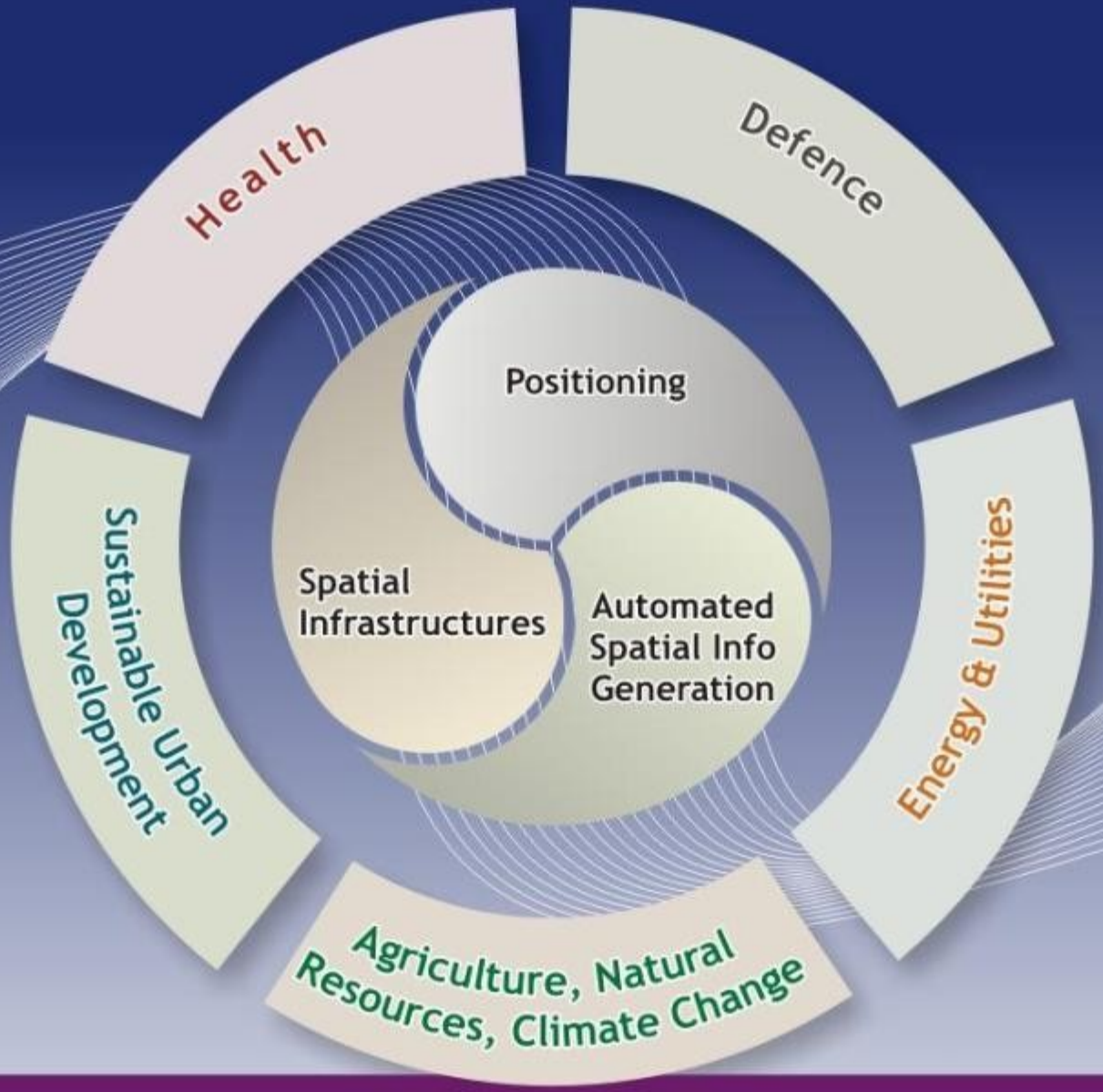
Implement automated information generation

explosive growth in remote sensing systems

Create an Australian Spatial Marketplace

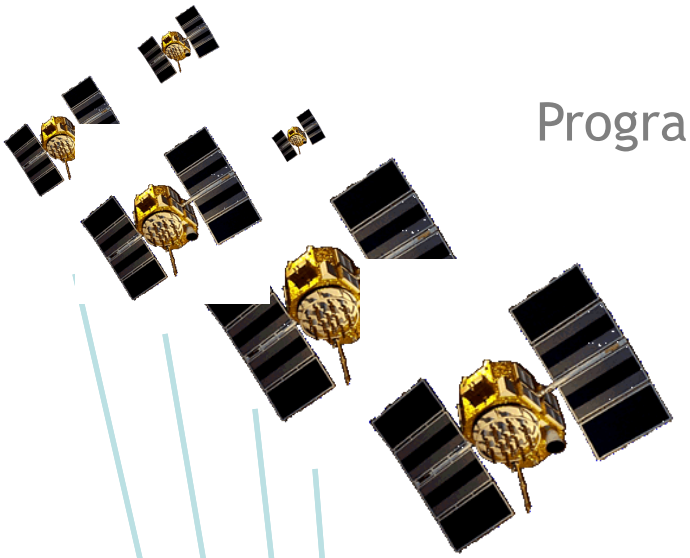
unlocking data potential

SPATIALLY ENABLING AUSTRALIA



Program 1

Positioning



Research challenges

Integer inference theory

Ionospheric & tropospheric modelling

New stochastic models for real-time GNSS processing

Real time positioning for users

Program 2 Automated Spatial Information

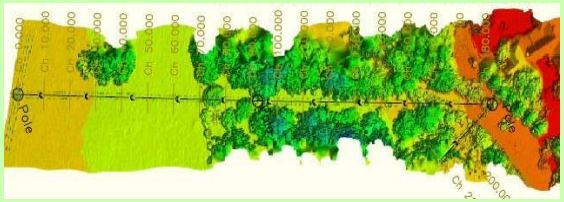
Integrated multi-sensor data acquisition systems

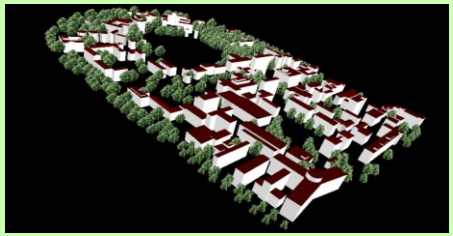
… from aerial, space and terrestrial platforms

Research challenges

- Sensor Modelling & Georeferencing
- Data Fusion
- Feature Extraction

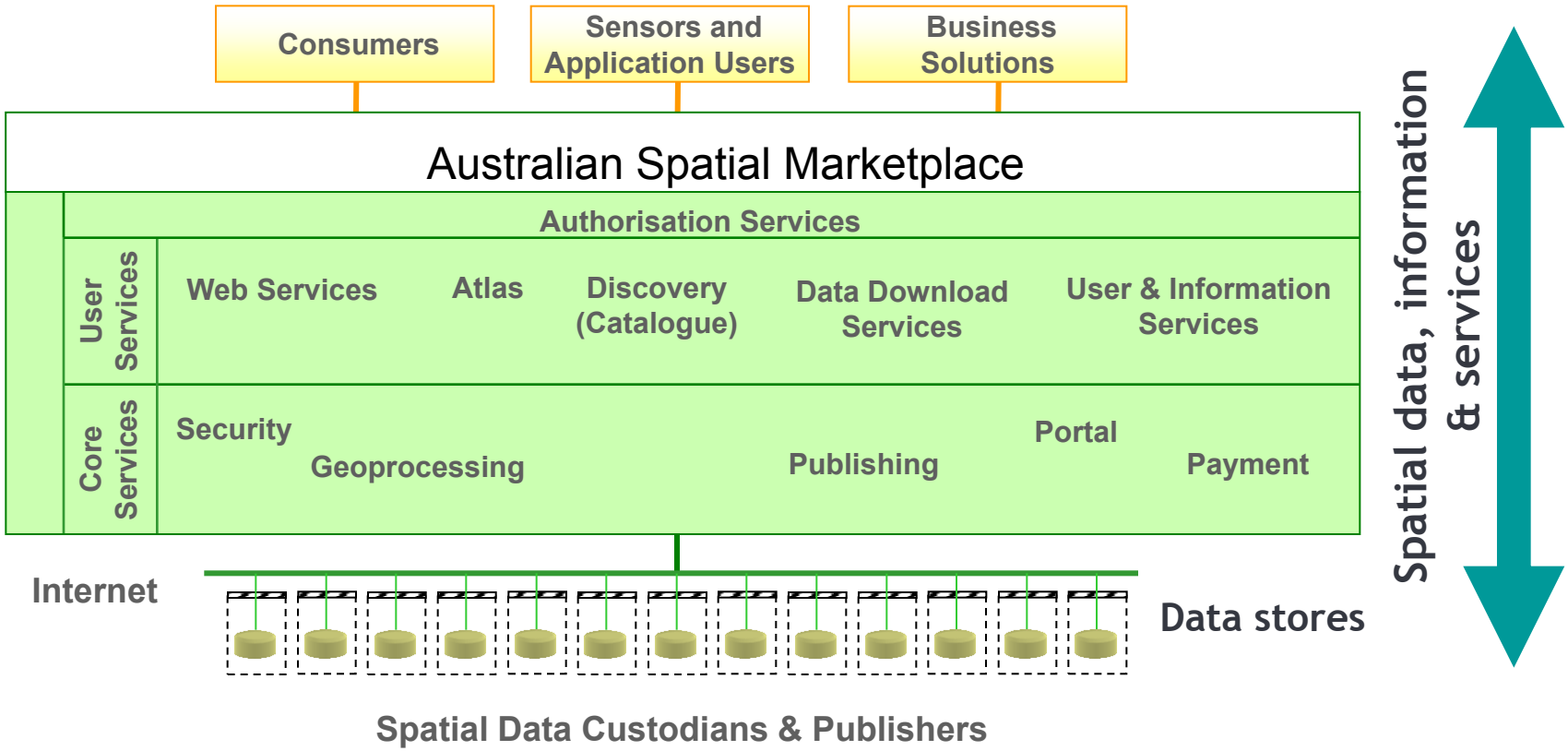
Fit-for-purpose, automatically generated spatial information products





Program 3

Spatial Infrastructures



Research Challenges

- Advanced on-line geoprocessing models for Web 2.0
- Develop national & international standards
- Develop a federated data model to facilitate spatial enablement

Key Research Outputs

A program of fundamental and applied research outputs

Mathematical, stochastic & functional models to enable accurate and reliable characterisation of physics processes within both signal transmission and integrated multi-sensor data acquisition systems

Innovative models & methodologies for automated object feature extraction from integrated, multi-sensor data acquisition systems

Robust algorithms and experimentally validated **computational processing systems** suited to industry adoption

National & international standards for new geoprocessing tools, federated data models to enable the Australian Spatial Marketplace

National Spatial Education Program

- 50 postgraduate scholarships
- Mentoring placement of postgraduates
- Collaboration with SSSI (4000 members)
- Expanded to undergraduate, vocational, school
- Project specific approach e.g. for health professionals
- End-user driven

Participants & Stakeholders

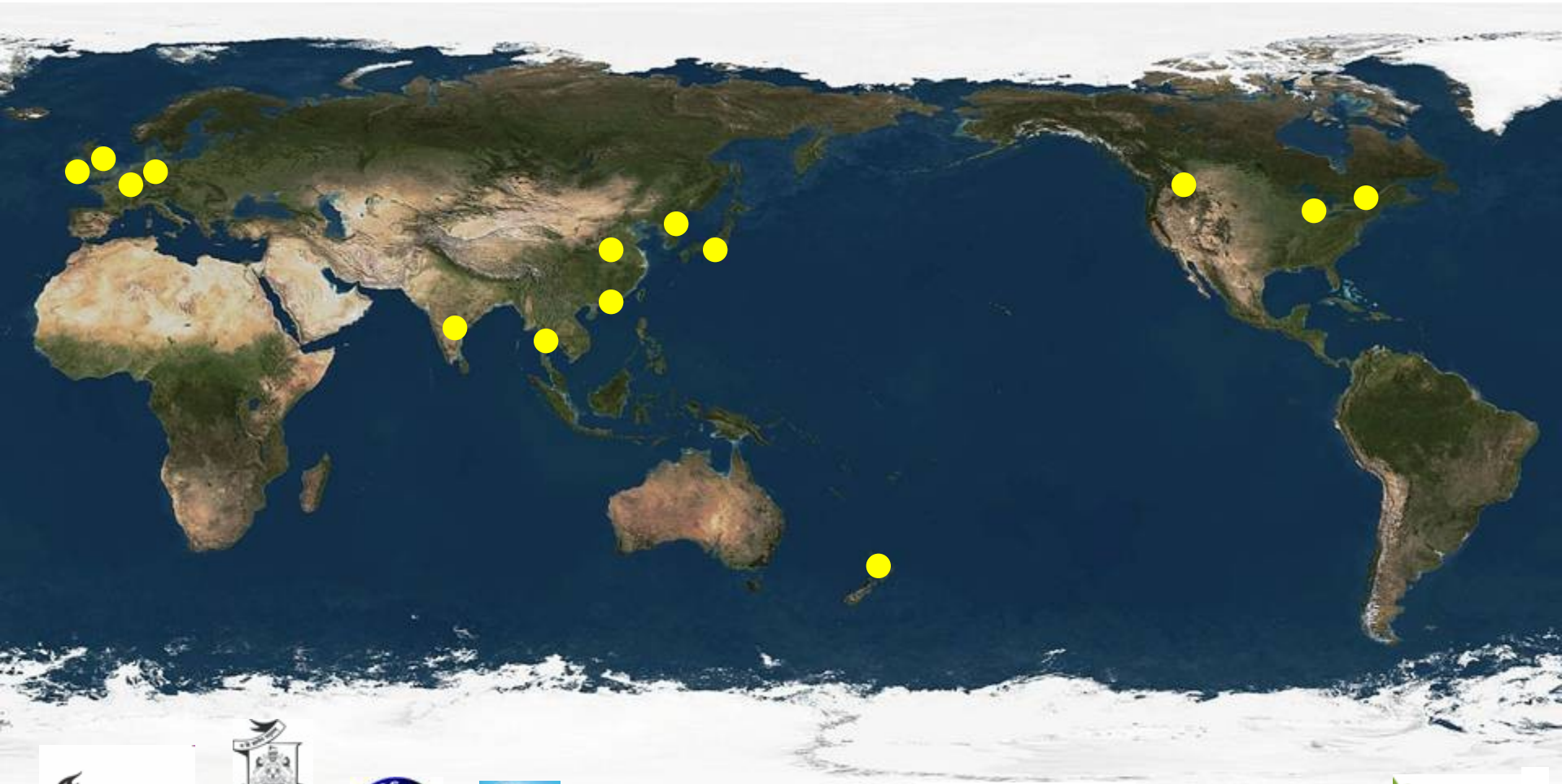
INDUSTRY	43PL SME consortium of 75 companies Large Energy utilities & Agriculture
GOVERNMENT (all levels)	ANZLIC - Lands Depts including New Zealand Diverse agencies e.g. Health; Planning and Infrastructure; Environment; Defence; Agriculture
RESEARCH	Universities - 4 Essential and 6 Other Participants including Internationals; and Telethon Institute for Child Health Research

Spatial Industries Business Association

Surveying & Spatial Sciences Institute

Australian Spatial Consortium

International Collaborations



TU Delft
Delft University of Technology

Leibniz Universität Hannover

JAXA Japan Aerospace Exploration Agency

Toitu te whenua Land Information New Zealand

McGill

GEOIDE

香港中文大學 The Chinese University of Hong Kong

Landcare Research Manaaki Whenua

Alberta IRM

NfN

What is new about CRCSI-2 ?

Research Needs

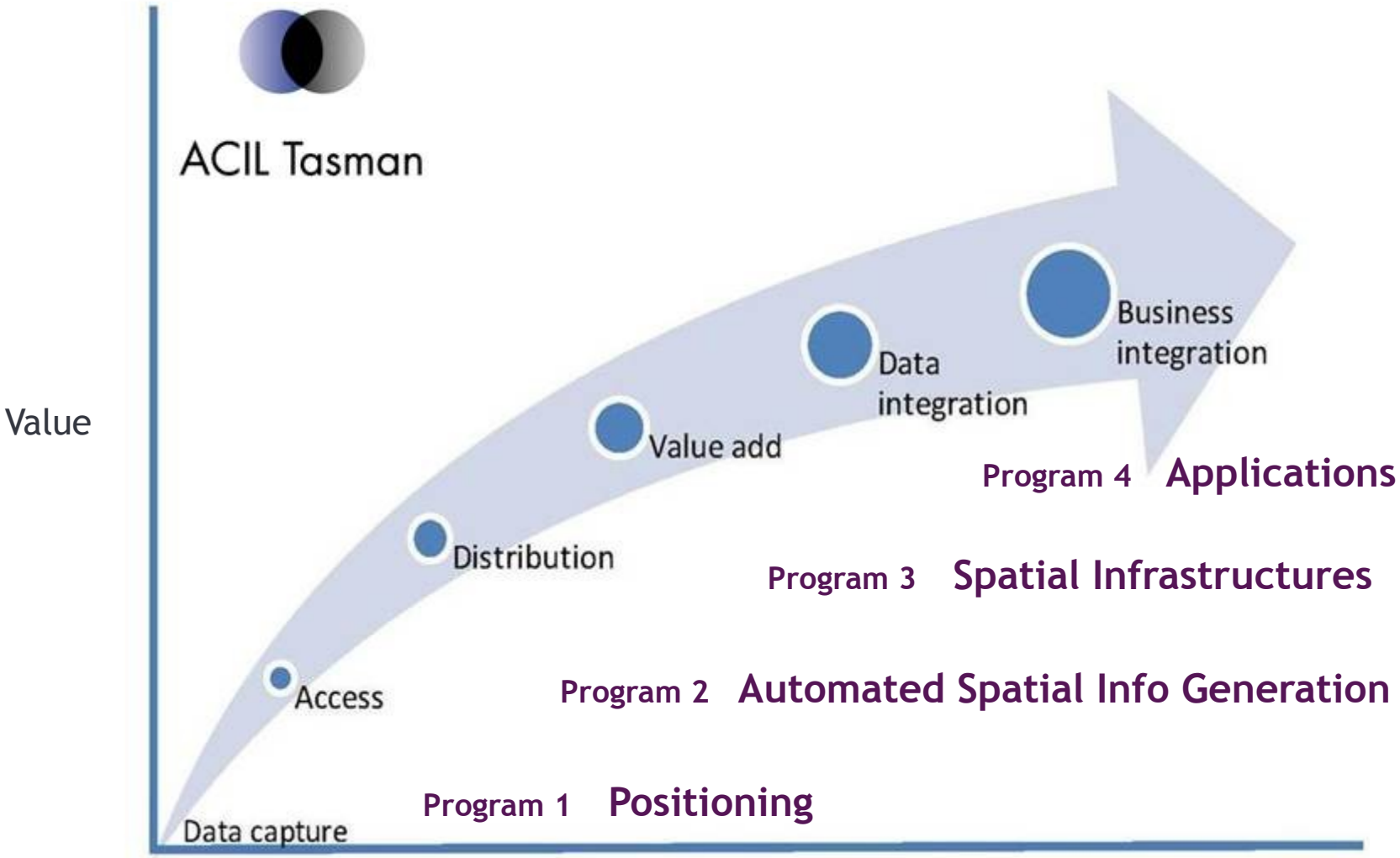
CRCSI-1: addressed the needs of the spatial information industry

CRCSI-2: spatially enabling end-user industries

Utilisation

- Business Development Program with 43PL
- Innovation program with 500 SIBA members & their 5000 clients
- Expanded user base: 43PL, New Zealand, Government agencies

Spatial Industry Value Chain



Major Benefits

Our research is critical to the delivery of

- **Economic and societal benefits through productivity boosts in**
  - Agriculture
  - Defence
  - Energy
  - Health
  - Urban Planning

Through

- **National Precise Positioning Infrastructure**
- **New processing tools for information generation**
- **Australian Spatial Marketplace**


3D media lab
AST
Advanced Spatial technologies
AAMHATCH
aerometrex
aglab
Akuna
Alexander Symonds
APOGEE
bp
brazier motti
BSR Solutions
Clyde Agriculture
SWIRE
costagroup
C.R. KENNEDY
TOTAL SURVEY SOLUTIONS
CTF solutions
CTG Consulting
ebr
ecological
AUSTRALIA
erdas
ESRI Australia
Putting knowledge into place
e-Spatial
LOCATION BASED BUSINESS INTELLIGENCE
FITZROY BASIN ASSOCIATION
FreshTrack Software
FUGRO
fusion GIS
GENERAL DYNAMICS
geogenx
GEOIMAGE
GeomaticTechnologies
GeomatiX
geometry
Geospatial
Research Centre
gps-Ag
GPSat
SYSTEMS AUSTRALIA
Pty Ltd
Hames Sharley
iintegrate
systems
GRACE
Detailed-GIS Services
HASSELL
iDelve
industrea
insight.gis
INSITU
LAND
equity
LANDZONE
International
LESTER FRANKS
Spatial Relationships. Human Technology
LISAsoft
Linking IT
MACROHealth
McMULLENNOLAN
Myriax
Leica
Geosystems
MILNE AgriGroup
OmniSTAR
The Global Positioning System
logica
OMNILINK
LINKING PEOPLE AND INFORMATION
NZ Aerial Mapping Limited
PHOTOMAPPING SERVICES
Position One Consulting
Position
Partners
ngis
people partnership success
Qasco
The spatial data professionals
Scanalyse
EFFICIENT SAFE COST-EFFECTIVE MINERALS PROCESSING
S.I.T.E.
SINCLAIR KNIGHT MERZ
SKM
SkyView Solutions
ULTRA HIGH RESOLUTION AERIAL IMAGING
pracsys.
PSMA
Septentrio
satellite navigation
Spatial Vision
SPOT IMAGE
SUNDOWN COUNTRY
terranean
mapping
technologies
SURVEY 21
LAND & ENGINEERING SURVEYORS
SUPERAIR
Trimble
TRUE 3D
TWYNAM
Agricultural Group
V-TOL AEROSPACE
VPAC
VICTORIAN PARTNERSHIP FOR ADVANCED COMPUTING
we-do-IT
Spatial Information Technology Consultants
whelans
43pl

80 companies

Curtin University of Technology

Landgate

crc•si

THE UNIVERSITY OF MELBOURNE

Department of Lands
Reliable from the ground up

QUT

Victoria
The Place To Be

Depts Sustainability & Environment ; and Primary Industries

Australian Government
Geoscience Australia

Representing the federal government consortium

UNE
THE UNIVERSITY OF NEW ENGLAND

Thank You