LAND INFORMATION SYSTEMS RESEARCH IN AUSTRALIA

WITH PARTICULAR EMPHASIS ON THE RESEARCH AGENDA AT THE UNIVERSITY OF MELBOURNE

by

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Presented to the Twenty-sixth Annual Conference of the Urban and Regional Information Systems Association, Los Angeles, California, August 7-11, 1988
OBJECTIVES OF PAPER

* Overview LIS R & D activity in Australia

* Establishing a research agenda

* Review of LIS/GIS research issues

* The University of Melbourne as an example
LIS RESEARCH AND DEVELOPMENT ACTIVITY IN AUSTRALIA

* Local, state and Federal government levels

* Academic institutions, particularly Departments of Surveying

* Software/hardware vendors

* Private sector

* Separate LIS and GIS development
FEDERAL GOVERNMENT

* Australian Surveying and Land Information Group

* Directorate of Army Survey

* Hydrographic Office - Royal Australian Navy

* CSIRO
Growth area of LIS in Australia

Utilities and local government
ACADEMIC SECTOR

* Institutions - LIS/GIS

* Areas of research
RESEARCH FUNDING IN AUSTRALIA

* Federal Government's National Research Council
* internal research grants within academic institutions
* research grants and incentive schemes from both state and Federal governments to promote research and development in key areas in line with government policies. This includes "dollar for dollar" funding, tax incentive schemes and "offset" schemes.
* Centres of Excellence and Key Centres
* grants from both state and Federal governments and industry organisations for specific research
* grants from government and industry to appoint research personnel or graduate students to undertake specific research projects
* combinations of the above
DEPARTMENT OF SURVEYING AND LAND INFORMATION

THE UNIVERSITY OF MELBOURNE

Designated as a Centre of Excellence in Land Information Studies by the Institute of Land Information

Undergraduate program (4 years)

* maths and science
* computer studies
* surveying science
* land information science
* land management
* professional studies

In addition a 5 year program leading to dual degrees in surveying and computer science.
THE LIS RESEARCH AGENDA

* development of a research agenda

* international input

* major research grants
  - Intergraph
  - Digital
  - SUN
  - state & Federal agencies
  - Defence
  - private sector

* Areas of interest

  - parcel based LIS,
  - planning,
  - local government and community services,
  - natural resources and environment,
  - utilities
ISSUES - LIS SYMPOSIUM

* data quality considerations
* data classification, formats and exchange standards
* what data to include in data bases (including the role of image data)
* topological data structures and expert systems
* updating of data bases (especially cadastral boundary information)
* coordination of LIS/GIS development between organisations
* data ownership, legal responsibility, confidentiality and marketing
* need for expertise development and relevant education
* relevant research and development
ISSUES - LIS/GIS RESEARCH DIRECTIONS SEMINAR

* * * * Data Interchange
        Standards/Networking/Processes
        (Especially with respect to
        Topology)
* * * * State Implementation Strategy for
        LIS/GIS
* * * Educational Requirements and
        Outreach
* * * Role of "Intelligent" Data & Expert
        Systems  (Pilot Studies)
* * * Privacy/Security/Ownership/ Legal
        Responsibility
* * Costs of Data / Data Acquisition
* * Data Quality - Reconciliation of Data
* * Spatial Analysis/Statistical Output
* * Joint Research / Coordination of
        Ventures / Pilot Studies
* * Community Needs vs.
        Wants / Societal Issues
* Incremental Updating
* Integration of Parcel Based/Natural Resource/Socio-economic Data
* Data Modelling in LIS/GIS - Methodology for Understanding Systems
* Economic Value of Data Bases to the Community
* Introduction of LIS/GIS into an Organisation - Corporate View / Operational Requirements
* Priorities for data capture programs and who is responsible
* Multidisciplinary communication coordination,
Topological data structures,
Spatial relationships and data base structures,
Institutional arrangements / organisational coordination,
Role of private sector in LIS for local government,
Integration of spatial and commercial (text) data,
Common framework for GIS development,
Inclusion of spatial operators in query languages,
Role of cadastre in LIS/GIS,
Human information processing aspects,
Resource priorities in education (Public & Private Sectors),
Access/marketing/neutrality of data,
Non-current data and LIS,
Role of image data (including video and raster)
CONCLUSION

* LIS/GIS research well established in Australia, particularly regarding applications

* Good (albeit developing) education and research base in academic institutions

* LIS & GIS coming together

* Reasonable funding for LIS/GIS research and development

* Institutional and administrative differences from USA in LIS/GIS research and development