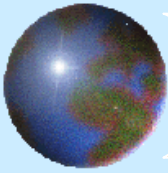


# *QSSC 2012 :The future of surveying and spatial science is Open*

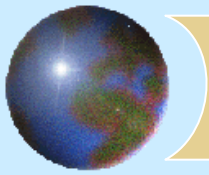
**Opening up the profession, addressing the critical shortage of skilled spatial science professionals and attracting new entrants**

*By: Mr Shane Simmons, Senior Lecturer USQ, B.Surv.(UQ), G.Dip.Surv.(QUT), G.Dip.Bus.(Property, UQ), G.Cert. (Finance, SIA), Cadastral Surveyor, MSSSI, MIEE, MAPI.*



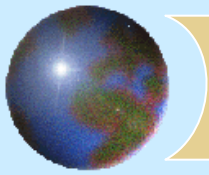
# Overview (24 slides in total)

- ⊕ Background
- ⊕ Introduction
- ⊕ Industry response
- ⊕ Attracting new entrants – USQ data
- ⊕ New entrants – other industries
- ⊕ Marketing to participants/entrants
- ⊕ Summary



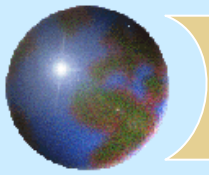
# Background

- ❖ Widespread acknowledgment of shortage of skilled workers in surveying/spatial science profession
- ❖ Consensus that organisations requiring surveying and spatial science staff are severely affected by the current available pool of qualified personnel



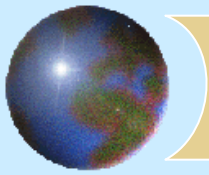
# Introduction

- ❖ **Skills shortage** when employers have great difficulty filling a vacancy at current level of remuneration and condition of employment for the position and location
- ❖ Department of Education, Employment and Workplace Relations(DEEWR 2011) identified skills shortage in surveyors, planners and draftspersons, DEEWR now Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE) from December 2011



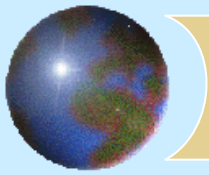
# Introduction

- ✚ Demand for surveying/spatial science staff in regional and remote locations driven by resources industry from high commodity prices and demand for natural resources
- ✚ Demand not just fuelled by exploration and mining of resources but also by requirement to develop service, infrastructure and accommodation needs in rapidly growing regional centres



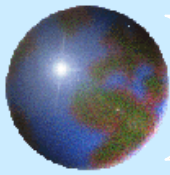
# Introduction

- ✚ Shortage of cadastral, engineering and mining surveyors particularly in regional areas with **at least 50% of vacancies not filled** within six week survey period
- ✚ Vacancies difficult to fill for registered cadastral surveyors and for surveyors generally in regional areas, positions in regional areas are hard to fill (e.g. successfully filled positions only 36% in regional areas against 71% successfully filled in metropolitan areas)



# Introduction

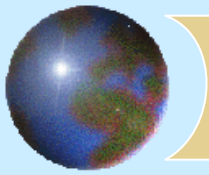
- ❖ Regional employers surveyed attracted a minimal number of applicants (for example, 50% of advertised vacancies regional NSW did not elicit a single response from a qualified Australian-based surveyor)
- ❖ Suitable applicants declined job offer due to regional location, salary issues or found other suitable employment



# Industry response

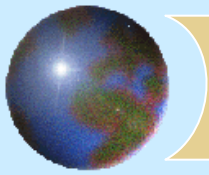
- ✚ Traditional response by employers to the failure to attract appropriate staff:
  - ✚ offer cadetships, traineeships or scholarships to new entrants
  - ✚ look within the organisation and up-skill existing staff
  - ✚ re-advertise domestically or overseas in countries such as South Africa or New Zealand





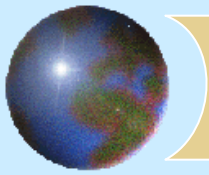
# Industry response

- ✚ Lyons and Davies (2011 Skilled Workforce Development Initiative) state Queensland has approximately same number of endorsed cadastral surveyors ( $\sim 600$ ) in 2011, as 30 years ago
- ✚ Simmons (2005), endorsed cadastral surveyors peaked in 1993 with 789 registered cadastral surveyors(including emeritus surveyors), in 1994, emeritus category separated from register and there was 766 registered cadastral surveyors



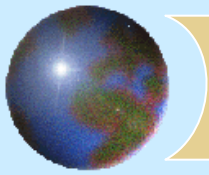
# Industry response

- ✦ Since 1994, registered cadastral surveyors has continued to drop and Surveyors Board report (2011) lists 579 registered cadastral surveyors
- ✦ Simmons (2005), 1991-2005 data indicated by 2011 there would be ~625 registered cadastral surveyors, trend line currently is 600 registered cadastral surveyors
- ✦ Indicates situation has further **deteriorated** than expected for total registered cadastral surveyors



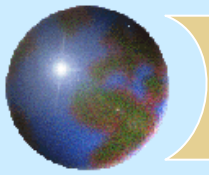
# Industry response

- ❖ Surveyors Board(2011) identified **64%** of cadastral surveyors in Queensland are **over 50 years age** and many surveying graduates not progressing to registered cadastral endorsement
- ❖ Simmons (2005) identified that approximately 64% of cadastral surveyors were older than 43-44 years in 2005, and to 2011, the age profile of the profession has simply got older with 64% of surveyors being aged 50 years or older (Surveyors Board 2011)



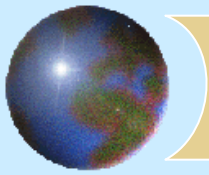
# Industry response

- ✦ Greatest numbers currently around 50-57 years old (Simmons 2005) or 50-59 years (Surveyors Board as cited by Lyons and Davies 2011), similar results by Blanchfield(2005) for NSW and the ACT
- ✦ Reason for lack of progression to registration, may be commercial reality of a survey practice only requiring one registered cadastral surveyor to sign cadastral plans/supervise cadastral surveys thus weakening resolve to progress to registration



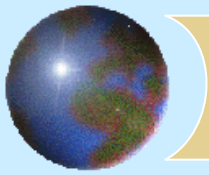
# Industry response

- ❖ Conversion of USQ/QUT **graduates** to registered cadastral surveyor plus reciprocal registrations from interstate or overseas are **not replenishing the loss** of registered cadastral surveyors in sufficient numbers to reverse decline in registered cadastral surveyors
- ❖ USQ/QUT 4yr degree graduates range 20 - 35 graduates, not all become registered cadastral surveyors, reciprocal registrations may not pick up the slack, whilst graduate numbers may mirror loss of registered cadastral surveyors in a given year, **current numbers are insufficient to arrest overall decline** in registered cadastral surveyors, especially current 50-59 year old bracket



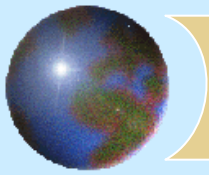
# Attracting new entrants

- ❖ Lyons and Davies(2011) identified new entrants being derived from three sources:
  - ❖ School leavers
  - ❖ Trained interstate or overseas
  - ❖ Mature entrants from other industries
- ❖ And include following considerations:
  - ❖ No substantial vocational education training (VET) program in surveying /spatial in QLD, unlike most other States
  - ❖ New entrants from interstate/overseas indicate that ~ 25% of those registered did not obtain their qualifications in Qld
  - ❖ New entrants from other industries, no evidence of this being a significant source for the spatial skilled work force



## Attracting new entrants – USQ data

- ✚ 2005-Semester 1 2012, total new entrants in USQ **surveying** programs, 1289 students in 7.5 years
- ✚ Total includes ~ 10-15% of enrolments who won't actually participate and also ~ 10% who will churn (enrol in either a higher or lower level program during the year) and change their program and be double-counted as a new entrant
- ✚ Leaves ~ **1000 new entrants** (includes all local, interstate & overseas enrolments from 2005) that have enrolled into USQ surveying programs

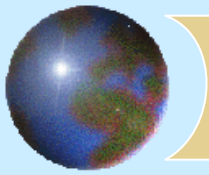


# Attracting new entrants – USQ data

- 1000 new entrants, 331 students applied for recognised prior learning for existing training/qualifications either obtained in surveying or other industries
- 669 students, no relevant qualifications
- 331 students with recognised prior learning, 189 students existing surveying qualifications from another institution, 142 students credit from a non-spatial science program

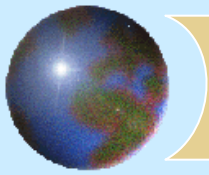
New entrant source	% new entrant source to new entrants
School leavers/no previous qual.	67% (669)
Existing training in spatial science	19% (189)
Trained in other industries	14% (142)





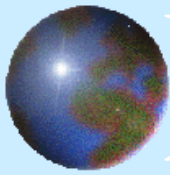
## Attracting new entrants – USQ data

- ✚ Existing training in surveying, dominated by enrolments from NSW VET sector, QUT and RMIT, as there is currently no available substantial VET program in surveying/spatial science in Qld
- ✚ Until a substantial VET is implemented in Queensland then the importance of new entrants trained in other industries is of importance as a source for new entrants



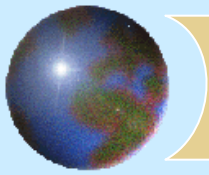
## New entrants – other industries

- ✚ Analysis of 178 recommended prior learning applications/prospective applications provides a **profile of non-spatial science industries** that are **attracted to spatial science**
- ✚ Apparent that greater than 50% of application's derived from students with a previous history in either **engineering or the applied and physical sciences**
- ✚ What are relative percentages of new entrants for a particular industry into surveying?



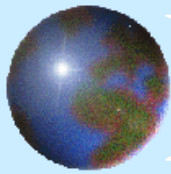
# New entrants – other industries

Other industry source	% other industry source to surveying
Engineering	32.5% (58)
Applied and physical sciences	24.25% (43)
Business	9.5% (17)
Drafting/cartography/graphics/CAD/media	7.75% (14)
IT/telecommunications	6.25% (11)
Education	5% (9)
Agriculture/natural resources	4.5% (8)
Building/construction/architecture	4% (7)
Arts	2.25% (4)
Project management	2.25% (4)
Urban and regional planning	1.15% (2)
Nursing	0.6% (1)



# Marketing to participants/entrants

- ✱ Qualification pathways to registration classed as derived from three sources:
  - ✱ Overseas qualified
  - ✱ Domestically qualified
  - ✱ Unqualified
  
- ✱ Unqualified new entrants represents longest temporal path to registration. **Existing cohort** of qualified surveyors at VET, 2 year or 3 year degree participants **can't be ignored** as source for potential applicants for registration (quickest fix in timeframe)



# Marketing to participants/entrants

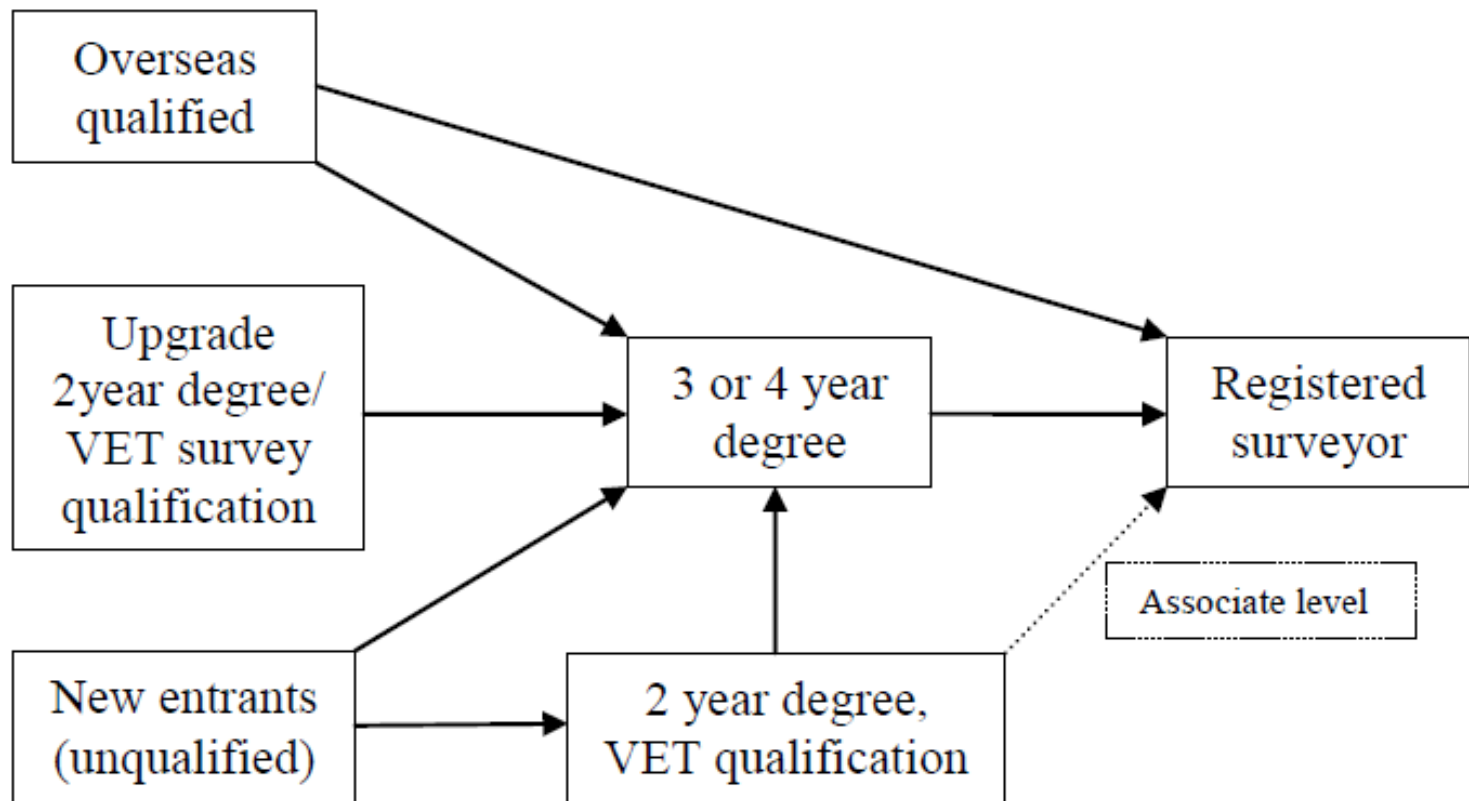
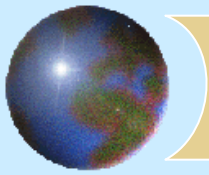
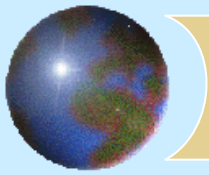


Figure 1: Generic registration pathway for undergraduate programs



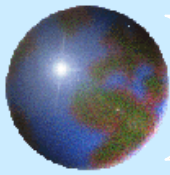
# Marketing to participants/entrants

- ✱ Of total cohort of USQ graduates and enrolments, 2 year Associate degree represents greater than one third of total cohort and consequently **prime resource** to market benefits of **registration**
- ✱ If a VET program is established in Queensland in surveying and spatial science,  $\sim 20\%$  of tertiary entrants would likely possess a VET qualification



# Summary

- ❖ New entrants dominated by school leavers or those having no previous qualification, significant entrants to the profession can be attracted from other industries, especially **engineering and science disciplines** which have **mathematics** as a core subject area
- ❖ Academic **VET/2yr/3yr qualifications** in surveying should **not be ignored** as a resource to increase registered surveyors in the profession



*You never know the true value of water until  
the well runs dry (old English proverb)*

Thank you



**USQ**  
AUSTRALIA



FACULTY OF  
ENGINEERING AND SURVEYING