



Understanding the Demand for Surveyors

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Chairman

Consulting Surveyors National

Presentation Outline

- Why a demand study was necessary
- Who did the study
- How was it done
- Quantitative findings
- What we are doing about it

So Why is Surveying Important?

- This topic is not just important to the profession
- Also important to the wealth of the nation

- Built on a proud professional past to lay the foundations of the nation's future
- Underpin economic activity and drive national wealth

- Surveyors are a silent workhorse of the Australian economy
- A small but strategic group of highly skilled professional working on projects critical to national development.

- There is barely a hospital, school, road , railway, airport, dam, pipeline, utility service, major building, mine or land parcel that does not rely on the contribution of surveyors.



- CSN provided the only submission on behalf of surveyors to the Federal Government's Senate Inquiry into the Skills Shortage in Engineering and Related Disciplines in January 2012.
- On the strength of that submission, CSN was invited to provide evidence to the inquiry. And in May 2012, a representative group from CSN attended a meeting with the Senate committee in parliament house, Canberra.
- We made a good impression and were quoted in the Senate's report.

Federal Government Senate Inquiry

skills shortage for engineering and related professionals



Senator
Bridget
McKenzie



Senator
Chris Black

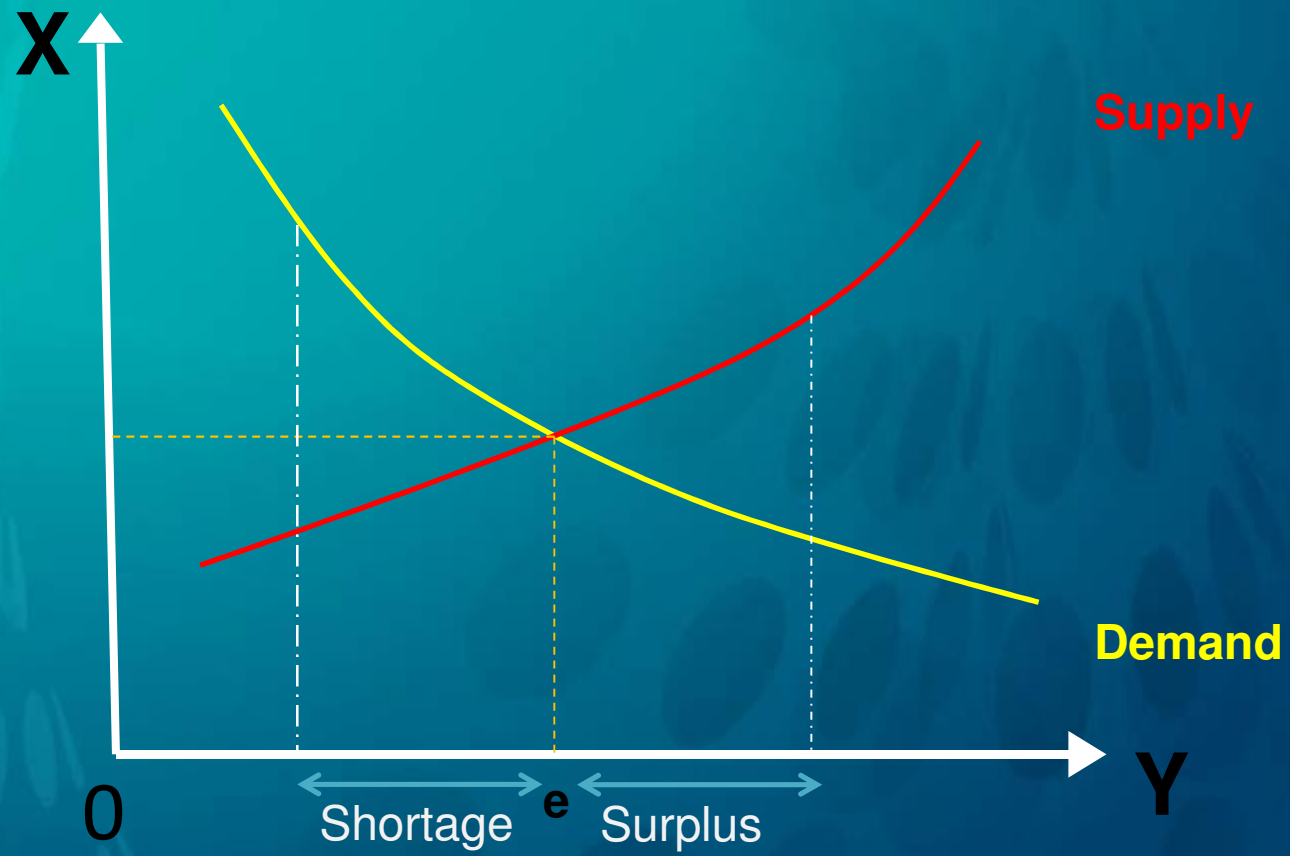


Senator
Gavin
Marshall

Consulting Surveyors National in Canberra



- On review of Hansard, it was evident that other organisations had clear researched evidence of their industry.
- We were only able to provide anecdotal evidence
- To be taken seriously as a profession CSN felt there was a need for good research to support our statements.



- Only if supply falls short of equilibrium will there be a shortage.
- No study that demonstrated that shortfall and if it did exist, what was the dollar value of that shortage.
- Available research had been undertaken by either academia or other groups that may have had a vested interest in the results.
- CSN Board felt that it was important to employ a completely independent body to undertake the research.

About BIS Shrapnel

Assisting Strategic Planning & Decision Making



Multi Client Reports

Engineering Construction
Mining and Heavy Industry
Mining
Maintenance
Road Construction
Road Maintenance
Road and Bridge Costs

Tailored Research

Cost Escalation
Industry Studies
IPO / Prospectus Reports
Demand Forecasting
Workforce Capability
Regional Outlooks
CBA / EIS

Briefings & Workshops

Strategic Planning & Sales
Specific Issues Workshops
Staff Industry Knowledge
Board Industry Briefings
Customer Industry Briefings
BIS Research Roundtables
BIS Boardroom Briefings



Sincere Thanks

Surveyor's Registration Board of Victoria
Surveyor General of New South Wales
Association of Consulting Surveyors Victoria
Institution of Surveyors Victoria
Association of Consulting Surveyors NSW
Institution of Surveyors New South Wales
NSW Country Surveyors Association
Institution of Surveyors - Murray Group

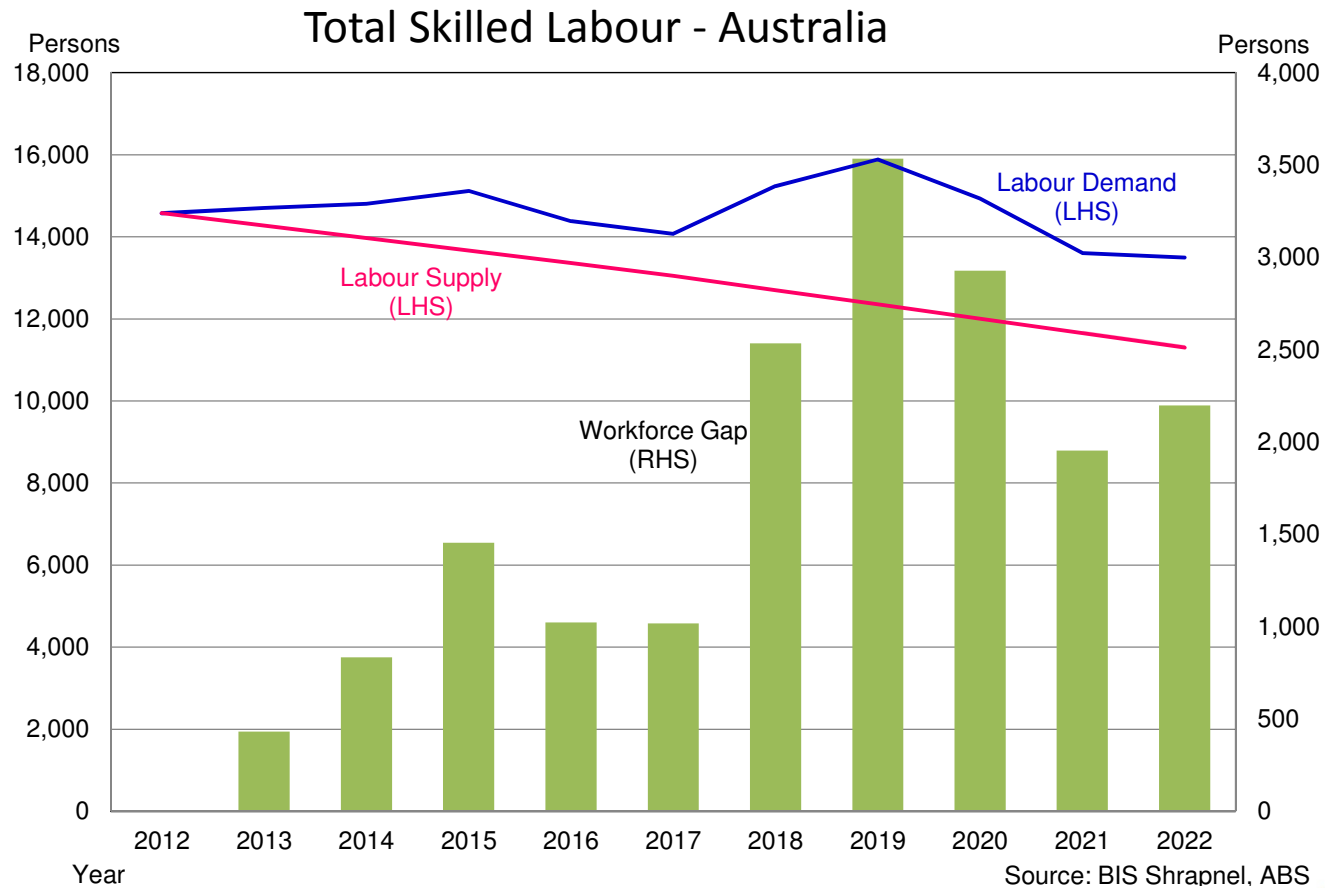
Key Findings of the Study

- There are approx 8,400 Surveyors in Australia
- Only around 2,800 are registered / licensed
- There are also around 3,600 Spatial Scientists
- 2,600 other related professionals
- 14,600 total population.

Key Findings of the Study

- Workforce attrition through ageing (i.e. not inter-industry transfers) will see this pop shrink to 11,300 persons by 2022.
- Existing surveyor numbers will fall from 8,400 to 6,400 during this time due to retirements and deaths.
- At the same time, increasing activity will see *demand* for the profession increase to a peak of 15,900 persons by 2019.
- In particular, there will be strong increases in demand for cadastral surveyors and technicians.

Key Outcomes from the Study





- Study utilised and forecast surveying graduations from the following institutions offering 4 year degrees (total of 109 graduates in 2012):

University of New South Wales

RMIT University

University of Southern Queensland

University of Newcastle

Curtin University

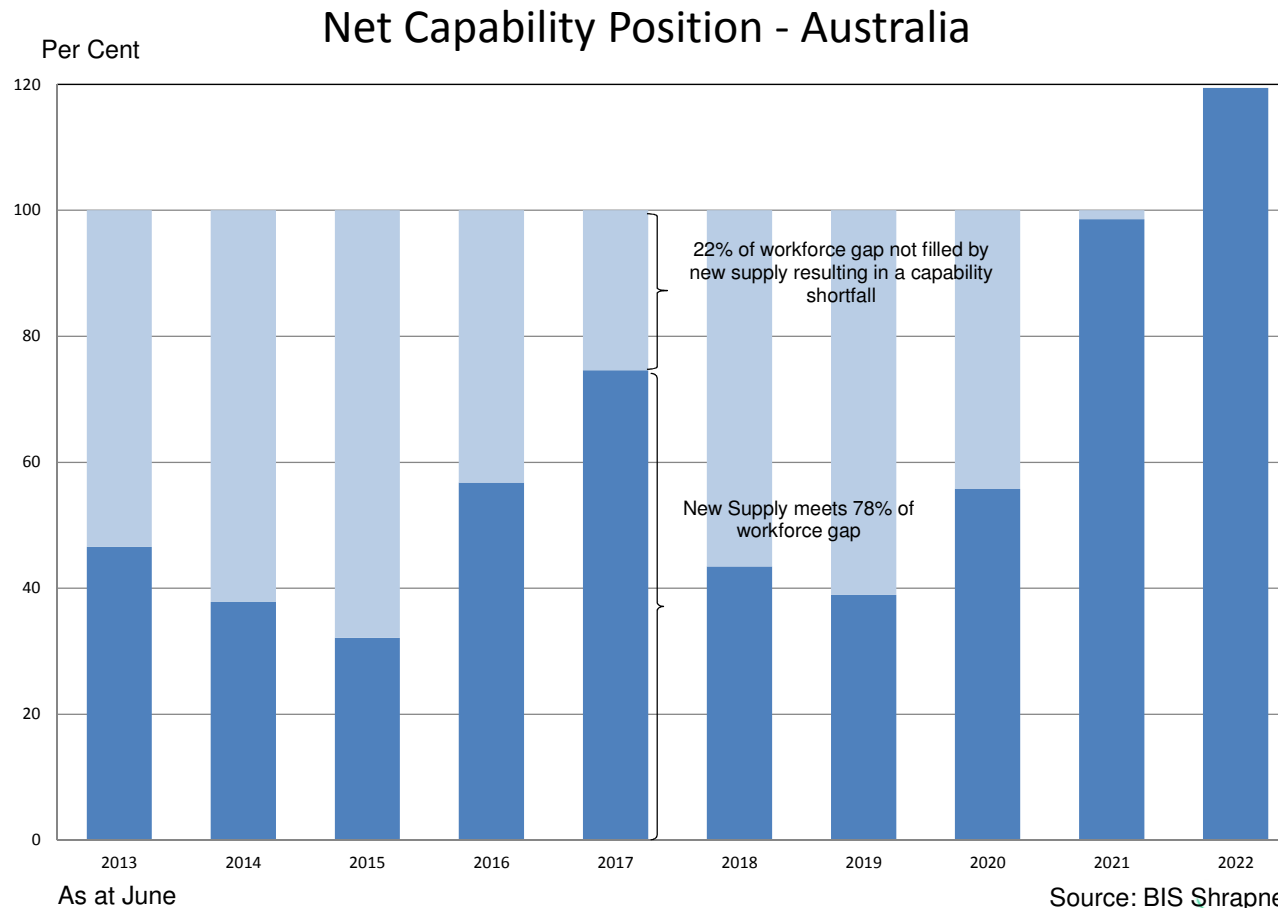
University of Tasmania

Queensland University of Technology

University of Melbourne

- Study also captured and forecast TAFE graduates in Geomatic Engineering with advanced diploma or diploma qualifications as a proxy for technicians
- * Study did not examine immigration of labour, but qualitative surveys reveal this is taking place and may assist in reducing measured shortages

Key Outcomes from the Study



Workforce Gap

- Workforce attrition plus rising demand exposes a 'workforce gap' which must be met by new hires if forecast levels of activity are to be achieved.
- Estimated gap will peak at around 3,500 persons by 2019.
- Education and training is vital to increase supply.
- But estimated only 1,500 new surveyors will come through the education system over the next decade, and around 600 technicians.
- A skills shortage effectively exists for the next 9 years.

Workforce Classification

➤ **Study focused on surveying and geospatial profession.** Divided profession into following skills specialisations with their industry demand drivers:

Surveyors

Cadastral surveyors (3,330 persons) – House commencements

Construction surveyors (1,570) – Multi-residential & non-dwelling building

Surveyors doing engineering work(1,692) – Utilities & transport construction

Mining surveyors (1,340) – Mining construction and exploration

Other surveyors (446)

Spatial scientists (841)

Technicians

Surveying technicians (366)

Spatial technicians (92)

Other Professionals

Planners (120)

Engineers (155)

Environmental scientists (35)

Other (including architects) (30)



Total construction, other sectoral drivers



Demand Drivers & Outlook

➤ Demand outlook based on existing BIS Shrapnel forecasts for key 'end use' industry sectors.

➤ Forecasts drawn from the following BIS Shrapnel reports:

Long Term Forecasts 2012 to 2027 (Economics)

Building in Australia 2012 to 2027 (Building)

Long Term Work Done 2012 (Building)

Engineering Construction in Australia 2012 to 2027 (Utilities & Transport)

Mining and Heavy Industry Construction in Australia 2012 to 2027

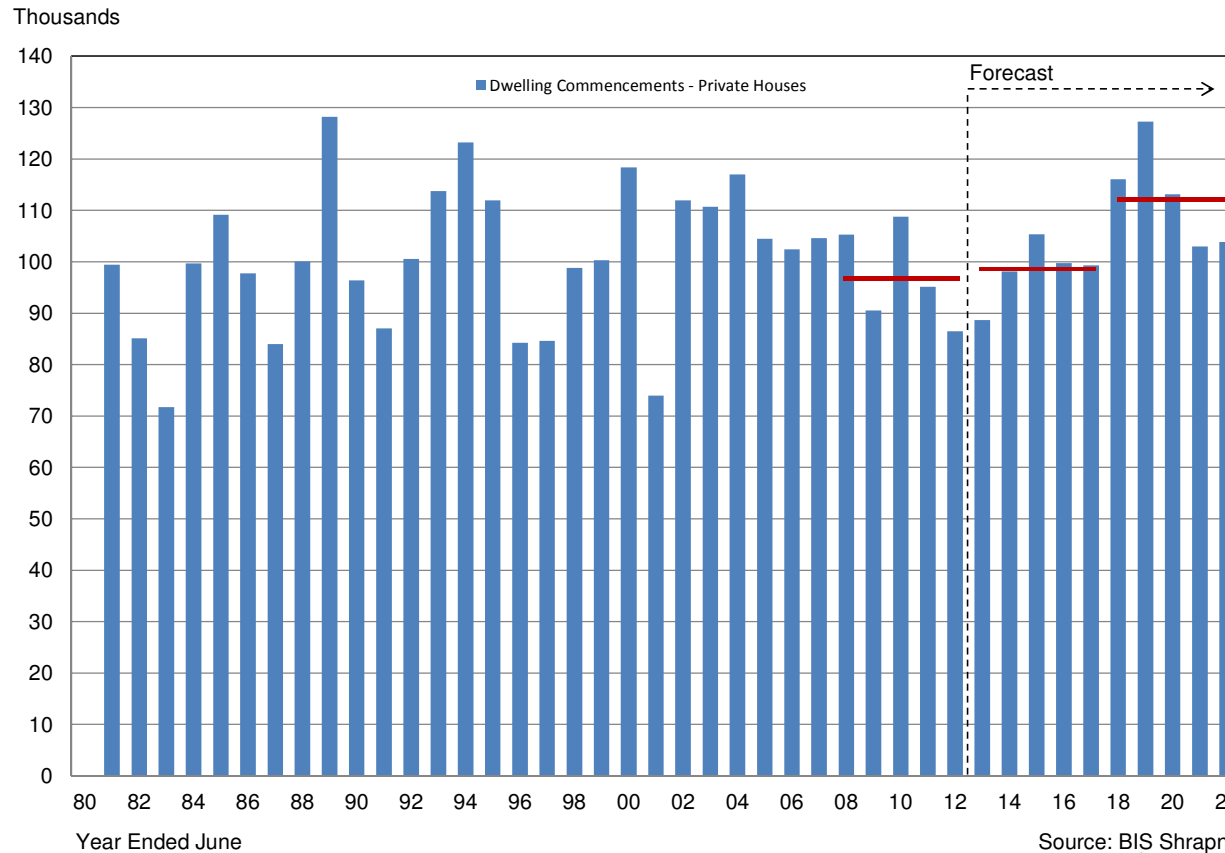
Mining in Australia 2012 to 2027

➤ In summary, while economic growth will weaken in the short to medium term, growth will be sustained above 3% p.a. by offsetting construction and investment cycles.

➤ In particular, while resources investment will weaken significantly, a substantial upswing is expected in dwelling building, while non-dwelling building and transport investment will remain at high levels. Substantial differences are expected at the state level.

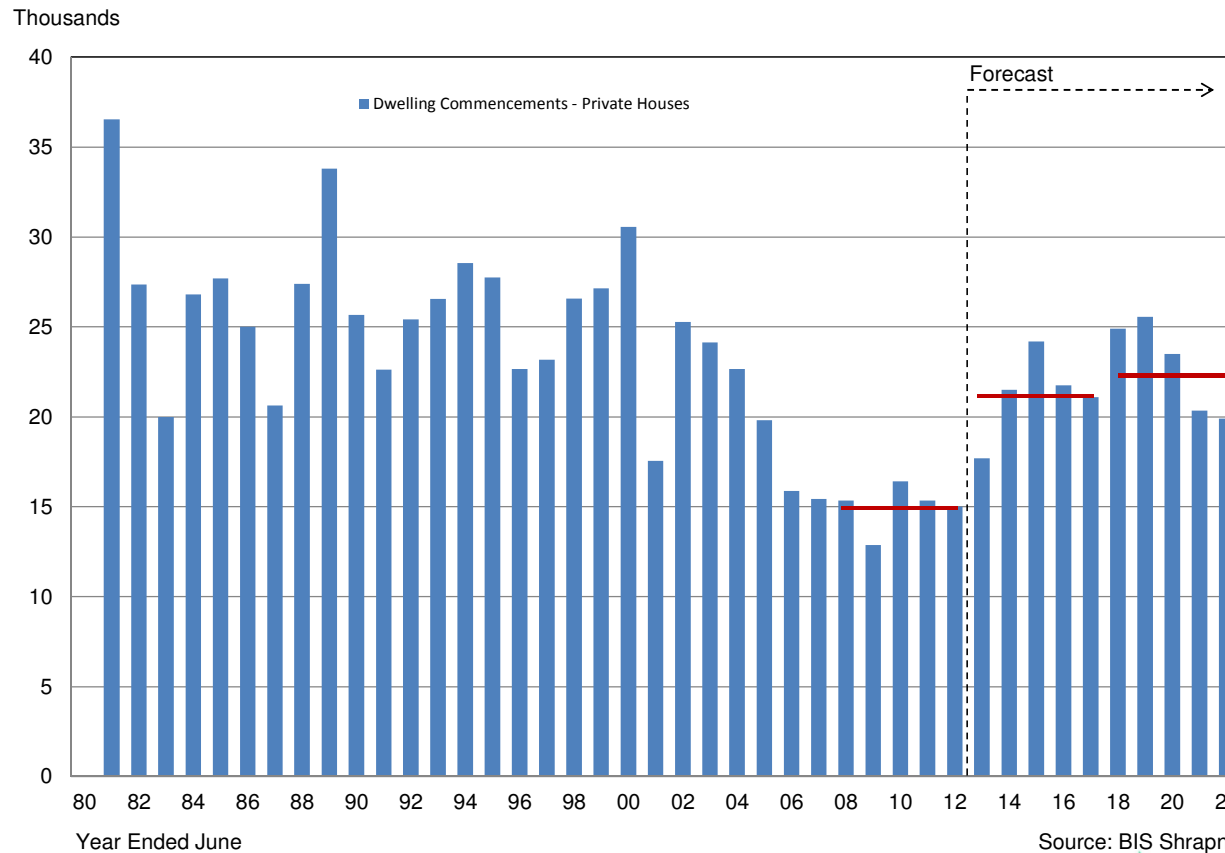
Demand Drivers & Outlook

Private House Commencements - Australia



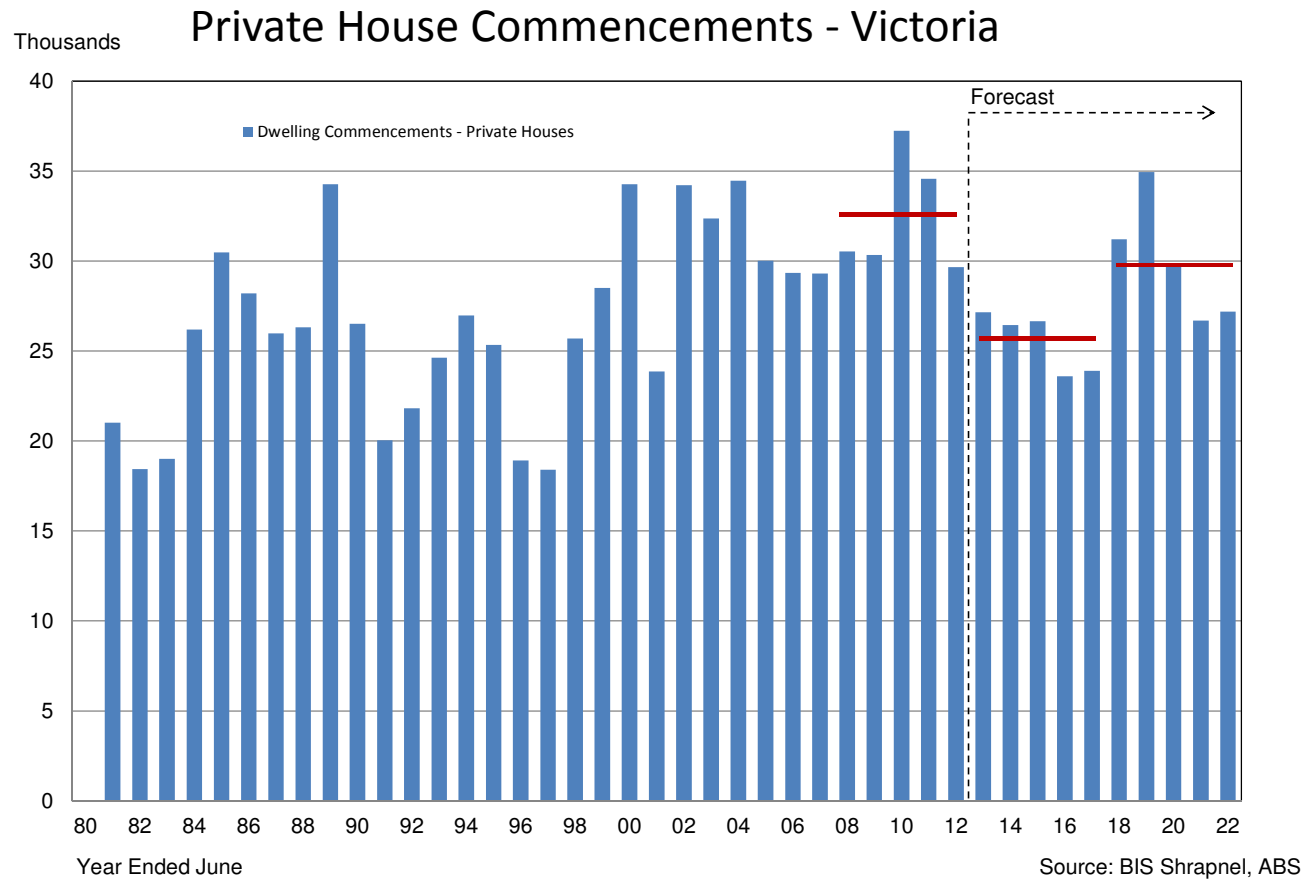
Demand Drivers & Outlook

Private House Commencements – New South Wales



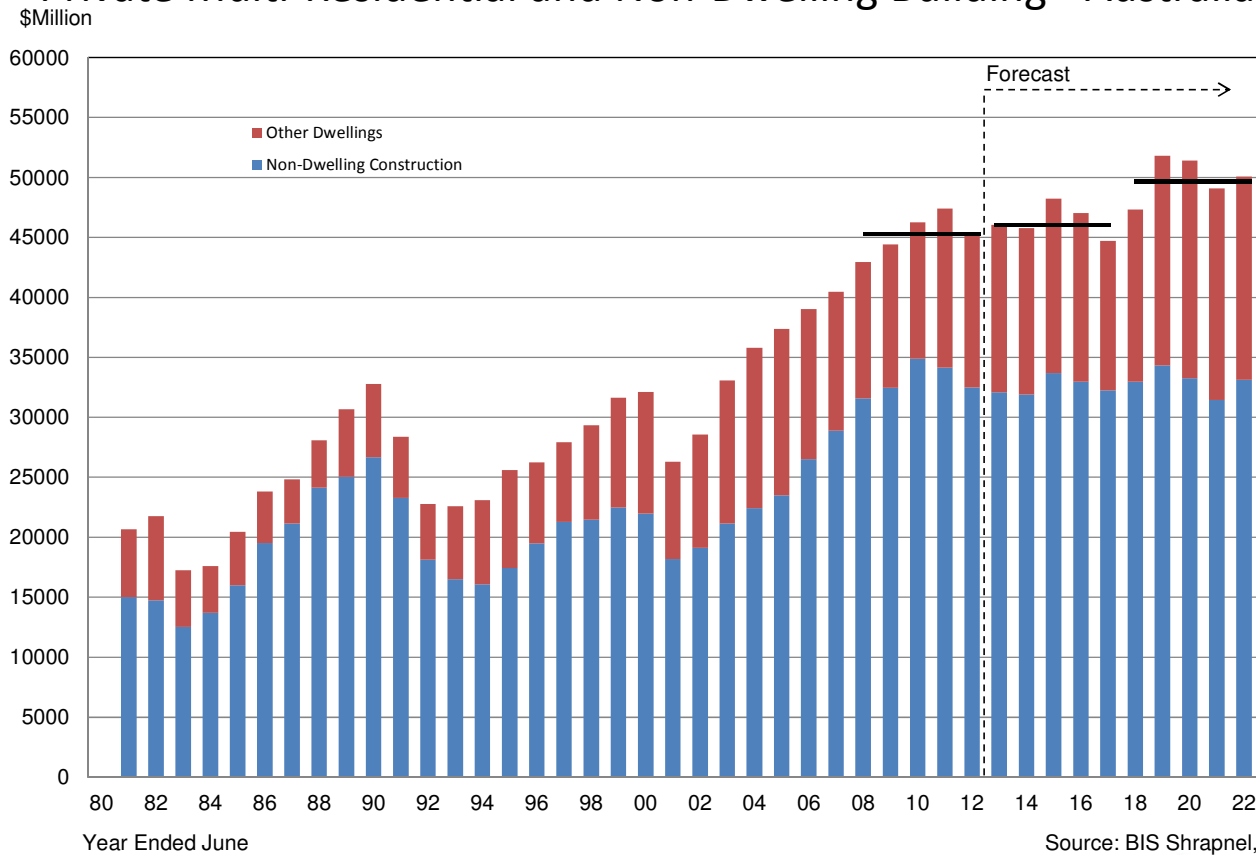
Source: BIS Shrapnel, ABS

Demand Drivers & Outlook



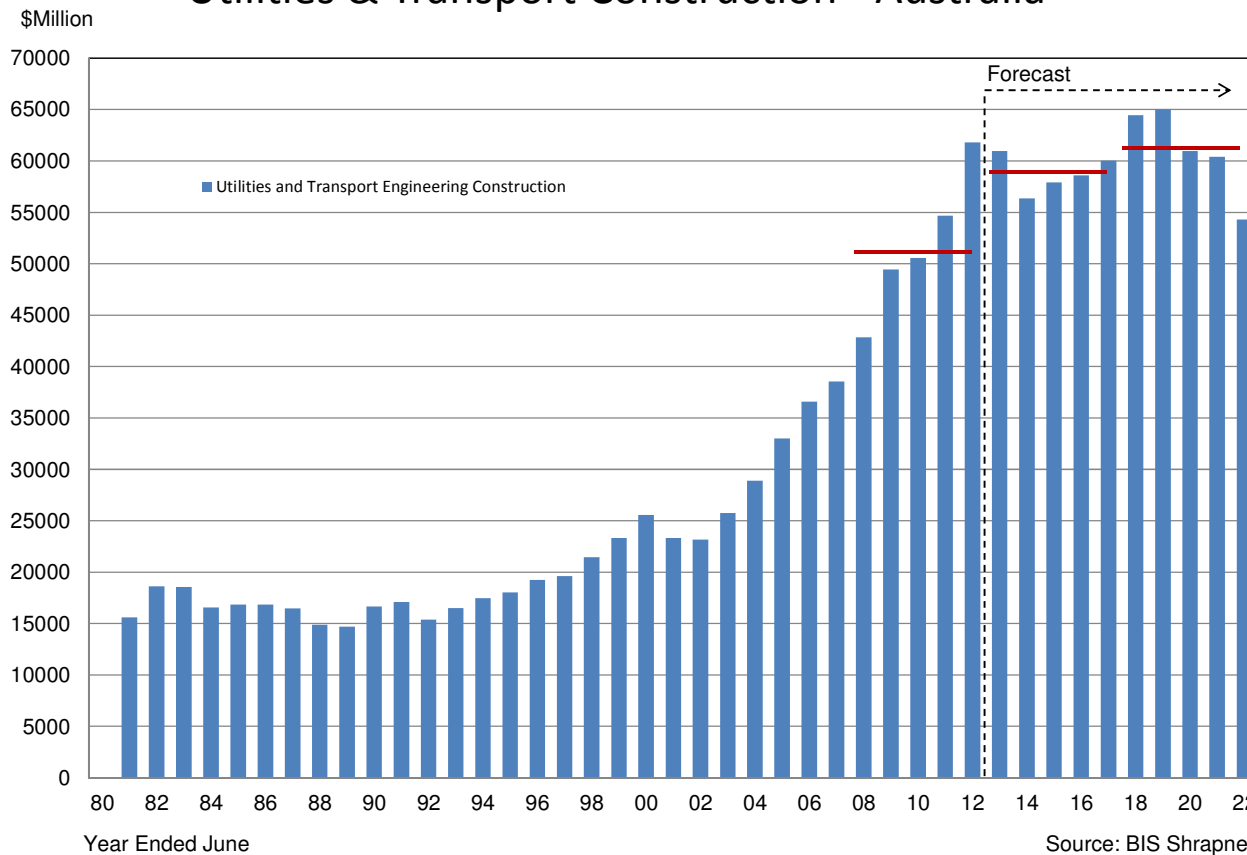
Demand Drivers & Outlook

Private Multi-Residential and Non-Dwelling Building - Australia



Demand Drivers & Outlook

Utilities & Transport Construction - Australia

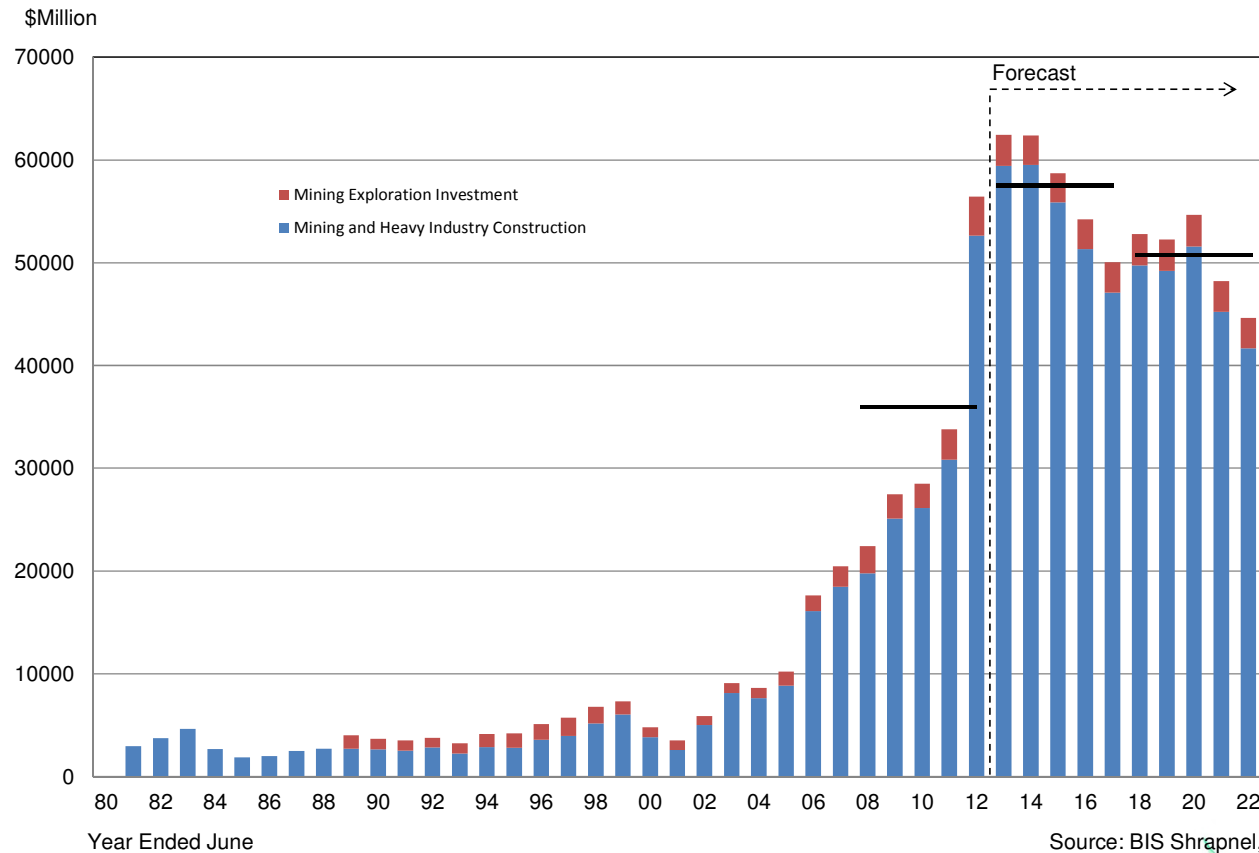


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Demand Drivers & Outlook

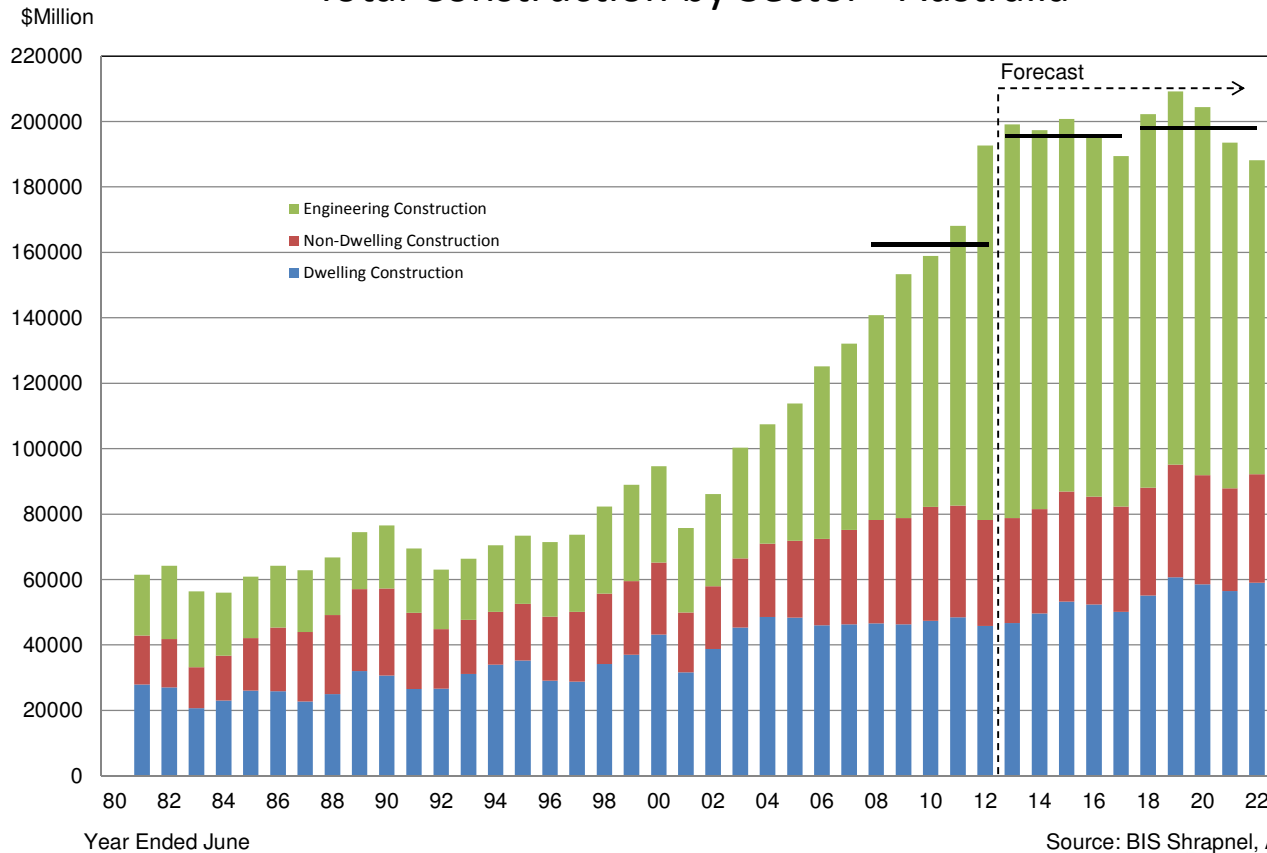
Mining Construction and Exploration - Australia



Source: BIS Shrapnel, ABS

Demand Drivers & Outlook

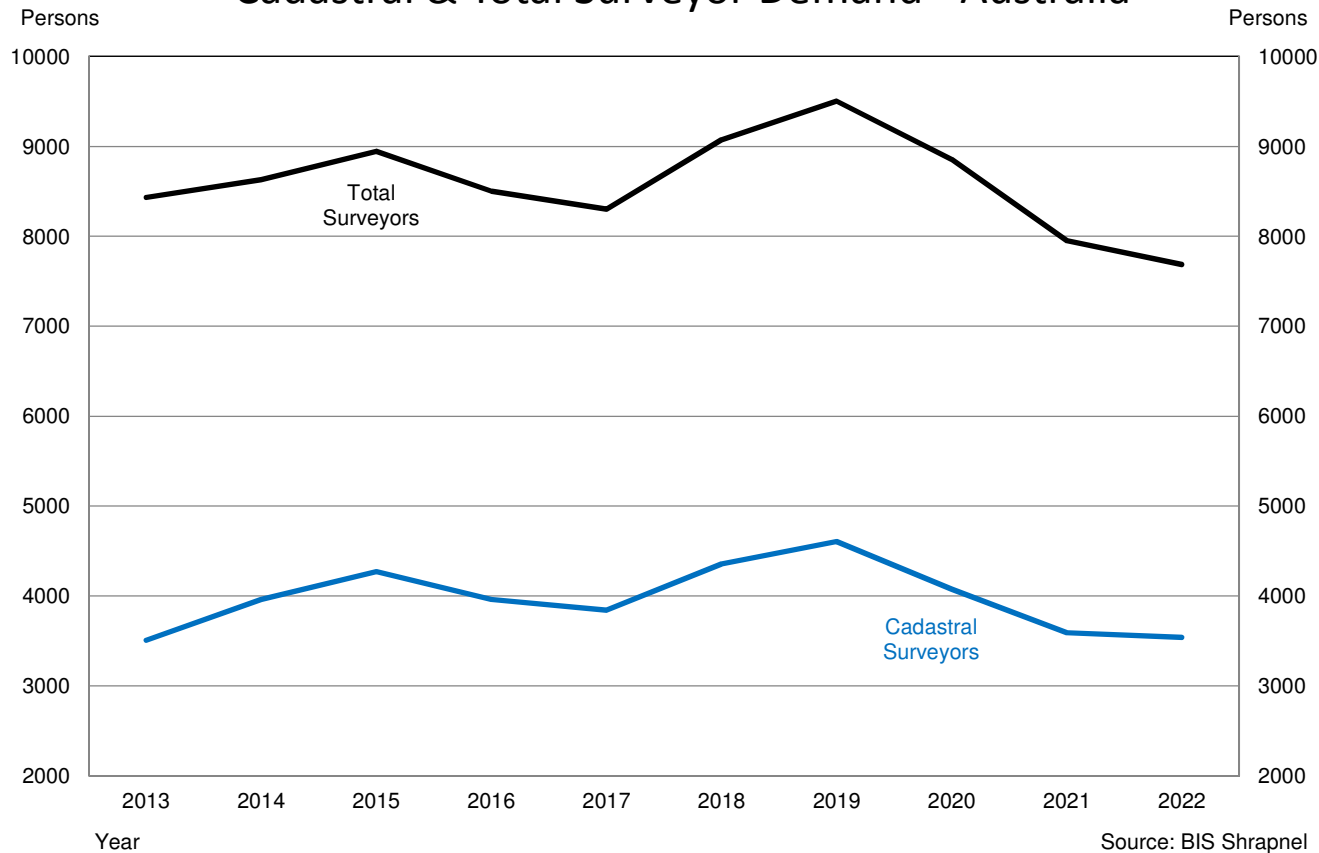
Total Construction by Sector - Australia



Source: BIS Shrapnel, ABS

Demand Drivers & Outlook

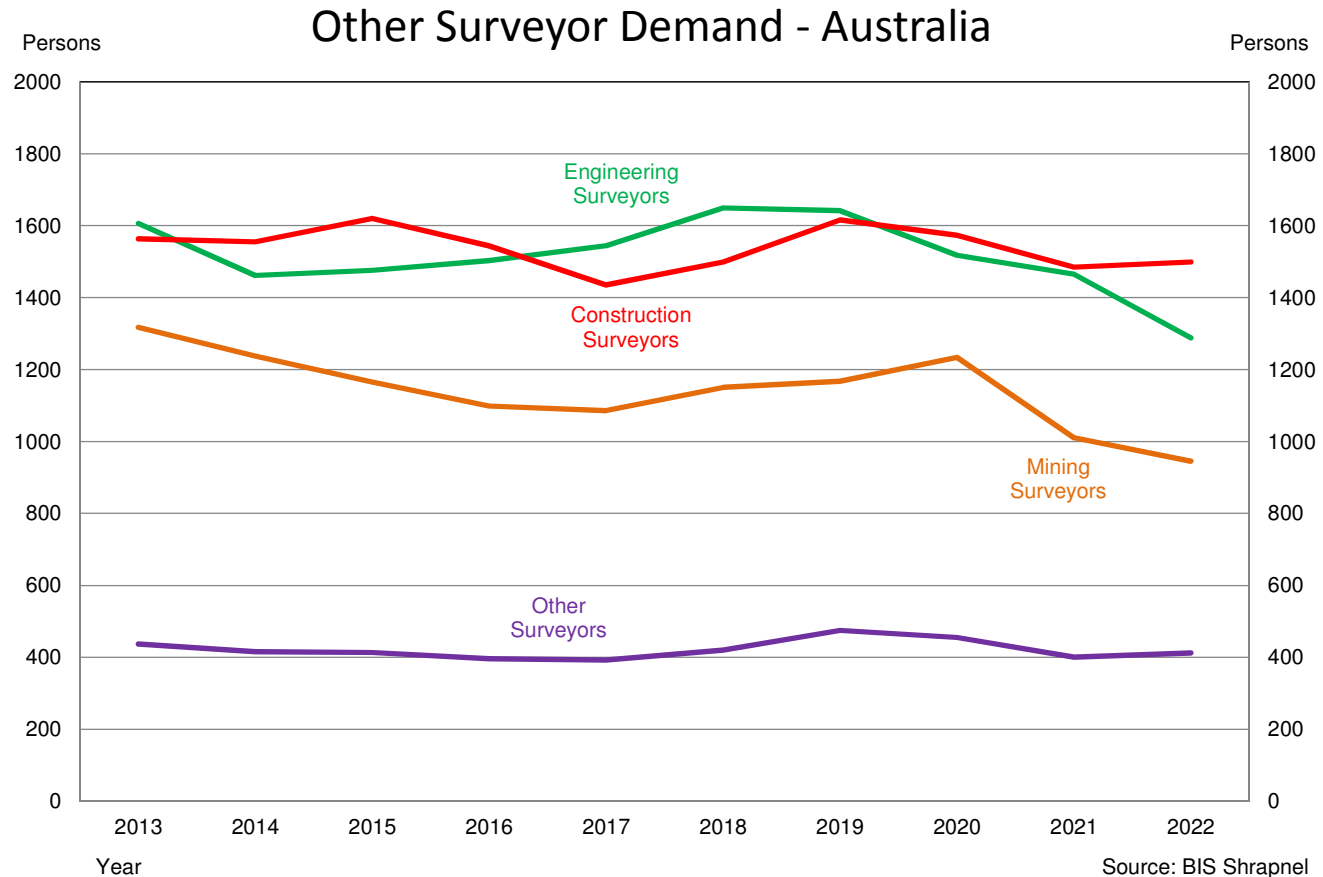
Cadastral & Total Surveyor Demand - Australia



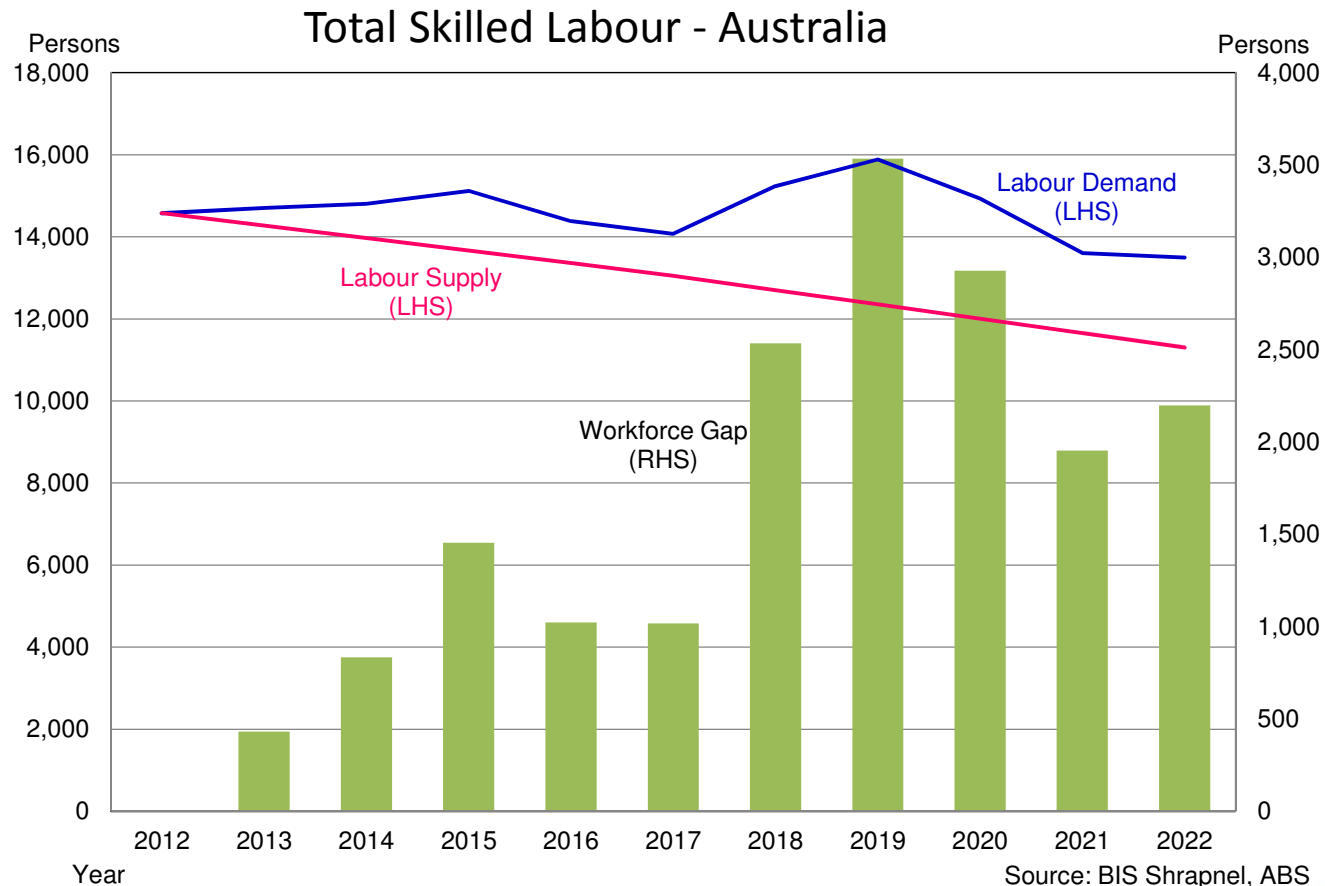
Source: BIS Shrapnel



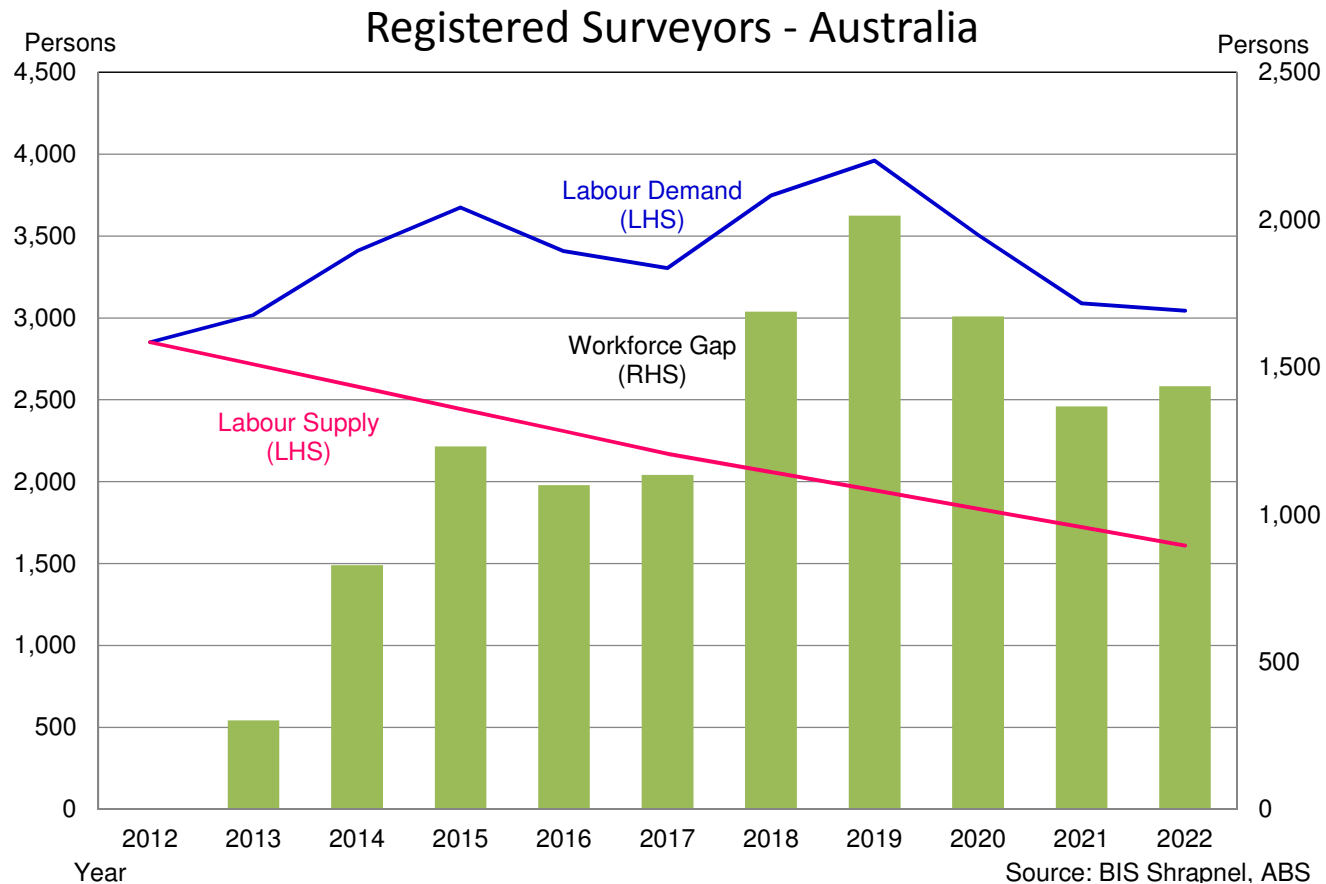
Demand Drivers & Outlook



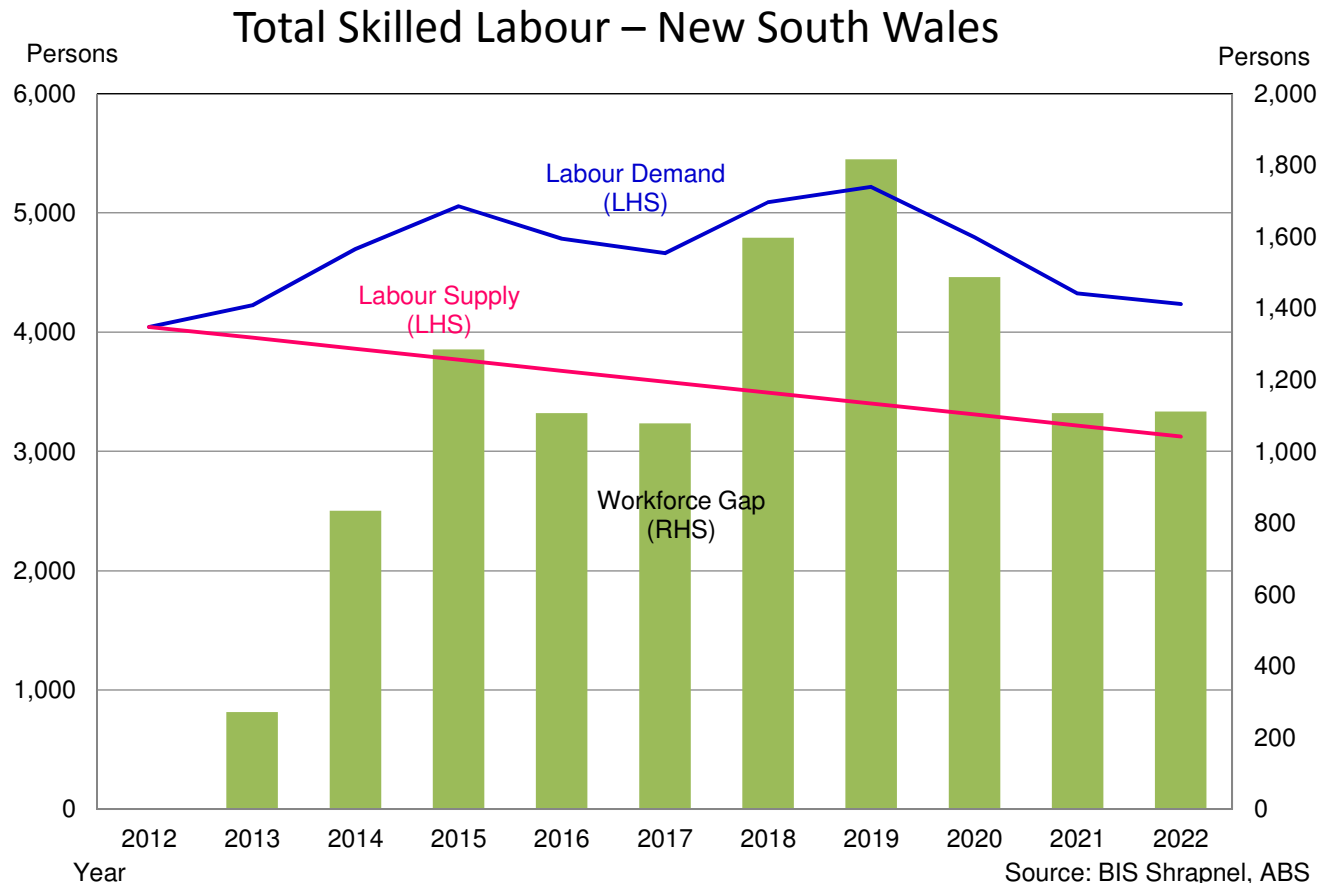
Supply Outlook & Workforce Gap



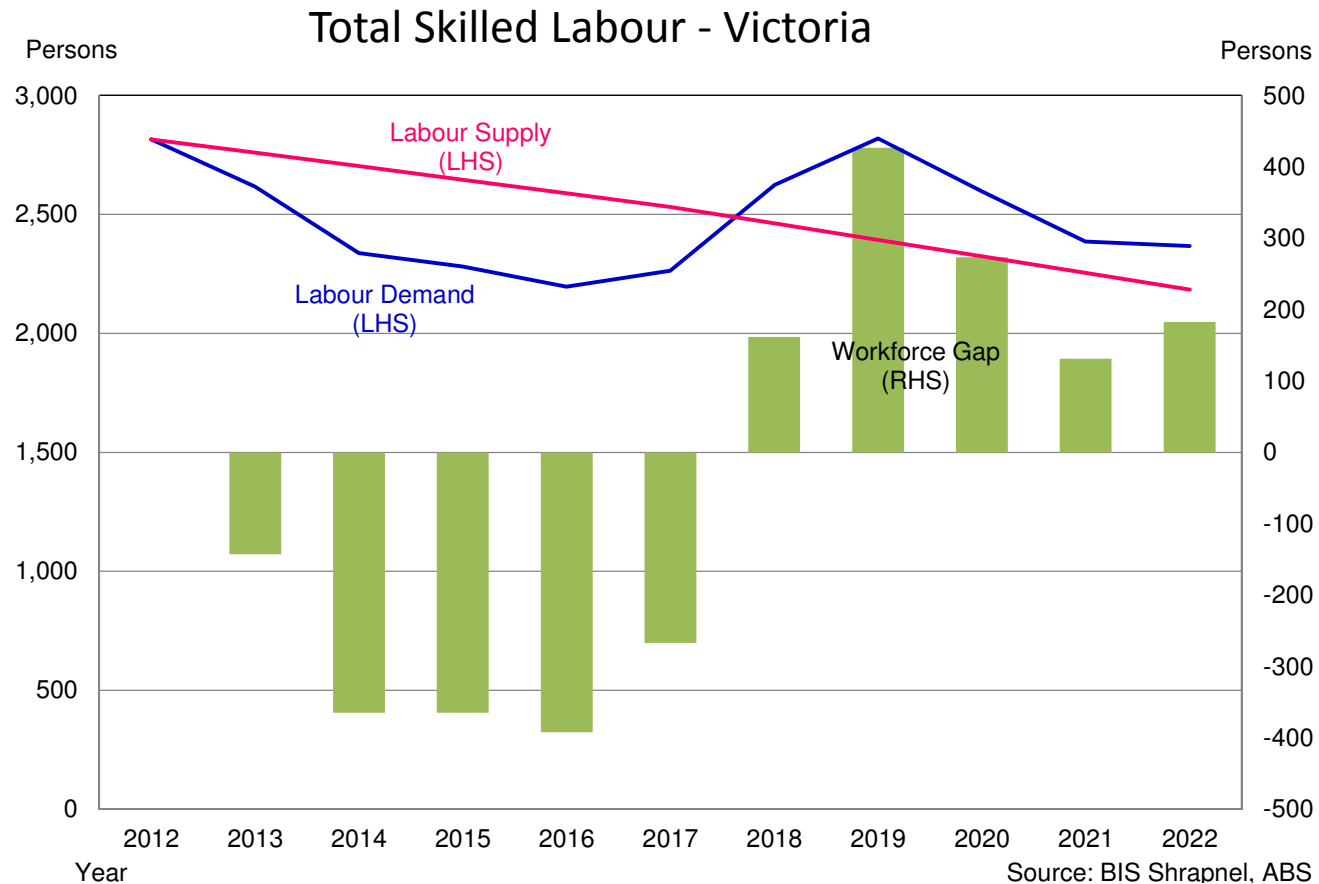
Supply Outlook & Workforce Gap



Key Outcomes from the Study



Key Outcomes from the Study



Key Outcomes Summary

- Skills shortages = costs.
- **In practice we will not 'see' a shortage.**
- **Rather, we will see labour demand fall back to meet the constrained level of labour supply, implying foregone activity in 'end use' industry sectors ('opportunity cost').**
- **In 2019 alone, an estimated**
 - **A\$30.4 billion in construction work and**
 - **14,570 private house commencements**
 - **will be put at risk from surveyor skills shortages.**

Key Outcomes Summary

- Marked regional differences revealed in the study.
- **Victoria will experience a 'skills surplus' for the first half of the coming decade as demand weakens faster than supply.**
- **New South Wales will experience a severe skills shortage given simultaneous strong growth in housing and infrastructure activity. This places growth at risk in New South Wales**

Qualitative Research

How have surveying firms changed in the last decade?

What were the drivers of change?

Are skills the only resource to consider?

Qualitative Research

External environment => Internal environment

Business environment
Government legislation
Technology changes
Client expectations



Structural changes
Service provision
Skills requirements

External Environment

Changing Business Environment

- In some areas like Orange in NSW, the impact of the GFC has been negligible.
- Work provided by the local mining works created strong growth in the area both in mining works and in housing activity.

“Throughout the 1980s there were two surveying firms in Orange now there are five. They are pretty much fully employed and we often contract work out to each other.”



External Environment

Changing Government Policy

government legislation has impacted decisively on surveyors activity especially in the areas of planning requirements.

“Twenty years ago you could almost do a Development Application (DA) on the back of an envelope but now the amount of reporting required for a DA has made it too expensive for most of our smaller clients.”

“I recall doing an application on a 30 lot subdivision which was a 7 page submission. Now it would have to be a 70 to 100 page submission. That adds a lot of additional cost”.

External Environment

Changing Government Policy

For the smaller firm especially in regional areas work for 'mum and dad' subdivision has mostly dried up.

"It is harder and harder for the small private developers to take on the risk of development. We are in the corridor that had plenty of orchard owners looking into developing their land into residential property. They would do it themselves in the past but now it is too expensive for them and a developer will come in and buy 10 orchards and the surveyor will be working on a 400 acre job rather than lots of 40 acres."

External Environment

Changing Government Policy

Some firms have extended their planning services by employing planning graduates to do the work.

Others focused on infrastructure development and have walked away from doing any jobs that involve DAs altogether.

“We try to avoid town planning because these days the town planning laws are so complex that you need to be a town planning expert to deal with any town planning issues”

External Environment

Changing Government Policy

- Opportunities to extend services with addition of planning expertise.
- Diversifying into service provision to a 'one stop shop' concept

"We have steadily added disciplines to the business including planning experience, home design, landscape and architecture more recently."

"If we weren't in engineering and project management we probably wouldn't have a third of the work we now have."

External Environment

Changing Government Policy

- Work Health & Safety legislation has added costs to survey work.
- Industrial Relations legislation was not considered to be an issue.

“If you recruit a country kid who likes playing sport and treat them well, you don’t have any industrial relation problems. That’s probably one of the good things about the surveying profession. Most of the people who end up doing surveying generally like fitting in.”

“I reckon we made this a good place to work. We do a lot of other things besides working here and that’s why people stay. We are pretty family based and I pretty proactive with the guys doing things like running and riding bikes and that sort of thing”



External Environment

Changing Client Expectations

Clients expectations have increased dramatically.

“Clients are expecting things can be done easily and don’t understand that you are not always working just on their work. We used to be able to say, “ok there will be a 5 day delay because of the amendments you want”, but now they ask “can you have it done by 12.00 pm today?”

- **Need to choose clients carefully**
- **Need to build loyalty**

External Environment

Sweeping Changes in Technology

- Instrumentation much more sophisticated.
- Much more expensive
- Reducing skill level for field work
- More office work to support new systems

“No matter how much technology advances there will still be a need for human highly skilled professionals who will create new ideas, good solutions and provide management skills for those in the profession following in their footsteps.”

Internal Environment

Changing Company Structures

- Personal characteristics and market perceptions
- Lack of control vs one stop shop concept
- Love of problem solving vs creating wealth
- Merger & acquisitions vs cultural change

“surveyors are not a homogeneous group. Their work orientation colours their expectations of the services they provide and the structures they operate.”

Internal Environment skill requirements

- All firms indicated recruiting problems
- Especially registered surveyors
- Teaching university programs
- Immigration from NZ
- Especially difficult in country areas
- Developing broad range of skills
- Management training
- Skills through acquisition
- Providing options

What is to be done?

- Recognise that this is not just a surveying problem.
- This is a national problem with regional differences
- Monitoring the supply/demand balance critical
- Governments need to change funding models
- Universities need to change delivery models
- Surveyors need to learn business principles

Surveyors vital to national development

- The construction industry is a fickle master governed by many uncontrollable factors.
- Surveyors need to monitor carefully what is happening in the economy to understand the needs of its clients and be aware of how to reinvent themselves to those changing needs.
- It takes at least 8 years to fully train a surveyor so planning ahead is critical because



Surveyors
vital to national development

Without surveyors
national development stops