

NAB Special Report

NAB Labs Business Innovation Index:

A new approach to measuring innovation in Australia

Behavioural & Industry Economics, NAB Group Economics

July 2016



Australia's **next phase of growth** must be defined by ideas, creativity and execution. By people and businesses that are adaptive, agile, thought leaders and doers. Our future lies in our ability to foster a **culture of innovation**. But how do we **measure** innovation across **all sizes and types of business**? When asked to assess their level of organisational innovation, **large business** (1,000+ employees) **see themselves as by far the most innovative** - over 1 in 2 firms report high levels innovation (compared with only 1 in 3 firms overall, and even fewer micro businesses).

Larger companies are more likely to have a **formal or structured approach** to innovation, while **smaller companies** typically do not label such activities and hence may **under estimate their true level of innovation**. Many businesses innovate continuously to survive and prosper. But, few call this "innovation". Instead they talk about "improvements", "changes" and "adjustments" to their everyday processes, products or services.

The **NAB Labs Business Innovation Index** is based on what a business does "**differently**", "**more quickly**", and "**more cost efficiently**" - behaviours that are at the very heart of innovation. It measures innovation across all business sizes and sectors.

Overall, Australian business scored **67.6** for innovation (out of 100). All 3 components of the index scored broadly the same. But, the overall index masks differences in innovation by business size, industry and location. **Large business** scored highest overall for innovation (**73.1**) and also leads across all sub-components of the index - especially for doing things differently and more quickly. However, **micro-businesses** were the next most innovative group (**69.1**), and were equal strongest for cost efficiency with large business. By industry, **Transport/Storage** scored highest (**72.1**), followed by **Retail** (**69.7**) and **Manufacturing** (**68.5**).

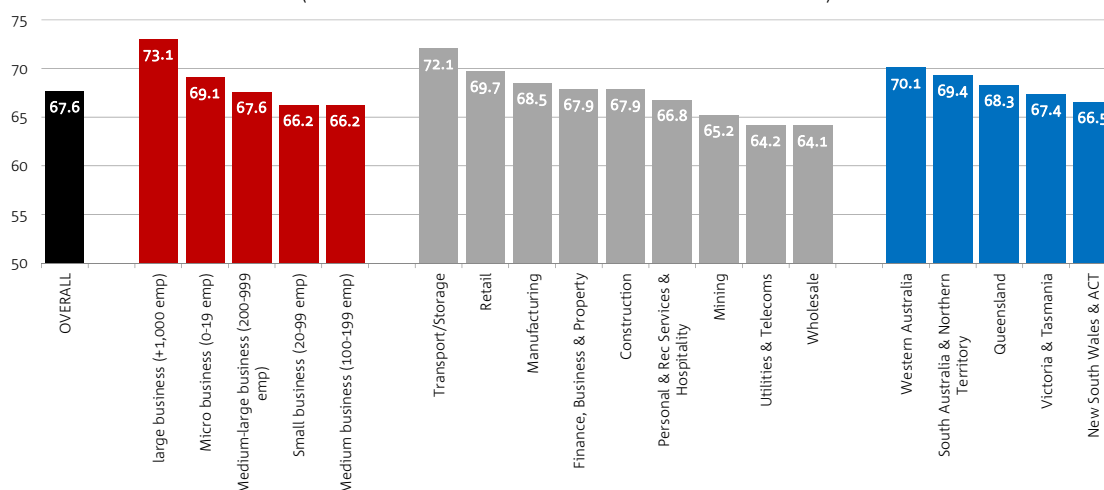
WA (**70.1**), **SA/NT** (**69.4**) and **QLD** (**68.3**) are the most innovative states. **WA** businesses scored highest on "cost efficiency", while **SA** outperformed on "doing things differently".

The most significant **barrier to innovation** and business change (identified by 1 in 2 firms), is simply **not having enough time** to turn their ideas into reality. Other significant barriers include: business resource constraints; technology concerns and costs; and a lack of skilled workers. While **large firms face similar barriers** to their smaller counterparts, the **degree** to which these inhibit innovation are **typically lower than for smaller business**.

Real innovation comes from a deep understanding of **customer** needs. **Small businesses** have the most intimate knowledge of their customers - 7 in 10 (70%) report a "high" level of **customer knowledge**. In fact, most businesses (76%) said they were driven by "opportunities to deliver a **better experience/service/product to their customers**". While all businesses were primarily driven by this motivation, 100% of large businesses said this was their key driver.

When asked to provide **examples** of how they innovate, the **number (and variety) of responses was overwhelming** - they ranged from establishing an internal "shark tank" to assess new business ideas for investment, to simply reducing clutter on the factory floor. By innovating, **businesses speak of** "improving accuracy", "reducing processing time", "cutting costs by half", "enhancing client engagement", "paradigm shifts", "continuous improvement" and "accepting change".

NAB Labs Innovation Index
(score out of 100 where 0 = "not at all & 100 = "extensive")



Contacts:
Alan Oster, Chief Economist
(03) 8634-2927 0414 444 652

Dean Pearson, Head of Behavioural & Industry Economics
(03) 8634 3221 0457 517 342

Robert De lure, Senior Economist Behavioural & Industry Economics
(03) 8634-4611 0477 723 769

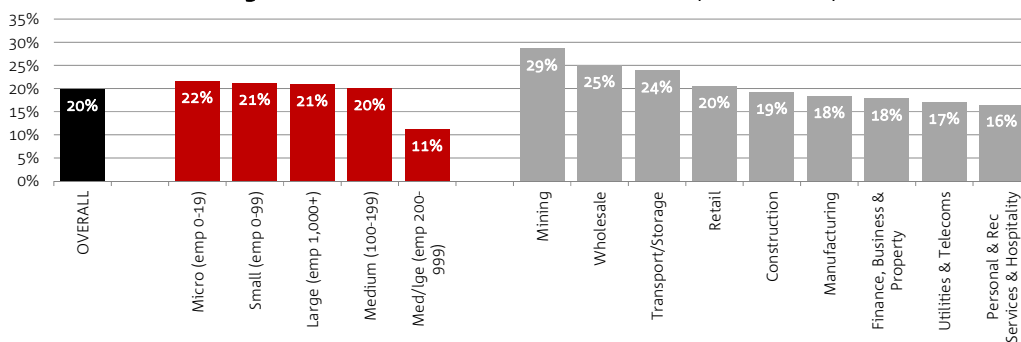
Brien McDonald, Senior Economist Behavioural & Industry Economics
(03) 8634-3837 0455 052 520

Steven Wu, Senior Analyst Behavioural & Industry Economics
(03) 9208 2929 0472 808 952

How does business view the culture of innovation in Australia and within their organisation?

One way to “measure” innovation is to simply ask business how they see the level of innovation in Australia as a whole, within the industry they operate in and within their own business. This measure suggests that Australian business does not view the culture of innovation in this country very favourably. Only 1 in 5 firms rate the culture of innovation in Australia “highly”. There is little difference in perceptions across all sizes of business (by employment), except for medium/large firms (200-999 employees) who were even less positive (just over 1 in 10 firms rate innovation “highly”).

"High" Culture of Innovation: Australia (% of firms)



There is however much greater variance by industry. The mining sector is the most positive - 29% of mining firms consider Australia “highly” innovative.

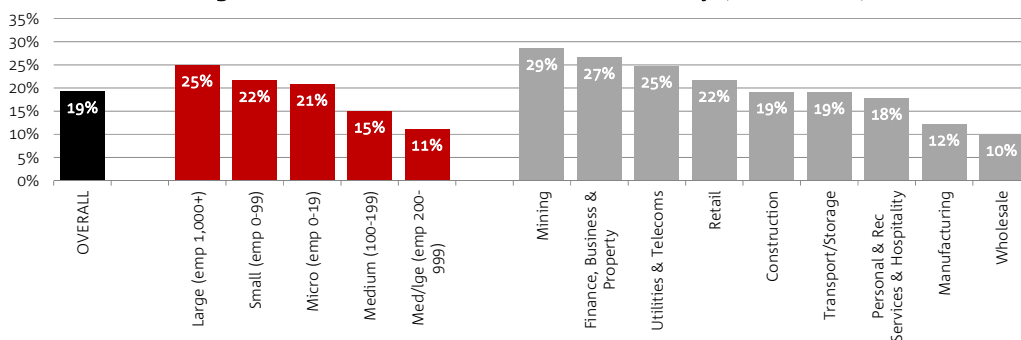
At the other extreme, the Personal/Recreational Services & Hospitality sector is the least positive (only 16% of firms).

Similarly, when asked to assess innovation within their industry sector, only 1 in 5 thought they operated in a “highly” innovative industry. Mining saw its sector as the most innovative (29% of firms), while Wholesale (10%) and Manufacturing (12%) were the least positive about innovation across their industry.

But, when asked to self-assess their own level of organisational innovation, a greater number of firms considered themselves to be “highly” innovative - 1 in 3 firms overall. Large business (over 1,000 employees) see themselves as by far the most innovative - just over 1 in 2 firms (54%) report high levels innovation within their own organisation.

While there may be barriers for smaller businesses to innovate to the same extent as their large counterparts, large companies are more likely to have a formal approach or structure regarding innovation, whereas smaller companies typically do not label such activities, and hence might under report. This raises the possibility that self-reported measures of innovation may underestimate the true level of innovation in Australia.

"High" Culture of Innovation: Your Industry (% of firms)



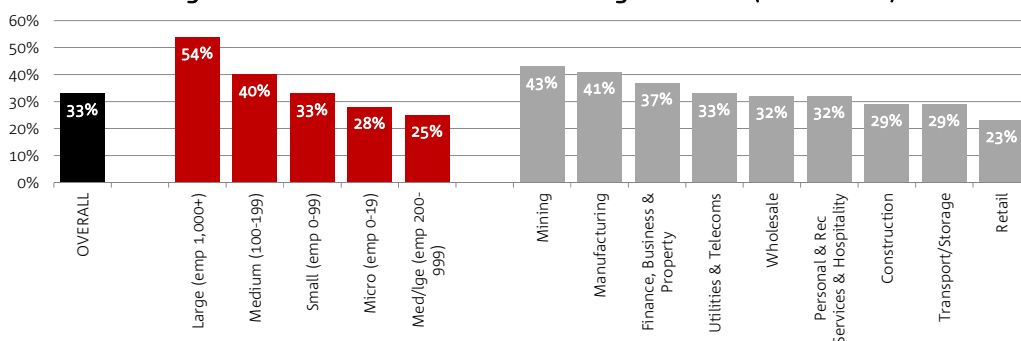
By industry, Mining reports the highest levels of organisational innovation (43% of firms), followed by Manufacturing (41%).

By comparison, Retailers rate themselves lowest for organisational innovation (just 23% of firms said they were “highly” innovative).

There is however much greater variance by industry. The mining sector is the most positive - 29% of mining firms consider Australia “highly” innovative.

At the other extreme, the Personal/Recreational Services & Hospitality sector is the least positive (only 16% of firms).

"High" Culture of Innovation: Your Organisation (% of firms)



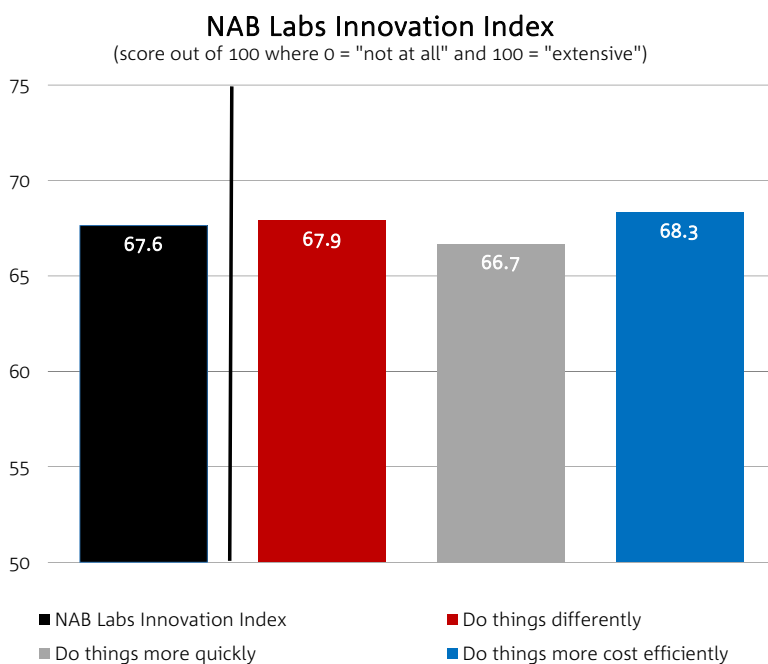
NAB Labs Business Innovation Index

The **NAB Labs Business Innovation Index** provides another measure of innovation that is more intuitive and more easily applicable to all business, irrespective of size, type, industry or location. The index is based on what a business does (rather than says), in relation to doing things “differently”, “more quickly”, and “more cost efficiently” - behaviours that are at the very heart of innovation!

Many businesses innovate continuously to survive and prosper. However, few call this “innovation”. Instead they are much more likely to talk about “improvements”, “changes” and “adjustments” to their everyday processes, products or services. How do we measure innovation across all sizes and types of business?

Typically measures such as the level of R&D spending, patent filings, the number of start-ups and collaborations between business and higher education are commonly used. But, they are often not very meaningful for some businesses.

Innovation can be both “radical” (for example the development of a brand new business, product and/or process that transforms a business), or “incremental” (perhaps an improvement to an existing product, service, or process).

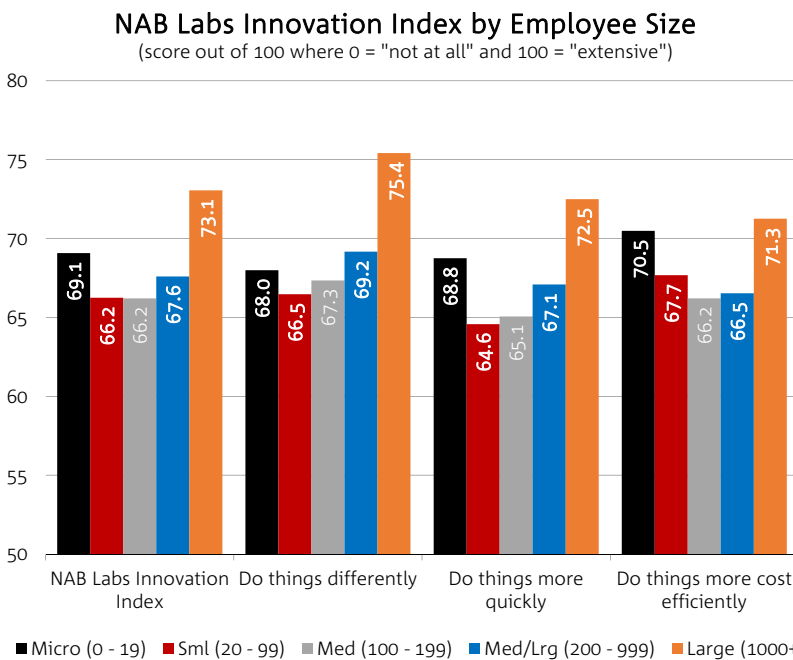


The NAB Labs Innovation Index is based on the extent to which an organisation has “tweaked”, “adjusted”, “improved” or “changed” anything in their business that has allowed them over the past 12 months to do things:

- differently;
- more quickly; and
- more cost efficiently

Overall, the NAB Labs Innovation Index was 67.6 (out of 100, where 0 is “not at all” and 100 is “extensive”).

All 3 components of the Index scored broadly the same.



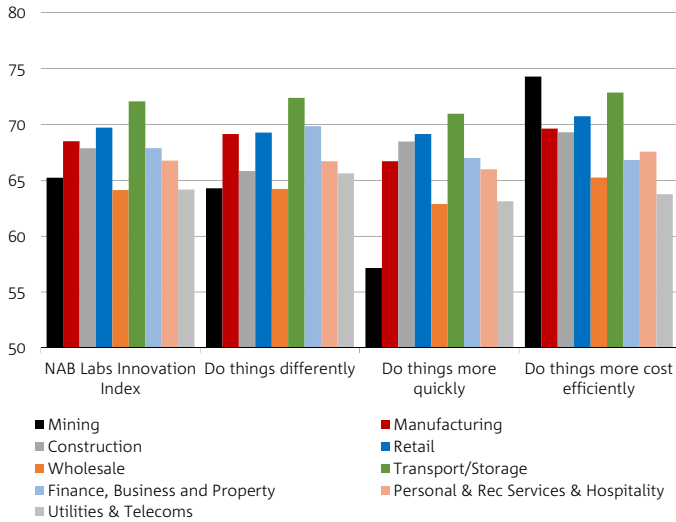
The overall index masks some big differences in innovation by business size.

Large business scored highest for overall innovation (73.1) and this group also leads for innovation across all sub-components of the index - especially in relation to doing things differently and more quickly.

Micro-businesses were the next most innovative group, scoring 69.1. Innovation among micro-businesses was strongest when it came to doing things more cost efficiently (and broadly on par with large businesses).

NAB Labs Innovation Index by Industry

(score out of 100 where 0 = "not at all" and 100 = "extensive")



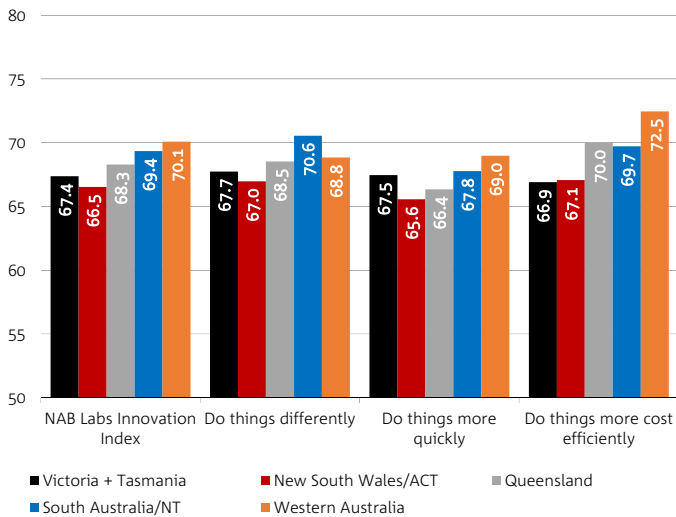
By industry, Transport/Storage scored highest for innovation (72.1), followed by Retail (69.7) and Manufacturing (68.5).

It was also apparent that the 3 innovation behaviours impacted different industries to varying degrees.

This was most noticeable in the Mining industry, where it scored highest of all industries for cost efficiency and lowest for doing things more quickly.

NAB Labs Innovation Index by State

(score out of 100 where 0 = "not at all" and 100 = "extensive")



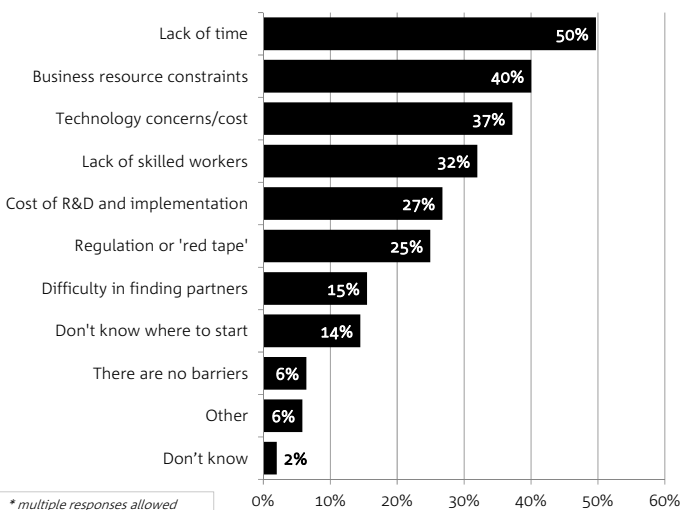
As Australia transitions post the mining investment boom, it is significant that WA (70.1) followed by SA/NT (69.4) and QLD (68.3) are the most innovative states.

It is particularly noticeable the efforts being made by businesses in WA to be more cost efficient. With commodity prices significantly lower than at the height of the mining boom, this is a positive step towards improving competitiveness. Furthermore, SA which has a greater exposure to some more mature industries (particularly manufacturing) scores highest on doing things differently.

By comparison, the states with the most diverse industrial structures - NSW (66.5) and VIC (67.4) score lowest for innovation.

Barriers to innovation

Main Barriers to Implementing Business Changes & Innovations (% of all responses*)



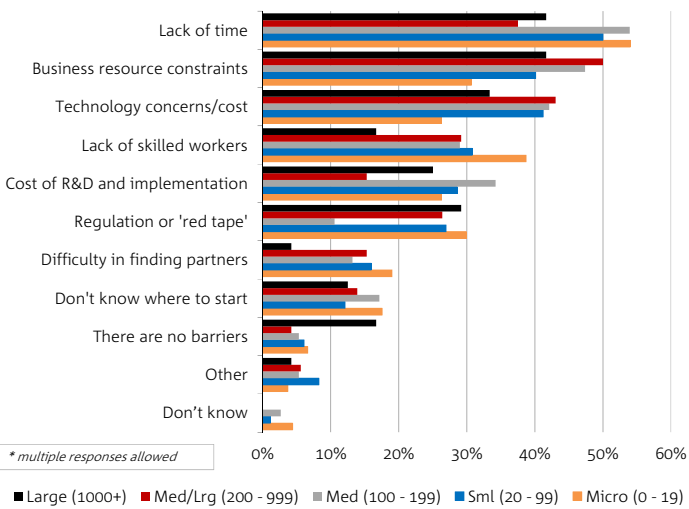
Firms can face barriers which may restrict the ability of their organisation to implement business changes and innovations.

The most significant barrier identified by business is simply not having enough time to turn their ideas into reality. Overall, 1 in 2 firms (50%) nominated this as a barrier.

Other significant barriers included business resource constraints (40%), technology concerns and costs (37%) and a lack of skilled workers (32%).

Just over 1 in 7 firms (14%) said they did not know where to start.

Main barriers to implementing business changes & innovations by business size (% of all responses*)

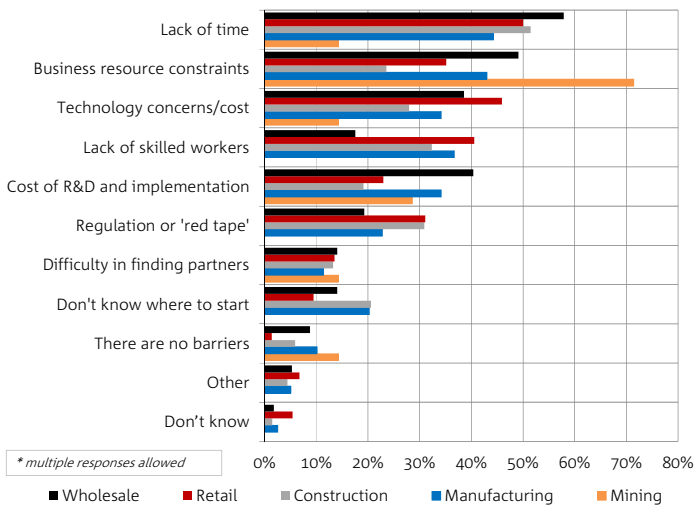


While a lack of time is the key barrier to innovation overall, this is not necessarily the case by business size.

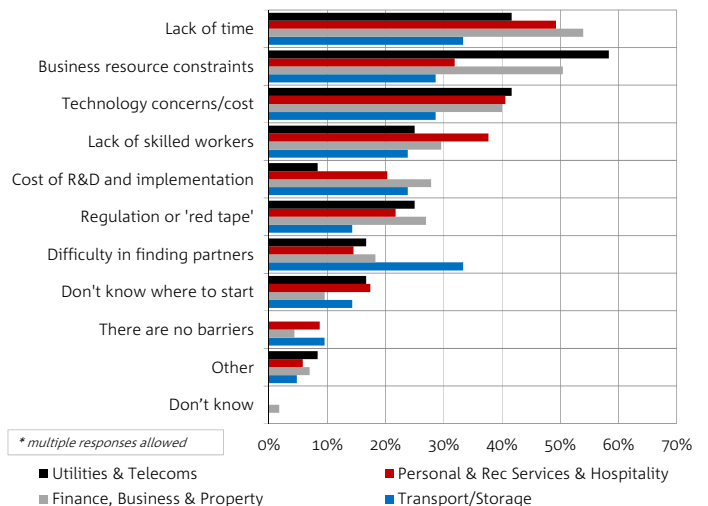
For large firms (+1,000), a lack of time and business resources constraints are viewed equally as the biggest constraints. A lot more large firms do not see any barriers to innovation, and notably fewer large firms identify a lack of skilled workers and difficulties in finding partners, as impediments.

More medium/large firms (200-999) see business resource constraints and technology concerns/costs as the key barriers to implementing business changes and innovations than any other group, while a lack of skilled workers is a noticeably bigger impediment for micro firms.

Main barriers to implementing business changes & innovations by industry (% of all responses*)



Main barriers to implementing business changes & innovations by industry (% of all responses*)

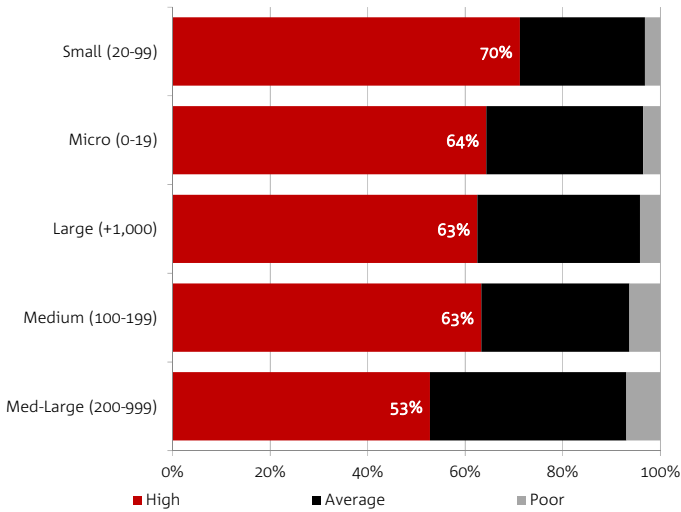


There are also some important differences in barriers across industry. For example, business resource constraints are a significantly more important constraint for Mining compared with other sectors. By contrast a lack of time is a much smaller constraint on miners than other industries. Utilities & Telecoms firms are much more likely to nominate business resource constraints than other sectors, while difficulty in finding partners, is a particular concern for the Transport sector. In Retail, a lack of skilled workers is most prominent.



Drivers of innovation and customer knowledge

Extent to which organisation has an intimate knowledge of their customers - by business size (number of employees)

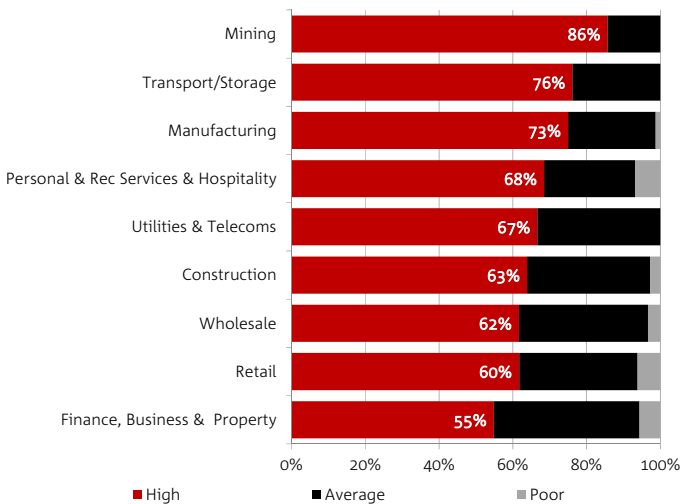


Real innovation comes from a deep understanding of customer needs. On average, around 2 in 3 Australian businesses have a “high” degree of knowledge of their customers. But the degree of understanding varies by business size.

Small businesses (employing between 20-99 people) have the most intimate knowledge of their customers with 7 in 10 firms (70%) reporting a “high” level of customer knowledge, followed by micro businesses (0-19) with 64% “high”, large (+1,000) and medium-sized businesses (100-199) both with 63% “high”.

Fewer medium-large (200-999) businesses have an intimate knowledge of their customers - just 53% report a “high” level of customer knowledge.

Extent to which organisation has an intimate knowledge of their customers - by industry



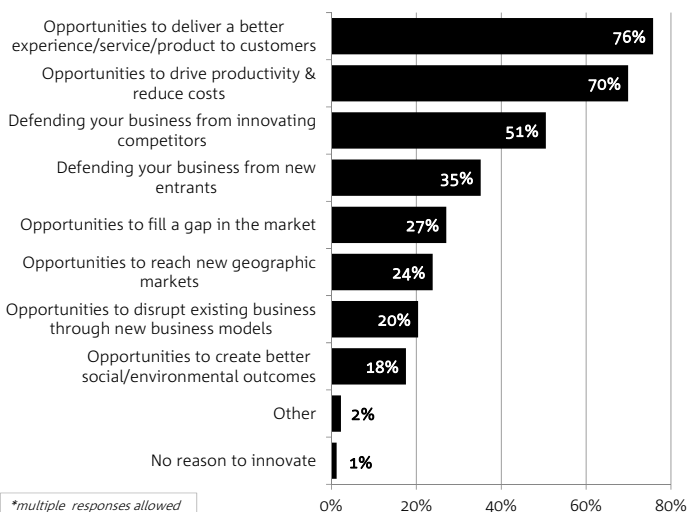
There is an even greater degree of variance of customer knowledge by industry.

The Mining industry has by far the most intimate knowledge of its customers, with almost 9 in 10 firms (86%) in this industry reporting a “high” level of customer knowledge.

Transport/Storage (76%) and Manufacturing (73%) were next highest.

The industry reporting the lowest share of firms with a “high” level of customer understanding was Finance, Business & Property - just over 1 in 2 firms (55%).

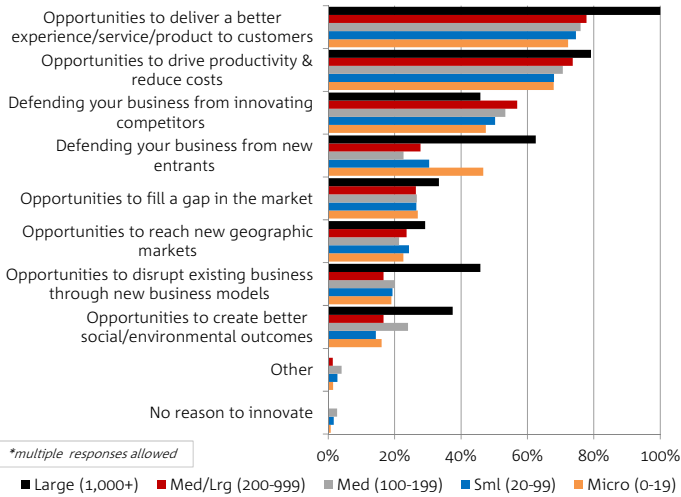
Main Factors Driving Business to Innovate (% of all responses*)



When asked what drives them to innovate, most businesses (76%) said they were driven by “opportunities to deliver a better experience/service/product to their customers”.

The next most important reason (identified by 70% of businesses) was the “opportunity to drive productivity and reduce costs, followed by “defending the business from innovating competitors (51%).

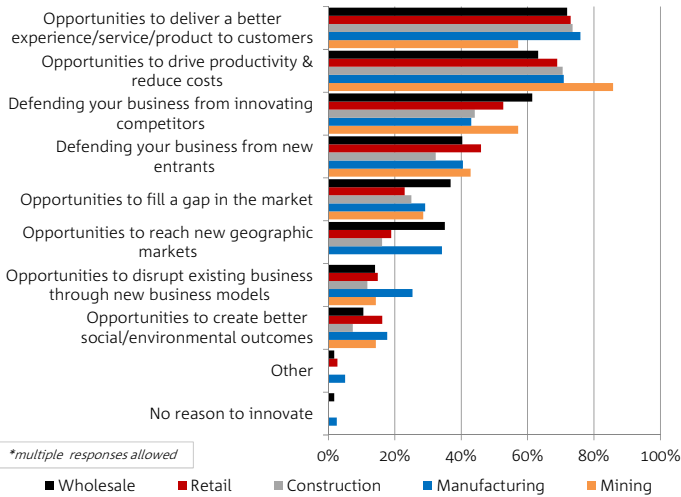
Main Factors Driving Business to Innovate by Business Size (% of all responses*)



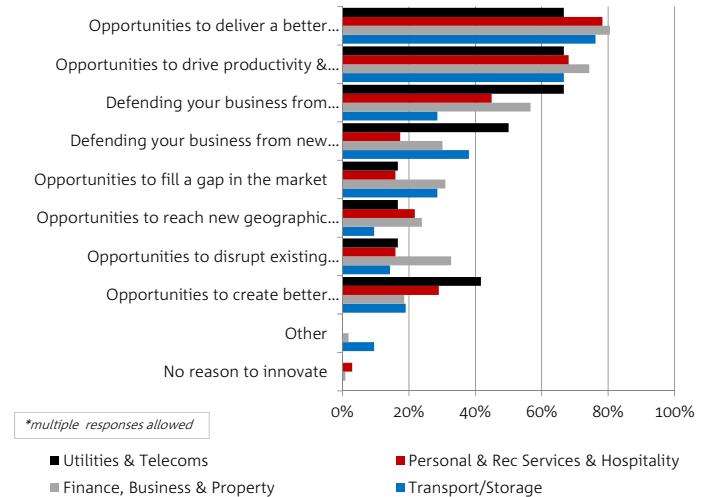
While all businesses were primarily driven “opportunities to deliver a better experience/service/product to their customers”, 100% of large businesses said this was their key driver.

Significantly more large businesses were also driven to “defend their business from entrants”, “by opportunities to disrupt existing business through new business model”, and by “opportunities to create better social and environmental outcomes”.

Main Factors Driving Business to Innovate by Industry (% of all responses*)



Main Factors Driving Business to Innovate by Industry (% of all responses*)



While the main motivators to innovate are broadly similar across industry sectors, it is noticeable that “productivity and cost reduction” is a much bigger driver motivator for mining and “creating better social/environmental outcomes” was much more important for utilities.



What are firms doing “differently”, “more quickly” & “more cost effectively”?

There is clearly no shortage of ideas in Australia. When we asked businesses to provide some examples of the ways in which their organisation had been able to do innovate, we were overwhelmed by the sheer number of responses.

They range from establishing an internal "shark tank" to assess new business ideas for investment, joining a worldwide ideas sharing network and using aerial survey drones, to simply reducing clutter on the factory floor, surveying customers, changing to electronic methods of communication, employing a Chinese speaking co-ordinator and purchasing a world leading new welding machine.

By innovating, businesses speak of “improving accuracy”, “reduced processing time”, “cutting costs by half”, “enhancing client engagement”, “paradigm shifts”, “continuous improvement”, “accepting change” and “increasing turnover by over 50% over last year”. A sample of responses is presented below.....

- Reviewed and restructured workflows and processes invoicing/billing on job completion, not at end of month.
- *A change of software for our inventory allowed us to process the necessary paperwork faster and with less hard copies than before.*
- The introduction of a cloud-based in-house information base made available better, faster and more accurate details of all current projects.
- *New glue technologies reducing manufacturing time.*
- Adjustment to order picking, changes to delivery runs, improved computer system, staff roster changes.
- *Analysing stock-take variances the same day, instead of weeks/months later.*
- Automated process of emailing quotations to customers. Once approved by the customer, the quotation is converted into a sales/production order by the push of a button.
- *Building effective customer relationship management (CRM) systems for integrated client engagement and work flow.*
- Building on-line content for client engagement and lead generation.
- *Moving from print advertising to 100% on-line for lower, better measurement and a better response.*
- Negotiating better pricing from suppliers for quantity purchases.
- *By improving design to allow for more robust construction. By running CNC program improvements that allow for shorter run times. By building product to suit current and future safety requirements*
- By not letting red tape handcuff our daily decision making.
- *Centralisation of control rooms from around the country to provide an Integrated Operations Centre servicing customer needs for services around a pan-Australian network.*
- Energy efficiency audit and follow-up resulting in better power management.
- *Client portals - clients can now readily access information about their business without having to go through their contact at our firm.*
- Establishment of “system champions” to provide support at branch level.
- *Leading the way locally for adapting to compliance changes in guttering regulations and communicating new requirements to customers.*
- Converting a major painting process from double pass to single pass - the addition of enhanced pre-cleaning process allows the top coat to adhere to the raw product. This reduces primer and energy costs.
- *Created a new way to process Indian sandalwood into Heartwood and continually improving methods or establishing and maintaining sandalwood plantations.*
- Development of a proprietary App to engage our customers and enable a more efficient delivery system which requires less time spent updating of our Operator's memory due to the aid of the GPS system.
- *Employed a Chinese speaking co-ordinator.*
- Employing new labour saving equipment, moving from welding pipe to using crimpers.
- *Giving staff visibility into project costings and clearly stating objectives allowing staff to work to budgets*
- Extensive training of all staff members and a paradigm shift from employee to business owner.
- *Flexible staffing contracts and ability to move to meet the needs of our clients.*
- By working in same space, staff are able to test new ways to get things done and to adopt or reject as a group without a mass of change management overhead.
- *Non-core tasks e.g. IT, bookkeeping and other matters that could not possibly justify a full time person*

are all outsourced. Service levels have increased markedly, errors and problems have almost disappeared and clear goals and strategies are in place.

- Reviewed all contacts & ensured that we can adjust the service to required, rather than pay for a total package.
- *Implement electronic inventory tracing for food traceability.*
- GPS machine control systems to reduce labour demand and increase productivity.
- *Surveying of our customers to differentiate between what they receive and what they really want.*
- Developed new online retail business to cater for a wider market.
- *Internet ordering of our products integrated use of social media for promotion of company products.*
- Introduced EFTPOS solutions which work effectively & faster including PayPal.
- *Introduction of battery operated vacuum cleaners no longer requiring leads to clean client premises.*
- Installation of GPS units in vehicles allowing us to monitor better.
- *Less layers of management empowerment continuous improvement focus.*
- Established internal “shark tank” to assess new business ideas for investment.
- *Moved to a 24/7 hosted server environment with real time backup & more remote working options.*
- Now using a freight consolidation company saving time and money.
- *Obtaining quotes for work prior to committing to expense and re-use materials already in the store.*
- Online collaboration tools like SharePoint.
- *Operating system procedures put in place to minimize error and time wasted from beginning of design process to manufacturing.*
- Our Nutanix VDI computer system allows employees to have virtual access of their desktop from anywhere around the world using iPad, mobile phone or computer.
- *Cisco phone system is integrated with the computer allowing phone calls, messages to be diverted to a mobile phone customers believe they are in the office. This has reduced phone costs by half.*
- Purchasing a world leading new welding machine.
- *Incorporating new technology: Aerial Survey Drones, Hologram Room, Remotely Controlled Hydro graphic Survey Vessel.*
- Reduce clutter in factory, make access to metal easier with extensive racking system.
- *Setting up mobile quotation templates in lieu of desktop word processing.*
- Taking payment on cash sale and indent orders before accepting order from customer.
- *The use of technology for the signing/verification and sending of documents to reduce time, manual labour, as well as paper and postage costs.*
- Use of software packages and multi skilling / tasking staff members across more sectors of the business without having to implement more staff members. We find the more multi tasked they are the better the understanding rather than just doing one role (put them across 3 or 4 tasks).
- *Use of iPads onsite for recording billable data using cloud based rostering program to become more efficient in offsite staffing requirements.*
- Employed a qualified CFO to run the finance side of things, where this was previously run by bookkeepers.
- *The main workstation has been made much larger with new equipment producing dramatic productivity increases. Turnover since the changes have increased by over 50% over last year with only a small increase in staff levels.*
- Have invested heavily in taking on work we used to farm out to others this has shortened our lead times and increased our margins and the add-on work associated i.e. \$250 k on a new plasma cutting machine has increased our plate sales and the add-ons.
- *We have joined a worldwide ideas-sharing network and share a data base of very good supply chain partners in China.*
- We have built infrastructure that can perform 2 tasks, removing 1 task from the logistics process.
- *Working on advancements in our Enterprise resource planning (ERP) to make processes more streamlined and efficient.*
- Went over every line on our expenses and cut back where we could.
- *Weekly discussion of operating issues with team leaders so as to agree best course of action.*

Group Economics

Alan Oster
Group Chief Economist
+61 3 8634 2927

Jacqui Brand
Personal Assistant
+61 3 8634 2181

Behavioural & Industry Economics

Dean Pearson
Head of Behavioural & Industry Economics
+(61 3) 8634 2331

Robert De Iure
Senior Economist - Behavioural & Industry Economics
+(61 3) 8634 4611

Brien McDonald
Senior Economist - Behavioural & Industry Economics
+(61 3) 8634 3837

Steven Wu
Senior Analyst - Behavioural & Industry Economics
+(61 3) 9208 2929

Australian Economics and Commodities

Riki Polygenis
Head of Australian Economics
+(61 3) 8697 9534

James Glenn
Senior Economist - Australia
+(61 3) 9208 8129

Vyanne Lai
Economist - Australia
+(61 3) 8634 0198

Amy Li
Economist - Australia
+(61 3) 8634 1563

Phin Ziebell
Economist - Agribusiness
+(61 4) 75 940 662

International Economics

Tom Taylor
Head of Economics, International
+61 3 8634 1883

Tony Kelly
Senior Economist - International
+(61 3) 9208 5049

Gerard Burg
Senior Economist - Asia
+(61 3) 8634 2788

John Sharma
Economist - Sovereign Risk
+(61 3) 8634 4514

Important Notice

This document has been prepared by National Australia Bank Limited ABN 12 004 044 937 AFSL 230686 ("NAB"). Any advice contained in this document has been prepared without taking into account your objectives, financial situation or needs. Before acting on any advice in this document, NAB recommends that you consider whether the advice is appropriate for your circumstances. NAB recommends that you obtain and consider the relevant Product Disclosure Statement or other disclosure document, before making any decision about a product including whether to acquire or to continue to hold it.

Please click [here](#) to view our disclaimer and terms of use.