

## Thriving through innovation: Lessons from the top

How leading ASX firms outcompete

A timely national study by CSIRO and The University of Queensland





## Thriving through innovation: lessons from the top

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# Executive summary

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# Innovation is more important now than ever before

- The COVID-19 pandemic has brought to the forefront the ingenuity and innovativeness of our companies and research institutions.
- We have watched them pivot to making respirators, masks and face shields, and to rapidly accelerate vaccine development. Organisations from universities to health care providers have rapidly shifted online.
- Innovation is at the heart of all this: new products and services along with fundamental changes to business models—how value is created, delivered and captured.
- As we face unprecedented economic challenges ahead, we need to embrace the power of business innovation—the powerhouse of our economic growth.



# But the truth is, we don't do enough of it

- Behind these recent headlines lies a hard truth:
   Australian companies could be a lot more innovative.
- Less than half of all companies have introduced a new product or service in the last 3 years.<sup>1</sup> Only 3% can be directly traced to our research institutions.<sup>2</sup> Less than 9% of innovations are market leading (i.e. new to the world).<sup>3</sup>
- We need to do better to compete with the rest of the world, establish more world-leading companies, and help our economy grow.



# How can we prepare our companies for the future?

- We want to convince Australian companies of the benefits of innovation which will help to spawn new products, break into new markets and develop new industries to improve our prospects as a nation in the long-run.
- We decided to look for inspiration in ASX-listed companies by establishing a link between their innovation activities and financial performance.
- We conducted a survey, integrated secondary performance data, and built statistical models to demonstrate exactly how innovation relates to business performance.
- Working with The University of Queensland, we identified what innovation factors matter most in terms of real-world performance.



# Four factors drive performance for the top 10% of surveyed ASX firms

Our research paints a picture of an innovative market leader that collaborates and takes risks.

### **1** Innovation novelty

Introducing market-leading innovations that are new to the world or new to Australia.

### **2** Triple threats

Introducing products, processes, and business model innovations at the same time. These complementary innovations (including changes to business models) help to sustain value creation.



#### **3** Collaborative breadth

Co-creating innovations with a range of collaborators including suppliers and customers, university partners and public and private research agencies.

### **4** Corporate entrepreneurship

An entrepreneurial strategic posture composed of three aspects:

- Risk taking: Willingness to try bold things
- Innovativeness: Prizing technology leadership and internal innovation

**Proactiveness**: Striving for the top and constantly trying to beat the competition.



# The key building block of performance is corporate entrepreneurship

We compared the effect of the top four innovation factors associated with superior performance to help firms prioritise their improvement activities.



Comparison of effect sizes of each variable on performance for 90<sup>th</sup> percentile (top 10% performers) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry position.4

#### **#1:** Corporate entrepreneurship

At about 35% more important than innovation novelty, corporate entrepreneurship should be the primary focus for firms wanting to play at the top. This factor is reflective of a culture that allows bold actions to unfold across the organisation to capture new opportunities.

#### #2: Innovation novelty

Novelty is 23% more important than collaborative breadth. By creating more novel offerings, top companies lead by example rather than follow others.

#### #3: Collaboration

At 50% more important than being a triple threat, formal innovation collaborations enable companies to adopt, develop, and diffuse their innovations faster, giving them higher likelihood of positive impact on the bottom line.

#### **#4: Triple threats**

Although 4<sup>th</sup> in priority, complementary innovations are the key to unlocking value from initial investments.

# Novelty is vital to performance but following the pack won't deliver it. It requires leadership.

analytics.

chain.

firms surveyed

reported using

#### Adopting mature technology helps to keep pace, not win.

- The top 10% are skilled at introducing novel innovations and this powers their performance.
- However, on average, the firms we surveyed showed a preference for adopting mature technologies.
- Most companies are not using less mature but potentially game-changing-technologies.
- This is a missed opportunity since emerging, less mature technologies could be sources of innovation novelty in certain industries and markets.

#### Adoption can be novel, especially if coupled with other innovations.

- Novel innovations don't always have to be homegrown. A novel innovation can be adopted from another sector or country.
- This type of novelty, supplemented by complementary innovations to capture the full value of the core innovation, could be crucial to high performance.

Adoption strategies pale in comparison to A preference for novelty and complementary innovations for the mature tech top 10% of performers. • 73% report the use of cloud and mobile

> computing, and 55% Innovation novelty (p<0.05) use advanced data Complementary Triple threat (p<0.1) But only 8% of the innovation patterns Double play cognitive computing, and less than 6% report using block Technology acquisition Technology adoption patterns Technology use

> > -10

Effect size of each variable on performance for 90th percentile (top 10% performers) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry segment.<sup>5</sup>

90th

50th

10

## How to navigate the rest of the document

### **Part 1: Introduction**

This section establishes our motivation for the project, the approach we took to conducting our work, and how we developed our unique insights.

## Part 2: Innovation leadership

This section shows that leading companies introduce market-leading innovations—and complementary changes to processes and business models—to capture the most value from their innovation investments. *These are the patterns that matter.* 



## Part 3: Collaboration

This section demonstrates how formal collaborations lead to the co-creation of innovations and enable the top 10% to work with external partners to maximise value. *These are the processes that matter.* 

## Methodological appendix

A separate, stand-alone report which provides the details of our research methods and key variables.

# Part 4: Corporate entrepreneurship

This section explores why corporate entrepreneurship is the single most important ingredient to the success of the top companies. *These are the attitudes that matter.* 

## Part 1: Introduction

This section establishes our motivation for the project, the approach we took to conducting our work, and how we developed our unique insights.

## Business innovation is the main source of growth in the economy and a competitive pre-requisite

## Technological change is responsible for economic growth

- Innovation is the main driver economic growth. In the 1950's, economists noticed as much as 85% of growth in the economy could not be accounted for by looking only at inputs and outputs.<sup>67</sup>
- Technological change yielding new products and services is the heart of this growth miracle. Schumpeter called this innovation torrent a 'perennial gale of creative destruction.'<sup>8</sup>
- Companies drive this change. Entrepreneurial firms create novel combinations of inputs, transforming them into unique production processes, and consequently producing new products and services.<sup>9</sup>

## The rate of technological change \_ is increasing

- Rapid change. It took decades before half of all households had a telephone. A hundred years later, cellular phones accomplished the same penetration in just five years.<sup>10</sup> More recently, the iPhone reached 50 million users in four years, but it took only four months for WeChat to reach the same milestone.<sup>11</sup>
- COVID-19 is catalysing even faster change. In the current COVID-19 era, we can expect even more shake ups, as traditional business models are upended and digital transformation explodes.<sup>12</sup>

## Companies must innovate to compete and survive

- The average lifespan of a S&P500 companies is now less than 20 years. It was 60 years in the 1950s.<sup>13</sup>
- Competition is stiffer and companies must innovate to avoid dangers like incumbent disruption.<sup>14</sup>
- But it isn't easy. Core business and customers can get in the way of seeing what's on the horizon.<sup>15</sup> Others can be paralysed to change despite clear recognition of the need.<sup>16 17</sup>
- In this tumultuous environment, keeping pace, let alone staying ahead, is difficult. Even the most innovative companies can fail to keep up. Think Nokia and Kodak.

 $\rightarrow$ 

## Confusion about the source of our good fortunes is providing companies with a false sense of security

On paper, low levels of innovation  $\rightarrow$  Yet performance seems strong

- Inactive innovators. Less than half of Australian firms are innovation active at all.18
- Falling business expenditure on R&D. Business expenditure on R&D (BERD) continues to fall, and this is directly impacting our economic growth: OECD research indicates that a 0.1% increase in a country's BERD to GDP ratio translates to a per capita GDP increase of 1.2%.<sup>19</sup>
- Top performing sectors. We still have sectors that sit in the in the top quartile of the OECD productivity ranking including mining, agriculture, finance, transport and construction.<sup>20</sup>
- A strong ASX. The companies powering our national stock exchange have made the ASX (as of Nov 2019) the third most richly valued major exchange in the world.<sup>21</sup>

 $\rightarrow$  Lulling us into complacency

- This confusion gives air to competing hypotheses that undermine the perceived value of business innovation.
- The lucky country. The first is that we are lucky (just a beneficiary of convenient location and rich resources). Why bother changing when the windfalls keep coming?
- The adoption hypothesis. The second is that Australian businesses are just really great at adopting technologies and somehow that is enough of a strategy to compete.
- Both narratives could be suppressing business innovation, yielding the 'it'll be alright strategy.'

We can't afford it any longer. In the current COVID-19 era we must uproot, and discard, this lackadaisical attitude toward innovation. Now is the time to change.

# But how can we convince Australian companies to change, and better prepare them for the future?

#### Patterns

### Change WHAT they currently do

- A nation of adopters not creators. Three quarters of new product innovations are just adopted from somewhere else.<sup>22</sup>
- Incremental innovators. Only 8.4% of innovations introduced were 'new to the world', and roughly the same proportion were 'new to the country'.<sup>23</sup>
- Exporting less complex products. Our economy has become less complex as measured by the diversity of our exports. According to The Atlas of Economic Complexity we lost 22 slots in just 10 years<sup>24</sup> from 2007 to 2017 and are currently ranked 87<sup>th</sup>.<sup>25</sup>

#### Processes

#### Change HOW they currently do it

- Not collaborating much. We know 'open innovation' accelerates pathways to commercialise new products.<sup>26</sup> Yet, Australia ranks last in the OECD for industry-university collaboration.<sup>27</sup> Innovations originating from universities comprise only 3% of the total <sup>28</sup>—a lost opportunity to translate our worldleading scientific research<sup>29</sup> into products.
- Not taking control of their own destiny. Companies point to external factors as barriers to innovation, such as lack of funds, despite clear evidence to the contrary.<sup>30</sup>

#### Attitudes

#### Change WHY they do it

- Not thinking about innovation. 57% of Australian board members recently surveyed admitted that innovation has never, or only rarely, been a board agenda item.<sup>31</sup>
- Risk averse. Our ASX is dominated by the resource sector—one where firms often pour billions into megaprojects. In light of such financial risk taking, innovation is often viewed as the enemy.<sup>32</sup> But it's actually essential for success: a large body of evidence demonstrates that large, complex, multi-billion dollar projects actually *require* innovation in order to deliver on time, on budget and on quality.<sup>33</sup>

## Our approach to motivate change: Hard facts

RRR 1111

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We followed a meticulous process to find a link between innovation and performance for ASX companies in order to convince companies of the power of innovation.

For detailed information, please see the separate Methodological Appendix.

#### A robust and accurate survey

We created a survey instrument using proven variables from leading peer-reviewed publications to explore three important aspects of innovation: Patterns, Processes and Attitudes.

#### A phone survey of executive leaders

Using a world-leading market research firm we targeted 807 companies' executive leaders and obtained a representative sample of 197 ASX companies (a response rate of 24%).

#### Use of independent data

We collected secondary data from business databases to obtain unbiased financial performance information.

#### Model building

We built and analysed several predictive statistical models that linked innovation patterns, processes and attitudes to real-world financial performance.

# Our purpose-built survey allowed us to capture several topical innovation factors

### Patterns

#### **Technology adoption**

To check whether adopting technology—buying stuff off the shelf—is somehow just as good as other forms of innovation.

#### Innovation types and novelty

To identify which innovation patterns are the strongest predictors of performance, in particular the power of developing market-leading novel innovations.

### Processes

Open innovation and

performance.

**collaboration** To assess how open innovation and collaboration relate to

### Attitudes

Entrepreneurial culture

To explore the impact of a strategic posture that is entrepreneurial, proactive, and prone to take risks.

#### Formal processes To test whether formalised innovation systems are a key contributor to performance.

## Structures to support innovation

To examine formal organisational structures to support innovation and formal methods to protect IP.

## After we collected survey data from almost 200 ASX firms, we put a spotlight on the top performers

#### Measuring performance

The financial performance variable we used is price-to-book (P/B) value, which combines the company's intangible value (perceived by the market) with its balance sheet. It reflects the company's expected earning potential based on activities that will become future profit sources (e.g. innovation), which is why it is often used in innovation studies.<sup>34 35</sup>

We also conducted additional test, including using Return on Assets (ROA) as the performance variable, which yielded results that mirror the findings in the main analysis.



#### **Finding top performers**

In assessing the relationship between innovation and performance, we accounted for the performance category (percentile) to which the firm belongs. This allowed us to inspect the top 10% (top decile) and look for differences between them and the mid-performers (50<sup>th</sup> percentile) using quantile regression.



# Then we tested 15 different variables to find the four that mattered most and prioritised them

By comparing the innovation factors within each category (patterns, attitudes, processes) we identified the four things that matter most for the top 10% (top decile) in terms of explaining performance outcomes.

In all models we accounted for any possible effects stemming from industry position (Global Industry Classification Standard codes).



### Corporate Increasing impact on performance

Then, by comparing the relative contribution to performance for the top four factors, we prioritise improvement targets for companies wanting to compete at the top.

Within each category, factor contributes positively and significantly to performance Within each category, factor contribution to performance was not statistically significant

## Part 2: Innovation leadership

This section shows that leading companies introduce market-leading innovations—and complementary changes to processes and business models—to capture the most value from their innovation investments. These are the patterns that matter.



# Market-novelty and innovating on multiple fronts are the keys to creating and capturing value

#### Innovation novelty

Delivering market leading (novel) innovations; both new to Australia and new to the world

#### **Triple threats**

Innovating products, processes, and business models at the same time

#### **Double plays**

Innovating products + business models, process + business model, or product+ process



Innovation leadership—characterised by novelty of new products and services—along side complementary (supporting) innovations are key elements of performance at the top.

Triple threats are those that also have introduced business model innovations, and this is a significant sign that the whole business is involved in capturing innovation value.

Taken together, our analysis reveals being at the top of the pack requires not just novel innovation, but complementary innovations across different parts of the business in order to deliver, create, and sustain value.

## However, just adopting mature technologies is weak strategy that won't keep firms at the top

#### **Technology use**

Actively using more of the top 20 technologies we included in the survey

**Technology acquisition** 

Increased purchases of technology and IP from outside

#### **One-hit wonders**

Only innovating in one dimension (e.g. products, or processes in isolation) with no complementary supporting innovations to fully unlock the value



For the top 10%, the adoption-related factors we tested do not have a strong relationship to financial performance, and may detract from it when compared other factors like being a novel innovator. This may be because, on average, the firms we surveyed prefer adopting mature technologies. For example, 73% report the use of cloud and mobile computing. These days, this kind of adoption is just par for the course.

Indeed, it is only for the mid-performers that adoption strategies seem to contribute positively to performance (albeit marginally). This suggests mature technology adoption only helps firms keep pace at the top, but it is not a winning strategy. To stay on top where the competition is stiff, the winners are those with more novel solutions based on emerging technologies.

# Comparing novelty (leading the pack) to buying off the shelf (following others) is no contest

### Innovation 'patterns' and performance



Effect size of each variable on performance for 90th percentile (top 10%) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry segment.<sup>5</sup>

Novel products and services are the clearest contributors out of the patterns of innovation that positively influence performance.<sup>36</sup> Novelty is 1.9 times more important to performance than the next most important factor which is being a 'triple threat' (one who delivers product, process, and business model innovations), itself 4.1 times more important<sup>37</sup> than a 'double play' (just two types) which is the third strongest factor (although it is not statistically significant).<sup>38</sup>

Providing some evidence against the 'adoption' hypothesis, both broader technology use (of the 20 technologies we surveyed about), and more intense technology acquisition activity (buying intellectual property and equipment, etc.) may be a drag on performance,<sup>39</sup> perhaps by spreading managerial attention too thin.<sup>40</sup> But it's also the case that the firms we surveyed show a preference for adopting mature technology which is a follower strategy. Our data might indicate that only new to the market (i.e. novel) technologies adoptions confer powerful first mover advantages. Coupled with complementary innovations (being a triple threat), novel technology adoption is likely to also lead to performance advantages.

# How innovation leadership leads to a continuous parade of new products and increased performance

Leading now means innovation leadership—old strategies don't work anymore.

> Pursuing novelty is what the best companies do.

Complementary innovations are the key to capturing and sustaining value. Global market expansion, increasing levels of competition, and rapidly evolving technologies all mean that companies have to work harder to stay on top. In the early days of global market competition, competitive advantage might have been secured by things like market positioning and scale—but those days are long gone.<sup>41</sup> In the rapidly evolving landscape companies operate in today, a more nimble approach—underpinned by innovation leadership—is critical to staying ahead of the competition. Companies cannot rest on their laurels and simply ride the wave of the last innovation from five years ago. Instead, actively reading the market landscape and rapid reconfiguration of the businesses is necessary to capitalise on market and technology shifts.<sup>42</sup>

One way to compete in this new world is by creating innovations that are novel. Novel innovations satisfy formerly unmet needs, disrupt existing markets, or often create entirely new markets.<sup>43</sup> This gives companies first mover advantages, creating entry barriers and leaving gaps that competitors find hard to close.<sup>44</sup>

But perhaps just as vital a strategy is to develop complementary innovations to capture value. 'Triple threats' create new products and services but also introduce important complementarities. These include process innovations (in the back of the house or in their manufacturing facilities) and business model innovations (including adjusting their choice of co-creating partners, targeted markets and revenue formulas that best align with their novel products and services). Company success does not simply derive from single innovations. It derives from a multifaceted innovation approach that allows these companies to capture the most value from their innovation activities. Without such complementary activities innovations are often just copied, first mover advantages are eroded, and the full value of the innovation ends up accruing to the competition instead.<sup>45</sup>

## Part 3: Collaboration

This section demonstrates how formal collaborations lead to the co-creation of innovations and enable the top 10% to work with external partners to maximise value.

# Embedded processes like formal collaborations, R&D and training are vital to success



Engaging formally with external parties in collaboration, along side having internal R&D activities, and a slight effect from portfolio management of projects, make up the set of variables that contribute to positive performance outcomes.

It shows that establishing a well-rounded innovation system that is connected to the outside world, and linked to strong internal processes, are perhaps the keys to driving performance.

#### **Collaboration breadth**

Greater breadth of collaboration with customers as well as private labs and government In-house innovation Having in-house R&D, training, etc.

#### Portfolio management

The ability to stop innovation projects positively relates to performance – indicating the value of portfolio management

# However, innovation theatre—like innovation labs or window shopping—won't keep you on top

For the firms we surveyed, heavily formalised innovation routines like consolidated decision making don't stack up to the power of a distributed, embedded innovation system that features formal collaborations and ongoing internal R&D processes.

That is not to say formalisation is not important—it certainly is for many companies and sectors like pharma. However, for *our* sample these overly formal processes might stifle innovation. Worse they could indicate innovation theatre: the act of innovation without having any of the robust innovation systems that actually drive performance.

### What the top 10% *don't* do



Process formalisation Heavily formalised process and centralised decision making

#### Broad search

Looking broadly for innovation information, using as many channels as companies have at their disposal Window shopping—broadly sourcing a bunch of information from external channels (including partners, customers, suppliers, etc.)—does not seem to translate to performance. This could be another indication of the dangers of innovation theatre. This is because an undirected search strategy of just monitoring the airwaves is not enough to contribute substantially to performance. It must be tied to internal absorptive capacity (i.e. internal R&D) of the firm in order to translate that information into an innovation.46

# Collaborations coupled with strong internal innovation systems—like R&D—lead to success

### Innovation 'processes' and performance



Effect size of each variable on performance for 90th percentile (top 10%) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry segment.

Broad, formal collaborations is the single clearest driver of performance in our model compared with all other process related variables.<sup>47</sup>

The rest of the factors were not significant, but a look at their relative contributions is also instructive.

Collaboration breadth is 20% more important than in-house innovation (the second most strongest relationship), itself almost 16 times more important than portfolio management.<sup>48</sup>

Compared to collaboration, broad (perhaps unfocused) search strategies (i.e. monitoring many channels for innovation information) have a similar, yet negative, pull in the models.

Taken together it is clear that collaborative co-creation coupled with inhouse innovation capability matter tremendously to performance. The power of this combination overwhelms the 'theatre' of innovation window shopping (broad search).

# How collaboration and embedded innovation systems lead to strong performance outcomes

Collaborations are an important aspect of open innovation, which is all about leveraging external partners and pathways to speed up the innovation process and achieve greater commercial outcomes.<sup>26</sup>

- Formalcyclecollaborationsinto tprovide manyEquapathways toend-t
- Formal collaborations between companies provide the framework for working through difficult product development cycles, helping to ensure that new technology-based innovations make it through the commercialisation process and into the market.<sup>49</sup>
  - Equally important are customer collaborations. We've known for some time that companies actively engaging with end-users are more effective at understanding their needs and desires, and are more able to translate these into winning products and services.<sup>50</sup>
    - Universities and research institution collaborations also play special roles in the innovation process. They can be the source of core technology that is then rapidly commercialised by commercial partners<sup>51</sup> or they can provide specialist knowledge that can be combined with intelligence gathered from other collaborators to create new innovations.<sup>52</sup>

An embedded innovation system key to repeating success. Having innovation processes that span functions of the organisation (across research and development, formal training, design and marketing) reflect a sophisticated, embedded innovation system. This is not to be overlooked as a source of success for the top 10%. An innovation system embedded in multiple parts of the organisation is the antithesis of the lone innovation lab and other 'innovation theatre'<sup>53</sup> like just looking around for innovations<sup>54</sup> which we know don't work. A strong innovation system provides the scaffolding to determine which innovation projects get ushered through the innovation funnel, <sup>55</sup> and helps to transition them into the core business for commercialisation.<sup>56</sup>

# Part 4: Corporate Entrepreneurship

This section explores why corporate entrepreneurship is the single most important ingredient to the success of the top companies. These are the attitudes that matter.



# Entrepreneurship is required to take innovation risks, and structure is needed to deliver value

Corporate entrepreneurship is reflective of a proactive, risk-taking culture that pervades the organisation and enables it to aggressively seek and capture new opportunities.

Purposeful organisational structures, including cross-functional units and project teams, are the clearest signal that the organisation isn't just successful by being proactive, but that it actually 'walks the talk' by launching project teams to support innovation.



#### **Corporate entrepreneurship**

Proactive strategic posture, tolerance for risk, and innovativeness that sees these firms taking action first

**Cross-functional interfaces** Strong structures to support innovation like regular job rotations, cross-functional teams and projects

# But playing it too close to the vest or having loose internal structures might hinder value creation

#### **Overprotecting IP could hinder value creation**

- Intellectual property protections are important to capture maximum value from innovations.
- But for the firms we surveyed, very broad use of IP protections seems to dampen performance.
- This implies the top 10% judiciously use IP protections that are focused and fit for purpose, enabling nimble exploration of new commercialisation pathways with partners.
- Conversely, overprotection stifles innovation by making it harder to explore emerging opportunities to translate intellectual property into value (internally and with collaborators).

### What the top 10% *don't* do



#### Protect IP to capture value

Broad use of protection mechanisms used including patents, lead time, secrecy, etc.

**Network structures** Informal structures that typify how work gets done in the organisation

#### Loose 'network structures' might be the wrong scaffolding for commercialisation

 Successful commercialisation of new products requires multiple parts of the business to coordinate effectively. Relying on informal network structures (as opposed to specific cross-functional interfaces) could result in hurdles to capturing value. These could include things like having to navigate new commercialisation pathways for each innovation, or having to convince different parts of the business to help progress innovation activities.

# Above all, corporate entrepreneurship is the single strongest predictor of success at the top

### Innovation 'attitudes' and performance



Effect size of each variable on performance for 90th percentile (top 10%) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry segment.

For the high performers, the most significant contributor to performance is the degree of corporate entrepreneurship.<sup>57</sup> It is 3.4 times more important than cross-functional interfaces (second biggest contributor, though not significant).<sup>58</sup>

Our corporate entrepreneurship variable comprises three distinct elements: proactiveness, innovativeness and risk taking.

- Risk-taking refers to the wide-ranging acts that are necessary to achieve performance objectives, including undertaking projects where there is a lot on the line.
- Innovativeness refers to the propensity to change product lines and strong emphasis by senior leaders on R&D and technological leadership.
- Proactiveness is the proclivity to be aggressive with competition, including actively trying to lead with actions that beat competitors to the punch.

# Why an entrepreneurial culture is so critical to performance

Top down vision	There is a reason why management guru Peter Drucker once said 'culture eats strategy for breakfast.' When an organisation strives for technology leadership, and aggressively pursues new market opportunities that can only be cracked by new products and services, it signals a commitment to innovation that cascades throughout the organisation. It becomes clear to all in that company that innovation is <i>the</i> priority. More pointedly, in achieving the aggressive targets of such an organisation there is probably no other way than through innovative new products and services.
Constantly looking for opportunities	With the turbulent times that we live in today, companies have an ever-increasing need for a strong entrepreneurial posture—which means they are waiting in anticipation to jump at the opportunities from a rapidly changing marketplace because that's how they know they will survive and thrive in the long term. <sup>59</sup>
Driven by metrics	A corporate entrepreneurial attitude drives world-leading innovators like 3M that commit to innovation by making things like 'new product introduction rates' a key organisational performance metric. <sup>60</sup>
Nimble structures	Our models indicate cross-functional teams and projects are key factors. This means that when the organisation is pointed in the right direction (i.e. there is top down support of technology leadership) the rest of the work is done by self-assembling organisational structures that allow the company to reconfigure in order to implement the top level vision.
Enduring advantage	<ul> <li>This ability to reconfigure resources to capture new innovation opportunities is perhaps the</li> <li>hardest to copy—and most enduring—source of competitive advantage for firms in the long run.<sup>61 62</sup></li> </ul>



## These factors should be top of your list if you are now inspired to reap the benefits of innovation

Our research paints a picture of an innovative market leader that collaborates and takes risks.

### 1 Innovation novelty

Introducing market-leading innovations that are new to the world or new to Australia.

### **2** Triple threats

Introducing products, processes, and business model innovations at the same time. These complementary innovations (including changes to business models) help to sustain value creation.



### **3** Collaborative breadth

Co-creating innovations with a range of collaborators including suppliers and customers, university partners and public and private research agencies.

### **4** Corporate entrepreneurship

An entrepreneurial strategic posture comprised of three aspects:

- Risk taking: Willingness to try bold things
- Innovativeness: Prizing technology leadership and internal innovation
- Proactiveness: Striving for the top and constantly trying to beat the competition.

# If you had to place one bet, put entrepreneurship at the top of the list and do something bold

We compared the effect of the top four innovation factors associated with superior performance to help firms prioritise their improvement activities.



Comparison of effect sizes of each variable on performance for 90<sup>th</sup> percentile (top 10% performers) and 50<sup>th</sup> percentile (mid-performers), controlling for firm size and industry segment.<sup>4</sup>

#### Corporate entrepreneurship

A proactive, innovative, risk taking culture has the most impact on performance for the top companies. At about 35% more important than innovation novelty, it should be the primary focus for firms wanting to play at the top.

#### Innovation novelty

Novelty also contribute to strong increases in performance, and this relationship is about 23% stronger than collaboration.

#### Collaboration

Collaboration's contribution to performance is very strong, about 50% larger than being a triple threat.

#### **Triple threats**

This factor clearly shows that the top performers create complementary innovations to capture value.

## Strive to be the picture of a top ASX performer



Our research helps to paint a compelling picture of what it takes to be a leading company today.

Our hope is that it inspires and motivates even more great Australian companies to give innovation a go.









A strong sense of **corporate entrepreneurship** allows bold actions to unfold across the organisation to chase and capture new opportunities, which in turn, drives performance.

These top-level attitudes enable the creation and adoption of market-leading **novel innovations** that are new to Australia or the world. **Complementary innovations** (e.g. business models, and processes) help to sustain value creation.

Innovation is not haphazard. It is underpinned by processes especially **formal innovation collaborations**—that enables **internal R&D capability** within the company to co-create and diffuse their innovations faster giving them a higher likelihood of impact on the bottom line.

Innovation efforts are strategic, focused and purposeful and this produces to results. Time and effort is not wasted aimlessly searching for the next new thing, or on showy innovation labs and other innovation theatre.

## CSIRO is here to help, with many ways to engage

Decades of research and real-world economic outcomes underpins our desire to motivate more great Australian companies to invest in innovation. As Australia's national science agency—the Commonwealth Scientific and *Industrial* Research Organisation—it is also our job to help bring innovation into the real world and into our great industries to drive our country forward.

This report provides some strong scientific evidence that Australia's top performing companies embrace innovation and that it contributes positively to their financial performance. We hope these findings encourage more firms to take risks, be more proactive, and look at the world as being full of opportunities for innovation.

As Australia's National Science Agency, we are committed to helping these companies navigate these often turbulent waters. With nine industry-focused business units, we conduct thousands of projects annually helping to solve the greatest challenges through innovative science and technology.

Data61	Services	Health and Biosecurity		Land and Water		Manufacturing
Energy	Oceans and Atmosphere		Mineral Resources		Food and Agriculture	

**CSIRO Futures** is the strategic advisory arm of our business, uniquely positioned to provide thought leadership, strategy development, tailored economic analysis, and to explore technology solutions. See www.csiro.au/futures

Our **SME Connect** group connects Australian small to medium sized businesses with Australia's research sector, facilitating and enabling innovation-driven partnerships through funding, support and resources. See <u>www.csiro.au/SMEconnect</u>

#### **Direct business unit engagements**

We conduct thousands of innovation projects per year and you can connect directly with any of our nine industry-focused business units.

## Explore all options at <u>https://www.csiro.au/en/Do-business</u>



#### A brief note on the references

Research on innovation spans many decades. We cite some seminal literature in the space which is not always the most recent.

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- 4. Detail of chart 'comparison of top innovation factors'
  - For the average high performer, every % change in the degree of entrepreneurial strategic posture increases P/B ratio by 10.47 (p<0.05)
  - For the average high performer, every % change in breadth of collaboration when innovating increases P/B ratio by 6.33 (p<0.05);
  - For the average high performer, every % change in innovation novelty increases P/B ratio by 7.76 (p<0.01) (holding all other variables constant)
  - For the average high performer, implementing three types of innovations increases P/B ratio by 4.12 compared to implementing one type of innovation (p<0.1) (holding all other variables constant)
- 5. Detail of chart 'Which patterns matter'
  - For the average high performer, every % change in innovation novelty increases P/B ratio by 7.76 (p<0.01) (holding all other variables constant)
  - For the average high performer, implementing three types of innovations increases P/B ratio by 4.12 compared to implementing one type of innovation (p<0.1) (holding all other variables constant)
  - For the average high performer, implementing two types of innovations increases P/B ratio by 1 compared to implementing one type of innovation (p<0.6) (holding all other variables constant)
  - For the average high performer, every % change in technology use *decreases* P/B ratio by 5.84 (p<0.3) (holding all other variables constant)
  - For the average high performer, every % change in the scope of technology acquisition activities *decreases* P/B ratio by 1.11 (p<0.9) (holding all other variables constant)

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