



# State of Data and Analytics Maturity in Australian Organisations

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# Foreword

In a post-pandemic Next Normal, organisations must embrace digital transformation to stay relevant to their customers and drive growth at same time. Data being the DNA that guides this digital transformation, it has become a board-level agenda and a priority for CXOs.

Organisations need to step beyond the enterprise and harness data from their ecosystem that includes their partners, suppliers, customers as well as open data to glean meaningful, actionable insights and foresights. Furthermore, their focus needs to shift from having abundant data centrally to democratising data and enabling accelerated business outcomes for all stakeholders. This will power transformative organisations, unleashing the true potential of data thus enabling faster decision-making, enhancing customer experience and unearthing new revenue opportunities.

To get a better perspective on data maturity in Australia and New Zealand organisations, we partnered with Deakin University in commissioning a research. The key objective was to better understand and explain the correlation between business effectiveness with data and analytics maturity. This report is the manifestation of that effort.

Our study analysed the potential of an organisation's digital intelligence based on their analytics program and initiatives as compared to industry leaders. It revealed the ability of the enterprises to devise ways in improving their data and analytics maturity. For instance, the three most popular measures were to improve data literacy, evangelise data-centricity and develop a holistic strategy and roadmap.

I hope you find this study useful and valuable in the context of your business. TCS Datom™ framework can propel you towards building a future-ready, insights-driven organisation.



**Dinanath Kholkar**

VP and Global Head, Analytics and Insights  
*Tata Consultancy Services*

# Data and Analytics Maturity in Australian Organisations

## Executive Summary

This report presents the findings of the research project aimed to gain an understanding of the current maturity state of data analytics and its perceived business value in Australian organisations.

The research project was conducted by a research team at Deakin University, Deakin Business School, and in collaboration with Tata Consultancy Services (TCS) as the knowledge partner. The project was headed by Associate Professors Lemai Nguyen, Ambika Zutshi and William Yeoh (Deakin Business School) and embedded in Tata Consultancy Services (TCS) Global Research & Development program.

A cross-sector online questionnaire was conducted with 138 managers at various levels from the executive to senior and middle managers in data and analytics. Eight semi-interviews and a workshop to discuss findings were also undertaken. All the interview and workshop participants were executive-level and senior Information and Technology leaders.

### Key Findings

- An optimistic landscape of moderately medium and high levels of data analytics maturity in Australian organisations was self-reported by participants.
- Data and analytics were reported to deliver business value and enable business performance.
- The COVID-19 pandemic reinforced the role of data and analytics for business survivability and performance.
- A value-driven maturity journey, inclusive data and analytics culture and a balanced data governance approach were found to be key elements in leveraging data and analytics for business gains.

The findings presented within this report shed light on the current state of data and analytics maturity across various sectors in Australia. We hope that it will inspire and offer insights to guide business decision-makers on the value, benefits, and best-practices of adopting data and analytics on their digital transformation journey.

## Research Approach

A mixed-methods research approach was adopted. It consisted of:

- Online questionnaire survey completed by 138 participants representing Chief Information or Technology Officers (CIOs / CTOs), other executive positions, and senior and middle managers.
- Eight (8) semi-structured interviews conducted with Executive managers, Directors, Heads, and senior managers.
- A workshop conducted with twelve (12) participants to discuss the preliminary survey findings.

All responses were self-reported by and reflect the participants' professional views<sup>1</sup>. The project was executed in accordance with the Deakin University Ethics Committee approval. Only de-identified and collective findings are presented in the report except where permission has been granted to disclose the participant's details.

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1. Demographics information of the participants can be found at the Section—Demographics Summary.





## State of Data and Analytics Maturity

To establish metrics in which to evaluate organisational data and analytics maturity in Australia, the TCS Datom™ (Data and Analytics Target Operating Model) framework was used as a guideline for participants to self-assess their respective organisational levels.

TCS Datom™ is one of the prominent industry-wide diagnostic models used to assess the current state of data and analytics capabilities. TCS Datom™ defines five data and analytics maturity levels as follows:

- **Siloed:** No data sharing. Analytics used in islands around a business units or data domains.
- **Simplified:** Limited data sharing across the organisation.
- **Scaled:** Effective data sharing across the organisation, with distributed use of analytics.
- **Synergised:** Incorporates data from internal sources, business partners, combined with broader data.
- **Self-optimised:** Automated use of analytics throughout the organisation, leveraging internal and continually expanding data.

### An Optimistic Landscape of Data and Analytics Maturity in Australia – Moderately Medium and High Levels of Data and Analytics Maturity

The first key finding reveals that overall, the survey participants tend to depict an optimistic landscape of the data and analytics maturity state of their organisations.

Figure 1 summarises the data and analytics maturity levels by industry as self-reported by the participants (N=138). The researchers contend that the self-reported maturity levels reflect individual perspective of the participants at different management levels. The responses are not based on independent and rigorous maturity assessment.

It should be noted that the average data and analytics maturity 3.04 (CI95 [2.88- 3.19]) as self-assessed by all participants (N=138) is similar to the average data and analytics maturity 3.08 (CI95 [2.84 - 3.32]) as self-assessed by the executive-level participants (N=59) in this survey; higher compared to the globally surveyed organisations<sup>2</sup> 1.67 (N=103), and higher compared to surveyed organisations in the region<sup>3</sup> Asia Pacific 1.92 (N=25) and India 2.15 (N=53) (Table 1).

In the first maturity level (Siloed), five of the seventeen sectors<sup>4</sup> are presented, accounting for less than 5%. The proportions of self-reported levels of Simplified, Scaled, and Self-Optimised are remarkably similar, ranging around 30%. More than 5% of the participants reported the highest maturity level (Self-optimised). Finance and insurance, Information Media and Telecommunications, Professional, Scientific, and Technical Services are not only well spread across maturity level but also show higher maturity levels compared to other sectors. In global TCS Datom™ assessment (Table 2) higher data and analytics maturity was observed for Banking and financial, and Hi-Tech organisations.

Table 2 provides a comparison of the average data and analytics maturity levels by sector between Australia as self-reported in this report and global surveyed organisations as assessed by TCS. It is worth mentioning that participants from the government, charity, or not-for-profit organisations reported lower levels of data and analytics maturity, distributed across the Siloed and Simplified levels (Table 2) and on average is 1.75 (CI95 [1.00 - 2.00]), lower as compared to the global average level 3.37. A wide range of data and analytics maturity levels in the retail sector spreads across all five maturity levels.

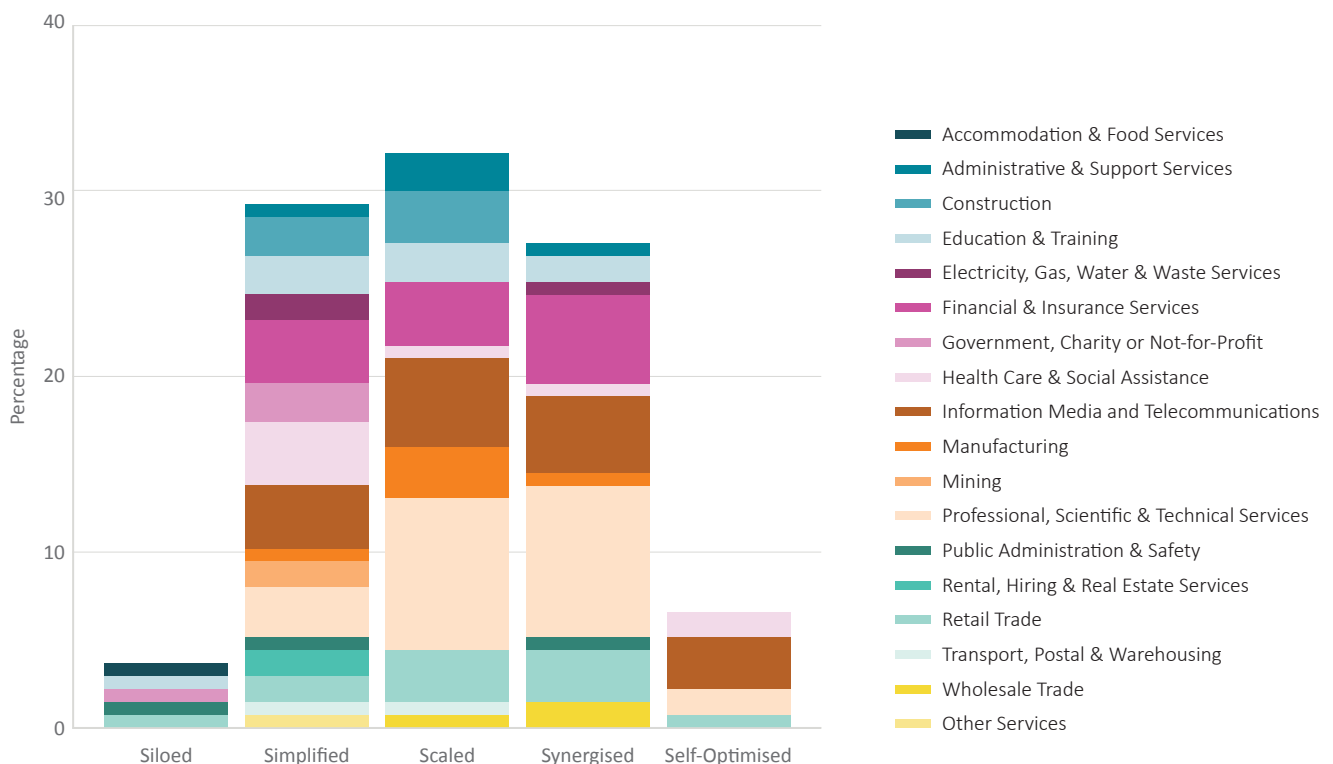
Recently, automated data analytics has been increasingly adopted to enable business professionals to access data, create reports and gain insights more easily and cost-effectively. Predictably, as data analytics maturity increases, organisations employ higher levels of automation in their data analytics processes and vice versa. Figure 2 illustrates the extent to which automation is used in the data analytics process in organisations at different levels of data analytics maturity. Nearly 90% of organisations adopted automation in their data analytics processes and platforms, but a clear minority has achieved full automation.



Table 1. Data and analytics maturity – Australia and the rest of the world

Geography	Sample Size	TSC Datom™ Maturity Score	Method of Assessment
<b>Australia (all participants in this survey)</b>	N=138	3.04	Self Reported
<b>Australia ( C-level participants)</b>	N=59	3.08	
<b>Asia Pacific</b>	N=25	1.92	Assessed by TSC Datom™ independent assessors
<b>Europe</b>	N=66	1.67	
<b>India</b>	N=53	2.15	
<b>Latam</b>	N=2	1.78	
<b>MEA</b>	N=6	1.13	
<b>North America</b>	N=194	1.84	
<b>UK</b>	N=47	1.56	

Figure 1. Data and analytics maturity levels by sector



- The globally surveyed organisations were assessed by independent TCS assessors before the COVID-19 pandemic, while the maturity of the Australian surveyed organisations is self-reported by participants in 2022.
- The rigor of the globally surveyed organisations exceeds the Australian surveyed organisations. The globally surveyed organisations were assessed by independent TCS assessors, while the maturity of the Australian surveyed organisations is self-reported by participants.
- The Australian Bureau of Statistics (ABS) classification for industry size and sector was used for the survey. Sector classification can be found at: <https://www.abs.gov.au/ausstats/abs@.nsf/0/20C5B5A4F46DF95BCA25711F00146D75?opendocument>

## DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

Table 2. Data and analytics maturity by sector – Globally assessed by TCS and self-report by participants in this Australia survey

Industry Sector		TSC Datom™ Maturity Score	
TCS Datom™ Classification	Australia (ABS Classification <sup>4</sup> )	TCS Datom™ Assessment	Australia (Self-reported)
<b>Banking &amp; Financial Sector</b>	Financial and Insurance Services	1.98	3.12
<b>Insurance</b>		1.26	
<b>Communications</b>		2.18	
<b>Consumer Packaged Goods</b>	Accommodation and Food Services	1.71	1.00
<b>Energy and Resources</b>	Mining	1.63	2.00
<b>HiTech</b>	Professional, Scientific and Technical Services	2.06	3.40
<b>Information Services</b>		1.56	
<b>LS/HC</b>	Health Care and Social Assistance	1.71	3.00
<b>Manufacturing</b>	Manufacturing	1.78	3.00
<b>Media</b>	Information Media and Telecommunications	1.32	3.41
<b>Technology Companies</b>		1.82	
	Education and Training		2.67
<b>Public Services</b>	Government, Charity or Not for Profit	3.37	1.75
	Public Administration and Safety		2.33
	Administrative and Support Services		3.00
<b>Retail</b>	Retail Trade	1.82	3.17
	Wholesale Trade		3.67
<b>Travel, Transportation</b>	Transport, Postal and Warehousing	1.52	2.50
<b>Utilities</b>	Electricity, Gas, Water and Waste Services	1.45	2.67
	Rental, Hiring and Real Estate Services		2.00
	Construction		2.57
<b>Other</b>	Other Services	1.61	2.00

Figure 2. Degree of automation in data analytics processes

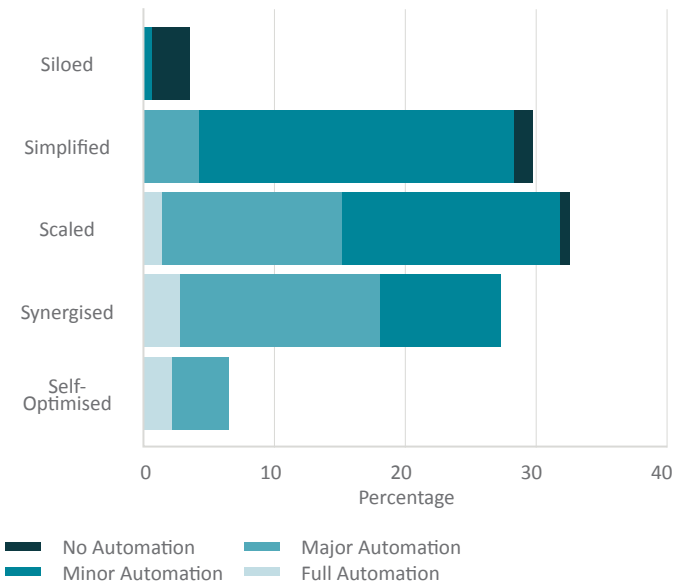
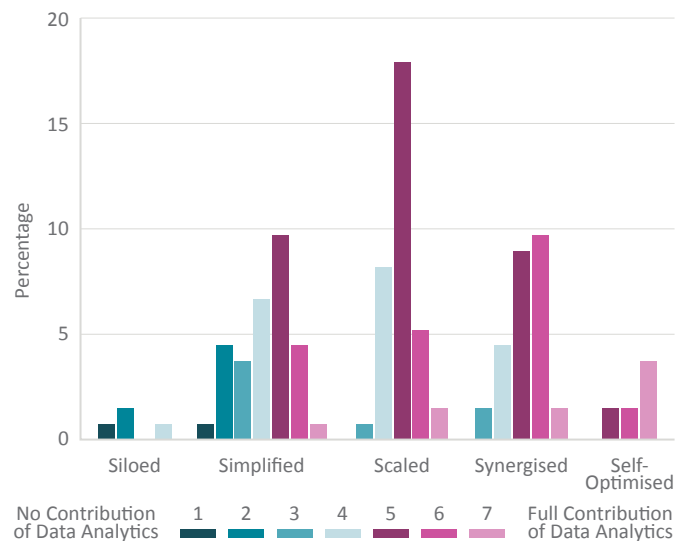


Figure 4. Perceived contribution of data analytics to business performance across data analytics maturity levels





## Impact of Data Analytics — Delivering Business Value and Enabling Business Performance

The second key finding reveals that on average, as the organisation improves their data and analytics maturity level, the extent to which data analytics contributes to business performance (net income) also increases (see Figure 3), regardless of industry sector and organisation size.

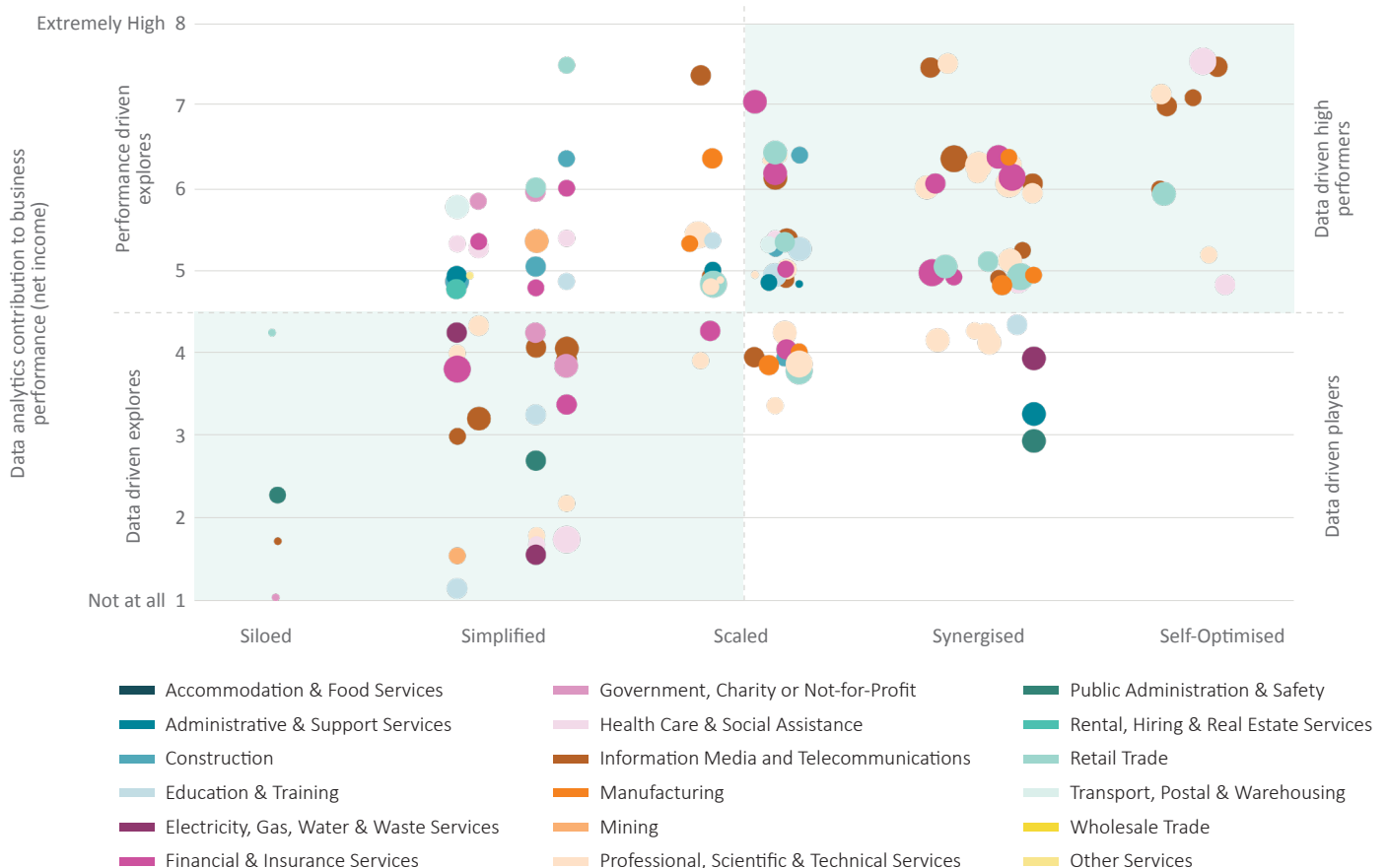
The size of the bubbles indicates the size of the participants' organisations whereas the colours show the industry sectors.

Based on participants' self-assessments, their organisations are placed in the four quadrants of data-driven vs performance driven (Figure 3), and can be observed as follows: Organisations at low levels of data analytics maturity reporting low levels of data analytics contribution

to business performance are considered as 'Data-Driven Explorers'; Organisations at low levels of data analytics maturity reporting high levels of data analytics contribution to business performance are considered as 'Performance-Driven Players'; Organisations at high levels of data analytics maturity reporting low levels of data analytics contribution to business performance are considered as 'Data-Driven Players'; And organisations at high levels of data analytics maturity reporting high levels of data analytics contribution to business performance are considered as 'Data-Driven High Performers'.

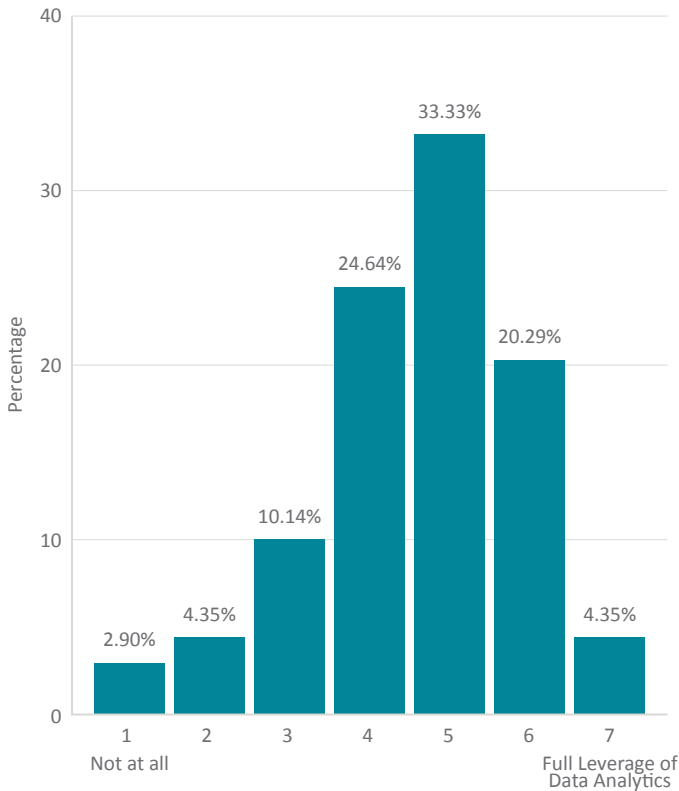
As the data analytics maturity level improves, the difference in data analytics contributions to business performance tends to become narrower, except a few large organisations from public administration and safety, and administrative and support services at the Synergised level of data analytics maturity. The participants who reported the highest maturity level Self-optimised also reported high levels of business performance (greater than 4).

Figure 3. Data and analytics maturity vs. data analytics contribution to business performance by size and sector



## DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

Figure 5. Levels of leveraging data analytics to develop new business models and respond to markets



Participants also reported impact of data analytics in terms of organisation ability to create new business models and respond to the market dynamics, as well as the ability to mass customise their products and services. Participants indicated various extents, ranging from 1 (not at all) to 7 (full leverage), to which their organisations leveraged data analytics to develop new business models and respond to market dynamics (see Figure 5). A minority of participant organisations had yet to apply data analytics to business model development or respond to market dynamics. By contrast, more than half of participants reported that their organisations leveraged data analytics for such purposes to a large extent.

As the extent to which data analytics drives mass customisation rose, the organisation's ability to mass customise products and services also increased. Figure 6 delves further into the relationship between the extent to which organisations invested their effort on data analytics to drive mass customisation and their gained ability to mass customise their products and services. The participant sample is evenly distributed around the regression line, signifying a positive correlation between the organisation's effort in leveraging data analytics for mass customisation and their ability to do so.

Figure 6. Leveraging data analytics for mass customisation vs ability to mass-customise products and services





## Data and Analytics during the COVID-19 Pandemic and Beyond

### The COVID-19 Pandemic Reinforces the Role of Data and Analytics for Business Survivability and Performance

The third key finding reinforces the role of data and analytics maturity in business as organisations globally embark on ‘new normal’ COVID-19 business processes and decision making.

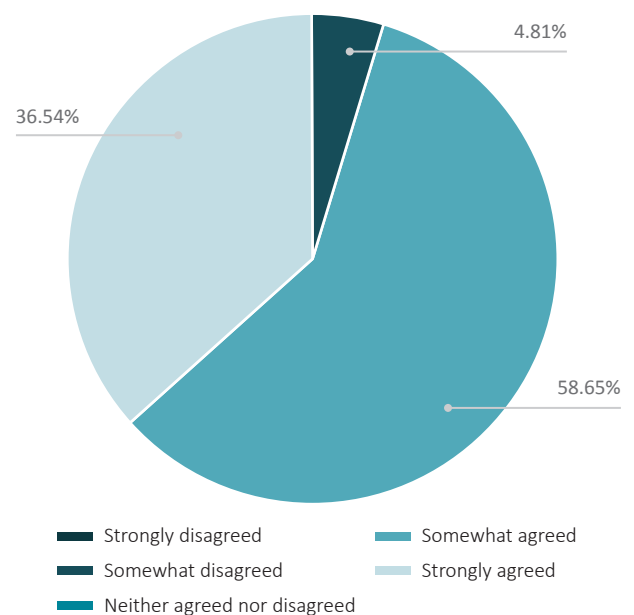
As reported, data and analytics had a substantial impact on business strategic decision making (somewhat agreed and strongly agreed by 95% of participants, see Figure 7) and on operational decision making (somewhat agreed and strongly agreed by over 85% of participants) through and beyond the COVID-19 pandemic than previously.

Over 70% of the participants concurred with the opinion that organisations have increased the investment on data and analytics technologies during the COVID-19 pandemic (see Figure 8). Most of them were from the various sectors including Professional, Scientific and Technical Services, Information Media and Telecommunications, and Financial and Insurance Services. Another quarter of participants

(from 11 different industries) hold a neutral view. Fewer than five percent of participants somewhat disagreed. These come from Finance and Insurance Services and Information Media and Telecommunications.

A similar observation was made that organisations increased the investment on data analytics people and skills during the COVID-19 pandemic.

Figure 7. Through and beyond the COVID-19 pandemic — Data and analytics for strategic decision making



DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

Figure 8. COVID-19 Impact — Investment on data and analytics technologies has increased

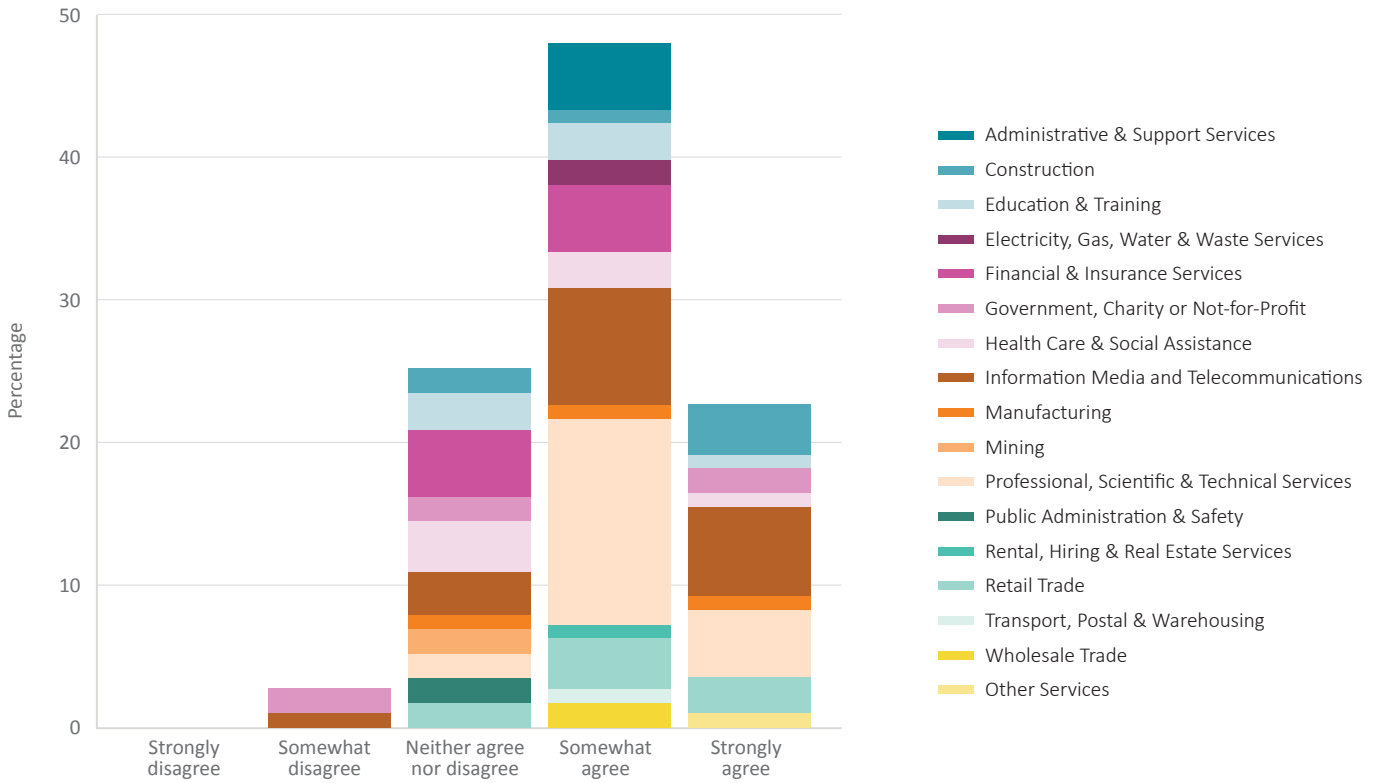


Figure 9. COVID-19 Impact — We had to acquire external data

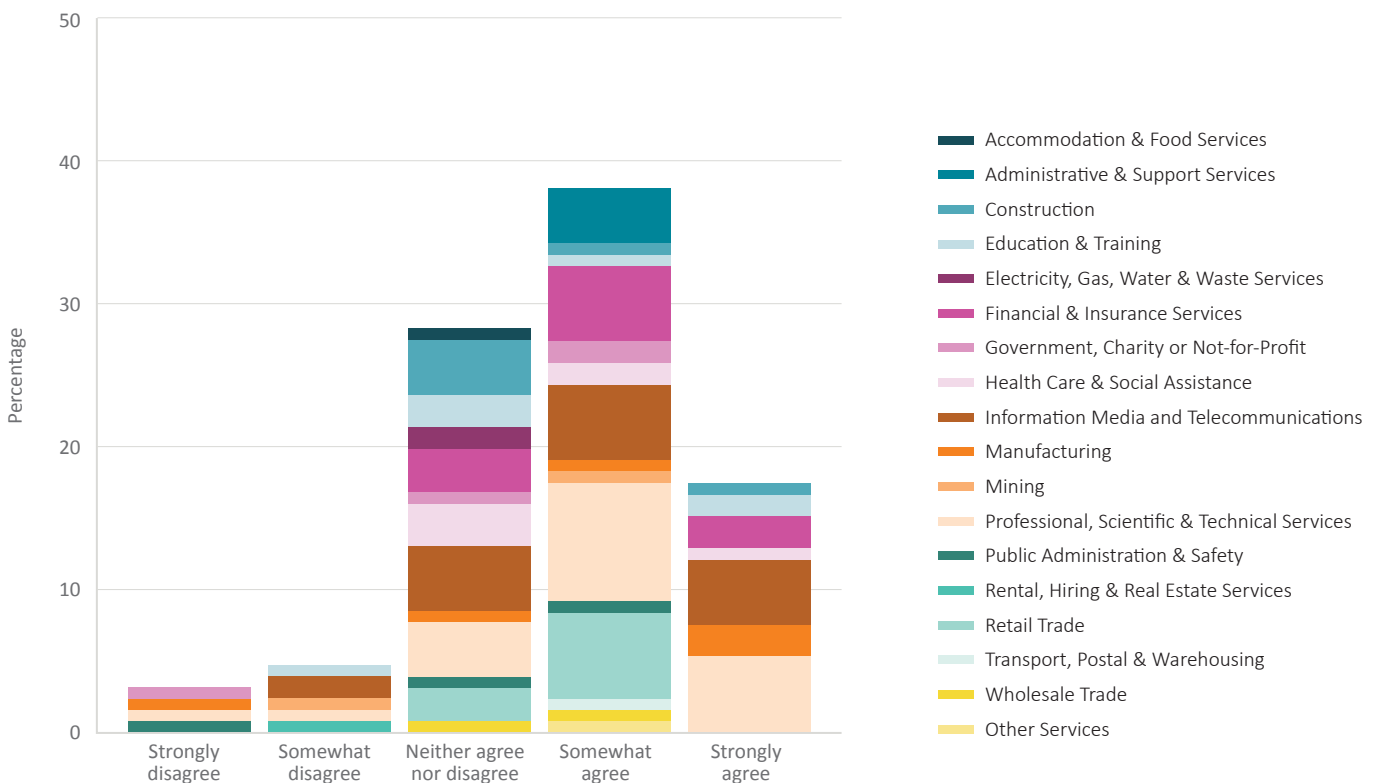
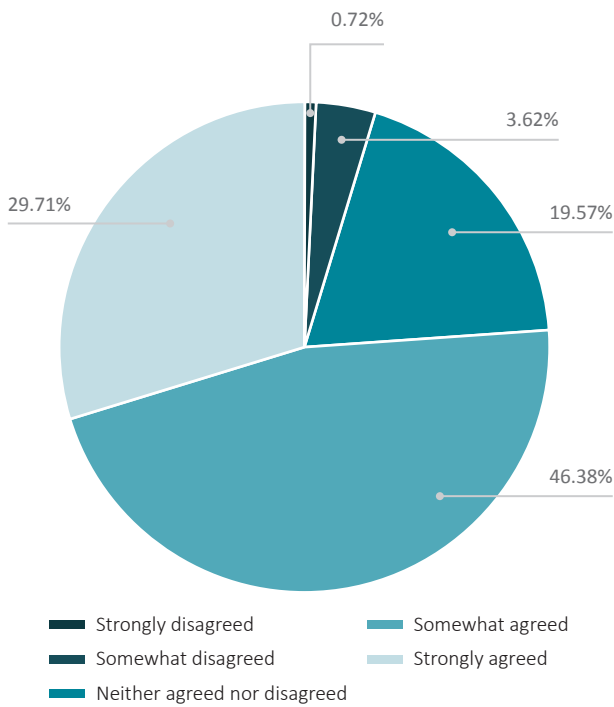




Figure 10. Through and beyond the COVID-19 pandemic — Having a data and analytics strategy as part of the overall business strategy has become essential



Approximately 60% of surveyed participants expressed varying degrees of agreement that organisations had to acquire external data for unavoidable reasons under the impact of the pandemic (see Figure 9). This was more so the case in Financial and Insurance services, Information Media and Telecommunications, and Professional, Scientific and Technical services. Almost one-third of the participants from a variety of industries were neutral in this perspective. Less than one-tenth of the participants from eight different industries opposed this statement. In addition, the demand for agile data analytics reports also increased as somewhat agree and strongly agreed by over 90% participants.

Greater than 75% participants (Figure 10) agreed to varying extents that it is essential to employ data analytics strategies as part of the overall business strategy during the pandemic, while approximately 20% of respondents are neutral on this.

Overall, the findings regarding the impact of COVID-19 reinforce the role of data and analytics in business operational and strategic decision making.



## Insights from Interviews — Benefits of Improving Data and Analytics Maturity

To further explore the findings of the survey and identify any potential insights, semi-structured interviews were undertaken with eight (8) executive leaders and senior managers responsible for overseeing data maturity within their respective organisations.

The interviews produced key perspectives into the role and benefits of data and analytics whilst also emphasising their growing prominence after the onset of the COVID-19 pandemic, but more importantly, participants also shared the practices and processes used to enhance business performance, processes, risk management and decision-making. Thus, the interview insights support and provide an in-depth understanding behind of the survey findings.



## Key Insight 1 — Holistic Value to Business Performance

Participants across a variety of industries and sectors reported a spectrum of benefits derived from their use of data and analytics, ranging from increased utilisation of resources to improvements to workflows across multiple business units.

### 1. Improved customer management through data-driven communication

was enabled within an organisation due to their level of data and analytics maturity (Chief Information Officer). This was achieved by leveraging **cross-departmental data flows** to setup and manage customer expectations, leading to decreased negative customer calls and a subsequent increase in the net availability of staff to focus on core business activities.

**2. Enhanced forecasting of supply and demand** was attributed to the efficient and comprehensive utilisation of data analytics with an organisation (Global IT Director of Analytics & Insights). Furthermore, the level of data maturity enabled this organisation to **improve the management of internal and external stakeholder expectations** through proactive communication.

**3. Reduction of resource wastage and increased utility of resources** was attributed to the presence of data analytics processes and standardized forms through unified data stores in a **centralised portal** and **quick access functions** to generate business reports. This was reported in two organisations, where paper waste was reduced (John Howell, a Business Intelligence Systems Manager, Deakin University), and the time efficiency of inspectors was improved (Senior Data Engineer – Information & Data).

**4. Enabling automation of repetitive high-volume tasks** by utilizing artificial intelligence empowered a public administration organisation to turn activities involving multiple staff, across many hours, into processes that now require only minutes to complete (Executive Director Corporate Operations & Information, CFO & CIO). This reduced the net utilisation of human resources to meet task demands, but more importantly, the implemented automated workflows resulted in a higher accuracy within task completion compared to previously human-driven processes.

## DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

### Key Insight 2 – Augmenting Organisation-Wide Processes

Benefits to organisations extend past business values and outcomes, as data and analytics were reported to positively impact numerous internal systems, processes, and policies.

**1. Increased efficiency and accuracy of solutions development** to meet business requirements was reported within an Education & Training organisation that had leveraged their data and analytics processes to rapidly test variations of pilot reports, iteratively representing data across various combinations to identify optimal solutions (John Howell, a Business Intelligence Systems Manager, Deakin University). This observation also emphasized a key concept of achieving ideal data and analytics maturity; the organisational state of maturity is most effective when its investment into implementing data-driven decision making is relative to its business requirements.

**2. Automated service delivery management** to meet increased demands was achieved within an organisation based in the public administration and safety sector (Executive Director Corporate Operations & Information, CFO & CIO). Their data and analytics maturity journey were demonstrated by their experience in the identification, adoption and utilisation of machine learning and deep learning models. The organisation was able to develop key insights into their data, adapt their culture to embrace the technologies, and subsequently leverage supervised machine learning models to implement numerous workflow automations with a high degree of success.

### Key Insight 3 – Enhancing Risk Management and Mitigation

The presence of a high level of data and analytics maturity contributed to organisational capabilities in managing and mitigating risks, reducing both the instances of risk realisation as well as reducing the resource requirements to mitigate identified risks.

**1. Reduction of risk to data security** was credited to the implementation of a centralised data analytics solution within an education organisation (John Howell, a Business Intelligence Systems Manager, Deakin University). Through their improved data and analytics maturity, they observed a reduction in the accidental misplacement of confidential information and overall exposure to associated risks.

**2. Cost-effective and agile compliance reporting** through the utilisation of data manipulation tools within a centralised data analytics solution was instrumental for a global manufacturing organisation to reduce their risk exposure (Global IT Director Analytics & Insights). These data exploration and reporting tools enabled the organisation to ‘slice and dice’ data to produce cost-effective reports based on a diverse set of regulatory requirements from both national and global entities.



## Key Insight 4 – Benefits of Data-Driven Decision Making

A prominently reported impact of data and analytics maturity across organisations was the implementation of data-driven decision to support high level strategies. Participants offered insights into their experiences as well as how they overcame key challenges to produce substantial benefits for their organisation, including emphasising the role of culture to produce better data and analytics systems.

### 1. Developing a shared understanding of data-driven decision

**making** was experienced by organisations in Information Media & Telecommunications (Lee Hickin, Director National Chief Technology Officer, Microsoft), Transport, Postal & Warehousing (Chief Information Officer) and Education & Training (John Howell, a Business Intelligence Systems Manager, Deakin University). A key component shared by the three (3) participants was attributed to cultivating a culture of embracing feedback between stakeholders involved in the data and analytics reporting process, leading to it becoming an educative process for decision makers to better understand the utilisation of data, and for developers to gain insights into how data informs business decisions.

### 2. Enabling timely and informed decisions by stakeholders was a

subsequent result reported by the three (3) participants that developed a culture of shared understanding of data-driven decision making. Feedback-driven incremental improvements to reporting and an educative process enabled decision makers to both trust and gain familiarity with the data, and in turn leverage their data and analytics maturity to inform timely business decisions.

## Key Insight 5 – Navigating the Impact of COVID-19

Reduction or mitigation of emergent challenges produced by the COVID-19 pandemic was reported by multiple participants that had achieved a high level of data and analytics maturity, despite their experiences of the impacts and challenges being varied across different industries and sectors. Where previous multi-year investments or deliberate efforts to increase data and analytics maturity were cited, participants reported the ability to quickly adapt and mitigate evolving challenges from the pandemic.

**1. Adaptation to sudden surges due to market conditions** was enabled due to pre-existing investments into data analytics and Cloud-based platforms within a Transport, Postal & Warehouse organisation (Chief Information Officer). The organisation was able to not only absorb pandemic-related increases in service demands, but also successfully cater to these requirements to mitigate the impact of COVID-19.

**2. Absorb the challenges of travel restrictions** to both business continuity and service delivery through the utilisation of organisation-wide access to data and analytics platforms was reported as a key element across multiple sectors. Organisations in Administrative Support & Services (Oleg Kravets, Global Head of Data and Analytics, The Travel Corporation (TTC)), Education & Training (John Howell, a Business Intelligence Systems Manager, Deakin University), Public Administration and Safety (Executive Director Corporate Operations & Information, CFO & CIO) and Manufacturing (Global IT Director Analytics & Insights) all reported that maintained access to their platforms enabled rapid responses to COVID-19 restrictions, including business-wide decision making and shifting to online service delivery.

## Recommendations Derived from Key Insights

The experiences and practices shared by participants produced numerous recommendations that are categorized into three major categories: a business-driven maturity journey, inclusive data and analytics culture and a balanced approach to data governance.

These recommendations form the fourth key findings of this research and offer key insights for organisations that are embarking on their data and analytics maturity journey or are seeking to improve their level of maturity.

Figure 11. Emergent recommendations from the national leaders in data analytics



## Recommendation 1 – Business-Driven Data and Analytics Maturity Journey

An effective **data and analytics strategy is one that is informed by the overall business strategy, business needs and relevant to all stakeholders** within the organisation, presenting a clear and justified path with defined resources necessary to satisfy the identified requirements.

A business-driven data analytics maturity **journey should seek to balance the different, sometimes competing, interests of organisation-wide stakeholders with resource availabilities**, cumulating in a relevant data analytics strategy that informs all stakeholders on the optimal path to implementing necessary changes. This recommendation requires both an **organisational cultural preparedness** as well as a **process-based approach**.

"...data analytics information management is a transformational piece [and requires a change in] cultural mindset"

— Information Architect

The organisation must assess its own management culture and its preparedness to make timely decisions, as procrastination or delays can be counter-productive to its implementation of any data analytics strategy due to the speed in which technology evolves (Oleg Kravets, Global Head of Data and Analytics, The Travel Corporation (TTC)).

Providing it has the management culture to undertake this journey and mitigate challenges, it can implement several steps to increase its level of data and analytics maturity. **Beginning with a business-driven and relevant data analytics strategy** serves as the first step (Oleg Kravets, Global Head of Data and Analytics, The Travel Corporation (TTC)), and this

will in turn inform the organisation's "*technology roadmap [and an] institution roadmap*" (Global IT Director Analytics & Insights). This **roadmap serves to identify the implementation strategy** and requires a clear understanding of the organisation's business case for the undertaking (Information Architect).

The business case requires a **holistic evaluation of business needs** to identify the stakeholders and their requirements, enabling the organisation to make informed decisions on potential resources, technologies, and schedules necessary to execute the strategy. It is essential for this process made **in collaboration with business leaders** to establish a consensus on the resource needs and allocations and develop a shared understanding of the associated business case.

"...your core business is not running databases, providing identity platforms, and building a visualization tool, that's not core business, your core business is going to be building widgets for market X or selling products to customer Y"

— Lee Hickin

Director National Chief Technology Officer, Microsoft



## DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

### Recommendation 2 — Inclusive Data and Analytics Culture

An **inclusive and educative organisation-wide data and analytics culture** is a critical component to ensure that data and analytics maturity levels are achieved with maximum business value and acceptance.

Management preparedness for change is only one part of an ideal implementation of data and analytics maturity within an organisation. **Data and analytics culture should be inclusive** of all employees regardless of their data literacy (Global IT Director Analytics & Insights). This enables employees across all business levels and units to develop a **shared understanding of how data is utilised to enhance business decision making**.

Previously this report had cited responses from multiple participants on the significance of educative culture and the impact of embracing feedback to improve data and analytics maturity. An **inclusive data and analytics culture** enables this by empowering users to understand not only how the system works or contributes value, but more importantly, how data and analytics can meet their needs. Developing an in-depth understanding of user data needs is a **fundamental step in creating data-driven decision-making systems** and must be undertaken prior to any data analysis, technology selection or solutions adoption (Global IT Director Analytics & Insights).

Developing a shared understanding can be challenging for employees with varying degrees of digital literacy, especially to perceive the business *“in a digitalized way”*. Organisations may **overcome this challenge by forming “Communities of Practice (CoP)”** or similar systems to assist in their learning and increase digital literacy (Executive Director Corporate Operations & Information CFO, CIO). The presence of a CoP can facilitate an educative culture by providing an inclusive and accessible space for all parties within the organisation to have open conversations across all aspects of data. CoP enables the organisation to not only share practical knowledge, but more importantly, provide an environment where concerns, queries or issues may be expressed without reducing data security or control.

“...the ‘people’ should be taken on the data journey, and this many-a-times requires people playing with data getting out of their offices and interacting (and understanding) with representatives from different parts of the business”

— John Howell  
Business Intelligence Systems Manager, Deakin University

Organisations should note that **CoP facilitates a learning environment to reduce the likelihood of risks** by enabling participants to share prior errors and help others avoid potential mistakes, avoiding the need to learn these lessons through the experience of ‘real-world’ compromises to the data and analytics platforms.

An inclusive data and analytics culture serves to also **promotes innovation and growth** throughout the organisation by encouraging staff to explore and experiment with different data and analytics tools or methods, which may lead to new concepts, ideas, and potential business cases. An educative and inclusive organisation-wide culture considers that data and analytics maturity require one to be *“bold and ... curious [to] ask lots of questions ... and then see how we can make them better”* (Chief Information Officer) and contribute to improving the environment of informed data-driven decision making.

### Recommendation 3 — Balanced Data and Analytics Governance

Another key to a successful data and analytics maturity journey is **finding the balance between data governance, technology investment and stakeholder management**. *“Data, technology, process, [and] people”* all need to be balanced and a business should not *“get side-tracked by focusing on one at the expense of others”* (John Howell, a Business Intelligence Systems Manager, Deakin University).

Data governance plays an essential role in ensuring responsible and accountable use of data and analytics, providing the necessary mechanisms in which to manage the use cases of analytics within the organisation. It ties together disparate

threads of data ownership, accountability, quality, security, privacy, compliance, and policy governance (Global IT Director Analytics & Insights, and Information Architect) to comply with regulatory obligations and maintain the integrity of data and analytics within the organisation.

While digital transformation often seeks to translate business strategy onto increased profitability and competitiveness, **data governance should empower people in responsible data analytics practice** (Lee Hickin, Director National Chief Technology Officer, Microsoft). In practice, organisations must view the adoption of digital technologies as enabling their people to leverage data to increase value to the organisation, instead of expecting these technologies to inherently generate value based on their presence alone. This illustrates the balance of needs in data governance; **data within the organisation is maintained as an asset through policies and processes that are designed to enable employees to execute data-driven business functions.**

Finally, organisations must balance data governance with the requirements of responsible acquisition and utilisation of data with that of the needs of the business. Balance relies on understanding the intended use of data by employees and relevant stakeholders, developing processes or policies around the methods in which it is utilised to execute business activities.

“You need to engage people and you need to understand what questions they are trying to answer, and you need to be able to tell a story around how you can turn that into something real. Don't give them a table and numbers”

— John Howell  
Business Intelligence Systems Manager, Deakin University



## Illustrative Vignettes

From the interviews, two vignettes were extracted to illustrate different data and analytics maturity journeys. These case-studies provide additional insights into the benefits, implementation steps, challenges, and resolutions as experienced by organisations who have achieved a high level of maturity through the acquisition and use of data and analytics.

### Vignette 1 – Winery Company

A global exporter of wine embarked on its data and analytics maturity journey with the objective of innovating product development and optimizing its business costs. Despite initial challenges, the winery successfully transformed its operations from analogue processes into a highly digitised organisation able to rapidly respond to market opportunities and substantially mitigate the impact of COVID-19.

At the beginning of its journey, the winery experienced challenges in the data literacy of both staff and stakeholders who demonstrated a lack of awareness in the value and utility of data. The adoption of a Community of Practice (CoP) and a data literacy program was successful in identifying and empowering ‘champions’ within the organisation to serve as both advocates and educators – resulting in both stakeholders and employees gaining insights into the value and transformative power of data and analytics.

The result of addressing its digital literacy and establishing an inclusive data and analytics culture was a holistic ‘buy-in’ across the organisation, with top management committing substantial resources, defining itself as having ‘Cloud-native DNA’ that emphasized embracing digitization, data-driven decision making, and analytics accessibility across business units.

Adopting a well-defined data and analytics strategy with a roadmap derived from a holistic evaluation of business needs, the winery implemented a comprehensive data governance policy to manage the balance of requirements data ownership, accountability, privacy, security, with that

of accessibility, data quality, trust, and empowerment of staff across the organisation.

Currently, the data and analytics platforms are accessible organisation-wide and supported by a dedicated team of 60 data engineers, responsible for maintaining the data quality of the winery and ensuring the processing of data for use in various analytics and business functions. This has led to a culture of innovation across the organisation, with staff encouraged to develop hypotheses based on data and analytics tools and if validated, receive support to convert them into new opportunities or products.

A notable example of this was in how the organisation leveraged its data analytics to examine markets from various external markets, identifying a segment of consumers in Australia that had a demand for low-to-zero alcohol content beverages. This presented a new market opportunity for the winery, leading to the development of its range of zero-alcohol products to serve this customer segment.

The winery’s mature state of data and analytics reporting has also enabled it to not only rapidly respond to the identification of potential market opportunities, but also introduce agility to strategic scaling decisions; it can scale up or down, horizontally, or vertically, based on requirements or perceived changes in market conditions.

This in combination with its strong data governance framework has provided the winery with the ability to efficiently navigate compliance in both local and international markets, remaining agile in exploring new opportunities whilst meeting the requirements of regulatory bodies in Australia, China, and other key regions. This became even more pronounced during the COVID-19 pandemic, as the winery reported little to no impact from the crisis despite global disruptions to supply chains, travel, and business continuity.



## Vignette 2 – Public Office

An organisation operating within the Public Administration sector undertook their data and analytics journey to address increasing demands in delivering public services. It was successful in implementing numerous analytics tools, including predictive and prescriptive models, empowering the organisation to not only satisfy service requirements but also adopt data-driven decision-making capabilities to holistically improve the organisation.

Adopting these models was not without challenges, as the organisation faced difficulties in envisioning itself as a digitised business. Compounding this challenge was the complexity of convincing stakeholders on the value of machine learning, requiring a high degree of digital literacy to obtain ‘buy-in’.

These challenges were overcome through undertaking organisation-wide education initiatives in parallel with the development of business cases, facilitating the learning of stakeholders to both gain greater insight into the use of analytics and digital technologies as well as their respective value propositions. With an increased digital literacy and capacity to support both education and training, the organisation was able to successfully demonstrate the use of supervised machine learning to stakeholders through pilot programs.

This transformed the organisational culture into one that was proactively evaluating its workflows, infrastructure, and capabilities to identify where artificial intelligence, analytics and cloud-based solutions would deliver maximum value. More importantly, the educative culture within the organisation created an environment of communication, where stakeholders were empowered to make informed decisions on implementing a concise data and analytics strategy.

This cumulated in a host of successful transformations, including the migration of on-premises infrastructure to cloud-based platforms and the automation of resource-intensive tasks. A highlighted example by the organisation describes how it identified particularly demanding workflows that were performed by multiple staff across many hours and achieved automation through the deployment of a supervised learning model that reduced the tasks to mere

minutes. Additionally, these automated tasks not only increased resource availability across the organisation, but they were completed with a higher degree of accuracy.

The onset of the COVID-19 pandemic had no effect on the business, as by this stage it had adopted a digitised and fully distributed working arrangement that was supported by a robust cloud-based data and analytics infrastructure.

## Demographics Summary

### Demographics of Survey Participants and their Organisations

Nearly half of the survey participants (42.8%) reported themselves to be at C-level / Director or equivalent roles, followed by senior managers (32%) (see Table 3).

The years of experience in industry of the participants were counted to support the reliability of the survey results (Figure 13). On average, two in three participants had worked in industry for a minimum of 12 years, and around 40% participants have experience of more than 20 years.

Evidently, most participants are in medium or large sized organisations (see Table 4). More than one-third (35.51%) of the participants' organisations have between 20 and 199 employees, only 6.52% have less than 20 employees, and 10.14% have greater than 10,000 employees.

Delving further into the represented industry sectors as part of the survey participants, the Professional, Scientific and Technical Services sector comprised of one fifth of the total responses (see Figure 14) followed by Information Media and telecommunications, and Financial and Insurance Services. These three sectors make up half of the survey participants. The predominant business operations

for all these three sectors include engaging with different types of confidential customer and proprietary data, more so compared with other sectors such as accommodation and food services. Hence, the dominance of these three sectors in working with different dimension of data as part of their data and analytics maturity journey is to be expected.

Table 3. Levels of survey participants

Responsibility Level	%
C-Level and Director	42.8
Senior Manager	32.6
Manager	24.6

Table 4. Organisation size (ABS<sup>6</sup> classification)

Organisation size	%
5 – 19 employees	6.52
20 – 199 employees	35.51
200+ employees	28.99
1,000+ employees	18.84
10,000+ employees	10.14



6. We adapted the Australian Bureau of Statistics (ABS) classification for industry size for the survey by adding two groups of 1000+ employees and 10000+ employees: <https://www.abs.gov.au/ausstats/abs@.nsf/Products/8155.0~2008-09~Glossary~Glossary?OpenDocument#PARALINK3>

Figure 13. Years of experience in industry

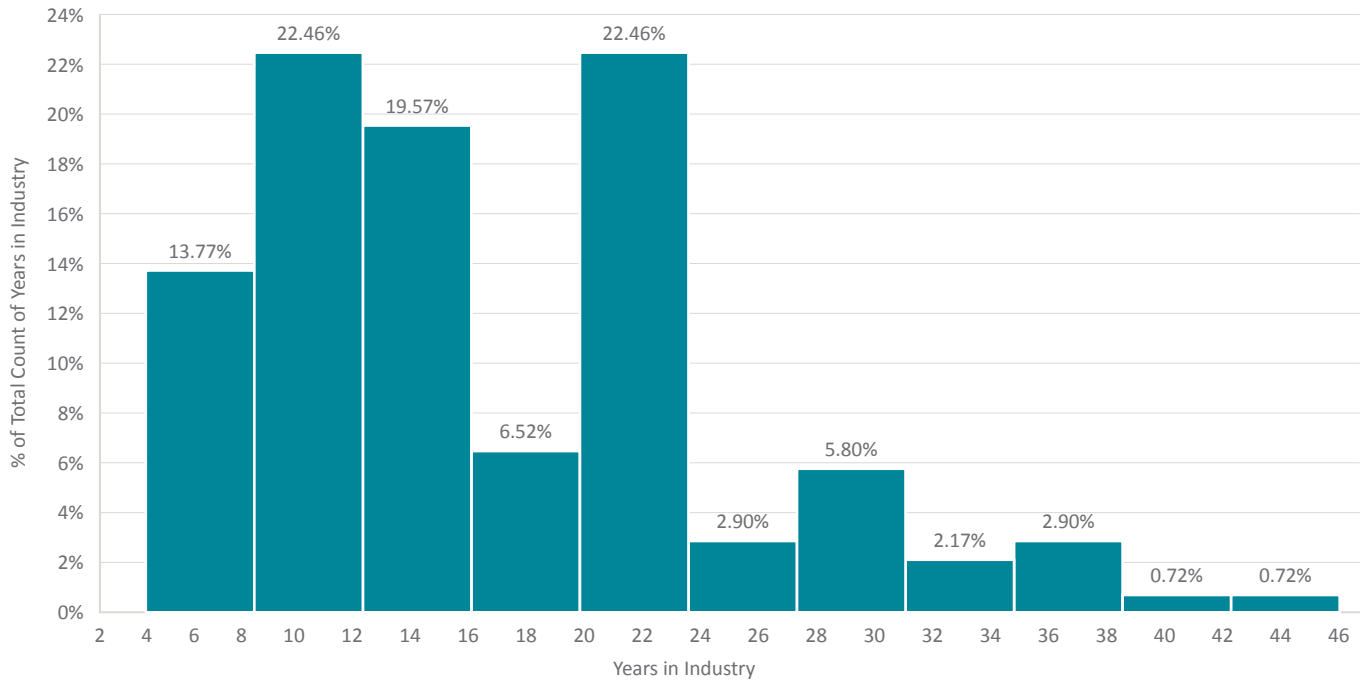
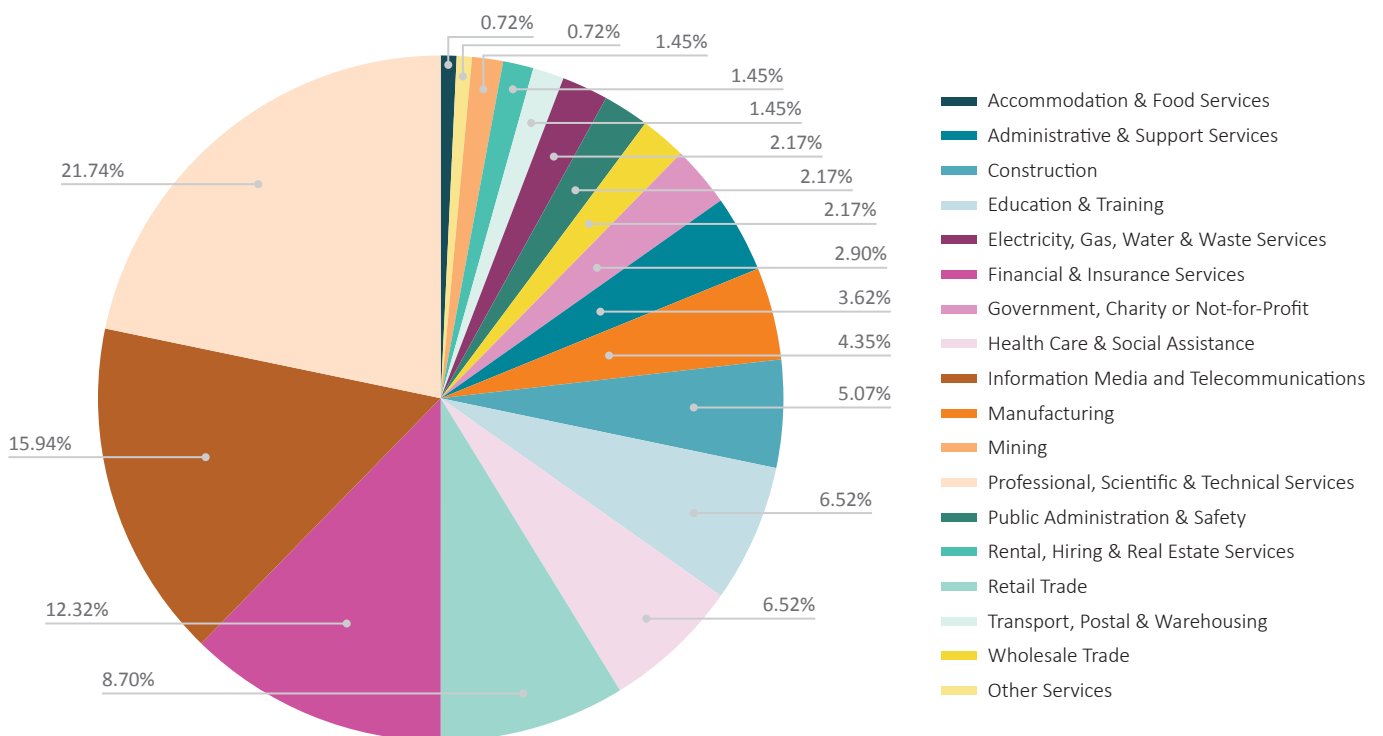


Figure 14. Organisations by industry sector



## DATA AND ANALYTICS MATURITY IN AUSTRALIAN ORGANISATIONS

### Demographics of Interview Participants and their Industry Sector

Table 5. Demographic background of interview participants

Interviewer No.	Title	Sector (ABS <sup>7</sup> classification)
1	Lee Hickin, Director National Chief Technology Officer, Microsoft	Information Media and Telecommunications
2	Chief Information Officer	Transport, Postal and Warehousing
3	Oleg Kravets, Global Head of Data Analytics, The Travel Corporation (TTC)	Administrative Support and Services
4	Information Architect	Education and Training
5	John Howell, a Business Intelligence Systems Manager, Deakin University	Education and Training
6	Senior Data Engineer, Information Technology & Data	Mining (Energy and Resources)
7	Executive Director Corporate Operations & Information, CFO & CIO	Public Administration and Safety
8	Global IT Director Analytics & Insights	Manufacturing

7. The Australian Bureau of Statistics (ABS) classification for industry size and sector was used for the survey: <https://www.abs.gov.au/ausstats/abs@.nsf/0/20C5B5A4F46DF95BCA25711F00146D75?opendocument>





# Contact Details

Thank you for joining us on the data and analytics maturity journey of Australian organisations. For further information about the research project and findings, please contact any of the Deakin University team members:



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# Contributors



## Oleg Kravets

**Global Head of Data and Analytics  
The Travel Corporation (TTC)**

Oleg Kravets CPA is an experienced Data & Analytics leader, Advisory Board member and international keynote speaker. As a Global Head of Data and Analytics at The Travel Corporation (TTC), his goals include creating enterprise D&A vision and strategy, driving Data Science, AI/ML initiatives and delivering Data Management and Analytics platforms.

With a background in Data & Analytics, Finance and Commerce, his career expands over several industries including Tourism, Energy and Retail. He helps companies deliver business value and impact through digital innovation and change, create, and implement visions and strategies, find and explore new opportunities as well as develop and mentor high-performing teams.

In addition to his primary job functions, Oleg is heavily involved in the Data/Analytics/Tech community via presenting keynotes, participating in panel discussions at international summits and writing articles for IT magazines.



## Lee Hickin

**Director National Chief Technology Officer  
Microsoft Australia**

Lee has over 29 years' experience in the IT industry. Passionate about positive and responsible innovation in areas such as Artificial Intelligence, Quantum Computing and Space domain awareness technologies, Lee has worked in Asia, the UK and Australia.

Before joining Microsoft, Lee led the Internet of Things business development team for Amazon Web Services in Asia Pacific. Earlier in his career, he was a CISSP security architect with RSA Security and Tivoli.

As the National Chief Technology Officer, Lee advises businesses and governments on their digital transformation journey, focusing on the adoption of capabilities such as AI and machine learning.

Lee also heads the Microsoft's Office of Responsible AI for Australia and guides organisations through the cultural transformation needed to embrace responsible AI implementation.

Lee believes in the potential of AI to help build a brighter and more inclusive future, and is a regular speaker on cloud technology, innovation culture, digital trust and accelerating digital transformation. He also sits on the NSW Government Artificial Intelligence Advisory Committee, where he provides strategic advice to guide technological decision-making and is a member of the Department of Industry's Federal committee for the national AI Action plan.



# Contributors



## Ruby Wolff

**Chief Information Officer**  
Aramex Australia

Ruby Wolff is an experienced Operations and I.T Executive, who has demonstrated the ability to lead and develop diverse teams of professionals to new levels of success within fast-paced environments. He possesses strong technical and business experience with an impressive track record of more than 12 years of hands-on experience in strategic planning, business development, IT projects and customer service management. He has proven ability to successfully analyse an organisation's critical business requirements, identify deficiencies and potential opportunities, and develop innovative and cost-effective solutions for enhancing competitiveness, increasing revenues, and improving customer service offerings.



## Jon Stewart

**Senior Data Engineer**

Jon Stewart has recently retired from the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) where his last role was a Senior Data Engineer. Prior to transferring to this newly created position last year, he was one of two Senior Data Analysts having started there in August 2017. Jon has also worked as a Data Analysis and Reporting Consultant for Mar Mooditj Training and before that as a Senior Data Analyst at the Commonwealth Department of Education, Skills, and Employment.

Jon is passionate about data, its quality, accessibility and how it is valued as a critical resource for any organisation. With a keen eye for detail, Jon likes to find anomalies in datasets and find out why they exist and how to prevent future occurrences. He also wants to make it easy for people to access data and enjoys setting up data warehouses for that purpose.

His most recent achievement in the Data Engineer role, was to use Snowflake SQL to create views in the cloud data warehouse to extract semi-structured JSON data from DynamoDB into relational tables to allow easy interrogation from existing reporting processes.

Jon likes to keep abreast of what is happening in the data space, but now has more time to spend with his family and to get out mountain biking and explore the many great trails here in WA.





## John Howell

**Business Intelligence Manager**  
Deakin University

John Howell is the Business Intelligence manager at Deakin University. His career has focused on using data effectively and efficiently to provide business value. Initially this was through developing and implementing enterprise systems to improve business processes in the HE sector. He has been responsible for Finance, Student, HR, Estates, Accommodation & Hospitality as well as many other systems.

More recently he has led the business intelligence and analytics capability at Deakin University, covering strategic and operational visualisations and information management. This includes data warehouse management, data exploration and prediction capabilities, and developing innovative insights and presentations. He works across the business areas and academic faculties of the University to help deliver its strategic goals, whether that is learning analytics, modelling the impact of future student demographic changes, measuring the quality of our courses, or planning our resources more effectively.



## Peter Edwards

**Information Architect**  
Deakin University

Outcome driven thought leader with over 35 years of experience in the IT industry, 25 years of which has been in the project management, program management and architecture disciplines. Delivered a number of complex programs and projects across several industry sectors. Implemented and managed a solution architecture capability at a major University, and performed the Information Architect role.

Serial entrepreneur with greatest success to date being an internet start-up which achieved national attention. Engrossed by the change management and information management challenges faced by organisations globally and developing ways of mitigating their impacts.

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