



The benefits delivered by faster delivery

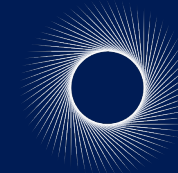
Report – Prepared by Mandala

AUGUST 2024



Contents

Executive summary	3
Delivery times for online shopping in Australia have halved over the past decade	5
Faster deliveries have delivered over \$350 million of value to consumers through increased convenience and time saved, helping people with disabilities in particular	8
Faster deliveries have generated \$1.8 billion for businesses in sales and cost savings over the past decade, disproportionately benefiting small businesses	13
Faster deliveries have transformed Australian online retail, but further work is needed to maximise these benefits	15
Appendix	18



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The benefits delivered by faster delivery

Australians are getting the products they buy online faster than ever. Average delivery times have halved nationwide over the past 10 years. In metro areas and outer suburbs, average delivery times have fallen from 7-9 days to just 4 days. Faster delivery times have delivered over \$350 million of value to consumers. Online shoppers have saved 3.7 million hours per year. Faster delivery times especially benefit Australians with disabilities, who shop online three times more often than the rest of the population. This improvement translates to \$1.8 billion to businesses through more sales and lower costs.

The value of convenience: Faster delivery times have delivered more than \$350 million of value to Australian consumers over the past 10 years

Average delivery times have fallen 47 per cent nationwide over the past 10 years. They have fallen from 7-9 days to 4 days in metro areas and outer suburbs. Consumers highly value this convenience. These improvements have delivered over \$350 million of value to consumers based on how much consumers are willing to pay for faster delivery.

Time saved: Faster delivery times have saved Australian consumers 3.7 million hours each year over the past 10 years

Faster deliveries have saved consumers 3.7 million hours each year with less time spent out shopping. This includes 2 million hours of extra time for paid and unpaid work and 1.7 million hours for leisure. More leisure time allows Australians to focus on education, entertainment, hobbies, and wellbeing.

More than just convenience: Faster delivery times have disproportionately benefited people with disabilities

People with disabilities shop online more than three times as often as the rest of the population, with 14 per cent making an online purchase each week. For people with a disability, the rate is 50 per cent.

Business benefits: Faster delivery times have benefited Australian businesses by \$1.8 billion over the past decade through increased sales and lower costs

Faster delivery times significantly benefit sellers. More than \$1.4 billion of sales in the last decade can be attributed to faster delivery. Receiving inventory faster has helped reduce costs by \$400 million over the past 10 years.

Faster deliveries from online shopping have disproportionately benefited small businesses. Small businesses are nearly twice as likely as larger ones to earn most of their income online. Almost 30 per cent of small businesses earn over half their income from online sales compared to 18 per cent of larger businesses.

Faster delivery times are just one way in which online retail channels have supported consumers

Online retail channels have revolutionised the consumer experience and have eased cost-of-living pressures. Since 2019, these advances have saved Australian households nearly \$3,500 on average. Online channels have also increased consumer choice and competition, with online businesses growing 55 percentage points faster than all businesses since 2019.

Next steps: More needs to be done to help maximise the benefits to consumers










Aligning infrastructure, planning, and zoning policies with last-mile delivery needs will maximise these benefits. The last mile refers to the final step of the delivery process from a distribution centre to the consumer. Improving this step is crucial for sustainable and efficient city operations. Proactive policy changes can foster continued improvements in this sector.

Faster delivery times in online retail channels have unlocked significant benefits for consumers and businesses in Australia over the past decade

DELIVERY TIMES FOR ONLINE SHOPPING HAVE HALVED, DELIVERING VALUE TO CONSUMERS...

...PARTICULARLY HELPING SMALL BUSINESSES AND PEOPLE WITH DISABILITIES ...

...ALONG WITH OTHER BENEFITS DELIVERED BY ONLINE RETAIL CHANNELS.

 <p>47% Faster deliveries</p> <p>Delivery times have almost halved over the past decade, with the average delivery time falling by 3.7 days</p>	 <p>+\$1.4B business revenue</p> <p>Businesses have increased their sales by \$1.4B over the past decade through offering faster delivery</p>	 <p>Lower prices</p> <p>Online retail channels have eased cost-of-living pressures: online prices fell almost 3% from 2019 to 2023</p>
 <p>\$350M Consumer value</p> <p>Consumers have gained more than \$350M in value over the past decade</p>	 <p>\$400M cost savings</p> <p>Faster deliveries have saved businesses over \$400M due to swifter access to inventory</p>	 <p>More competition</p> <p>The growth of online businesses is boosting consumer choice and competition</p>
 <p>3.7M hours saved</p> <p>Australians who shop online have saved 3.7M hours from avoided shopping trips in 2023</p>	 <p>3.5x More frequent</p> <p>People with disabilities shop online at more than three times the average rate: 50% vs. 14%, respectively</p>	 <p>Greater savings</p> <p>Online retail channels saved households \$3,463 from 2019 to 2022</p>



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Faster deliveries have delivered over \$350 million of value to consumers through increased convenience and time saved, helping people with disabilities in particular

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Faster deliveries have transformed Australian online retail, but further work is needed to maximise these benefits

5

Appendix

Delivery times have halved over the 10 years, and consumers now switch retailers for faster deliveries

Australians get their online purchases faster than ever. Delivery times across Australia have halved in the past decade. Online orders took 8 days to be delivered back in 2014. Today, they take just 4 days.

Customers now expect faster deliveries. Over two-thirds of Gen Z consumers are willing to switch retailers to access faster delivery.¹ Half of Australian households now use at least one retailer's premium fast-shipping service.²

This trend is set to continue as market participants invest in improving delivery infrastructure and capabilities.

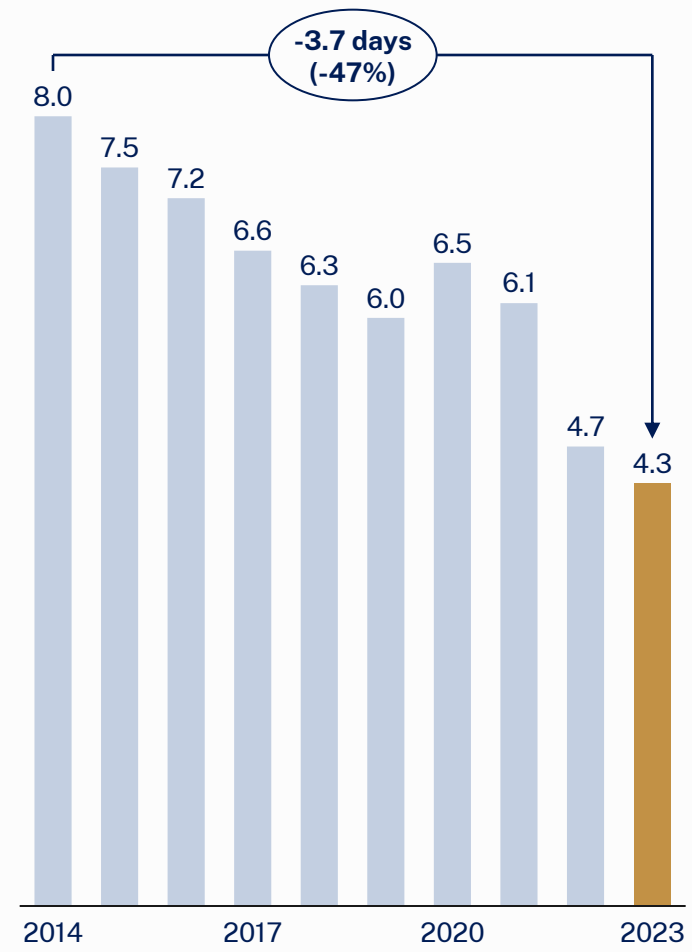
For example, Amazon Australia's delivery capacity increased by almost 50% in 2023. Now, the majority of Prime members across the country can access next-day delivery on more than one million items.³

Australia Post has invested in expanding its next-day Metro service to more cities, adding Perth and Adelaide during 2024⁴. Goldman Sachs Alternatives recently bought seven last-mile logistics properties for \$200 million. It plans to upgrade 65,300 square metres of property across Adelaide, Brisbane, Perth, and Melbourne to enhance efficiency.⁵

1 AusPost (2024a).
 2 Pureprofile (2023).
 3 Amazon (2024a).
 4 AusPost (2024b).
 5 Reuters (2024).

Exhibit 1: Online shopping delivery times in Australia

Nationwide average delivery time, days, 2014 - 2023

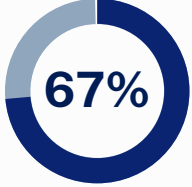




Delivery times
 Average delivery time fell by 3.7 days over the past decade

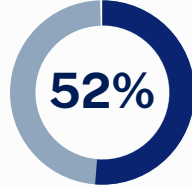
3.7 days
faster

Consumer preferences



67%

Over two-thirds of Gen Z consumers are willing to switch retailers to access faster delivery¹



52%

Half of Australian households have signed up for at least one retailer's premium fast-shipping membership²

Note: Analysis based on Australia Post delivery data from 2013 and 2023, incorporating population-weighted consumer-locations and estimated annual improvements in e-commerce logistics (order processing, warehouse, shipping, and last-mile delivery). Time series constructed using modeling techniques to provide a full decade. Source: AusPost (2013) *Domestic parcels post guide*; AusPost (2023) *Parcel Post Domestic Delivery Estimator*; Mandala analysis.

Faster deliveries are evening out the experience, with metro and outer suburb deliveries now nearly 4 and 5 days faster than a decade ago

Exhibit 2: Average delivery time in metropolitan areas¹

Days, 2014 and 2023

Australians living in metro areas saw delivery times decrease from **7.5 days in 2014 to 3.9 days in 2023.**

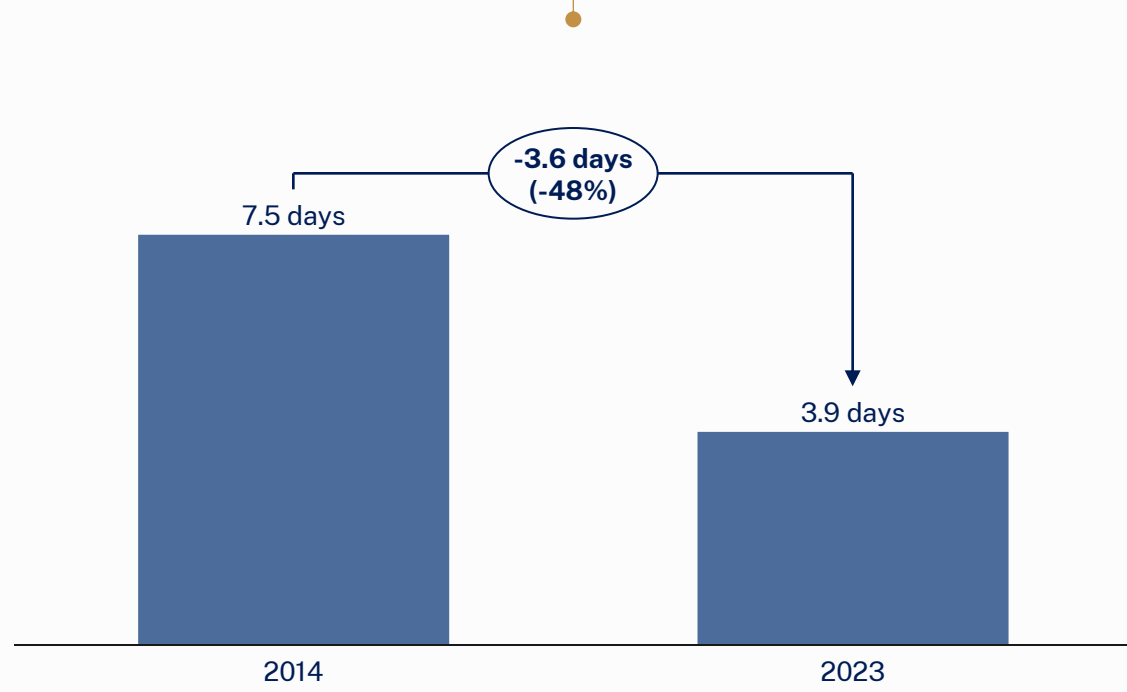
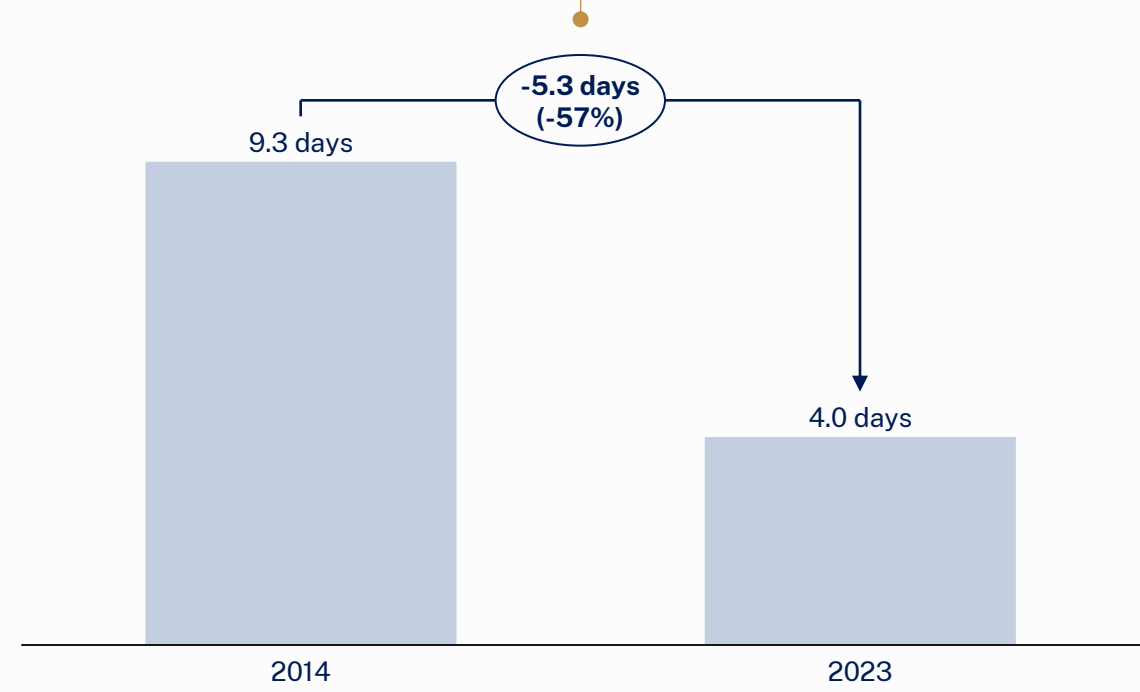


Exhibit 3: Average delivery time in outer suburbs²

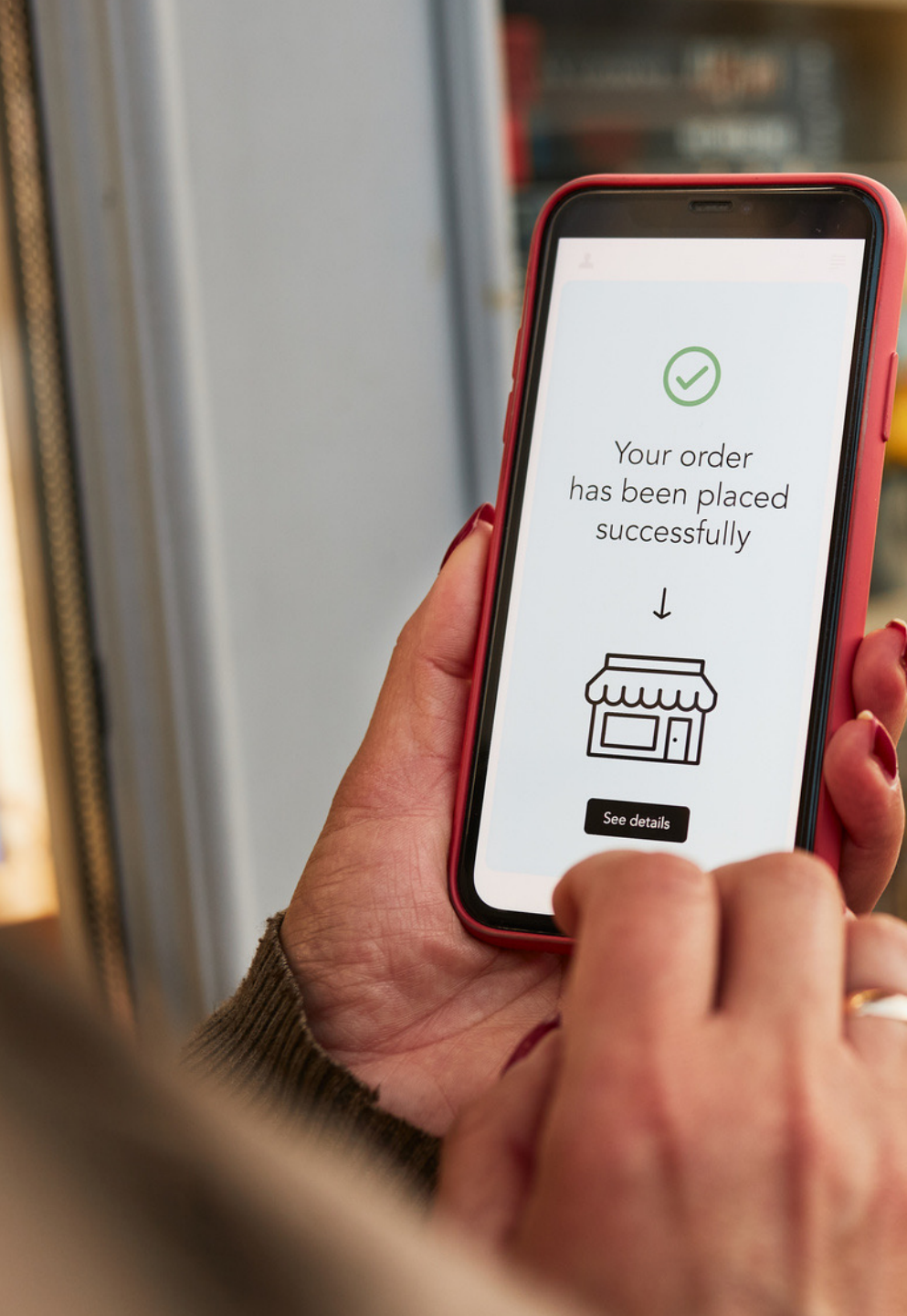
Days, 2014 and 2023

Australians living in outer-suburb areas saw delivery times decrease from **9.3 days in 2014 to 4 days in 2023.**



¹ Metro areas include the main urban areas of major cities. These regions are Sydney Metro, Melbourne Metro, Brisbane Metro, Perth Metro, Adelaide Metro, and Canberra.

² For outer suburb experience, we use customer locations in "QLD Near Country", which includes areas like Toowoomba, Ipswich, and Sunshine Coast, with deliveries from hubs in Sydney, Melbourne, and Brisbane. Source: AusPost (2013) *Domestic parcels post guide*; AusPost (2023) *Parcel Post Domestic Delivery Estimator*; Australian Bureau of Statistics (2011) *Census*; Australian Bureau of Statistics (2016) *Census*; Australian Bureau of Statistics (2021a) *Census*; Mandala analysis.



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5

Appendix

Faster deliveries have delivered consumers more than \$350 million of value over the past decade

Faster delivery times have generated \$366 million of value for Australian consumers over the past decade, highlighting the growing importance of convenience in online retail.

Australian consumers want fast delivery options. Offers from major online retailers reflect this trend. Amazon provides same-day delivery by 10PM in some areas, which is free for Amazon Prime members on eligible orders of \$49.¹ Officeworks offers two-hour delivery for orders under 22kg.² The Iconic gives free two-day shipping for orders over \$75.³

About 60 per cent of consumers worldwide said that they are willing to pay extra for faster delivery services.⁴ This reflects the high value consumers place on speed and convenience.

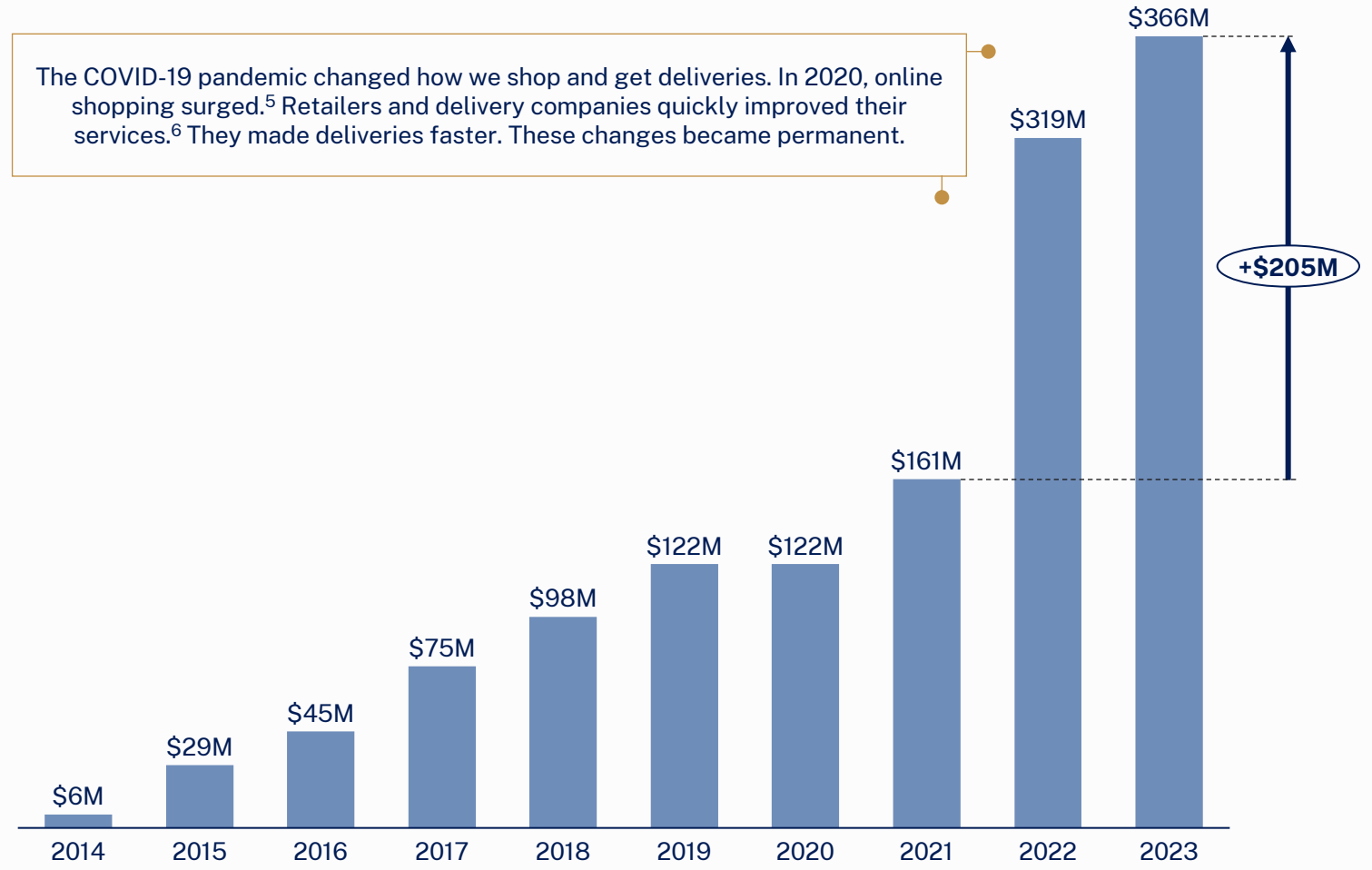
COVID-19 accelerated this shift. Online shopping surged in 2020.⁵ Retailers and delivery companies quickly improved their services.⁶ These changes became permanent.

The impact is clear. Consumer value from faster deliveries jumped by \$205 million from 2020 to 2023. Faster deliveries have paid off, generating significant consumer benefits. This benefit occurs because faster delivery is now so common, meaning fees are either removed entirely or only paid for even expedited shipping.

1 Amazon (2024b).
 2 Officeworks (2024).
 3 The Iconic (2024).
 4 ShipStation (2023).

Exhibit 4: Cumulative consumer value from faster deliveries

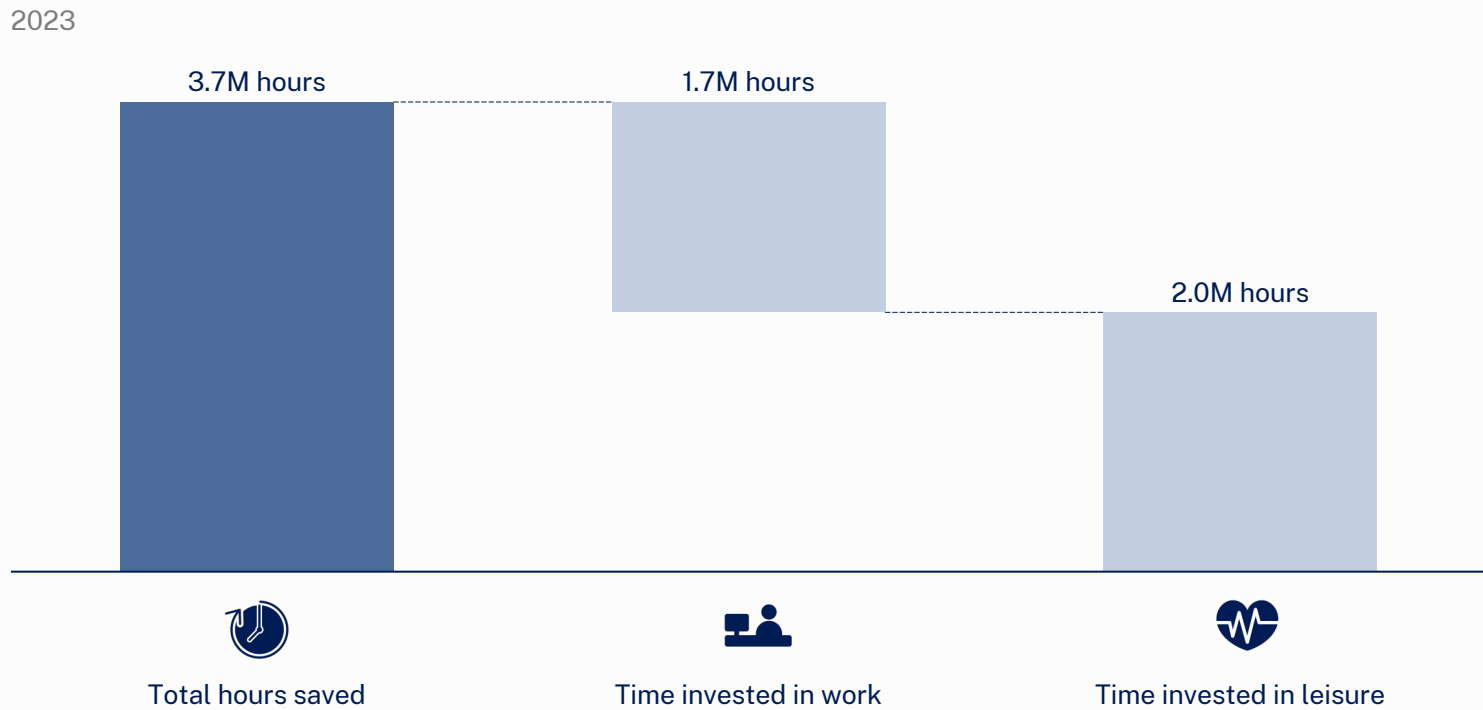
Consumer value, AU\$, 2014 – 2023



5 Australian Bureau of Statistics (2021b).
 6 Nirovision (2021).
 Source: ShipStation (2023) *Holiday Shopping Trends Report 2023*; IBISWorld (2024b) *Online Shopping in Australia*; AIHW (2024) *Rural and remote health*; Mandala analysis.

Faster deliveries have boosted online shopping over the past decade, saving online shoppers 3.7 million hours in 2023

Exhibit 5: Time saved from avoiding shopping trips and how households spent that time¹



Faster deliveries have encouraged **260,000 more people** to shop online since 2014, each saving 14.5 hours yearly on shopping trips. This totals **3.7 million hours saved each year**, which can be spent on work and leisure.

More time to spend on the things that matter

- Delivery times have improved by 3.7 days since 2014 on average.
- This has encouraged 260,000 people to take up online shopping who otherwise would not have.
- Each new online shopper saves an average 14.5 hours a year by avoiding shopping trips.²
- This saved Australians a total of 3.7 million hours in 2023, with 1.7 million hours re-invested into paid and unpaid work, and 2 million hours into leisure.
- Of the hours invested back into work, 60 per cent are paid-hours with total almost \$49m in additional wages.
- Of the hours invested into leisure, this time is being dedicated to:
 - Spending more time on their education
 - Enjoying more leisure activities like entertainment and relaxing
 - Spending more time doing the hobbies they love
 - Taking care of their health and wellbeing.³
- Almost one third of people feel “time pressured”.³ These time savings not only improve financial bottom-lines, but overall quality of life.

¹ Time savings have been distributed across activities based on how the average adult reallocates time saved from commuting, from Hensher et al. (2021).

² Based on average shopping trip being 29 mins return, from Transport for NSW (2023).

³ Australian Bureau of Statistics (2022).

Source: Transport for NSW (2023) Household Travel Survey; Hensher et al. (2021) Time Allocation of Reduced Commuting Time during COVID-19 under Working From Home; Mandala analysis.

Faster deliveries empower people with disabilities by offering more choice and control

Faster deliveries offer more choice and control. They create meaningful benefits beyond convenience.

People with disabilities gain greater control over their shopping experience. They can choose when to receive products they need.

50 per cent of people with disabilities shop online weekly.¹ This compares to only 14 per cent of the general Australian population.²

Online shopping with fast delivery gives people with disabilities:

- More product choices
- Control over delivery timing
- Quicker access to essential items
- Enhanced quality of life

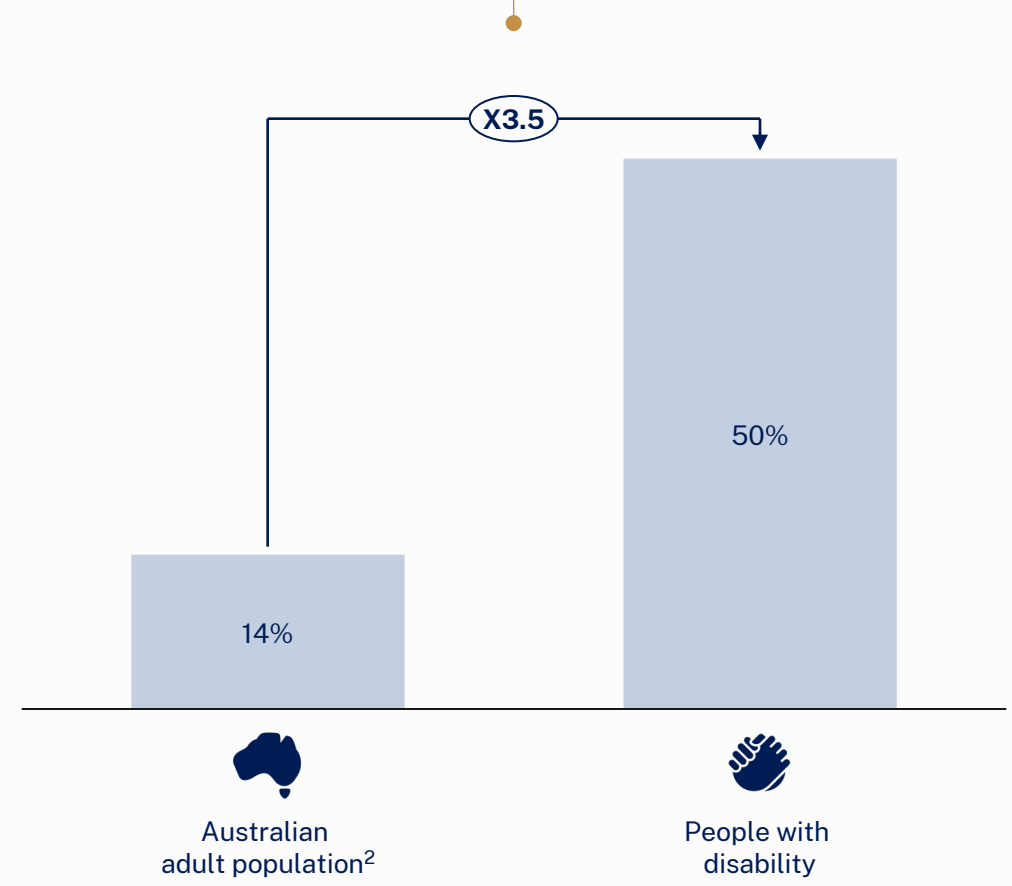
These benefits can make a real difference in daily living for people with disabilities.

¹ This statistic is based on global data and assumed to apply to the Australian population. See Fable (2023) *The state of online shopping for people with disabilities*.
² The proportion of households is assumed to be equivalent to the proportion of adults (aged 16 and over) for this comparison as per AusPost(2024a).

Exhibit 6: Proportion of people who shop online weekly across groups

2023

People with disabilities choose **online shopping 3.5 times more often than others**. They're actively selecting services that give them more control and independence.



Source: Fable (2023) *The state of online shopping for people with disabilities*; AusPost (2024a) *Inside Australian Online Shopping*; Mandala analysis.



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5

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Faster deliveries have unlocked \$1.8 billion for businesses through more sales and lower costs

Faster delivery times have not only benefited consumers but have created value for businesses. Australian firms gain better access to markets and consumers, and cost savings through timely access to inventory.

Faster deliveries boost sales. Businesses gained \$1.4 billion in sales revenue from faster Business-to-Customer (B2C) deliveries over the past decade. This growth reflects consumers' preference for quick, convenient shopping.¹

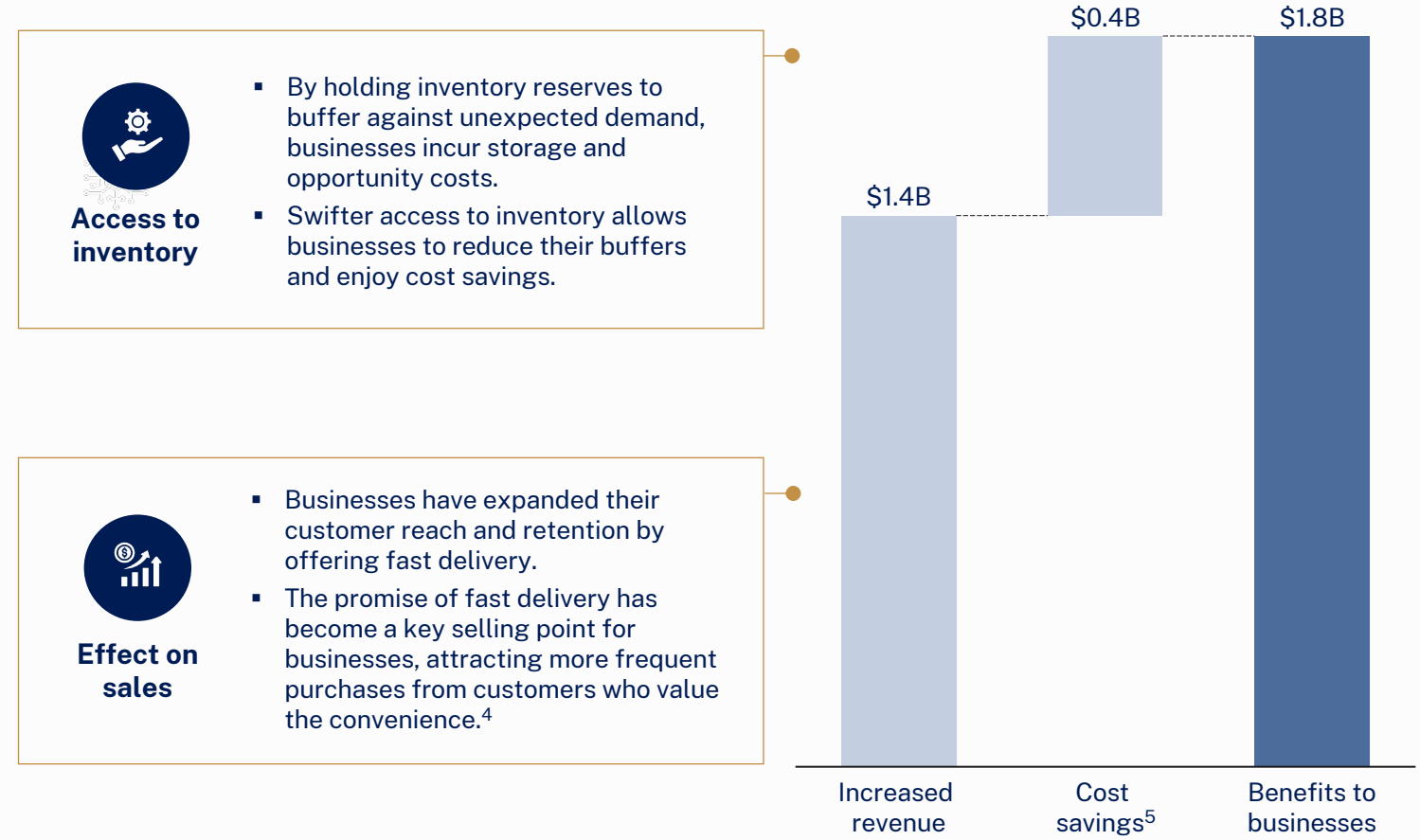
Faster deliveries from online shopping have particularly benefited small businesses. Small businesses are nearly twice as likely as larger ones to earn most of their income online. Almost 30 per cent of small businesses earn over half their income from online sales, compared to just 18 per cent of larger businesses.²

Businesses are not just sellers. They are buyers, too. As buyers, businesses have saved around \$440 million if Business-to-Business (B2B) deliveries improved like B2C deliveries. Faster B2B deliveries reduce safety stocks required to hedge against demand uncertainty, enabling cost savings on storage, while also enhancing supply chain resilience by accelerating order replenishment after disruptions.³

1 Nguyen et al. (2019).
 2 Australian Bureau of Statistics (2002, 2023a, 2023b).
 3 See appendix A.

Exhibit 7: Value creation for businesses from faster delivery over the past decade

Accumulated value, AU\$, 2014 – 2023



4 Fisher et al. (2019).
 5 Assumes B2B delivery times have evolved along the same path as B2C delivery times.
 Source: Australian Bureau of Statistics (2024) *Retail Trade*; Amazon (2024) *FBA Inventory storage fee changes for Australia*; AFR (2021) *Australia plays 'Catch' up on e-commerce-led warehouse boom*; Logistics Bureau (2022) *Warehouse Design – Rules of Thumb...And a Checklist*; Roumiantsev and Netessine (2007) *What Can Be Learned from Classical Inventory Models? A Cross-Industry Exploratory investigation*; Mandala analysis.

Faster deliveries help small businesses meet customer demands and stay competitive

“

“A speedy delivery is important to everyone, and with faster deliveries, shopping online is becoming even more convenient. **When a customer places an order with us, it’s important to me that they receive their purchase as soon as they can.** Often with my products, they’re bought in advance, but there are occasions when a mumma just needs some help and my product is a go to. In those scenarios, she needs my product fast.

But speed is also important for me as a business owner. Turning over stock is what keeps me in business and so if my competitors can offer a faster delivery service, it’s possible the customer will favour them over me.”

— Denise Billsborough, Founder

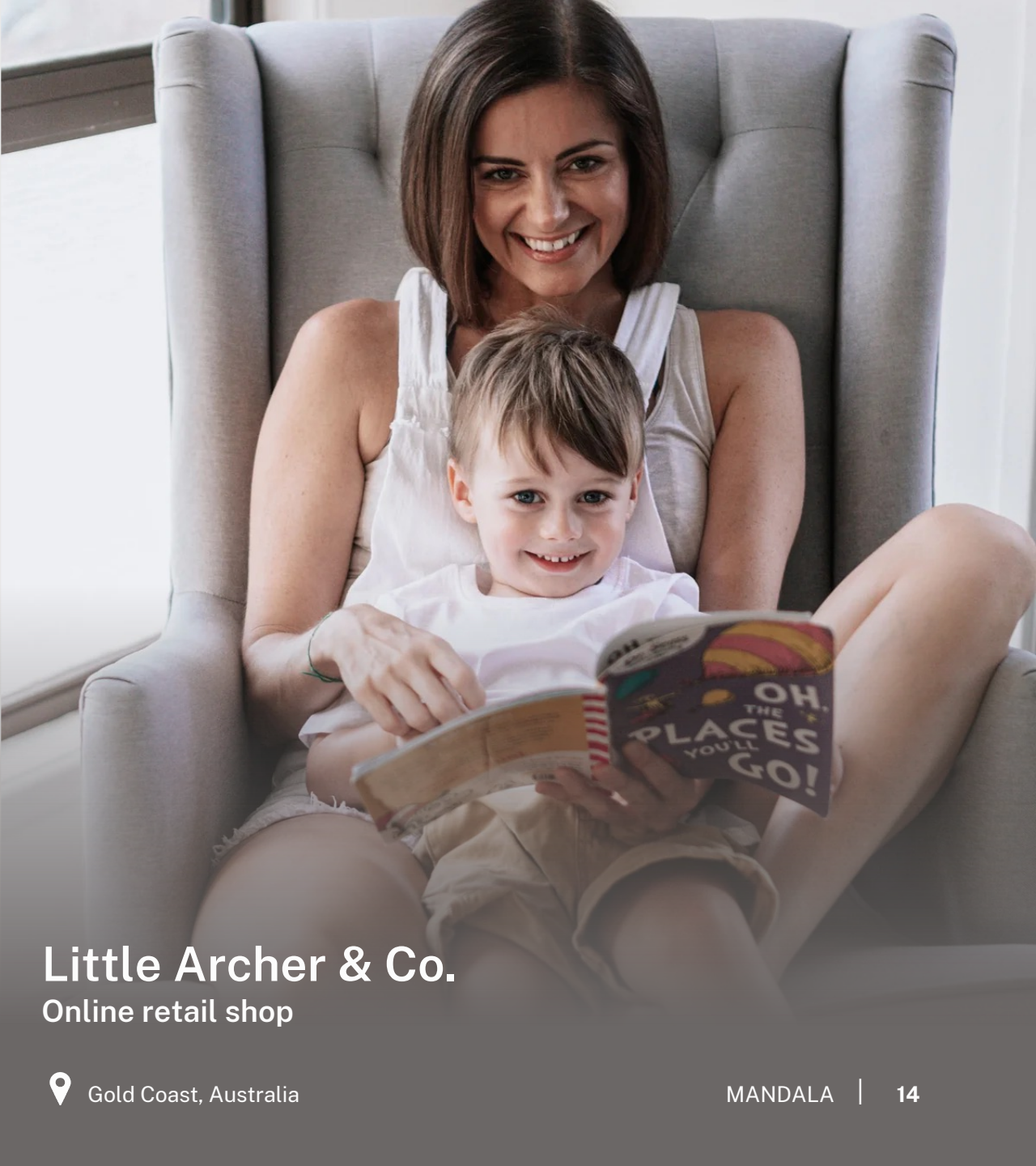
Fast delivery is crucial for small businesses. Customers expect quick service, especially for urgent needs. Speedy delivery helps businesses turn over stock faster and gain an advantage over competitors.

Fulfillment by Amazon (FBA) helps small businesses meet these challenges. Here's how:

- Small businesses store products in Amazon's warehouses across Australia.
- When orders come in, Amazon quickly packs and ships them.
- Customers often receive items the same or next day.

This system helps small businesses compete with big retailers. It frees up owners' time to focus on growing their business instead of managing shipping. With FBA, small businesses can meet customer expectations for fast delivery.

Source: Amazon (2022b) SMB Empowerment Report; Amazon (2024c) Amazon FBA: Fulfillment services for your ecommerce business; Mandala analysis.



Little Archer & Co.
Online retail shop

📍 Gold Coast, Australia



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Faster deliveries are just one way in which online retail channels support consumers, alongside lower prices, increased competition, and household savings

Exhibit 8: Consumer Price Index vs Online Channel Index

Consumer Price Index, Online Channel Index, 2019 – 2023

 **Lower prices:** Online retail channels have helped ease cost of living challenges with prices falling since 2019.

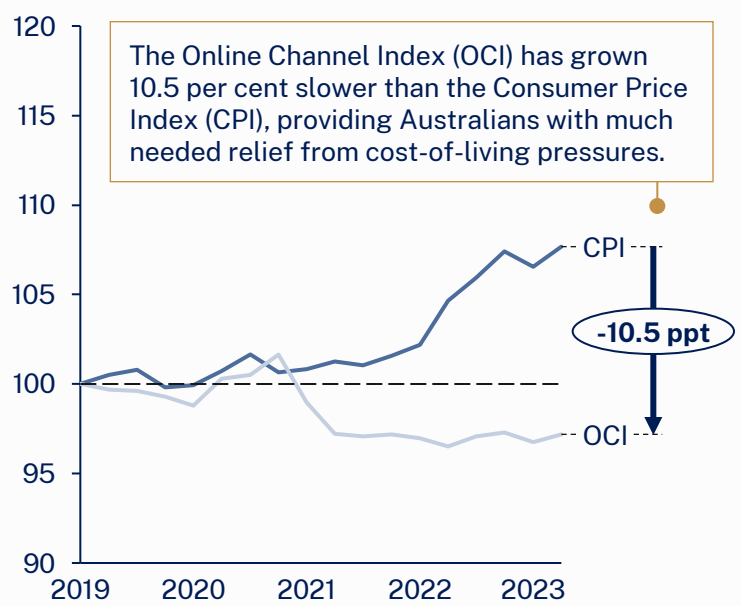



Exhibit 9: Growth in number of online retail businesses vs all businesses in Australia

Index of business counts (2019 = 100), 2019 - 2023

 **More competition:** The number of online businesses grew 55 percentage points faster than all businesses since 2019, boosting consumer choice and competition.

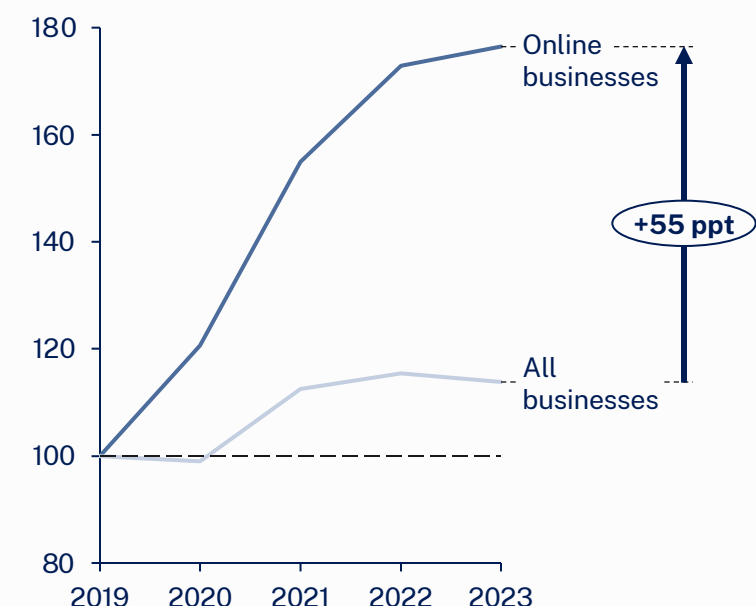
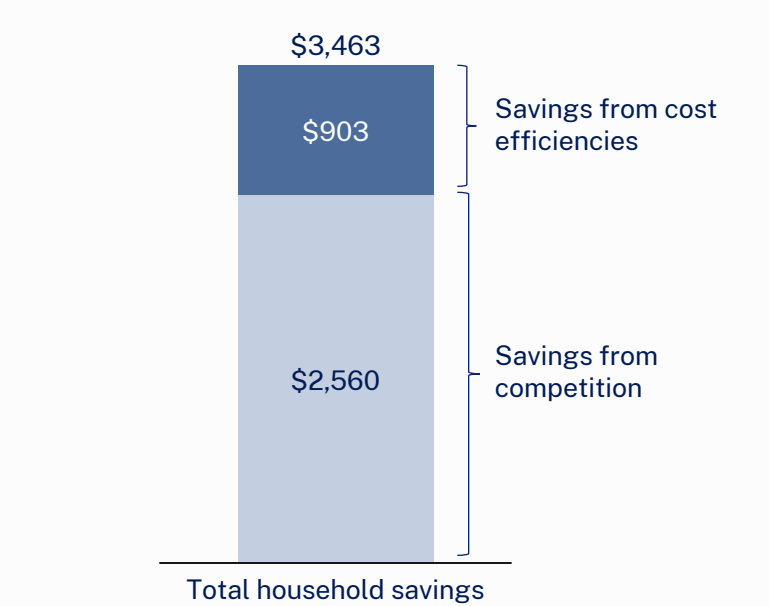


Exhibit 10: Average household savings from online retail channels

Household savings, cumulative, AU\$, 2019 – 2022

 **More savings:** Online retail channels saved households \$3,463 from 2019 to 2022 through cost efficiencies and more competition.



Source: Mandala (2023) Surf, Shop, Save: Online retail helps lower the cost of living; IBISWorld (2024a) Industry Report Online Shopping in Australia; Australian Bureau of Statistics (2023b) Counts of Australian Businesses, including Entries and Exits; Mandala analysis.

Optimising infrastructure and zoning policies for last-mile delivery needs will maximise benefits

Last-mile delivery is the final step in the fulfilment journey. It is when the parcel leaves the warehouse and arrives at the recipient's location.

The last mile can account for 41 per cent of the overall costs of shipping, according to one estimate.¹

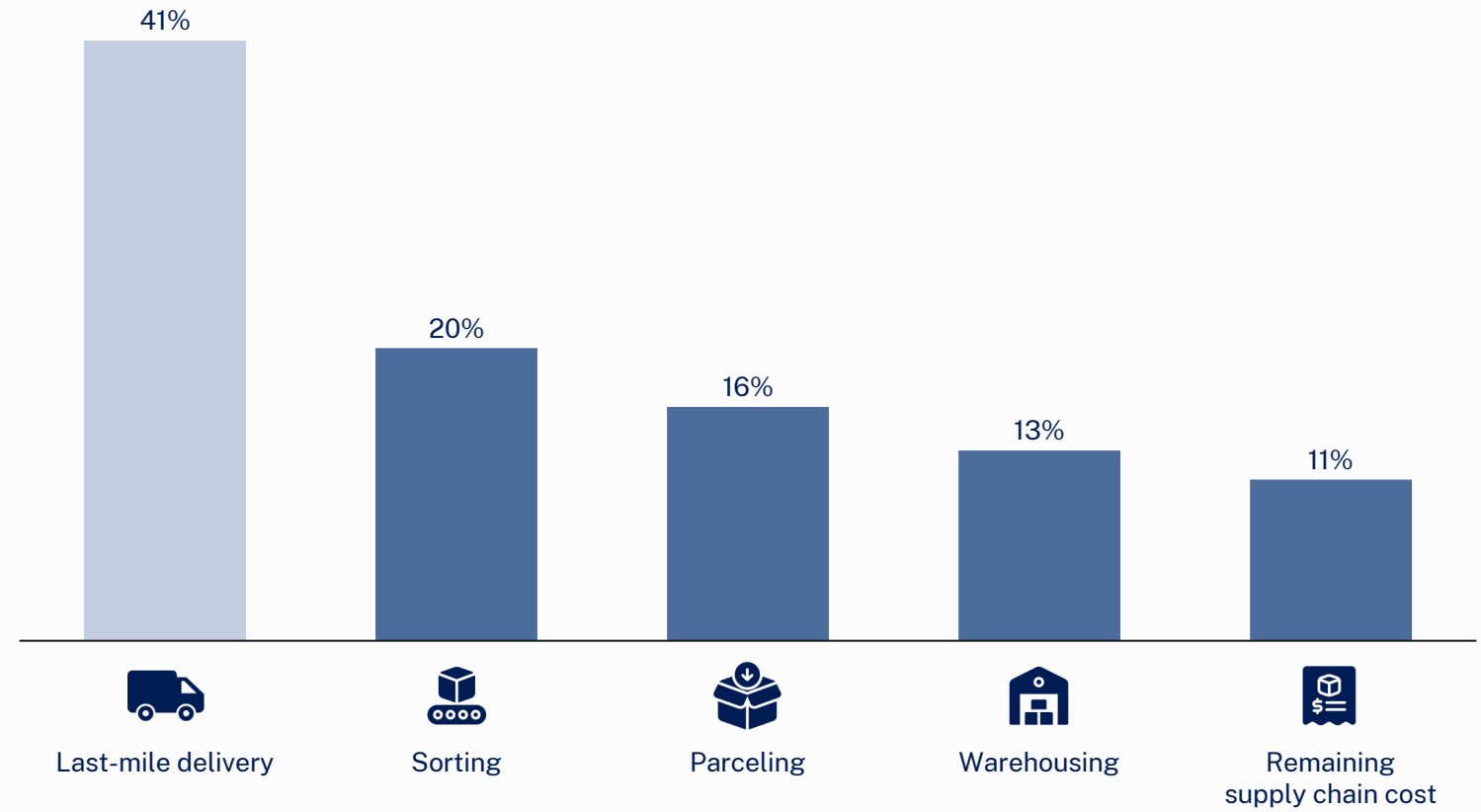
Streamlining regulations can unlock benefits by optimising last-mile delivery:

1. Flexible zoning laws could allow strategically located warehouses, bringing inventory closer to customers.
2. Revised planning policies could support innovative solutions.²
3. Updated regulations can encourage environmentally friendly delivery modes, potentially reducing carbon intensity per parcel.^{3,4}
4. Easing restrictions on delivery times and vehicle access in urban areas could improve efficiency and reduce congestion.

1 Capgemini Research Institute (2019).
 2 Corrs (2024).
 3 Samad et al. (2023).
 4 Viu-Roig et al. (2020)

Exhibit 11: Average supply chain costs

% total shipping costs, 2019



The growing importance of last-mile logistics will transform city operations, impacting urban systems and stakeholders. Proactive policy changes can enhance sustainability and efficiency in this crucial sector.⁴



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A: Additional analysis

B: Methodology

C: References

Fast deliveries enhance both the efficiency and resilience of supply chains for business

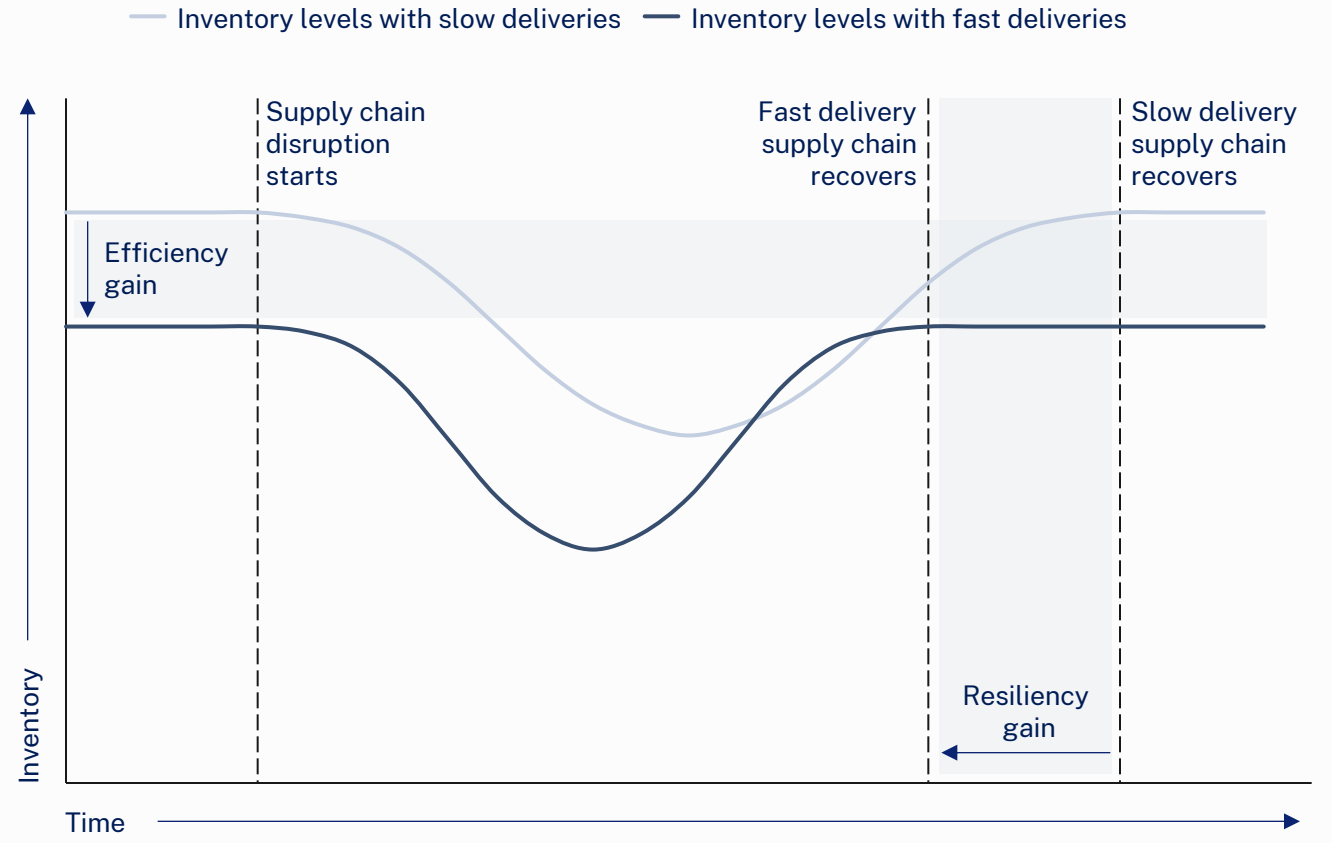
Fast B2B delivery boosts efficiency by decreasing inventory storage costs and increasing firms' Return on Assets (ROA). It also improves supply chain resilience, which we can measure by how quickly firms' inventory recovers to normal levels after disruptions.¹

Quick order replenishment, enabled by fast B2B delivery, strengthens firms' ability to react to unexpected events. It reduces task complexity in inventory control and simplifies order decision making.^{2,3}

These benefits are consistent with faster recovery speeds resulting from shorter average distances between supply nodes in a network.⁴ Together, these factors create more efficient and resilient supply chains that are better equipped to handle disruptions and optimise performance.

¹ Chang and Lin (2019).
² Agrawal et al. (2009).
³ So and Zheng (2003); Song et al. (2009).
⁴ Colicchia et al. (2010); Basole and Bellamy (2014).

Exhibit A.1: Stylised supply chain performance following disruption



Faster deliveries lower firms' optimal levels of inventory necessary to hedge against demand uncertainty while enabling fast order replenishment following a supply chain disruption.⁵

⁵ See, for example, Song (1994) and Rummyantsev and Netessine (2007).
Source: Chang and Lin (2019) *The effect of lead-time on supply chain resilience performance*; Mandala analysis.



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A: Additional analysis

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The improvement in delivery times is modelled across 2014-2023

Exhibit B.1: Methodology for modelling improvement in delivery times

- We model the improvement in delivery times across two key data points; end of calendar year 2013 to end of calendar year 2023.
- The 2023 data is based on Australia Post’s publicly available delivery schedule, providing a complete dataset of expected delivery times across metro and non-metro areas.
- To make the 2013 and 2023 datapoints comparable, we applied the following methodology:

AUSPOST ORIGINAL DATA FOR SEPTEMBER 2013							
<i>Within state</i>				<i>Across state</i>			
Key	Origin	Destination	Delivery days	Key	Origin	Destination	Delivery days
A1	Metro	Metro	2	B1	Metro	Metro (Class 1)	2.5
A2	Metro	Country	3.5	B2	Metro	Metro (Class 2)	3.5
A3	Metro	Far Country	4.5	B3	Metro	Metro (Class 3)	4.5
ASSUMPTIONS TO COMPLETE AUSPOST DATA FOR SEPTEMBER 2013							
Origin	Destination	Delivery days	Assumption	Rationale			
<i>Within state</i>							
Country	Country	4.5	Equals A3	Metro-Far country is equivalent to Country-Country			
Country	Far country	Upper bound of respective 2023 data		AusPost 2023 data is presented as range between lower and upper bounds. We assume delivery time improvement is equivalent to moving from the 2023 upper bound to the 2023 midpoint across the decade.			
Far country	Far country						
<i>Across state</i>							
Metro	Country	$1.75 * [B_i]^*$	$A2 / A1 = 1.75$	[Within-state Metro-Metro] / [Within-state Metro-Country] is assumed to be equal to [Across-state Metro-Metro] / [Across-state Metro-Country]			
Metro	Far country	$2.25 * [B_i]^*$	$A3 / A1 = 2.25$	See above, but in respect to Metro to Far country			
Country	Country	Upper bound of 2023 data	Midpoint of 2013 = Upper bound of 2023	AusPost 2023 data is presented as range between lower and upper bounds. We assume delivery time improvement is equivalent to moving from the upper bound to the midpoint.			
Country	Far country						
Far country	Far country						

*Where B_i is the delivery time of the corresponding ‘metro-metro’ times in the above ‘across state’ table

Source: AusPost (2013) *Domestic parcels post guide*; AusPost (2023) Parcel Post Domestic Delivery Estimator; Australian Bureau of Statistics (2011) Census; Australian Bureau of Statistics (2016) Census; Australian Bureau of Statistics (2021a) Census; Mandala analysis.

We estimated the consumer value from faster deliveries by combining cost savings and willingness to pay

Exhibit B.2: Value of convenience by a reduction in delivery time

Assumption Input Calculation

Value of convenience

 Cost of convenience per delivery

 Number of deliveries each year

 Proportion of willingness to pay for faster delivery

Weighted cost saving per 1 day reduction in delivery

Improvement in delivery time

Number of deliveries in a given year

Rate of growth in delivery volume

Proportion of consumers who are willing to pay for faster delivery

Source: Mandala analysis.

Source: AusPost (2024a).

Source: IBISWorld (2024b).

Source: ShipStation (2023).

1 Cost saving per day reduction in delivery by region

Source: Amazon (2017); Mandala analysis.




2 Proportion of people living in each region

Source: AIHW (2024).

Source: Mandala analysis.

We have estimated the value of convenience based on faster deliveries using a combination of econometric modelling and desktop research

Exhibit B.3: List of key components and sources for convenience value modelling

Component	Item	Value	Source	Additional information
 Cost of convenience per delivery	① Cost saving per day reduction in delivery by region	\$2.92 for each day faster delivery in 2023	Amazon (2017) <i>Delivery options</i> ; Mandala analysis.	We estimated this figure using Amazon's past shipping costs. We adjusted the costs for inflation from 2014 to 2023.
	② Proportion of people living in each region	72% in metro 18% in outer metro 10% in all other areas	AIHW (2024) <i>Rural and remote health</i> .	
	③ Improvement in delivery time	Average delivery time ranged from 4.3 to 8.2 days	Mandala analysis.	We used the year-on-year improvement in delivery times.
 Number of deliveries each year	④ Number of deliveries in a given year	67.2 million	AusPost (2024a) <i>Inside Australian Online Shopping</i> .	We based this on an average of 12 online purchases per year for 5.6 million Australian households.
	⑤ Rate of growth in delivery volume	13.8%	IBISWorld (2024b) <i>Online Shopping in Australia</i> .	We assumed that the industry market size growth is representative of the growth in delivery volume.
 Proportion of willingness to pay for faster delivery	⑥ Proportion of consumers who are willing to pay for faster delivery	61%	ShipStation (2023) <i>Holiday Shopping Trends Report 2023</i> .	We assumed that this was constant across each year and that the proportion of people willing to pay for faster delivery reflects the proportion of deliveries.

Source: Mandala analysis.

We model the time savings from faster deliveries based on the number of trips saved with the average duration of shopping

Exhibit B.4: Additional time spent on activities due to time savings

Assumption Input Calculation

Additional time invested from avoided shopping trips

Number of trips saved

Average time per shopping trip
 Proportion of free time usage

Source: Transport for NSW (2023).

Source: Hensher et al. (2021).

Number of new online shoppers due to improvements in delivery time

×

Average shopping trips saved (excluding grocery shops)

1 Rate of increase in new online customers due to improvement in delivery times

Source: Fisher et al. (2019).

×

Total number of online shoppers

4 Average shopping trips per person

Source: Transport for NSW (2023).

−

5 Average grocery shopping trips per person

Source: The Nightly (2024).

2 Proportion of households shopping online

Source: AusPost (2024a).

×

3 Working age population

Source: Australian Bureau of Statistics (2021a).

Source: Mandala analysis.

We have estimated the impact of faster delivery on time saved by online shoppers using a combination of economic modelling and desktop research

Exhibit B.5: List of key components and sources for time savings modelling

Component	Item	Value	Source	Additional information
 Number of trips saved per year	① Rate of increase in new online customers due to improvement in delivery times	0.53% per day improvement in delivery times	Fisher et al. (2019) <i>The Value of Rapid Delivery in Omnichannel Retail</i> .	We calculated that delivery time has improved by 3.7 days since 2014. Therefore, the total gain in online shoppers is the product of 3.7 and 0.53%.
	② Proportion of households shopping online	80%	AusPost (2024a) <i>Inside Australian Online Shopping</i> .	
	③ Working age population	16.41 million	Australian Bureau of Statistics (2021a) <i>Census</i> .	
	④ Average shopping trips per person	3.6 shopping trips per person	Transport for NSW (2023) <i>Household Travel Survey</i> .	
	⑤ Average grocery shopping trips per person	3 grocery trips per person	The Nightly (2024) <i>The once-a-week supermarket shop is in decline. Here's what Coles and Woolworths expect next</i> .	
 Average time per shopping trip	⑥ Average time per shopping trip	29 minutes return	Transport for NSW (2023) <i>Household Travel Survey</i> .	We calculated the average for Sydney, Illawarra and Hunter Valley region weighted by number of shopping trips.
 Proportion of free time usage	⑦ Proportion of free time spent on activities, from time saved in commuting	55% work (paid and unpaid) 45% leisure	Hensher et al. (2021) <i>Time Allocation of Reduced Commuting Time during COVID-19 under Working From Home</i> .	

Source: Mandala analysis.

We model the impact of faster deliveries on businesses calculating businesses' increased revenue and cost savings (I/II)

Exhibit B.6: Businesses' increased revenue from making faster delivery in a given year

Assumption Input Calculation

Benefits to businesses

Increased revenue

1 Year-over-year improvement in delivery time

Source: Mandala analysis.

2 Effect of a 1-day reduction in delivery time on online sales

Source: Fisher et al. (2019).


3 Online retail sales in the previous year


Source: Australian Bureau of Statistics (2024).

We model the impact of faster deliveries on businesses calculating businesses' increased revenue and cost savings (II/II)

Exhibit B.7: Businesses' cost saving from faster delivery times in a given year

Assumption Input Calculation

 Benefits to businesses

 Cost saving

Inventory storage cost $-$ Inventory storage cost from reduced delivery times

Storage cost per square metre \times ⁶ Total storage space \times Storage cost per square metre \times Square metres of storage space used in Australia with fast delivery

Source: CBRE (2022).

⁴ Storage cost per cubic metre \times ⁵ Conversion factor to square metres

Source: Amazon (2024d). Source: Logistics Bureau (2022).

⁴ Storage cost per cubic metre \times ⁵ Conversion factor to square metres

Source: Amazon (2024d). Source: Logistics Bureau (2022).



⁶ Total storage space \times $(1 +$ ¹ Improvement in delivery time \times ⁷ Effect of delivery time on inventory level $)$

Source: CBRE (2022). Source: Mandala analysis. Source: Roumiantsev and Netessine (2006).

Source: Mandala analysis.

We have estimated the business benefits derived from faster deliveries based on a combination of economic modelling and desktop research

Exhibit B.8: List of key components and sources for business benefits modelling

Component	Item	Value	Source	Additional information
 Increased revenue	① Improvement in delivery time	Average delivery time ranged from 4.3 to 8.2 days	Mandala analysis.	We used the year-on-year improvement in delivery times.
	② Effect of a 1-day reduction in delivery time on online sales	1.45%	Fisher et al. (2019) <i>The Value of Rapid Delivery in Omnichannel Retailing</i> .	
	③ Online retail sales	Sales ranged between \$7,300 million and \$45,400 million	Australian Bureau of Statistics (2024) <i>Retail Trade</i> .	
 Cost saving	④ Storage cost per square metre	Costs ranged between \$250 and \$330	Amazon (2024d) <i>FBA inventory storage fee changes for Australia</i> .	We scaled this by year-over-year inflation of 3%.
	⑤ Conversion factor to square metres	1 sqm corresponds to 10 cbm	Logistics Bureau (2022) <i>Warehouse Design - Rules of Thumb... And a Checklist</i> .	
	⑥ Total storage space	\$1 billion of online retail sales requires 70,000 sqm of inventory space	CBRE (2022). <i>Australia's E-Commerce Trend and Trajectory Update</i> .	
	⑦ Effect of delivery time on inventory level	0.11%	Roumiantsev and Netessine (2006) <i>What can be learned from classical inventory models: a cross-industry empirical investigation</i> .	

Source: Mandala analysis.



1

Delivery times for online shopping in Australia have halved over the past decade

2

Faster deliveries have delivered over \$350 million of value to consumers through increased convenience and time saved, helping people with disabilities in particular

3

Faster deliveries have generated \$1.8 billion for businesses in sales and cost savings over the past decade, particularly benefiting small businesses

4

Faster deliveries have transformed Australian online retail, but further work is needed to maximise these benefits

5

Appendix

A: Additional analysis

B: Methodology

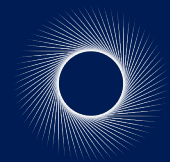
C: References

References (I/II)

- Agrawal et al. (2009) *Impact of information sharing and lead time on bullwhip effect and on-hand inventory*, European Journal of Operational Research, available at: <https://doi.org/10.1016/j.ejor.2007.09.015>.
- AIHW (2024) *Rural and remote health*, available at: <https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health>.
- Amazon (2017) *Delivery options*, available at: <https://web.archive.org/web/20171208020036/https://www.amazon.com.au/gp/help/customer/display.html?nodeId=202202400>.
- Amazon (2022a) *Introducing the \$1 billion Amazon Industrial Innovation Fund*, available at: <https://www.aboutamazon.com/news/innovation-at-amazon/introducing-the-1-billion-amazon-industrial-innovation-fund>.
- Amazon (2022b) *SMB Empowerment Report*, available at: <https://assets.aboutamazon.com/e8/6c/80ff5eea49e9b9b7d1df89c61537/amazon-australian-smb-empowerment-report.pdf>.
- Amazon (2024a) *Amazon Australia announces Prime free one-day delivery in Brisbane, Geelong, Gosford, Newcastle and Wollongong*, available at: <https://amazonau.gcs-web.com/news-releases/news-release-details/amazon-australia-announces-prime-free-one-day-delivery-Brisbane>.
- Amazon (2024b) *Delivery rates and times*, available at: <https://www.amazon.com.au/gp/help/customer/display.html?nodeId=202202400>.
- Amazon (2024c) *Amazon FBA: Fulfillment services for your ecommerce business*, available at: <https://sell.amazon.com/fulfillment-by-amazon>.
- Amazon (2024d) *FBA inventory storage fee changes for Australia (2024)*, available at: https://sellercentral.amazon.com.au/help/hub/reference/external/GHXQVVTHNNV2KUA?initialSessionID=355-3066189-3369944&ld=NSBing_SD_PRI_RC2&ldStackingCodes=NSBing
- AusPost (2013) *Domestic parcels post guide*, available at: <https://web.archive.org/web/20140211232943/http://auspost.com.au/media/documents/domestic-parcels-post-guide-sept13.pdf>.
- AusPost (2023a) *Inside Australian Online Shopping*, available at: https://auspost.com.au/content/dam/auspost_corp/media/documents/ecommerce-industry-report-2023.pdf.
- AusPost (2023b) *Parcel Post Domestic Delivery Estimator*, available at: https://auspost.com.au/content/dam/auspost_corp/media/documents/domestic-parcels-delivery-estimator.pdf.
- AusPost (2024a) *Inside Australian Online Shopping*, available at: <https://ecommerce-report.auspost.com.au/>.
- AusPost (2024b) *Next day delivery: getting to the finish line fastest*, available at: <https://auspost.com.au/business/business-ideas/selling-online/next-day-delivery>.
- Australian Bureau of Statistics (2002) *Small Businesses in Australia*, available at: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/1321.0>.
- Australian Bureau of Statistics (2011) *Census*, available at: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/historicaldata2011>.
- Australian Bureau of Statistics (2016) *Census*, available at: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/2016>.
- Australian Bureau of Statistics (2021a) *Census*, available at: <https://www.abs.gov.au/census>.
- Australian Bureau of Statistics (2021b) *Online sales, June 2021 - Supplementary COVID-19 analysis*, available at: <https://www.abs.gov.au/articles/online-sales-may-2021-supplementary-covid-19-analysis>.
- Australian Bureau of Statistics (2022) *How Australians Use Their Time*, available at: <https://www.abs.gov.au/statistics/people/people-and-communities/how-australians-use-their-time/2020-21>.
- Australian Bureau of Statistics (2023a) *Characteristics of Australian Businesses – Table 3 Internet income as a proportion of income from goods and services*, available at: <https://www.abs.gov.au/statistics/industry/technology-and-innovation/characteristics-australian-business/latest-release>.
- Australian Bureau of Statistics (2023b) *Counts of Australian Businesses, including Entries and Exits*, available at: <https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>.
- Australian Bureau of Statistics (2024) *Retail Trade*, available at: <https://www.abs.gov.au/statistics/industry/retail-and-wholesale-trade/retail-trade-australia/latest-release>.
- Basole and Bellamy (2014) *Supply network structure, visibility, and risk diffusion: a computation approach*, Decision Sciences, available at: <https://doi.org/10.1111/dec.12099>.
- Capgemini Research Institute (2019) *The last-mile delivery challenge*, available at: <https://www.capgemini.com/wp-content/uploads/2019/01/Report-Digital-%E2%80%93-Last-Mile-Delivery-Challenge1.pdf>.
- CBRE (2022) *Australia's E-Commerce Trend and Trajectory Update*, available at: <https://www.cbre.com.au/insights/reports/australia%E2%80%99s-e-commerce-trend-and-trajectory-2022>.

References (II/II)

- Chang and Lin (2019) *The effect of lead-time on supply chain resilience performance*, Asia Pacific Management Review, available at: <https://doi.org/10.1016/j.apmr.2018.10.004>.
- Colicchia et al. (2010) *Increasing supply chain resilience in a global sourcing context*, Production Planning & Control, available at: <https://doi.org/10.1080/09537280903551969>.
- Corrs (2024) *The future of last-mile infrastructure*, available at: <https://www.corrs.com.au/insights/the-future-of-last-mile-infrastructure>.
- Fable (2023) *The state of online shopping for people with disabilities*, available at: <https://makeitfable.com/insights/insights-the-state-of-online-shopping-for-people-with-disabilities/>.
- Fisher et al. (2019) *The Value of Rapid Delivery in Omnichannel Retailing*, Journal of Marketing Research, available at: <https://doi.org/10.1177/0022243719849940>.
- Hensher et al. (2022) *Time Allocation of Reduced Commuting Time during COVID-19 under Working from Home*, Journal of Transport Economics and Policy, available at: <https://hdl.handle.net/2123/29665>.
- IBISWorld (2024a) *Industry Report Online Shopping in Australia*, available at: <https://www.ibisworld.com/au/industry/online-shopping/1837/>.
- IBISWorld (2024b) *Online Shopping in Australia*, available at: <https://www.ibisworld.com/au/market-size/online-shopping/>.
- Logistics Bureau (2022) *Warehouse Design – Rules of Thumb... And a Checklist*, available at: <https://www.logisticsbureau.com/warehouse-design-rules-of-thumb/>.
- Mandala (2023) *Surf, Shop, Safe: Online retail helps lower the cost of living*, available at: <https://mandalapartners.com/reports/surf-shop-save>.
- Nguyen et al. (2019) *What Is the Right Delivery Option for You? Consumer Preferences for Delivery Attributes in Online Retailing*, Journal of Business Logistics, available at: <https://doi.org/10.1111/jbl.12210>.
- Nirovision (2021) *COVID-19's impact on Australian logistics*, available at: <https://www.nirovision.com/guides-and-ebooks/covid-19s-impact-on-australian-logistics>.
- Officeworks (2024) *Our delivery options*, available at: <https://www.officeworks.com.au/information/policies/delivery-offer>.
- Pureprofile (2023) *Australian Ecommerce Report*, available at: <https://business.pureprofile.com/australian-ecommerce-report-2023/>.
- Reuters (2024) *Goldman Sachs buys Australia logistics properties to beef up real estate portfolio*, available at: <https://www.reuters.com/business/finance/goldman-sachs-buys-australia-logistics-properties-beef-up-real-estate-portfolio-2024-07-23/>.
- Roumiantsev and Netessine (2007) *What Can Be Learned from Classical Inventory Models? A Cross-Industry Exploratory Investigation*, Manufacturing & Service Operations Management, available at: <https://doi.org/10.1287/msom.1070.0166>.
- Samad et al. (2023) *Towards a framework for development of crowd logistics: Paving the way for sustainable logistics*, Computers & Industrial Engineering, available at: <https://doi.org/10.1016/j.cie.2023.109008>.
- ShipStation (2023) *Holiday Shopping Trends Report 2023*, available at: <https://www.shipstation.com/holiday-shopping-trends-report/>.
- So and Zheng (2003) *Impact of supplier's lead time and forecast demand updating on retailer's order quantity variability in a two-level supply chain*, International Journal of Production Economics, available at: [https://doi.org/10.1016/S0925-5273\(03\)00050-1](https://doi.org/10.1016/S0925-5273(03)00050-1).
- Song (1994) *The effect of lead time uncertainty in a simple stochastic inventory model*, Management Science, available at: <https://doi.org/10.1287/mnsc.40.5.603>.
- Song et al. (2009) *The Effect of Lead Time and Demand Uncertainties in (r, q) Inventory Systems*, Operations Research, available at: <https://doi.org/10.1287/opre.1090.0711>.
- The Iconic (2024) *Shipping policy*, available at: <https://www.theiconic.com.au/shipping-policy/>.
- The Nightly (2024) *The once-a-week supermarket shop is in decline. Here's what Coles and Woolworths expect next*, available at: <https://thenightly.com.au/business/the-once-a-week-supermarket-shop-is-in-decline-heres-what-coles-and-woolworths-expect-next-c-14781390>.
- Transport for NSW (2023) *Household Travel Survey*, available at: <https://www.transport.nsw.gov.au/data-by-region>.
- Viu-Roig et al. (2020) *The Impact of E-Commerce-Related Last-Mile Logistics on Cities: A Systematic Literature Review*, Sustainability, available at: <https://doi.org/10.3390/su12166492>.



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