nbn's submission to IPART: Review of rents for communication sites on certain Crown land, Draft Report

16 August 2024

Final

Summary

Thank you for the opportunity to comment on the Independent Pricing and Regulatory Tribunal's (**IPART**) 'Review of rental arrangements for communication towers on certain Crown Land, Draft Report, July 2024 (**Draft Report**).[1]

NBN Co (**nbn**) supports of the draft recommendations made by the IPART those that address *in part* the misalignment of existing primary user fees with 'fair market-based commercial returns'. Specifically:

- the reduction of primary user fees across each of the different density classifications (Sydney, High, Medium and Low) (draft recommendation 1);
- that the published fee schedule is to be independently reviewed every 5 years to ensure it continues to reflect market conditions (draft recommendation 7); and
- the use of 3% as an annual escalator rather than CPI (draft recommendation 8) as this applies to primary user fees.

We support these draft recommendations in the absence of a more appropriate methodology for calculating primary user fees such as a land valuation approach setting rentals as a percentage of the unimproved land value.[2]

However, we would like to highlight that the lower 'value for money' proposition in NSW Crown land leases is not fully addressed by the IPART's draft recommendations. At a high level, the lower 'value for money' proposition is driven by factors including:

- the ability to increase rent during the term of a lease;
- the often unimproved nature of the land and consequential high variable cost components relating to permanent power and access;
- ongoing access track maintenance fees;
- onerous indemnities;
- early termination rights;
- limited exclusive use equipment areas; and
- the requirement for in-compound co-users to pay additional rent.

In respect of co-user arrangements, we do not agree with the reasoning provided by the IPART to support its draft recommendation for co-users to continue to pay a fee that is set at 50% of the primary user's rental fee arrangements (draft recommendation 4). Specifically:

- We disagree with the IPART's view that if the co-user fees were removed, then the rent for primary users would need to increase to recognise the ability of the primary user to sub-let, with greater intensity of land use. Our view is that the lower 'value for money' represented by Crown land lease arrangements when compared to private rentals, including the inability to sub-let, is not fully reflected in the proposed recommendations regarding primary user fees.

[1] We have used the term NSW Crown land sites to encompass sites that are managed by the three NSW land management agencies that are within the scope of IPART's review: the Department of Planning, Housing and Infrastructure – Crown Lands and Public Spaces; NSW National Parks and Wildlife Service (NPWS), which is part of the Environment and Heritage Group in the Department of Climate Change, Energy, the Environment and Water; and Forestry Corporation of NSW (Forestry Corporation) – a state-owned corporation.

[2] See **nbn**'s submission responding to the IPART's 2019 Review of rental arrangement for communication towers on Crown land issues paper for details on our views regarding the appropriateness of a land valuation approach.

- We consider that a blanket approach to the rents to be paid by co-users cannot be supported by the IPART's view that '…the right to be a co-user and situate one's communication equipment at a particular site is a valuable right [and] it is efficient to charge a non-zero price for that right'. The revenue that is provided by a co-user to NSW Crown should be proportionate to the value that is *directly* provided by NSW Crown to the co-user. We consider that this principle in practice would result in the two following scenarios where there is a co-user on NSW Crown land sites:
    - Where a co-user is wholly located within a primary user's compound. This value is entirely, and appropriately, reflected in the commercial arrangements that a co-user enters into with the primary user (as is the case on private land). Therefore, the co-user should not pay additional rent to NSW Crown land in these circumstances.
    - Where a co-user is located both within, and external to, a primary user's compound. That is, NSW Crown is providing additional footprint to the co-user directly above and beyond that provided by the primary user. Therefore, the co-user would pay additional rent to NSW Crown land that is proportionate to the benefit provided by NSW Crown land. That is, on a per metre squared basis up to a maximum of the amount paid by the relevant primary user.

Given the disparity between the IPART's proposed approach to co-user rental arrangements and 'fair market-based commercial returns' when benchmarked against private land rental arrangements, we strongly encourage the IPART to reconsider its 2019 recommendations for calculating co-user rental arrangements. We consider that the 2019 recommendations are in fact 'simple and able to be easily implemented by the responsible land management agencies' as required by the IPART's Terms of Reference (**ToR**) contrary to the feedback provided by the responsible land management agencies discussed further below. We would encourage the IPART to further investigate the ease of implementation given the significant implications that the 2019 recommendations, if made, would have on ensuring co-user rental arrangements reflect 'fair market-based commercial returns'.

We note that the IPART's proposed approach to National Parks and Wildlife Service's (NPWS) fees is to continue to set rental fees one category higher (draft recommendation 2). Further, that IPART's view is that this practice balances the unquantified additional costs of land management against any potential social benefit created by the communication sites.

We provide details on the potential additional costs that may be relevant in the submission below.

In terms of the social benefits provided by **nbn**'s communication sites, new economic research from Accenture found that the **nbn** network supported 4% of aggregate GDP growth in 2012-2022. Additionally, access to faster broadband has enabled positive impacts across overall wellbeing, social and community connection, health, education and employment.[3] While these findings apply to the **nbn** network overall, these economic and social benefits exist equally for premises in the FW footprint.

Our FW and Satellite Upgrade Program alone is estimated to provide an additional $6.1 billion in regional GDP over FY22-26.[4] This is in addition to the public benefits that are provided to Australians who are, or will be able to, obtain our FW service due to our Regional Connectivity Program (**RCP**) co-investments. The Accenture research indicates the GDP benefit of faster broadband speed is up to 16x greater in remote areas and 2x greater in

[3] Accenture Economic and Social Impact Report 2024, p 18. See **Attachment A** for the full report.

[4] **nbn** Media Release, 22 March 2022 https://www.nbnco.au/corporate-information/media-centre/media-statements/750-million-investment-to-5G-enable-nbn-fixed-wireless-to-deliver-faster-speeds-to-regional-australia

regional areas.[5] Additionally, **nbn** users in regional and remote areas reported positive wellbeing impacts of similar magnitude to the national average.[6] Without our FW network, Australians in these areas would have limited alternative retail broadband options of the same quality.

Improved connectivity enabled by **nbn** FW network in regional and remote areas has been shown to improve education outcomes through better use of technology by schools and households. Additionally, because a number of regional and remote areas have limited range of health and wellbeing services, **nbn** FW improves access to these services, including Telehealth, as well as making communication between doctors, specialists and patients easier. The Accenture research found 73% of regional and remote **nbn** users say having the **nbn** network at home has had a positive impact on their satisfaction with life and individual wellbeing, including:

- 78% of regional and remote **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their **employment outcomes**.
- 80% of regional and remote **nbn** users who engaged in education from home reported the **nbn** network positively impacted their **education outcomes**.
- 77% of regional and remote **nbn** users who accessed telehealth or online medical information, resources or records reported the **nbn** network positively impacted their **health outcomes**.
- 73% of regional and remote **nbn** users who connect with family, friends and others or access news or community information online reported the **nbn** network positively impacted their **social and** community **connectedness.**
- 87% of regional and remote **nbn** users who work, study, access health or other services online reported having fast internet via **nbn** network helped them **to reduce their emissions.**

The benefits enabled by the **nbn** FW network are also in-line with **nbn**'s commitment to achieving Target 17 of the Closing the Gap initiative, which commits to First Nations people having equal levels of digital inclusion by 2026.[7]

Draft recommendations

We provide comment below on some of the draft recommendations as set out in the Draft Report.

Draft recommendation 1 - The existing density classifications continue to be used to minimise the costs of implementing the updated fee schedule

We support this draft recommendation in the absence of a more appropriate methodology such as a land valuation approach setting rentals as a percentage of the unimproved land value.[8]

Draft recommendation 2 - That NPWS's approach of setting rental fees one category higher should continue.

[5] Accenture Economic and Social Impact Report 2024, p 11 (https://www.**nbn**co.com.au/content/dam/**nbn**/documents/about-**nbn**/reports/reports-and-publications/accenture-2024-economic-and-social-impact-insight-report.pdf.coredownload.pdf)

[6] Accenture Economic and Social Impact Report 2024, p 21.

[7] Accenture Economic and Social Impact Report 2024, p 23.

[8] See **nbn**'s submission responding to the IPART's 2019 Review of rental arrangement for communication towers on Crown land issues paper for details on our views regarding the appropriateness of a land valuation approach.

We understand that the IPART considers that the practice of setting rents one level higher balances the unquantified additional costs of land management against any potential social benefit created by the communication sites.

We have provided in the Summary section above analysis conducted by Accenture regarding the extensive economic and social benefits provided by **nbn** network overall which equally for premises in the FW footprint.

We are unaware of any additional costs (e.g. physical works or maintenance of access costs) that would be incurred by NPWS beyond potential costs to review initial applications. The practice of applying pricing that is one level higher would equate to an additional $8,476, $13,144 and $6,144 to be in paid in rent annually for a site in a low, medium and high density area respectively based on the proposed fee schedule. This additional cost seems excessive when compared to the nature of any additional costs likely to be incurred by NPWS.

[C-i-C] **[C-i-C]**

Draft recommendation 3 - Co-users continue to pay a co-user fee that is set at 50% of the primary user's rental fee

Intensity of use

We disagree with the IPART's view that if the co-user fees were removed, then the rent for primary users would need to increase to recognise the ability of the primary user to sub-let, with greater intensity of land use. As is correctly identified by the IPART, a licence to use Crown land is non-exclusive and co-users are unable to sublet from the primary user. However, our view is that this lower 'value for money' is not reflected in the rental arrangements paid by a primary user to the land management agencies notwithstanding the proposed recommendation to decrease the primary user fees.

- The lower 'value for money' proposition in NSW Crown land leases is driven by factors including: the ability to increase rent during the term of a lease; the often unimproved nature of the land and consequential high variable cost components relating to permanent power and access; ongoing access track maintenance fees; onerous indemnities; early termination rights; limited exclusive use equipment areas; and the requirement for in-compound co-users to pay additional rent.
- It is our experience that private land rental arrangements typically provide a primary user with exclusive use of the entire compound and no additional payments are required by the primary user to the land owner in circumstances where arrangements are entered into to enable co-users to use the area *inside the compound*. **[C-i-C]** **[C-i-C]**
- In private rental arrangements, when co-locating carriers enter into a separate lease with the underlying landowner they are typically granted additional ground lease compound area with all the benefits of a registered lease including use of the entire compound, not just a licence over the shadow line of the equipment.
    - **[C-i-C]**
    - **[C-i-C]**

Ease of implementation

We disagree with the view expressed by land management agencies that any approach that is based on area footprint should be disregarded as it would be administratively difficult to implement. The IPART's Terms of Reference (**ToR**) require that the methodology be 'simple and able to be easily implemented by the responsible land management agencies'.

- There is no evidence provided by the land management agencies to support the claim that significant systems and processes changes would be required to implement recommendations based on area footprint. To the extent that time would be required to implement new systems and processes, we note that leases generally run for 20 years and that a delay in the implementation of the relevant recommendations, if made, should not mean that they are not implemented at all.
- While we do not agree that the calculation of rent on a per metre squared basis would be difficult to implement, we note that the 2019 IPART recommendation that no annual rent be payable for co-users wholly located within the primary user's site is a simple binary exercise that is able to be implemented easily noting a point-in-time approach can be adopted to determining the relevant area.

Given the above, we support the IPART making the following 2019 review recommendations as part of its 2023 review.

- That no annual rent be payable for co-users wholly located within the primary user's site.
- That co-users on existing and new sites be charged for any additional Crown land they occupy outside the fenced perimeter of the primary user's communication tower site on a per metre squared basis.
- That the co-user rent for existing sites be capped at the flat rent per site for primary users on existing sites in the same location category.
- That new co-users of a site pay a one-off application fee equal to 50% of the primary user application fee.

Draft recommendation 6 - The following primary user fees be adopted for communication sites in each density classification: Sydney High Medium Low $36,340 $30,156 $17,012 $8,545 7.

Draft recommendation 7 - The published fee schedule is to be independently reviewed every 5 years to ensure it continues to reflect market conditions.

Draft recommendation 8 - The rental fees set out in draft recommendation 6 are to be escalated by 3% per year in line with current private market practice.

We support these draft recommendations based on the information available in the absence of a more appropriate methodology such as a land valuation approach setting rentals as a percentage of the unimproved land value.[9]

[9] See **nbn**'s submission responding to the IPART's 2019 Review of rental arrangement for communication towers on Crown land issues paper for details on our views regarding the appropriateness of a land valuation approach.

The economic and social impact of investment in the nbn network

Key Insights Report

January 2024

accenture

nbn™

This report has been commissioned by **NBN Co** and prepared by Accenture.

We acknowledge the Aboriginal and Torres Strait Islander peoples as the traditional custodians of our land – Australia.
We acknowledge the continuing culture and contributions of First Nations Peoples and pay our respects to Elders past, present and emerging.

Executive Summary

BACKGROUND

Broadband is the principal way Australians tap into the transformative benefits of the internet.

In 2023, there were more than 8.5 million households[1] with **nbn** broadband connections, reflecting near-ubiquitous uptake across the country. Home broadband is a gateway to the benefits of the internet, which is broadly considered a general-purpose-technology ('GPT'). GPT's have proven revolutionary impacts across the economy and the internet is no different. Ubiquitous, fast and reliable broadband supports a range of **economic** and **social** benefits, that are essential to Australia's prosperity.

The national broadband network ('nbn') builds and operates the infrastructure that has transformed Australia's connectivity.

The **nbn** network roll out has had a profound impact on broadband availability and speeds in Australia. When the **nbn** roll out commenced in 2011, the average household broadband download speed was 9 Mbps; and at the end of 2022 this had grown six-fold to 53 Mbps. The **nbn** network is responsible for an estimated **76% of this speed uplift** (33 Mbps of the total 44 Mbps increase). The number of total broadband connections has also grown substantially with the **nbn** network roll out.

PURPOSE OF THIS REPORT

The purpose of this report is to quantify the economic and social impact of nbn-enabled fast broadband in Australia.

The purpose of the **nbn** network is to lift Australia's digital capability, inclusion and access, as highlighted in its Statement of Expectations. This report articulates the **nbn**'s progress against this objective in the most comprehensive research prepared to date. It builds on previous research that has assessed the affordability and value of **nbn**-enabled connections[2].

METHODOLOGY

An academic, data-led approach has been used to measure the nbn's economic and social impact.

This report summarises the key findings from two interconnected research projects that leverage leading academic literature and best-practice approaches to impact measurement.

- To measure the ***economic impact of the nbn network***, a first-of-its-kind longitudinal dataset of Australian broadband connections at a geographic community level (SA2[3]) was built and statistical modelling based on highly cited economic literature was performed to estimate productivity, business and jobs impacts.
- To measure the ***social impact of the nbn network***, a detailed review of literature and industry-referenced social impact frameworks led to development of **nbn**'s *Social Impact Approach*. A fit-for-purpose impact thesis was developed and was tested using a survey of 1,500 **nbn** users, yielding statistically significant results of the **nbn**'s impact on individual wellbeing across five domains.

KEY RESULTS

The nbn network has had a profound impact on the Australian economy

- **Productivity**: Over the period 2012 to 2022, we estimate the **nbn** network has enabled productivity benefits of **$122 billion of GDP**. This impact equates to a **0.14%** annual contribution **to multifactor productivity growth** between 2012 and 2022, which is almost one quarter of all MFP growth (0.54% per year) in the period. Looking forward to 2030, a further **$399 billion** in productivity benefits is expected to be enabled by the **nbn** network.
- **Jobs:** Supporting 169,000 additional jobs between 2012 and 2022, of which 101,000 (60%) are held by women. A further **113,000** jobs enabled by the **nbn** network are expected between 2023 and 2030.
- **Businesses:** Supporting **87,000** additional businesses between 2012-2022. A further 55,000 are expected to be supported between now and 2030.
- **Equalising economic opportunity:** Importantly, we found remote communities experienced up to **16 times** the productivity benefit experienced in major cities. Furthermore, the most disadvantaged communities (SA2s in the bottom 20% of SEIFA scores[4]) experienced **5 times** the productivity benefit experienced by relatively advantaged communities (SA2s in the top 60% of SEIFA scores).

Access to nbn-enabled fast broadband has had positive, measurable social impact on Australians

- **Overall wellbeing:** Fewer than 1% of **nbn** users reported the **nbn** network as having a negative impact on wellbeing. 3 in 4 **nbn** users say that having the **nbn** at home has had a positive impact on their satisfaction with life in the last year.
- **Employment and income**: 77% of **nbn** users who worked from home or used an internet enabled job search felt the **nbn** network positively impacted their employment outcomes.
- **Education and skills**: 82% of **nbn** users who engaged in education from home felt the **nbn** network positively impacted their educational outcomes.
- **Health**: 77% of **nbn** users who accessed telehealth or medical information online felt the **nbn** network positively impacted their health outcomes.
- **Social and community connection:** 74% of **nbn** users who connected with others or accessed news or information online felt the **nbn** network positively impacted their connectedness.
- **Environment:** 85% of **nbn** users who work, study, access health or other services online felt the **nbn** network allowed them to reduce their emissions.

Notes: 1. The term 'households' as used throughout the report includes broadband connections to residential business and businesses activity conducted on consumer internet connections. 2. These results represented the expected benefits attributable to the **nbn**, recognising that alternative technologies have played a role in supporting economic development over the period. 3. SA2 refers to the Australian Bureau of Statistics' Statistical Area Level 2 which are used to aggregate statistics against "meaningful regions" comprising of approximately 10,000 people. 4. SEIFA stands for 'Socio-Economic Index for Areas' and is a socioeconomic ranking system used by the Australian Bureau of Statistics.

This report considers the impact of internet subscriptions delivered to a fixed address via any technology (including all fixed line connections, fixed wireless and satellite). The modelling approach does not account or control for the impact of internet delivered via mobile networks (using mobile devices with embedded SIM cards or eSIMs). See technical report for further details. All dollars are shown in $FY21, in line with the ABS' latest National Accounts. Future dollar have not been adjusted for inflation or discounting. See Affordability of services over the nbn network and Value of services over the nbn network.

The nbn network roll out has had a profound impact on broadband availability and speeds...

Since the **nbn** network roll out began in 2011, household broadband availability and speeds have increased.

+ 44 Mbps
Increase in average broadband speeds among Australian households from 9 Mbps in Dec-2011 to 53 Mbps in Dec-2022.

76%
nbn's contribution to the uplift of estimated average broadband speed across Australian households.[1]

8.5m households
active on the **nbn** network.

...delivering significant economic and social benefits to Australia

Economic benefits

Based on a new Australian broadband dataset and first-of-their-kind statistical models, we have quantified the economic impact of the nbn network from 2012-2022 and leveraged this understanding to forecast uplift from 2023-2030.

Gross Domestic Product

$122 billion
Projected GDP uplift
enabled by the **nbn** network where a 1Mbps increase yields a +**0.04% uplift to GDP** 2012-2022

With GDP uplift **16x higher in remote communities**
And **5x higher in the most socioeconomically disadvantaged communities**

+ $399 billion
Projected GDP uplift
enabled by the **nbn** network 2023-2030

Employment

169,000
Additional **jobs** enabled by the **nbn** network between 2012-2022

with **women benefiting 1.5x** compared to men

+ 113,000
Projected additional jobs enabled by the **nbn** network between 2023-2030

Businesses

87,000
Additional **businesses** enabled by the **nbn** network between 2012-2022

+ 55,000
Additional **businesses** enabled by the **nbn** network between 2023-2030

Social benefits

A survey of over 1,500 adult nbn users was conducted to understand the broader social impact of the nbn network. The survey employed a bespoke framework to understand social impact across five domains, finding:

3 in 4 nbn users say that having the **nbn** at home has had a positive impact on their satisfaction with life in the last 12 months

Where nbn users had ...

... worked from home or used job search,
77%
reported positive impacts on employment outcomes

... engaged in education from home,
82%
reported positive impacts on education outcomes

... accessed telehealth or medical info online,
77%
reported positive impacts on health outcomes

... connected with others or accessed news or information online,
74%
reported positive impacts on their connectedness

... worked, studied, accessed health or other services online,
85%
reported that it allowed them to reduce their carbon emissions

Source: Accenture analysis. See body of report for further details.
1. This report considers the impact of internet subscriptions delivered to a fixed address via any technology (including all fixed line connections, fixed wireless and satellite). The modelling approach does not account or control for the impact of internet delivered via mobile networks (using mobile devices with embedded SIM cards or eSIMs).

PURPOSE OF THIS REPORT

This report provides quantitative insight into the nbn's performance against its economic and social impact objectives

The purpose of the nbn network is set out in a Statement of Expectations

"The enduring purpose of the nbn is to provide fast, reliable and affordable connectivity to enable Australia to seize the economic opportunities before it and service the best interests of consumers.

It is essential to enabling access to key services, maximising employment and educational opportunities, and driving productivity and economic growth.

NBN Co will enhance Australia's digital capability by delivering services to meet the current and future needs of households, communities and businesses, and promote digital inclusion and equitable access to affordable and reliable broadband services..."

*– **NBN Statement of Expectations, December 2022**[1]*

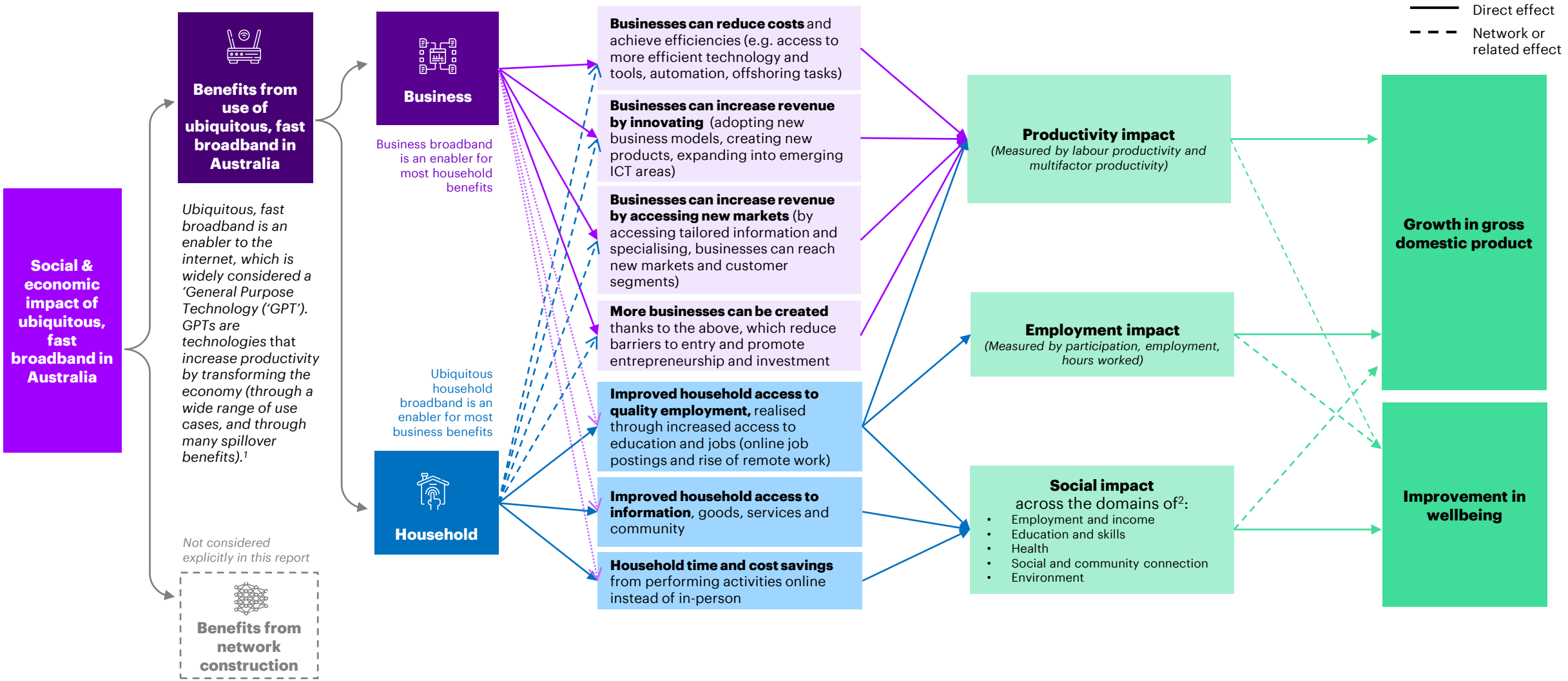
PURPOSE OF THIS REPORT

The purpose of this report is to quantify the economic and social impact of nbn-enabled fast broadband in Australia.

- The purpose of the **nbn** network is to lift Australia's digital capability, inclusion and access, as highlighted in the company's Statement of Expectations.
- The research outlined in this report was commissioned to objectively assess **nbn**'s progress against these objectives in the most comprehensive economic research prepared to date.
- This report considers both the productivity gains and employment benefits for Australia – along with changes to individual wellbeing for people connected to the **nbn** network. In other words, it considers the **economic and social impact** of the network, for the first time.

Source: 1. NBN Co Statement of Expectations as set by its Shareholder Ministers.

Ubiquitous, fast and reliable broadband drives improved economic and social outcomes for Australia



Notes: 1. Lipsey et al. 'Economic transformations: general purpose technologies and long-term economic growth', 2005. 2. Five priority domains have been considered and measured for this research, but broader impacts are likely.

01

Economic impact

KEY RESULTS – GDP

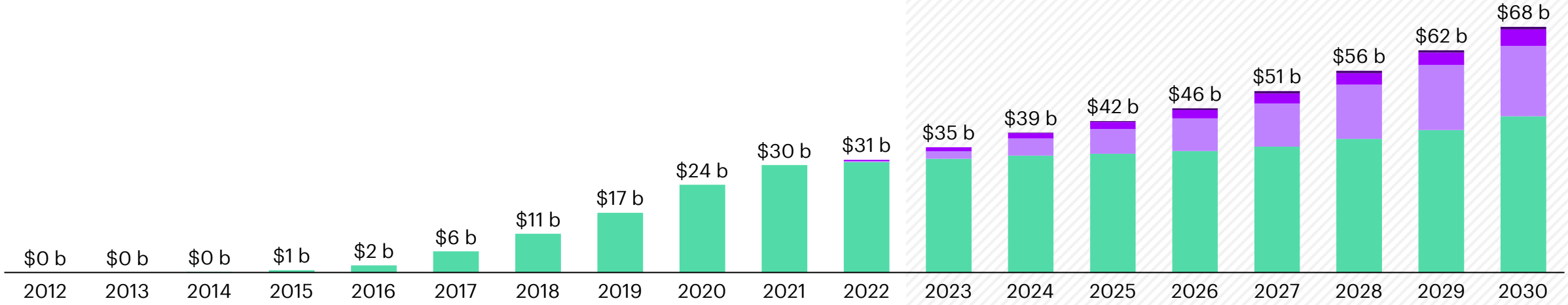
Our model finds that investment in the nbn network has delivered significant GDP benefits to the Australian economy

GDP uplift enabled by the nbn network[1]

$, billions, 2012-2030

2012-2022: $122 billion
total GDP impact of the initial roll out of **nbn** network across 2012-2022.
This impact implies **average annual contribution to growth in MFP of 0.14% between 2012 and 2030[2].**

2023-2030 (forecast): $399 billion
$287b is attributable to the initial roll out of the **nbn** network[3] and **$112b** is attributable to additional investments in the network[4], comprising of FTTN to FTTP upgrades (**$88b**), FTTC to FTTP upgrades (**$21b**), and Fixed Wireless upgrades (**$3b**).



% of GDP in year

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.5%	0.8%	1.2%	1.4%	1.4%	1.6%	1.7%	1.9%	2.0%	2.1%	2.3%	2.5%	2.7%

Productivity Benefits ($GDP): Fixed Wireless Upgrades
Productivity Benefits ($GDP): FTTN to FTTP Upgrades
Productivity Benefits ($GDP): FTTC to FTTP Upgrades
Productivity Benefits ($GDP): Initial Roll Out

Source: Accenture modelling, see technical report for detailed modelling approach. Note: Forecasts of future **nbn** network impacts hold the share of **nbn**-connected households constant at its 2023 level and non-**nbn** broadband speeds at current levels. The numbers of households grows in line with population forecasts. 1. Our model estimates the impact of all broadband speeds on GDP. The GDP figures shown are the portion of this productivity impact that is attributable to the **nbn** network. This has been calculated in each year by determining the portion of average speed increases that has been driven by increased take up on the **nbn** network and increasing speeds of those already connected to the **nbn** network. This has been deconstructed further into the impacts of major investment programs based on the relative impact of each program on overall speed increases. Results shown are based on the square root specification model that accounts for diminishing marginal returns to speed. 2. Based on the contribution of historical MFP to GDP growth, estimated by the ABS. This result is indicative only. 3. For simplicity we have included the impact of other smaller investment programs not separately specified. 4. A small percent of GDP benefits from upgrades accrued in 2022. These benefits have been counted in the forecast period (2023-2030) for simplicity. Dollars are in FY20-21 terms inline with the latest ABS accounts, and are not inflated or discounted.

KEY RESULTS – GDP

Our model finds a positive, statistically significant relationship between increases in average broadband speeds and GDP

Key Results:

From 2012-2022, every +1Mbps increase in average broadband speed resulted in

+ 0.04% GDP

In 2023-2030, every +1Mbps increase in average broadband speed is forecasted to

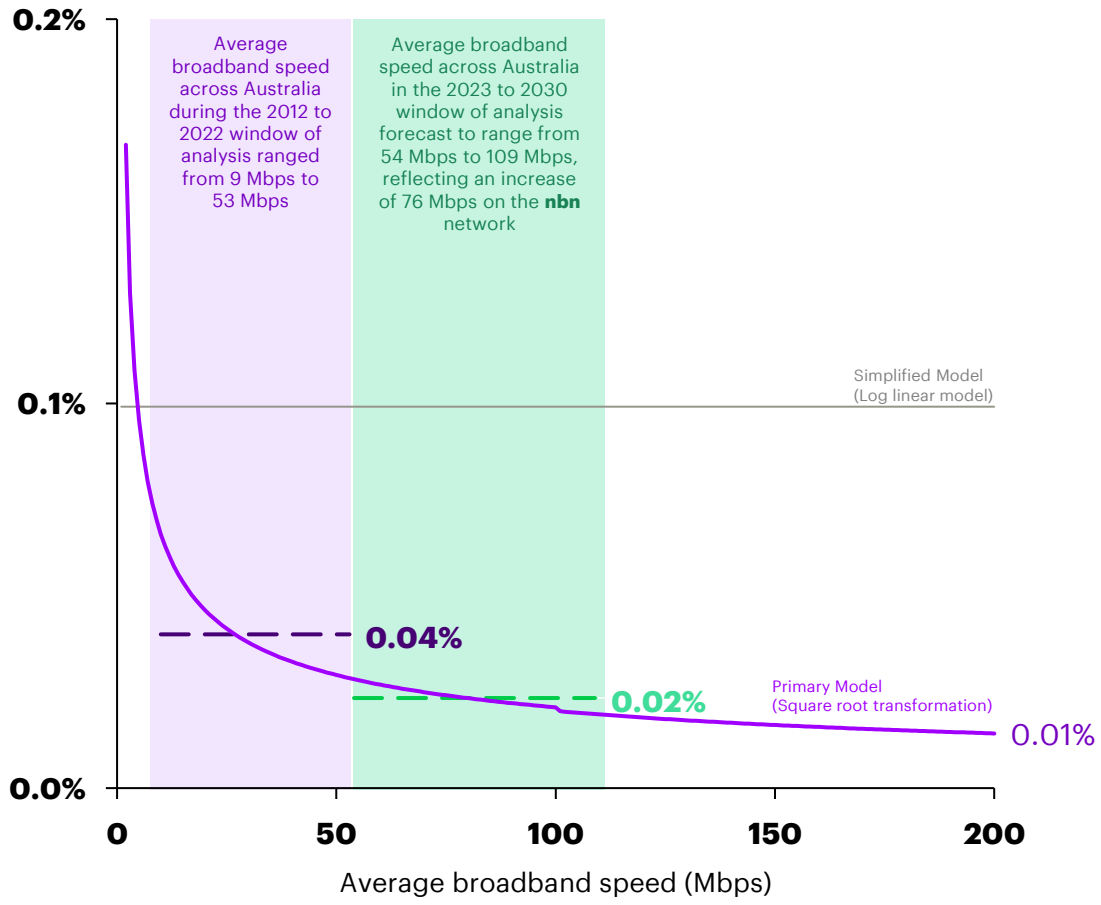
+ 0.02% GDP

As illustrated on in the graph to the right, the model finds that the marginal in GDP decreases as average broadband speeds increase. Therefore, benefits in the early period of analysis (where average speed is lower) are larger than benefits in later years (where average speed is higher), and the marginal benefits are expected to reduce into the future as average speed continues to increase[1]. The curve is based on historical data and slowly approaches zero but is never negative. New internet-enabled technology applications, such as generative AI, may shift the curve overtime by driving step-changes in productivity and are not captured in our historical dataset. These results are based on all broadband connections in Australia, not just **nbn**-enabled connections. When the model is applied, an attribution factor is used to isolate the "**nbn**-effect". See the technical report for more detail on the attribution factors used.

These results are comparable to results found in international studies. Brigaluer et al. (2021) who found that a 1Mbps increase in average speeds translated to a 0.18% increase in productivity induced GDP. Briglauer and Gugler (2018) who found a 1% increase in basic broadband adoption increased GDP by 0.015% and an increase in ultra-fast broadband adoption led to an incremental increase of 0.004%-0.005%. Katz and Collorda (2019) who found a 1% increase in average speeds delivered a 0.01% increase in GDP.

Relationship between increase in average broadband speed and GDP

GDP benefit (expressed as a % change in GDP) per 1 Mbps increase in average broadband speed



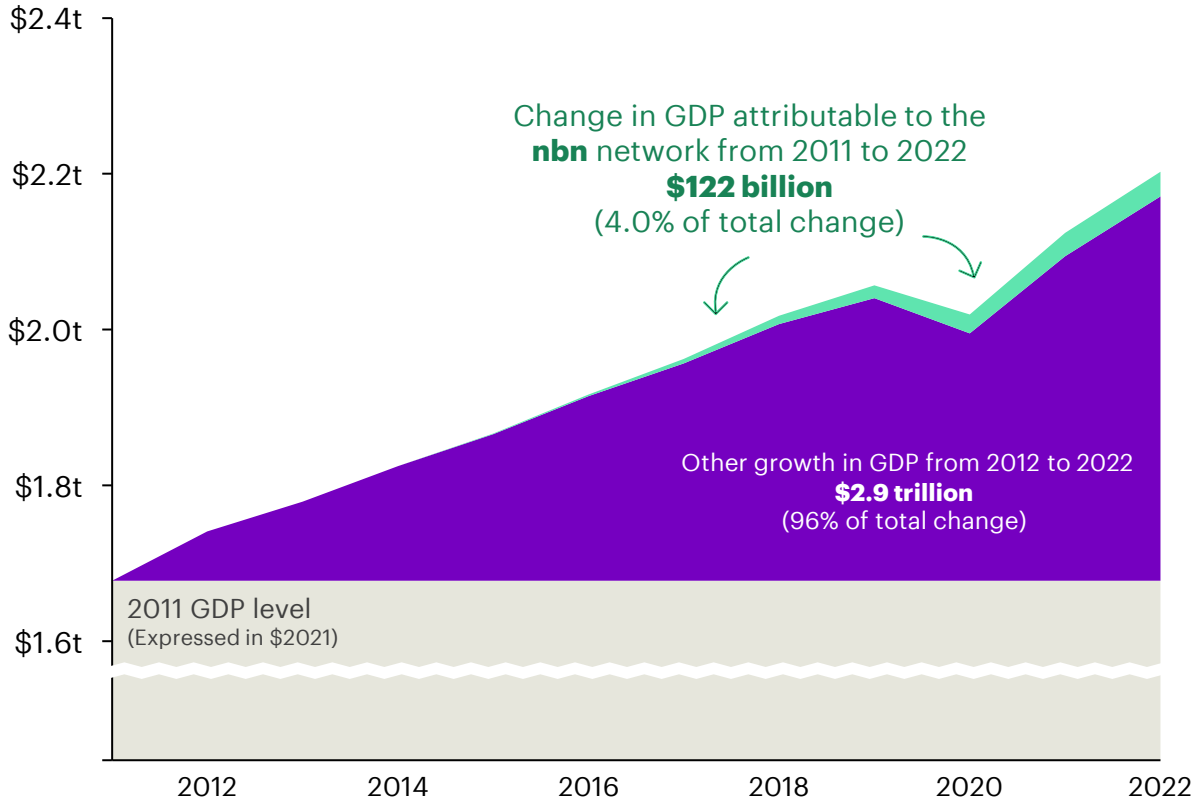
Source: Accenture, Briglauer et al. (2021).

KEY RESULTS – GDP

The GDP benefit of the nbn network between 2012 and 2022 ($122 billion) equates to 4% of all growth in GDP, and one quarter of annual MFP growth in the period

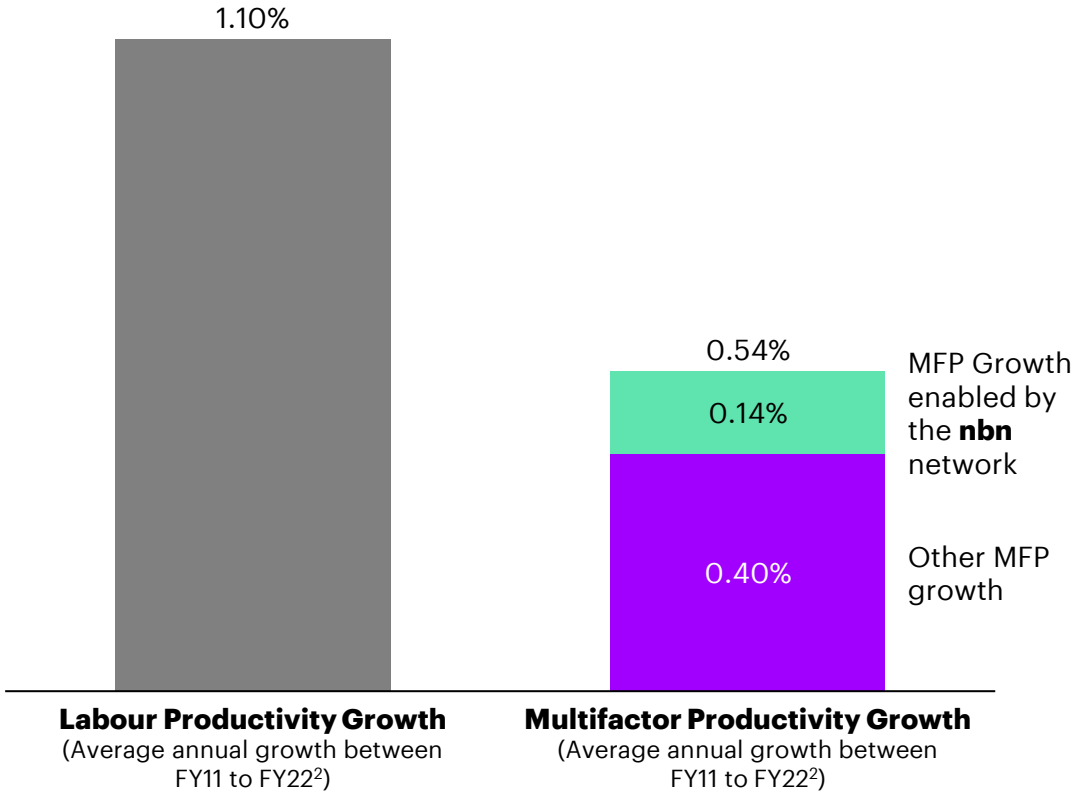
The nbn network has supported 4% of aggregate GDP growth 2012 - 2022

Australia's GDP, $2021, trillions, split into a baseline (2011), change from 2011 and the impact of the **nbn** network[1] by year



... and approximately one quarter of all multifactor productivity growth

Compound annual growth rate (2010-11 to 2021-22)[2]



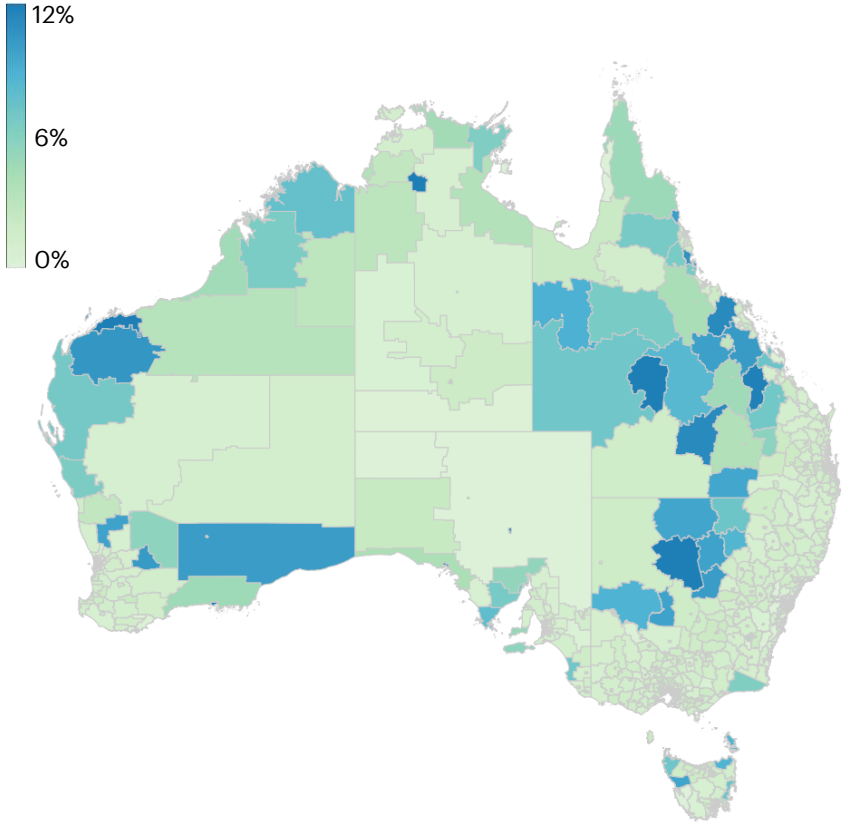
Source: Accenture modelling, see appendix for detailed modelling approach. Notes: GDP expressed in FY20-21 terms, inline with the latest ABS Accounts Basis. 1. Our model estimates the impact of all broadband speeds on GDP. The GDP figures shown are the portion of this productivity impact that is attributable to the **nbn** network. This has been calculated in each year by determining the portion of the overall increase in the average broadband speed that has been driven by increased take up of the **nbn** or the increases in speeds of those already connected to the **nbn** network. Results shown are based on the square root specification model that accounts for diminishing marginal returns to speed. 2. Compound annual growth rate based on ABS estimates between 2010-11 and 2021-22 on a quality adjusted hours worked basis. Results are indicative only.

KEY RESULTS – Remoteness

The GDP benefit of faster broadband is up to 16x greater in remote areas and 2x greater in regional areas, compared to major cities

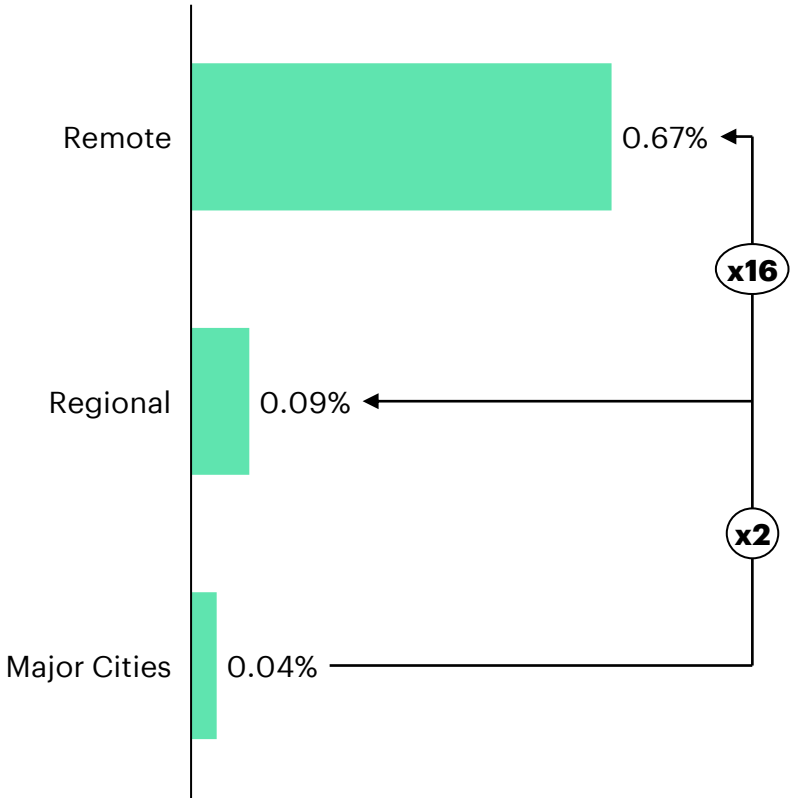
Remote and regional areas saw outsized GDP benefits from faster broadband speed

Relative annual GDP uplift in 2022 (% GDP)[1]



Remote areas experienced 16x the GDP uplift compared to major cities

Average GDP uplift per 1 Mbps increase in average broadband speed



Why have regional and remote communities benefited more from faster broadband?

- ***Lower starting speeds and the impact of diminishing marginal returns***. The productivity gains for every additional 1 Mbps speed increase in speeds are larger when starting speeds are lower. Regional and remote communities had lower average broadband speeds prior to the **nbn** network roll out; In 2011, only 55% of households were connected to broadband and the average national speed was 7 Mbps.
- ***Underlying benefits of connectivity are stronger in more isolated locations***. Even when accounting for diminishing returns, these areas experienced a higher unit benefit. We hypothesise this is driven by the underlying value of broadband in connecting people is more powerful in isolated regions. For example, by expanding customer reach through e-commerce, or enabling remote work, allowing more people to live and work in regional and remote areas.

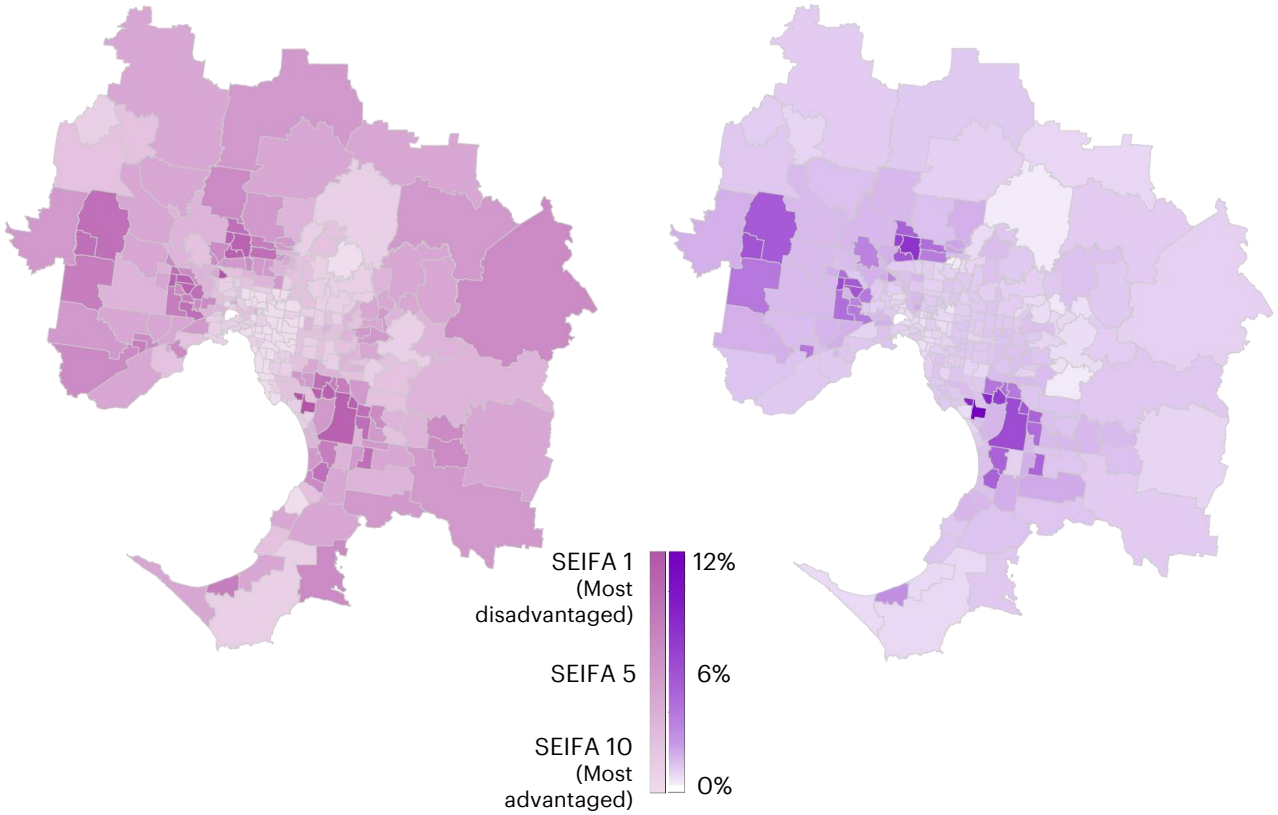
Source: ABS, Accenture analysis. Note: 1. Defined as the uplift in GDP due to the increase in average broadband speeds since 2011. Remoteness area based on ABS definitions applied to the SA2 level. Results for the regional and remote areas are based on variants of the log-linear model and are statistically significant at the 1% level. SA2s are based on 2011 boundaries to ensure consistency throughout the modelled time period. These results are based on all broadband connections in Australia, not just **nbn**-enabled connections. When the model is applied, an attribution factor is used to isolate the "**nbn**-effect". See the technical report for more detail on the attribution factors used.

KEY RESULTS – GDP

Faster broadband has been an equaliser of opportunity for Australians in lower socioeconomic communities

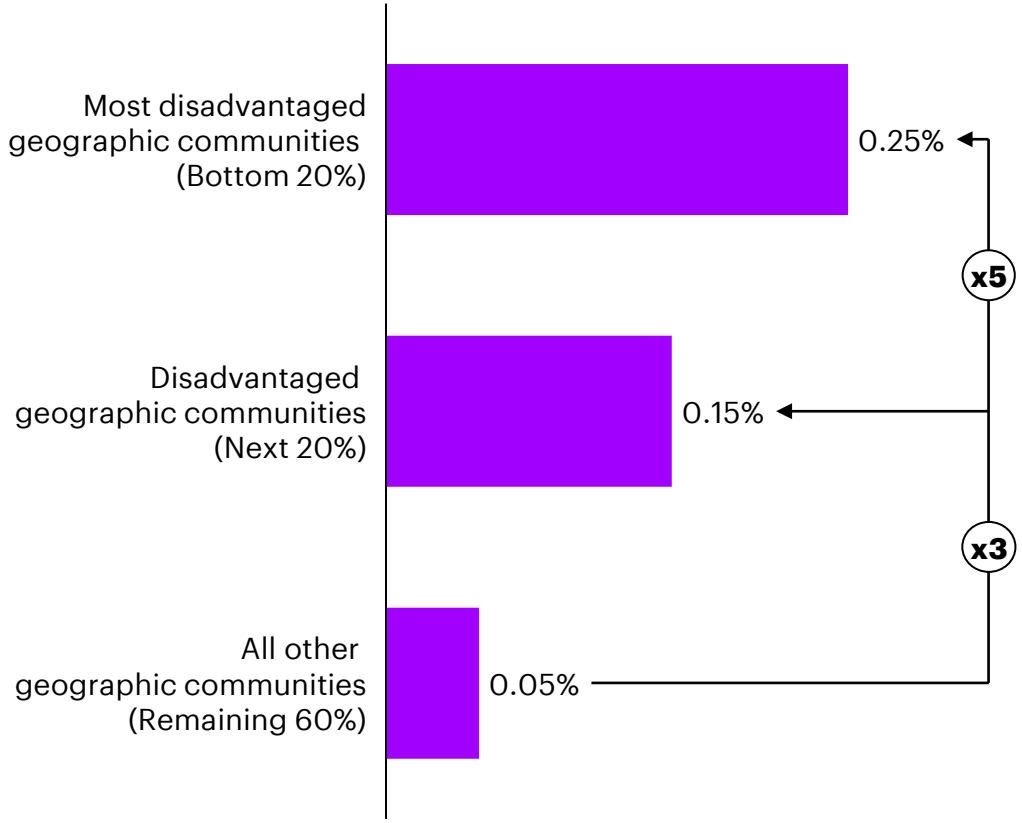
Lower socioeconomic communities saw an outsized GDP uplift; exemplified by Greater Melbourne

SEIFA score[1] for geographic communities in Greater Melbourne [LHS], Relative annual GDP impact due to broadband speeds (2022, %GDP)[2] [RHS]



The most disadvantaged communities experienced up to 5x the GDP uplift of those in more advantaged communities[3]

Average GDP uplift per 1 Mbps uplift in average broadband speed (% GDP)

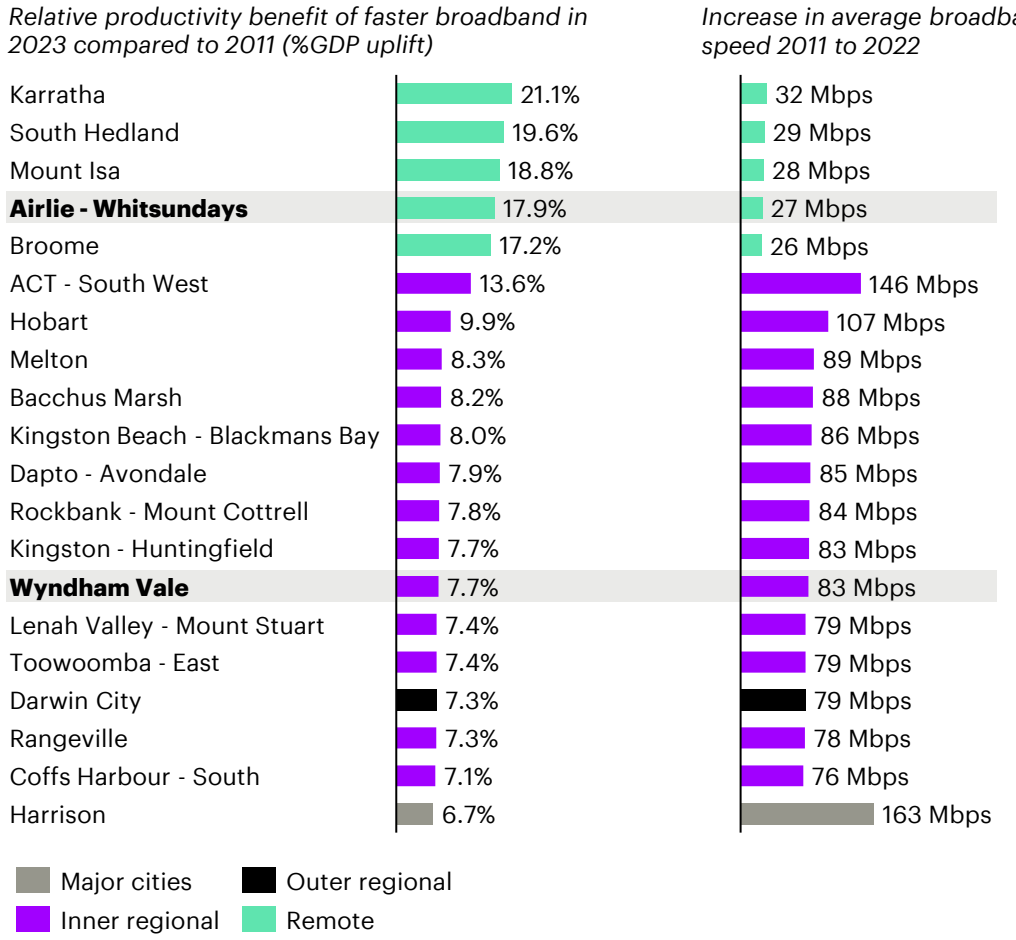


Source: Accenture analysis. Note: 1. SEIFA scores measure socioeconomic status, 2. The uplift in GDP attributable to the increase in average broadband speeds between 2011 and 2022. 3. Results for 'Most disadvantaged' and 'Disadvantaged' categories were statistically significant at the 1% level, with results for the 'All other SA2s' significant at the 5% level. SA2s based on 2011 boundaries to ensure consistency throughout the analysis period. Results shown are for the log-linear model split by SEIFA group. These results are based on all broadband connections in Australia, not just **nbn**-enabled connections. When the model is applied, an attribution factor is used to isolate the "**nbn**-effect". See the technical report for more detail on the attribution factors used.

KEY RESULTS – GDP

The majority of regions experiencing the biggest productivity benefits from faster broadband speeds are classed as regional or remote

Top 20 local geographical communities with the largest relative productivity uplift



Consider **Airlie - Whitsundays,** which is located on the Great Barrier Reef in north east Queensland and has a population of 15,100.

- Average broadband speeds increased from 6 Mbps in 2011 to 33 Mbps in 2023 (an increase of 27 Mbps)
- In 2023, GRP per capita was $77,600 and we estimate this is **17.9% higher** due to the impact of faster broadband in the region.

Consider **Wyndham Vale,** which is located 31km south-west of Melbourne and has a population of **24,400**.

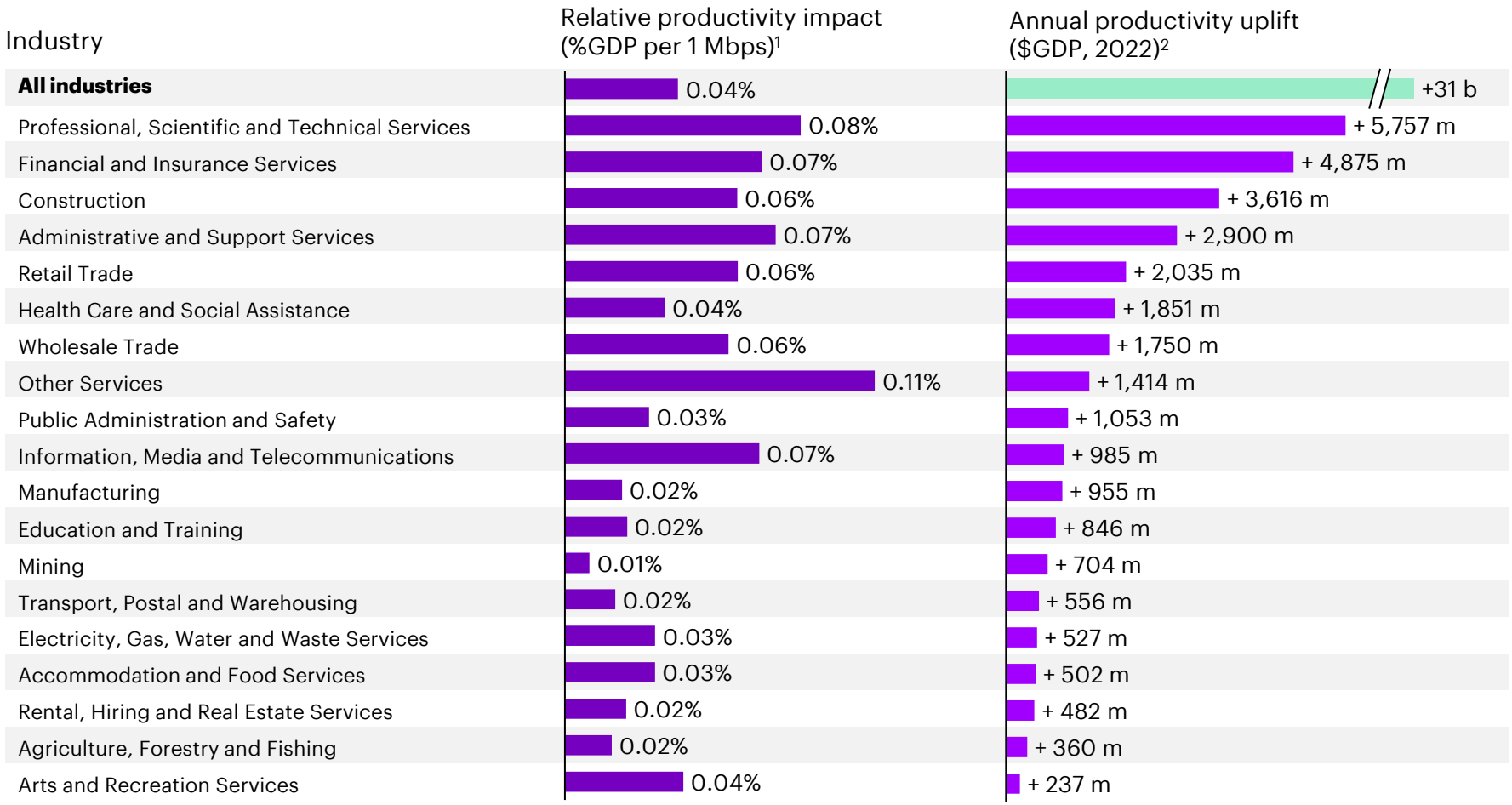
- Average broadband speeds increased from 10 Mbps in 2011 to 93 Mbps in 2023 (an increase of 83 Mbps)
- In 2023, GRP per capita was $17,400 and we estimate this is **7.7% higher** due to the impact of faster broadband.

Source: Accenture analysis. Note: Regions defined by SA2, top 20 SA2 shown. SA2s with a working age population of less than 5000 or with mining intensity >20% of GRP are excluded form the list. SA2s are based on 2011 boundaries. GDP impacts are based on the log-linear model by remoteness region.

KEY RESULTS – GDP

Services industries such as professional and financial services benefit the most from the improved broadband speed delivered by the nbn

Productivity impacts of faster broadband by industry



Professional, Scientific and Technical Services experienced the largest aggregate benefits from the **nbn** network, accounting for $5.8b (18%) of the total GDP uplift in 2022. This is due both to the size of this industry segment and the outsized impact of broadband speed on productivity within it.

More generally, **services industries** (such as Professional, Financial, Administrative, and Other services) **saw larger relative productivity impacts** compared to goods industries (such as Mining, Manufacturing, and Agriculture) in terms of the relative impact. This is driven by the relative intensity of IT-related activity in services industries, resulting in larger productivity gains that can be generated by access to high-speed broadband.

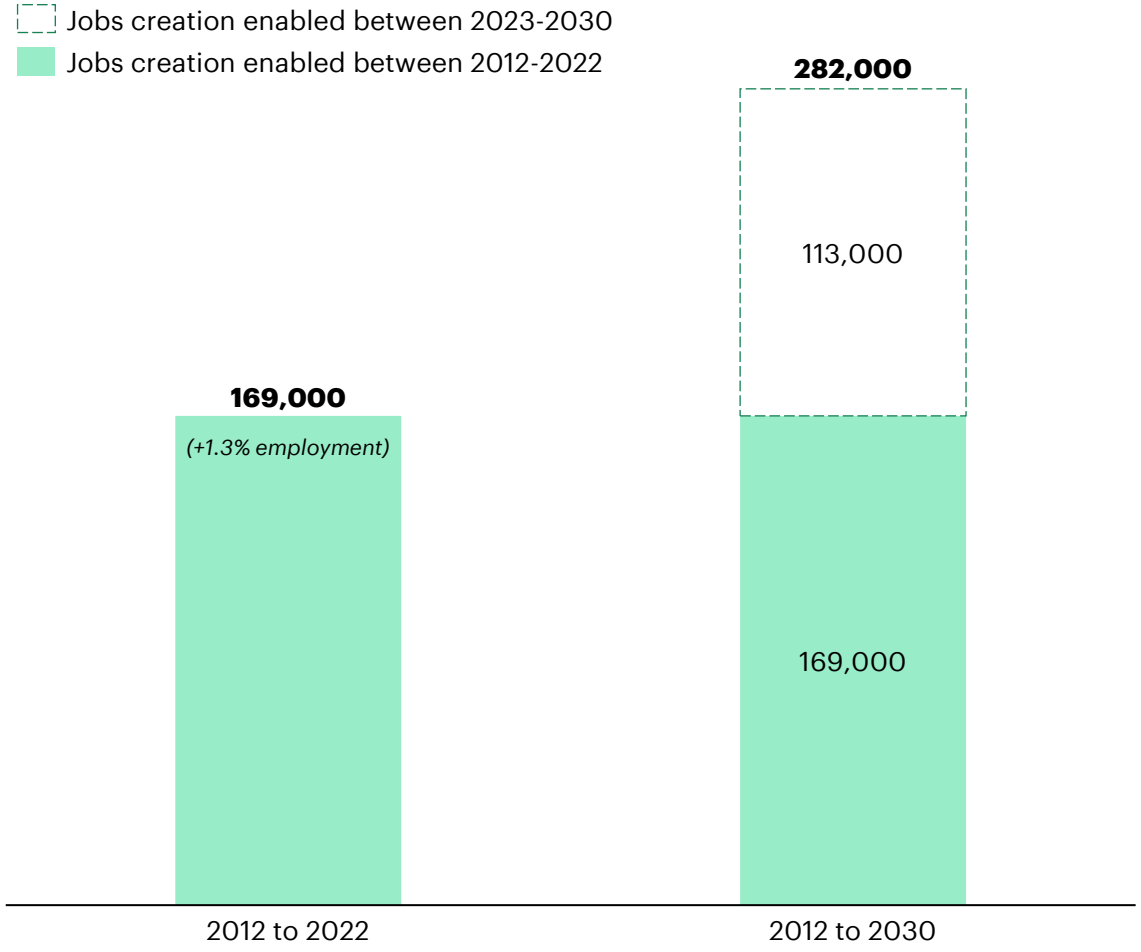
Source: Accenture analysis. See technical report for detailed method. Notes: Industry based on ABS ANZSIC categories. 1. Based on the Model 2 (Diminishing Returns) coefficient, scaled to reflect the relative benefits accrued to each industry from improved broadband speed. 2. The increase in GDP that is generated in the calendar year 2022 from improved broadband speeds (benchmarked to 2011 speeds). GDP impacts have been calculated using the square root model to account for diminishing marginal returns over time.

KEY RESULTS – EMPLOYMENT

The nbn network enabled the creation of 169,000 additional jobs between 2012 and 2022 and is projected to support the creation of a further 113,000 additional jobs by 2030

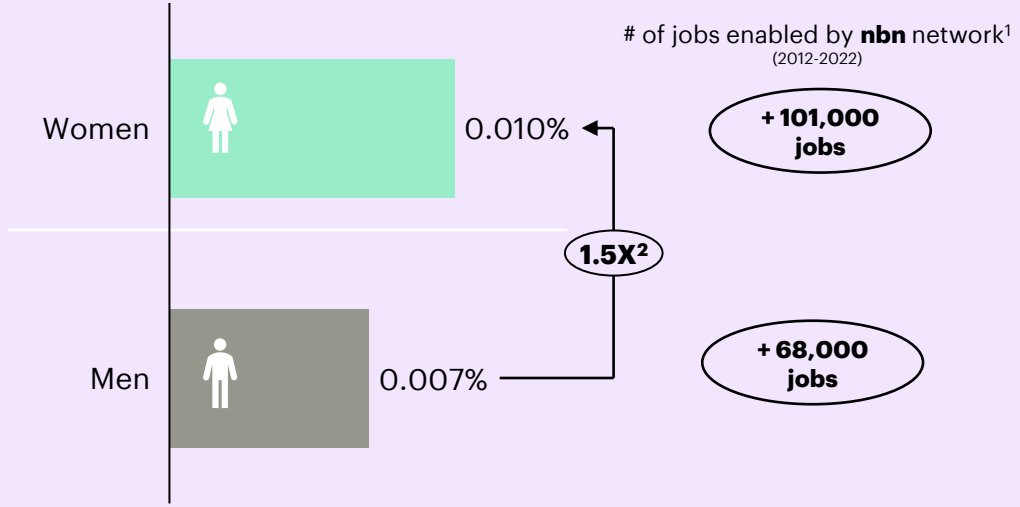
The nbn network enabled the creation of 169,000 additional jobs between 2012-22

Jobs creation enabled by the **nbn** network[1]



The nbn network has enabled the creation of 1.5x more jobs for women compared to men, supporting improved labour market outcomes for women

Impact of a 1% increase in average broadband speed on employment (%); male vs female



The **nbn** network has a **1.5x stronger impact on female employment** relative to male employment. Some possible explanations for this effect could include: the benefits of flexible work, benefits of online education and the concentration of benefits in industries with higher female representation.

Source: Accenture modelling. The figures shown are the portion of total impact from increased broadband speeds that is attributable to the **nbn** network. The **nbn**-impact considers both upgrades to the network and other increases from changes to speed tier mix over time. 1. Based on the portion of overall national broadband speed increases attributable to the **nbn** network (compared to other technologies) over the period and accounting for gender effects seen in the model. 2. Based on unrounded coefficients.

KEY RESULTS – PRODUCTIVITY BY STATE/TERRITORY

The nbn network is enabling improved economic outcomes across all of Australia's states and territories

Economic benefits enabled by the nbn network by state and territory 2012 to 2022

Northern Territory

- GDP uplift: $1.4b (Darwin: $1.1b, rest of territory: $0.3b)
- Jobs: 1,900 (Darwin: 1,300, rest of territory: 600)
- Businesses: 600 (Darwin: 500, rest of territory: 100)

Australia

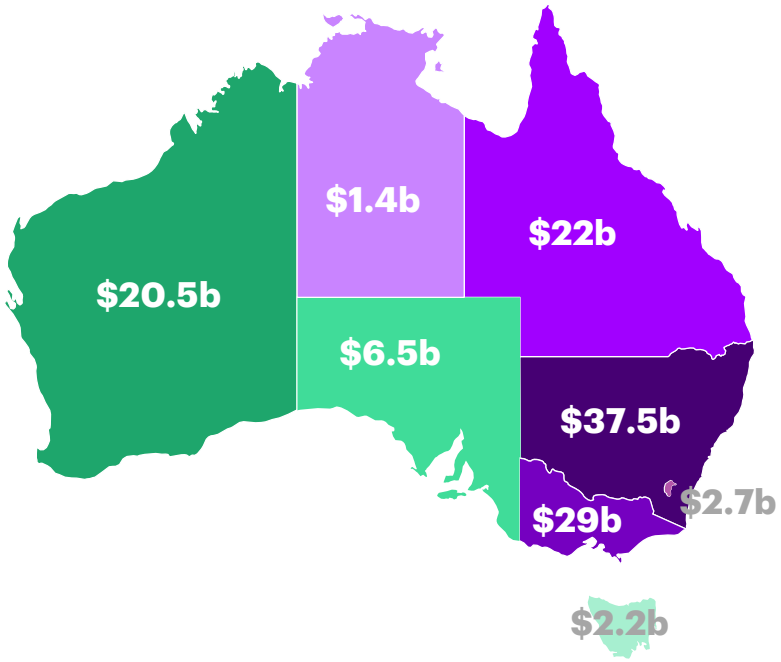
Total GDP uplift: $122b
Total jobs: 169,000
Total businesses: 87,000

Queensland

- GDP uplift: $22.0b (major cities: $14.8b, regional: $7.2b)
- Jobs: 34,300 (major cities: 22,300, regional: 12,000)
- Businesses: 16,300 (major cities: 10,500, regional: 5,800)

Western Australia

- GDP uplift: $20.5b (major cities: $15.4b, regional: $5.1b)
- Jobs: 18,200 (major cities: 14,400, regional: 3,800)
- Businesses: 8,100 (major cities: 6,200, regional: 1,900)



New South Wales

- GDP uplift: $37.5b (major cities: $30.2b, regional: $7.3b)
- Jobs: 52,200 (major cities: 39,500, regional: 12,700)
- Businesses: 28,900 (major cities: 21,700, regional: 7,200)

South Australia

- GDP uplift: $6.5b (major cities: $5.3b, regional: $1.2b)
- Jobs: 11,200 (major cities: 8,700, regional: 2,500)
- Businesses: 5,300 (major cities: 3,800, regional: 1,500)

Victoria

- GDP uplift: $29.0b (major cities: $23.8b, regional: $5.2b)
- Jobs: 44,000 (major cities: 33,400, regional: 10,600)
- Businesses: 24,400 (major cities: 18,800, regional: 5,600)

Tasmania

- GDP uplift: $2.2b (Hobart: $1.2b, rest of state: $1.0b)
- Jobs: 3,900 (Hobart: 1,900, rest of state 2,000)
- Businesses: 1,700 (Hobart: 700, rest of state: 1,000)

Australian Capital Territory

- GDP uplift: $2.7b
- Jobs: 3,300
- Businesses: 1,300

Source: Accenture analysis. Where a state or territory does not have any regions classified by the ABS ASGS as a major city the partitioning is replaced by a split between the capital of that state or territory (as defined by the ASB greater capital city statistical areas) and the rest of the state or territory. Results shown are based on application of the statistical models with a **nbn**-attribution factor applied, to isolate the benefits linked to the **nbn** rather than non-**nbn** broadband technologies.

02

Social impact

SOCIAL IMPACT APPROACH

NBN Co's *Social Impact Approach* aims to measure wellbeing effects across five domains and overall

What is social impact?

Social impact is the net effect of an activity on people and society, where an activity could mean an organisation, program, product or service. Social impact (sometimes referred to as 'social value') is usually considered in terms of wellbeing, which is a state of satisfaction encompassing physical, mental and social aspects of life.

NBN Co's Social Impact Approach

NBN Co has developed a seven-step approach to measure the social impact of the **nbn** network on user well-being (life satisfaction) across five domains:

- Employment and income
- Education and skills
- Health
- Social and community connection
- Environment

The approach, including these domains, we developed considering the OECD's wellbeing framework and Treasury's *Measuring What Matters* approach. Primary data was collected from a representative survey of 1,500 **nbn** users to measure changes in wellbeing (both positive and negative) across the five domains. Results were statistically significant and considered for select target populations.

The research found that the nbn network is having a positive impact on individual wellbeing

- **Overall wellbeing: 3 in 4 nbn** users say that having access to the **nbn** network at home has had a positive impact on their satisfaction with life in the last 12 months (with fewer than 1% reporting a negative impact).
- **Employment and income**: 77% of **nbn** users who worked from home or used job search felt the **nbn** network positively impacted their employment outcomes.
- **Education and skills**: 82% of **nbn** users who engaged in education from home felt the **nbn** network positively impacted their education outcomes.
- **Health**: 77% of **nbn** users who accessed telehealth or medical information online felt the **nbn** network positively impacted their health outcomes.
- **Social and community connection:** 74% of **nbn** users who connected with others or accessed news or information online felt the **nbn** network positively impacted their connectedness.
- **Environment:** 85% of **nbn** users who work, study, access health or other services online felt the **nbn** network allowed them to reduce their carbon emissions.

Source: Accenture analysis

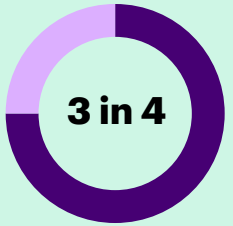
KEY RESULTS

The nbn network is having an overwhelmingly positive impact on wellbeing; fewer than 1% of nbn users reported the network having a negative impact on their life satisfaction

Overall impact results by domain

Employment & income	77%	of **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their employment outcomes in FY23
Education & skills	82%	of **nbn** users who engaged in formal or informal education from home via the **nbn** reported the **nbn** network positively impacted their education outcomes in FY23
Health	77%	of **nbn** users who accessed telehealth or online medical information, resources or records via the **nbn** network reported the **nbn** network positively impacted their health outcomes in FY23
Social & community connection	74%	**nbn** users who connect with family, friends and others or access news or community information online via the **nbn** network reported the **nbn** network positively impacted their social and community connectedness in FY23
Environment	85%	of **nbn** users who work, study, access health or other services online reported having fast internet via **nbn** network helped them to reduce their emissions in FY23

Overall wellbeing



nbn users say having the **nbn** network at home has had a positive impact on their satisfaction with life

The distribution of results:

- 25% reported a strong positive impact
- 50% reported a moderate positive impact
- 24% reported no impact
- 1% reported a moderate negative impact
- 0% reported a strong negative impact

Source: Accenture analysis

CASE STUDY:
EMPLOYMENT & INCOME DOMAIN

The nbn network has enabled job and business creation, whilst also enabling users to boost their income and save money by using online alternatives

CREATING EMPLOYMENT OPPORTUNITIES

+169,000 jobs
enabled by the **nbn** network between 2012 and 2022

+87,000 businesses
enabled by the **nbn** network between 2012 and 2022

IMPROVING ACCESS AND QUALITY OF WORK

Job search: 1 in 3 of **nbn** users used the **nbn** network to access job search websites or platforms in the last 12 months. Of this group:

- 7% said they were unemployed, and were able to find employment via an internet enabled job search using the **nbn** network.
- 25% said they were employed, but were able to find a better job via internet enabled job search using the **nbn** network.

Work from home: 1 in 3 nbn users used the **nbn** network to work from home. Of this group:

- 72% reported that they could not have worked from home without the **nbn** network.
- 53% reported being better able to balance their interests and non-work commitments with work (e.g., improved work-life balance).
- 47% of this group reported being more productive which made them more successful in my job (e.g., reduced travel time, less distractions or more focused at home).

Overall, 77% of **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their employment outcomes in FY23.

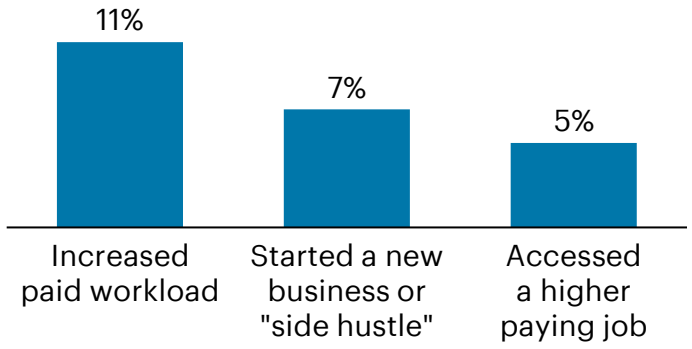
*Source: Accenture, **nbn** Social Impact Framework, 2023*

BOOSTING INCOME

Nearly **1 in 5 nbn users** have boosted their income by working remotely over the **nbn** network

% nbn users who have boosted income through WFH, by category

Users may have boosted income in multiple ways



Average reported income increase ($)

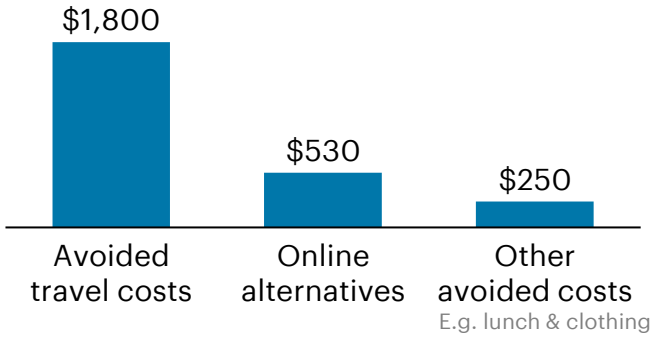
$7k **$9k** **$12k**

*Source: Value of services over the nbn. Based on a survey of **nbn** users in September 2022*

SAVING MONEY

The average **nbn** user **saves $2,580** per year by using the **nbn** network

Average costs savings for nbn users



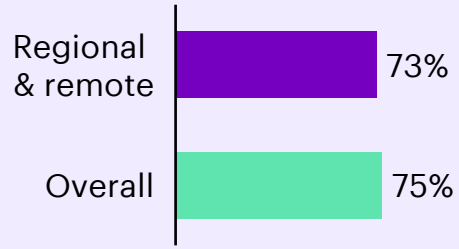
According to previous Accenture research the average **nbn** user pays $16.90/week (or ~$880/year) for this connection, significantly less than the estimated savings.

*Source: Value of services over the nbn. Based on a survey of **nbn** users in September 2022*

RESULTS FOR TARGET POPULATIONS

nbn users in regional and remote areas reported positive wellbeing impacts of similar magnitude to the national average

Wellbeing (Overall)

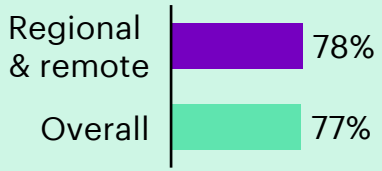


73% of regional and remote nbn users say having the **nbn** network at home has had a positive impact on their satisfaction with life.

- 28% reported a strong positive impact
- 45% reported a moderate positive impact
- 25% reported no impact
- 2% reported a moderate negative impact
- 0% reported a strong negative impact

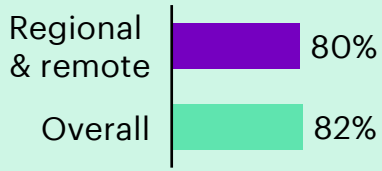
Overall Impact (Domain)

Employment & income



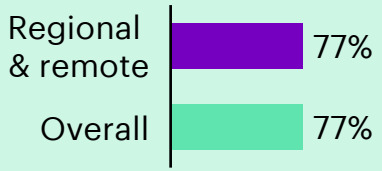
78% of regional and remote **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their employment outcomes in FY23.

Education & skills



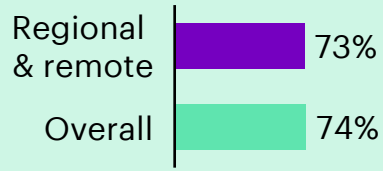
80% of regional and remote **nbn** users who engaged in formal or informal education from home via the **nbn** reported the **nbn** network positively impacted their education outcomes in FY23.

Health



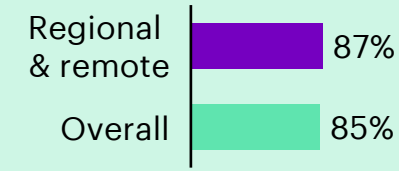
77% of regional and remote **nbn** users who accessed telehealth or online medical information, resources or records via the **nbn** reported the **nbn** network positively impacted their health outcomes in FY23.

Social & community connection



73% of regional and remote **nbn** users who connect with family, friends and others or access news or community information online via the **nbn** reported the **nbn** network positively impacted their social and community connectedness in FY23.

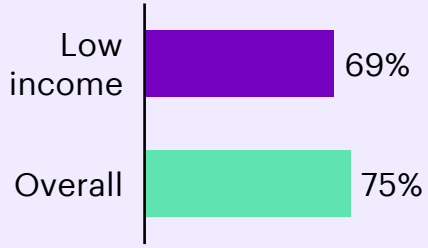
Environment



87% of regional and remote **nbn** users who work, study, access health or other services online reported having fast internet via **nbn** network helped them to reduce their emissions in FY23.

Fewer than 1% of low income nbn users reported that access to nbn-enabled broadband had had a negative impact on their wellbeing

Wellbeing (Overall)

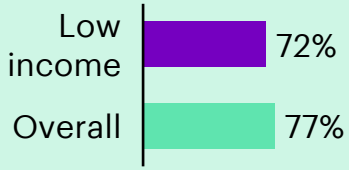


69% of low income household[1] nbn users say having the **nbn** network at home has had a positive impact on their satisfaction with life.

- 23% reported a strong positive impact
- 47% reported a moderate positive impact
- 29% reported no impact
- 1% reported a moderate negative impact
- 0% reported a strong negative impact

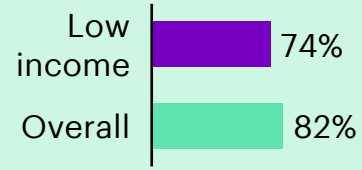
Overall Impact (Domain)

Employment & income



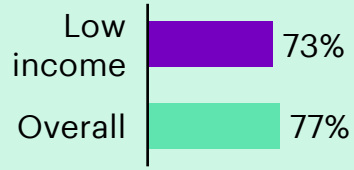
72% of low income **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their employment outcomes in FY23.

Education & skills



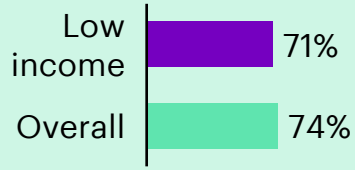
74% of low income **nbn** users who engaged in formal or informal education from home via the **nbn** reported the **nbn** network positively impacted their education outcomes in FY23.

Health



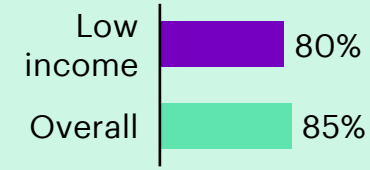
73% of low income **nbn** users who accessed telehealth or online medical information, resources or records via the **nbn** reported the **nbn** network positively impacted their health outcomes in FY23.

Social & community connection



71% of low income **nbn** users who connect with family, friends and others or access news or community information online via the **nbn** reported the **nbn** network positively impacted their social and community connectedness in FY23.

Environment

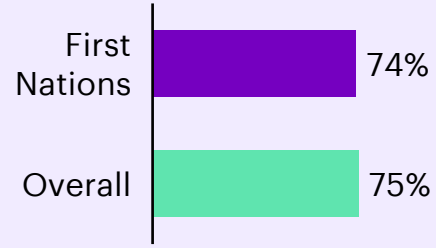


80% of low income **nbn** users who work, study, access health or other services online reported having fast internet via **nbn** network helped them to reduce their emissions in FY23.

Notes: 1. under $70k household income

3 in 4 First Nations nbn users reported the nbn network had a positive (moderate or strong) impact on their satisfaction with life

Wellbeing (Overall)

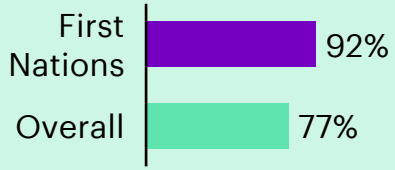


74% of First Nations nbn users say having the **nbn** network at home has had a positive impact on their satisfaction with life.

- 35% reported a strong positive impact
- 39% reported a moderate positive impact
- 20% reported no impact
- 6% reported a moderate negative impact
- 0% reported a strong negative impact

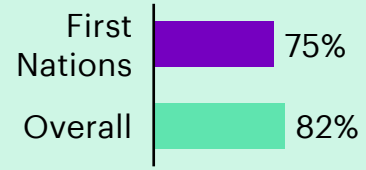
Overall Impact (Domain)

Employment & income



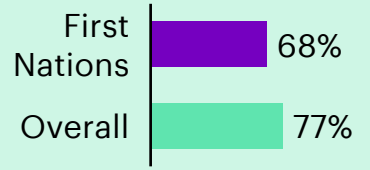
92% of First Nations **nbn** users who worked from home or used job search platforms reported the **nbn** network positively impacted their employment outcomes in FY23.

Education & skills



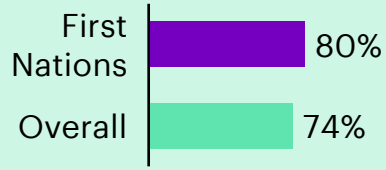
75% of First Nations **nbn** users who engaged in formal or informal education from home via the **nbn** reported the **nbn** network positively impacted their education outcomes in FY23.

Health



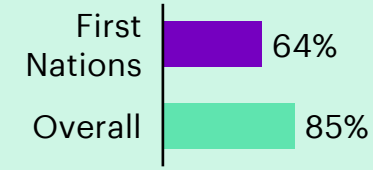
68% of First Nations **nbn** users who accessed telehealth or online medical information, resources or records via the **nbn** reported the **nbn** network positively impacted their health outcomes in FY23.

Social & community connection



80% of First Nations **nbn** users who connect with family, friends and others or access news or community information online via the **nbn** reported the **nbn** network positively impacted their social and community connectedness in FY23.

Environment



64% of First Nations **nbn** users who work, study, access health or other services online reported having fast internet via **nbn** network helped them to reduce their emissions in FY23.

About Accenture

Accenture is a leading global professional services company that helps the world's leading businesses, governments and other organizations build their digital core, optimize their operations, accelerate revenue growth and enhance citizen services—creating tangible value at speed and scale. We are a talent and innovation led company with 738,000 people serving clients in more than 120 countries. Technology is at the core of change today, and we are one of the world's leaders in helping drive that change, with strong ecosystem relationships. We combine our strength in technology with unmatched industry experience, functional expertise and global delivery capability. We are uniquely able to deliver tangible outcomes because of our broad range of services, solutions and assets across Strategy & Consulting, Technology, Operations, Industry X and Accenture Song. These capabilities, together with our culture of shared success and commitment to creating 360° value, enable us to help our clients succeed and build trusted, lasting relationships. We measure our success by the 360° value we create for our clients, each other, our shareholders, partners and communities. Visit us at www.accenture.com.

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