

The NBN Futures Project

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Abstract: Over the past 20 years the provision of broadband services in Australia has become a matter of contention. The National Broadband Network (NBN) and longer-term plans for the way in which it will be structured and operate into the future have been caught up in this. The potential sale by the government of NBN Co, the developer of the NBN, in the next few years has brought greater urgency to considering the longer-term future of the NBN.

An NBN Futures Project, whose aims are explained in this article, is promoting public and policy discussion through TelSoc (the Telecommunications Association) on the NBN and its future, with the aim of building consensus and common ground as a basis for developing public policy for the future. TelSoc's role is not to advocate particular policy positions, but to provide media and forums for ensuring that critical analysis and discussion does occur and is shared as widely as possible. The Project promotes articles in the *Journal of Telecommunications and the Digital Economy*, together with forums, talks and other events.

This article describes the NBN Futures Project and how it envisages that it will make a difference.

Keywords: National Broadband Network, public policy, digital inclusion, digital economy

Background

The provision of broadband services within Australia has been the subject of contention for at least the past 20 years and especially since the establishment of a Government-owned enterprise, the National Broadband Network Co ('NBN Co', now sometimes 'nbn') in 2009 to provide broadband access services nationally (e.g. [Gerrand, 2010](#)). Unfortunately, contention and lack of bipartisan political support characterise the complete range of issues associated with NBN Co and the national broadband network (the NBN), including the role of the public sector, funding, competition, technologies, development pathway, pricing and affordability, applications development, social and economic inclusion, universal service policy, digital

leadership, and the quality of service and performance standards required now and into the foreseeable future.

NBN Co has over the past ten years executed the role that the Government of the day has required of it, and will likely, during 2020, have completed the rollout of the NBN past all residences and business locations in Australia. That is to say, by that time all business and residential premises will have access, should they require it, via a mix of technologies, to broadband services. This does not mean that Australia will have been transformed into a high broadband capacity society and economy – only that the journey has commenced. Critically, it does not mean that Australia will have a suitable and sustainable plan for identifying and meeting rapidly changing broadband needs into the future, and for ensuring that economic and social objectives, themselves also subject to change, will be met in future.

From the formation of NBN Co, it was planned that the company would remain in government ownership only for the shortest possible time – until soon after the completion of the initial rollout of the NBN – and that it would eventually be privatized. It was envisaged that the proceeds from the privatization would repay the expenditure on the NBN rollout. The potential sale of the NBN in the next few years gives greater urgency to considering how the NBN should be structured, operated and regulated in the future.

Short-Term Focus

In the process of the initial NBN rollout, the Government will have incurred substantial expenditure of up to \$51 billion – described as a public equity funding commitment of \$29.5 billion, a Commonwealth loan facility of up to \$19.5 billion and up to \$2 billion of private sector debt ([Finance, 2019](#)). Current government policy (which has received little attention in recent times) is to sell the enterprise, NBN Co, and pay back the expenditure from the proceeds.

The substantial public expenditure on the NBN has become a major focus for many shorter term considerations about what to do with it. Paying down public debt is a major policy concern in itself, but giving undue priority to that aspect of the NBN incurs substantial risks, including the risk that non-financial and medium-to-longer term issues associated with the NBN will not be fully considered or addressed, or will be considered to be too hard or too indeterminate to be dealt with at present.

Ideological preferences for certain types of outcomes can obscure or prevent analysis of all options. For example, a preference for private ownership of the NBN as a matter of course, or for maximising competition in all circumstances, could be examples of this. NBN policy may be better served by examining all options, including some that are possibly more nuanced than

stark binary choices. (For example, at the first NBN Futures Forum ([Campbell & Milner, 2019](#)) it was suggested that parts of the NBN could be privatized while the rural and regional accesses implemented by fixed wireless or satellite links remain in government hands.)

NBN policy development and related infrastructure investment are a long-term undertaking. The consequences of the policy and plans that are adopted in this area cast long shadows on Australia's digital capability into the future. The way in which technologies, user needs and priorities will develop are not known with certainty, and that aspect of the challenge increases the further we look into the future. The risks of a short-term focus, or of rigidity in the sort of approach adopted for the NBN, are therefore both real and substantial.

Role of TelSoc

TelSoc is a membership-based voluntary association, concerned with the development of the telecommunications and information industries in Australia and globally. It organises and supports discussion, debate and research into issues associated with the sector, principally through its major publication, the *Journal of Telecommunications and the Digital Economy*.

TelSoc has no policy position to advocate in relation to broadband or the many other issues with which its members are concerned. The role of TelSoc is to facilitate discussion, debate and research into the issues and to engage with policy makers to ensure the sharing of information, concerns and considerations amongst all Australian stakeholders. Over many years, TelSoc and its predecessor organisations have promoted discussion and research into broadband themes through the *Journal*, supplemented by events programs.

The NBN Futures Project

In early 2019, an NBN Futures Project working group was formed to develop and concentrate attention on key issues as the NBN initial rollout draws to a conclusion and the Government is considering the future of NBN Co and the NBN. The initial focus was on the future ownership options for the NBN – including keeping the NBN in government ownership, at least for the time being; selling NBN Co, either as a single entity or in technology-based parts; and merging NBN Co with Telstra InfraCo (Telstra's wholesale network operator) – but this has led to wider consideration of what objectives should be set for the continuing NBN (whether in public or private hands) and how they could best be achieved.

The NBN Futures project has operated through working groups that are open to members and invited experts who wish to volunteer their time and expertise.

Work to date

The Project has developed an issues slate to better identify and encourage analysis of the main considerations and relationships that should be taken into account in the development of a sustainable future broadband policy framework and NBN infrastructure in Australia. Key issues are set out below.

NBN development plan

The Project's initial examination of ownership options has suggested that a sale immediately following the completion of rollout is unlikely to occur, due to financial implications for the federal budget and the lack of readiness of the business for sale. This leads to increasing attention to the development of the NBN over the next 5 to 10 years, explicitly through an NBN Development Plan or similar. A major focus of the project is now to suggest the construction of such a plan, based on consideration of performance and technology objectives, financial considerations and enhancing social and economic value.

Vision and objectives

It is crucial for there to be a clear understanding and general agreement on the vision and objectives for the NBN if there is to be a sensible discussion of how they might be achieved, and, indeed, whether they have been achieved in any measure to date. Statements of vision and objectives are the key plank in the policy framework for ensuring that there can be meaningful discussion and engagement on the means employed to deliver broadband infrastructure and services efficiently, creatively and equitably.

Work on refining a statement of vision and objectives is continuing with a view to publication of further articles in the *Journal* in the early part of 2020. In the meantime, the Project has developed a working draft to guide discussion. The working draft is:

Australia's National Broadband Network needs periodic review and ongoing changes to its technologies, network structure and governance structure along with government regulation to ensure that it meets the following objectives:

- *International competitive advantage for Australian businesses;*
- *Affordability, reliability and accessibility for Australian users across all ages, backgrounds, occupations, geographical locations and forms of social disadvantage;*
- *A regulatory regime that ensures affordability, reliability and accessibility, as well as prompt action on customer complaints; and*

- *Synergies and support for complementary network technologies such as mobile networks and the service arrangements needed for emergency services.*

Infrastructure competition vs monopoly

Over the past 40 years, Australian economic policy has emphasised the importance of competition in markets at all levels to deliver services efficiently, at lowest sustainable cost and at quality levels that meet customers' expectations. Competition has been increasingly seen as critical for the generation of productivity and as a major contributor to global economic advantage and continued high standards of living. Industries such as telecommunications and energy services have been restructured to enable the dynamic forces of competition to be established and to drive sector development. Major infrastructure projects such as the NBN have been considered, at best, to benefit from *de facto* monopoly provision for the shortest possible time, notwithstanding the existence of natural monopoly characteristics, such as scale economics and the need for integrated networking on a national basis.

In public discourse, this issue is often linked with the issue of public vs private ownership, partly because of the historical links between public ownership and long-term infrastructure projects that might not be able to generate commercial returns in the shorter term or at all. While the Project recognises the link, it has attempted in its work so far to ensure that a clear distinction is maintained between competition and ownership concepts.

There is already a broad consensus that retail service provision should be competitive. The area that attracts more discussion and debate is whether a similar approach can and should be taken to infrastructure and wholesale services competition. The original conception was that NBN Co should be limited to the provision of infrastructure services at a wholesale level, and that its customers should be limited to licensed retail service providers. This view is already under challenge. It may be argued that NBN Co needs, in order to be commercially viable, to be able to deal directly with, for example, large corporate customers.

If infrastructure competition were to be promoted, what possible forms might it take? The Vertigan Report in November 2014 ([Vertigan, 2014](#)) promoted the idea that the NBN might be broken up on technology lines. The new entities established to manage the resulting parts might then be encouraged to compete with one other.

Another approach is that the NBN should not enjoy any form of special legislative protection, and thereby be subject to competitive entry and to contestability generally. This approach needs to be further explored in the light of possible cherry-picking (if any form of national uniform pricing is to be continued) or of possible affordability, inclusion and equity issues (if pricing becomes more cost-related, with potentially significant differences in access prices and service quality).

Another approach is to accept that the NBN is currently an effective monopoly but that technological developments will erode this and lead to increasing network competition over time. Cellular mobile, including the emerging 5G standard, and a new generation of low Earth orbiting (LEO) satellite systems have been identified as candidate disruptive technologies. It could be envisaged that, whether or not a policy of monopoly provision of fixed broadband access in 2020 is adopted, technological erosion and disruption will occur.

Social and economic value

The Project working group believes that further work is needed to better understand and even to quantify the social value and broader economic value of the NBN and to ensure that these value considerations are taken into account when the costs and benefits of the NBN are under consideration. It is important that the Government does not restrict its assessment of the value of the NBN to simply its commercial or book value, i.e. to what it could be sold for. An important consideration with the NBN, as with all major infrastructure, is that there are significant externalities, because of the diverse economic and social behaviour and benefits that will depend on the use of that infrastructure. More analysis needs to be undertaken to understand these externalities, both in the case of the NBN and of broadband infrastructure generally.

For example, consider the *value* of the NBN. It is not just the revenues received by NBN Co in operating wholesale services on the NBN. There is also value from the NBN in enabling more efficient teleworking, telehealth and online government services, for example ([Campbell & Suessspeck, 2015](#)). Much of this value will accrue to the government, through greater productivity in the economy, as well as to business and service providers.

Other issues arise as a result of this analysis, including the notion of broadband applications leadership. Careful study of how broadband is being used by enterprises and by households, and the way in which this is changing – resulting in changing needs in terms of price expectations and service speeds (both uploading and downloading) – is required. In some countries – for example, Sweden ([2016](#)) – the Government is considered to have a prime leadership role, through the transformation of its own service delivery and transaction processes to benefit from broadband availability. But broadband leadership and innovation occur at many levels and whether, and how, this should be encouraged is an important area for further discussion.

Digital equality and inclusion

Digital equality means ensuring that all enterprises, households and individuals are treated equally in terms of access to Australia's digital resources and that they are not denied access because of location, affordability, age, ethnicity or language, or any other criteria. The result

of meeting acceptable levels of equality should be to maximise social and economic inclusion of all enterprises, households and individuals. Experience in Australia and elsewhere strongly suggests ([Wilson, Thomas & Barraket, 2019](#)) that digital capacity and literacy should not be universally assumed: the availability of broadband will not be enough to ensure suitable levels of inclusion and engagement across all populations. More work is required to improve our understanding of the costs in economic and social terms of non-engagement and non-inclusion, and the costs of maintaining pre-digital or legacy means of delivering services in the broadband era.

Universal service and social pricing

Following the Universal Service review in 2017 the legacy telephone-centric universal service policy has been transformed into a universal service guarantee (USG) ([Communications, 2018](#)), which belatedly includes broadband service. The USG policy does not spell out service upgrade pathways that will enhance broadband service performance levels experienced in rural and regional Australia and reduce the gap with major urban centres.

Universal service policy development has been slow in Australia and reviews have been reluctant to move away from telephone-centric approaches and from legacy processes and concepts, especially compared to other countries, some of whom have similar high-cost, low-density areas to serve within their borders.

There is a need to recognise that long-term infrastructure investments with significant externalities require a corresponding long-term approach to pricing. Social pricing is to be contrasted with commercial pricing where price levels are set to achieve commercial returns on investment over relatively short periods. Pricing of services delivered by the NBN is an outstanding example of pricing that should also accommodate social requirements. For example, the government could choose to recover the cost of the NBN from greater productivity in the economy (leading to higher tax receipts) or from greater efficiency in the delivery of government services. Direct returns might never approach commercial levels or even become positive, when considered only within the constraints of an enterprise business model.

Discussions on whole-of-economy pricing need to take into account the broader economic benefits that the NBN will provide. Identifying and quantifying those benefits will require more research and analysis than has been undertaken to date. The Commonwealth needs to model the returns that it will achieve through taxes and other charges that increase with economic growth resulting from the NBN, rather than solely the direct returns through NBN Co revenues and the potential sale of the NBN.

Financial and budgetary considerations

The Project working group considers that some very basic questions need to be clearly answered to provide a basis for constructive dialogue about the NBN and its future. For example:

- Does the current legislation actually require sale of the NBN to be considered at any stage?
- The current Government policy requires a Productivity Commission enquiry prior to the potential sale of the NBN. What terms of reference should be given to the Productivity Commission for its enquiry? Can the enquiry consider the ownership options and issues identified in this project?
- What is the potential impact on government finances of an NBN sale being below the level of investment? (The levels of investment and of debt when construction is complete need to be confirmed.) How any subsequent shortfall in proceeds from an NBN sale would directly affect the long-term Commonwealth Budget needs to be established. Are the equity and debt components considered differently?
- Can the government write down the value of the investment in the NBN, and would such a write-down flow through to the budget?
- Are there consequences for the equity and debt arrangements of NBN Co staying in government ownership for a more extended period?

The answers to some of these questions may appear to be straightforward to Government insiders, but they need to be confirmed more broadly and the impacts of the conclusions further explored.

Regulatory framework

Arguably, there has been an implicit assumption in discussions around the NBN over the last decade that regulatory structures currently in place, including the strong preference for competition where it can be achieved, are suitable and appropriate for broadband, and for the NBN. Since these regulatory frameworks have been adjusted over time to recognise that the industry is changing, the implicit assumption is not without justification. Nevertheless, the Project working group believes that, whatever course Australia adopts on the NBN and broadband services in relation to the other issues listed in this article, an appropriate ongoing regulatory framework will need to be explored, with possible bespoke elements that reflect the unique combination of Australia's overall telecommunications and ICT regulatory regime and its approach to broadband infrastructure and services and social inclusion.

NBN ownership options

This has been the starting point for the Project's work on NBN Futures. However, consideration of ownership options quickly morphs into discussions about many of the other issues and concepts that have been identified. We intend to return to the focus on the ownership options as we clarify these other issues, asking of each option:

- Why is the option proposed?
- How will it work in practice?
- How will it be put in place from the current situation?
- How will it meet criteria derived from national objectives and vision?

In any case, a key underlying consideration has always been that Australians have affordable access to broadband services that meet their needs and expectations well into the future.

Events to Date

TelSoc has hosted two seminars in the NBN Futures series.

The first related to NBN ownership options and was held on 31 July 2019. The presentations and discussion are documented in the *Journal*. Three main options were canvassed ([Campbell & Milner, 2019](#)): keeping the NBN in government ownership, at least for the time being ([Holmes, 2019](#)); selling NBN Co, either as a single entity or in technology-based parts; and merging NBN Co with InfraCo (Telstra's wholesale network division) ([Gerrand, 2019](#)).

The second was held on 22 October 2019 and focused on consumer and user needs for broadband and how they might be served in future. Again, the presentations and discussion at the event are documented in the *Journal* ([Campbell, 2019](#); [Corbin, 2019](#)). A particular emphasis was on the pricing of NBN services: the effects of prices on digital inclusion and how it might be improved; comparison with prices in New Zealand; and whether full cost recovery through NBN prices is either achievable or desirable.

Forthcoming Work Program

During 2020, the working group intends to increase the tempo of its NBN Futures Project – partly because 2020 will be a critical year in which Australia should be planning the future of the NBN following the completion of the initial rollout scheduled by 2021.

The NBN Futures Project working group will continue its work on exploring the issues and the options for addressing them in more detail, and will continue to invite contributions from interested experts and others concerned with these issues.

The primary vehicle for disseminating information, research and considered views will continue to be the *Journal*, giving prominence to the NBN and broadband topics.

During 2020, it is hoped that TelSoc will continue to host NBN Futures forums that will create further opportunities for engagement and discussion of the issues. The program is yet to be confirmed but potentially will cover the future technology environment and the prospects for various forms of competition, especially infrastructure competition; pathways for NBN development; service affordability and digital inclusion issues; international experience, case studies and lessons; and more focussed attention to specific ownership and industry structure options.

In addition, a submission has been prepared to the Joint Parliamentary Standing Committee on the NBN.

Call to Action

The NBN is a major infrastructure project for Australia. It was conceived as a basic element for developing Australia's digital economy and, whatever competitive technological options emerge, it will remain a significant platform for broadband services for the next decade and beyond. As such, it deserves continuing public attention and debate. For the past five years, public attention has been largely directed towards the completion date of the initial rollout and on how effective the resulting broadband provision has been.

With the initial rollout coming to an end and the next steps for the NBN and NBN Co to be considered, now is the time for public debate to take up the issues described in this paper. If effective and sustainable public policy is to be developed in a timely manner, it will be essential to find bipartisan common ground as a foundation while embracing the needs of all stakeholders.

Some common ground is possible. For example, at the first NBN Futures Forum, there already appeared to be common agreement that NBN Co was not ready for sale and that it should be retained in public ownership for, probably, the next five years at least, to develop and grow the business. At the second NBN Futures Forum, there seemed to be common agreement that digital inclusion remains a worthy aim and that it can be stimulated by appropriate service pricing (but not necessarily NBN pricing only).

While these examples are limited, they demonstrate that, with good will, it will be possible to work through the many issues arising from the NBN to develop a new public policy that is supported by clear analysis. Importantly, it may also be feasible to lay out alternative futures for the NBN that may be preferable in certain prescribed circumstances.

We invite all members of TelSoc and other interested parties to contribute to the debate on NBN futures by attending the NBN Futures Forums in 2020, by writing articles for the *Journal*, or by assisting in planning the NBN Futures Project.

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References

- Campbell, L. H. (2019). The NBN Futures Forum: Realising the User Potential of the NBN, *Journal of Telecommunications and the Digital Economy*, 7(4), December, to appear.
- Campbell, L. H., & Milner, M. (2019). The NBN Futures Forum: Discussing the future ownership of Australia's National Broadband Network, *Journal of Telecommunications and the Digital Economy*, 7(3), September. DOI: [10.18080/jtde.v7n3.202](https://doi.org/10.18080/jtde.v7n3.202)
- Campbell, L. H., & Suessspeck, S. (2015). How the NBN could boost Australia's GDP by 2%, *The Conversation*, 8 October. Available at <https://theconversation.com/how-the-nbn-could-boost-australias-gdp-by-2-48587>
- Communications, Department of. (2018). *Development of the Universal Service Guarantee: Summary Report*, November. Retrieved from <https://www.communications.gov.au/documents/development-universal-service-guarantee-summary-report>
- Corbin, T. (2019). Promoting Digital Inclusion Through the NBN, *Journal of Telecommunications and the Digital Economy*, 7(4), December, to appear.
- Finance, Department of. (2019). *NBN Co Limited (nbn)*. Accessed at <https://www.finance.gov.au/business/government-business-enterprises/nbn-co-limited-nbn>
- Gerrand, P. (2010). The National Broadband Network. The defining issue in Australian politics in 2010 [Editorial], *Telecommunications Journal of Australia*, 60(4), 52.1-52.4. DOI: [10.2104/tja10052](https://doi.org/10.2104/tja10052)
- Gerrand, P. (2019). NBN Futures: The option of merging NBN Co with InfraCo, as a Benefit to the Digital Economy, *Journal of Telecommunications and the Digital Economy*, 7(3), September. DOI: [10.18080/jtde.v7n3.198](https://doi.org/10.18080/jtde.v7n3.198)
- Holmes, J. R. (2019). Getting the NBN Infrastructure We Need, *Journal of Telecommunications and the Digital Economy*, 7(3), September. DOI: [10.18080/jtde.v7n3.199](https://doi.org/10.18080/jtde.v7n3.199)
- Sweden, Ministry of Enterprise and Innovation. (2016). *A Completely Connected Sweden by 2025 – a Broadband Strategy*. Government Offices of Sweden. Retrieved from <https://www.government.se/496173/contentassets/afe9f1cfeaac4e39abcd3b82d9be5d/sweden-completely-connected-by-2025-eng.pdf>
- Vertigan, M. (2014). *Independent cost-benefit analysis of broadband and review of regulation*. Department of Communications, 14 August. Retrieved from <https://www.communications.gov.au/sites/g/files/net301/f/NBN-Market-and-Regulatory-Report.pdf>

Wilson, C. K., Thomas, J., & Barraket, J. (2019). Measuring Digital Inequality in Australia: the Australian Digital Inclusion Index. *Journal of Telecommunications and the Digital Economy*, 7(2), 102-120. <https://doi.org/10.18080/jtde.v7n2.187>