PUBLIC VERSION

Final Report for Optus

Network cost analysis of the Telstra–TPG agreement – Results analysis

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1 Introduction and background

The multi-operator core network (MOCN) network-as-a-service (NaaS) agreement between Telstra and TPG is expected to provide significant scale and cost benefits to Telstra and TPG within the Regional Coverage Zone (RCZ).

Telstra already benefits from economies of scale due to its high traffic share within the RCZ. With the MOCN arrangement, Telstra is expected to benefit from additional economies of scale due to the wholesale traffic from TPG. Telstra will also benefit from access to TPG's spectrum, further reducing network costs and allowing Telstra to achieve capital and operating expenditure savings. These benefits are not replicable by Optus due to its lower traffic share in the RCZ and higher network costs (including mandatory swap-out costs of Huawei equipment).

Optus has commissioned Analysys Mason to build a network cost model to quantify the scale impact of the MOCN NaaS agreement between Telstra and TPG. Analysys Mason has modelled expenditure per GB in the RCZ for operators in different scenarios to highlight the impact of MOCN NaaS on the market competitiveness in the RCZ. The model quantifies capital and operating expenditure needed for maintaining, operating and expanding the network to support current and future traffic. We do not include depreciation ('spreading') of the capital expenditure or a return on capital employed or profit margin. In this document and the model, we refer to the sum of expenditure as the 'cost' though it is recognised that this does not include all cost components in an economic sense. This document explores the modelling results. In addition to this report, Analysys Mason has provided a supplementary document that outlines key inputs and parameters as well as a user guide for the model "Network cost analysis of the Telstra–TPG agreement – Model overview" [REF: Ref: 798083498-413].

The model allow users to change inputs and parameters and analyse different sets of results. Please note, inputs and parameters are based on publicly available data from the Australian Competition and Consumer Commission (ACCC) and the Australian Competition and Consumer Commission (ACMA) as well as data provided by Optus. Data can vary between the operators, hence the absolute figures are considered to be a sensible indication of expected network costs and provide a robust illustration of relativities between different operator network costs.

The remainder of this document is laid out as follows:

- Section 2 provides the modelled base case along with market share and traffic sensitivities
- Section 3 provides an alternative scenario where Optus and TPG form an MOCN agreement
- Section 4 provides our conclusions.

The report includes an annex containing supplementary material:

Annex A provides alternative scenario variant where TPG's 850MHz band is not pooled into the MOCN

2 Base case

2.1 The base case illustrates the factual (Optus competing against the MOCN) and counterfactual (Optus competing against Telstra) conditions

In the base case, it is assumed that Optus holds a market share of ~25%, whilst Telstra and TPG have ~70% and ~4% respectively in the RCZ. Those market shares are assumed to remain stable over the time period (2020–2030). Operators are assumed to make use of their current spectrum holdings (including spectrum made available in 2024) throughout the period.

This scenario takes into account Optus's planned upgrade on [redacted] sites in the RCZ due to the Huawei swap-out until 2027. Optus therefore incurs additional costs but benefits from additional capacity. Optus's planned [redacted] coverage sites are also included in the model.

No additional coverage sites or Huawei swap-out costs are taken into account for the other operators over the modelled period. However, additional sites are built to address capacity requirements until 2030.

For the MOCN entity, market share and spectrum holdings of Telstra and TPG are combined. In addition, 170[1] of TPG's sites are added to Telstra's network. The MOCN makes use of Telstra's spectrum holdings in addition to TPG's spectrum holdings in the 700MHz, 850MHz, 2100MHz and 3.5GHz bands.

Traffic is assumed to grow at a rate of 30% year on year for all operators until 2030.

Figure 1 presents the results modelled through the net present value (NPV) of the costs that each operator is forecast to incur for every GB of data it carries for the base case scenario.

Operator	AUD cent/GB
Optus	[redacted]
Telstra	[redacted]
Telstra-TPG MOCN	[redacted]

Figure 1: Base case NPV results 2023–2030 [Source: Analysys Mason, 2022]

As shown in Figure 2, Optus's network is significantly more expensive to operate per GB in the RCZ than Telstra's network. We estimate that Optus's network costs per GB are [redacted] more expensive than Telstra's over the modelled period (2023–2030). However, with the proposed MOCN (including spectrum share), Telstra would further reduce the costs of running its network, benefiting from additional spectrum combined with higher traffic volumes, which would result in Optus's costs being [redacted] higher than those of the MOCN entity.

1 Due to rounding in the model, 170 sites were added instead of the 169 announced

The additional spectrum provided by TPG to the MOCN allows for a significant capacity increase per site, materially lowering unit costs per GB as traffic grows. Furthermore, the planned Optus coverage roll-out and Huawei swap-out give rise to higher expenditure in the early years for the operator, which can be seen from the initial high costs of the network to 2026.

[redacted]

The relative difference in the network costs per GB suggests that Optus will be [redacted]

Furthermore, the MOCN agreement also affects TPG's competitiveness in the RCZ relative to Telstra. TPG will be required to pay a wholesale cost per GB over a fixed period to Telstra for the traffic carried on the MOCN. As TPG's traffic increases, so will the total wholesale fee paid to Telstra. Telstra, on the other hand, with the additional spectrum obtained from TPG will be able to lower its network costs per GB. As Telstra's traffic increases, the cost per GB on the MOCN declines, suggesting that Telstra will be able to offer the lowest prices to the market. This will have an impact on market competitiveness as Telstra will be the only operator that is able to gain such scale advantages, decreasing competition in the RCZ.

2.2 Market share sensitivity to the base case illustrates that with a declining market share Optus faces even higher network costs

In this scenario, Optus's market share is assumed, to [redacted] by 2030 and remain constant thereafter, due to the challenge in competing with the MOCN. The MOCN is assumed to gain the market share lost by Optus, increasing from [redacted] by 2027 whilst other factors are as per the base case.

Operator	AUD cent/GB
Optus	[redacted]
Telstra	[redacted]
Telstra-TPG MOCN	[redacted]

Figure 3: Base case market share sensitivity NPV results 2023–2030
[Source: Analysys Mason, 2022]

[redacted]

With the assumed loss of market share, the traffic on Optus's network is reduced leading to higher costs per GB. The MOCN cost per GB on the other hand is further reduced due to additional traffic on the MOCN from its higher market share.

2.3 Traffic sensitivity of the base case highlights that higher traffic growth implies lower network costs for the Telstra–TPG MOCN

In addition to the base case and changes in market share, we have modelled varying year-on-year traffic growth rates (13% and 40%), with all other factors remaining the same as in the base case scenario.

[redacted]

As can be seen in Figure 5 and Figure 6, as traffic growth increases, associated network costs in the base case scenario decline further. It is also clear that under both assumed year-on-year traffic growth cases, the MOCN becomes significantly lower cost than the Telstra counterfactual, indicating that it will be more challenging for Optus to compete on price in the RCZ. We note that the MOCN would be able to increase traffic on its network more easily due to the large amounts of spectrum it holds without the need for additional sites. Standalone operators such as Optus would need to build a large amount of capacity sites in order to match this traffic growth, given less spectrum available.

3 Alternative scenario

3.1 The alternative scenario where Optus and TPG form an MOCN agreement illustrates that the alternative MOCN can reduce network costs substantially to compete with Telstra

The alternative MOCN scenario explores the impact on network costs of a partnership between Optus and TPG similar to the proposed MOCN between Telstra and TPG.

In this case, the model assumed identical market shares to the Telstra–TPG MOCN base case which remain the same over the modelled period, but instead of combining Telstra's and TPG's sites and spectrum holdings, in this instance it is assumed that Optus will add those to its network. This results in 170[2] sites being added to Optus's network as well as TPG's spectrum holdings in the 700MHz, 850MHz, 2100MHz and 3.5GHz bands. The only difference to the base case spectrum's holdings is that TPG's 700MHz band accessible by Optus decreases from 2×15MHz to 2×10MHz as 2×5MHz spectrum is assumed to be retained by TPG to provide managed private networks to enterprises in the MOCN area.

The number of coverage and upgrade sites for Optus is taken from the Regional Planning Business Case SA3[3] as per the status quo in the base case with [redacted] upgrades and [redacted] coverage sites by 2027 and additional sites deployed to meet capacity requirements. Optus's deployments are added to the MOCN entity. The model assumes no coverage sites for Telstra and TPG in the modelled period; with additional sites deployed to address capacity requirements.

As per the base case, the traffic is assumed to grow at a rate of 30% year on year for all operators until 2030.

The NPV results for the alternative MOCN scenario are presented in Figure 7.

Operator	AUD cent/GB
Optus	[redacted]
Telstra	[redacted]
Optus–TPG MOCN	[redacted]

Figure 7: Alternative scenario NPV results 2023–2030
[Source: Analysys Mason, 2022]

As can be seen from Figure 8, the Optus–TPG MOCN allows Optus to reduce the cost per GB on its MOCN and compete more effectively with Telstra. This suggests that Optus has a commercial incentive to enter into an MOCN agreement with TPG to be able to compete with Telstra in the RCZ.

2 Due to rounding in the model, 170 sites were added instead of the 169 announced

3 This is an Excel document provided by Optus; inputs are based on the version dated 2022-09-26

[redacted]

In addition to the alternative scenario, a variation was modelled to account for the possibility of TPG's 850MHz band not being pooled in the MOCN. The results indicate that due to the limited amount of 850MHz spectrum available, the benefits of deploying the band in the MOCN is outweighed by the costs, leading to marginally lower costs/GB when 850MHz is not pooled (see Annex A for more details).

3.2 Market share sensitivity of the alternative scenario of Optus–TPG MOCN that reduces Telstra's market share, brings down the network costs of the alternative MOCN entity even further

In this scenario, assumptions are identical to the alternative scenario with the only difference being that Telstra's market share decreases by 10% by 2027 and remains constant thereafter.

Operator	AUD cent/GB
Optus	[redacted]
Telstra	[redacted]
Optus–TPG MOCN	[redacted]

Figure 9: Base Alternative scenario market share sensitivity NPV results 2023–2030 [Source: Analysys Mason, 2022]

The Optus–TPG MOCN cost per GB is further reduced due its higher market share which brings additional traffic to the network, thus making it more competitive with Telstra's network.

[redacted]

3.3 Traffic sensitivity of Optus-TPG MOCN shows that the alternative MOCN is better able to compete against Telstra's network costs when year-on-year traffic growth is high

Under the alternative scenario, the same trend can be observed: higher traffic growth leads to lower network costs per GB. With high traffic growth (e.g. 40% per year), the unit costs of the alternative MOCN [redacted] Telstra by 2028 onwards.

[redacted]

The traffic sensitivities further indicate that the Telstra–TPG MOCN agreement is likely to decrease competitiveness in the RCZ, whilst the alternative MOCN scenario suggests that if Optus and TPG reached an MOCN agreement they would prove to be a stronger competitor to Telstra in those regions. This would mean that Optus (and TPG depending on the commercial arrangement) would be able to achieve [redacted] Telstra and be a more sustainable and effective competitor, leading to greater competition in the RCZ. This alternative scenario should therefore benefit consumers in the long run.

4 Conclusions

If the Telstra-TPG MOCN agreement does go ahead, it will mean that the new MOCN entity will be able to achieve significantly lower unit costs in rural regions, which in turn will mean that Telstra will be able to lower prices to a level [redacted]

[redacted]

As traffic grows, the Telstra-TPG MOCN experiences declining unit costs on its network. However, we understand TPG faces a stable wholesale charge regime, as is common in wholesale agreements. Telstra will therefore be receiving a stable wholesale revenue alongside a declining unit cost, thereby increasing Telstra's marginal profit as traffic grows in the RCZ and enhancing the operator's ability to outcompete other operators on price.

[redacted]

From the modelled results, it can be seen that the counterfactual of an Optus-TPG MOCN results in the Optus-TPG MOCN [redacted] Telstra as a standalone operator in the RCZ. Under all but the lowest traffic scenarios, the Optus-TPG MOCN [redacted] making the two networks more competitive and bringing benefits to consumers. This can be seen from the contrast between Figure 13 and Figure 14, under the different market share and traffic growth sensitivities.

Annex A Alternative sensitivities

Alternative scenario variant for the Optus–TPG MOCN where 2×5MHz of 850MHz is not pooled in the MOCN, resulting in increased network costs as the benefits of deploying the band are outweighed by the costs

This scenario constitutes a variation on the alternative MOCN formed by Optus and TPG, with the only difference being that 2×5MHz of 850MHz is not pooled in the MOCN. The NPV of the network costs is provided in Figure A.1 below.

Operator	AUD cent/GB
Optus	[redacted]
Telstra	[redacted]
Optus–TPG MOCN	[redacted]

Figure A.1: NPV results for the alternative scenario variant (2023–2030) [Source: Analysys Mason, 2022]

Due to the limited amount of 850MHz spectrum available, the benefits of deploying the band in the MOCN are outweighed by the costs, leading to marginally lower costs/GB when 850MHz spectrum is not pooled in comparison to the alternative scenario, as can be seen in Figure A.2.

[redacted]