

Public Inquiry for a Potential Retail Service Determination in Relation to Voice and Data Services – On-Net/Off-net voice and messaging services

RESPONSE TO COMMENTS AND PUBLIC INQUIRY REPORT

5 March 2024

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A. INTRODUCTION

1. Section 157 (1) of the National Information and Communications Technology Act 2009 (the “Act”) gives powers to the National Information and Communications Technology Authority (“NICTA”) to hold a public inquiry on a retail service. The purpose of the public inquiry is to assess whether a recommendation should be made to the Minister that a retail service should be subject to a retail service determination in respect of an operator licensee, and if so, the appropriate terms of any such determination.
2. In accordance with Sections 157 and 230 of the Act, on 18 March 2022 NICTA commenced a public inquiry into a potential retail service determination in relation to voice and data services (the “Public Inquiry”). On the same date, NICTA published a “Discussion Paper: Public consultation into whether a recommendation should be made to the Minister for a retail service determination for voice and data services” (the “First Discussion Paper”), in accordance with Section 232 of the Act.
3. Following the publication of the First Discussion Paper, NICTA received comments from stakeholders, which are summarized and addressed in NICTA’s “Response to Comments Report: Public consultation into whether a recommendation should be made to the Minister for a retail service determination for voice and data services”, issued on 27 July 2022 (the “First Response to Comments Report”).
4. Following the first phase of the Public Inquiry and considering the comments received from interested parties, NICTA decided not to impose price caps on the retail services under consideration. Instead, NICTA chose to address the issue associated with the large price differentials between on-net and off-net mobile voice service of Digicel PNG Limited (“Digicel”).¹
5. On 21 October 2022, NICTA commenced the second phase of the Public Inquiry by publishing a Public Notice, and a “Discussion Paper: To facilitate public consultation on potential Retail Services Determination in relation to On-net and Offnet Calls” (the “Second Discussion Paper”).
6. In its Second Discussion Paper, NICTA concluded that a retail service determination is warranted to impose price controls to eliminate the large price differential between on-net and off-net prices of Digicel only. NICTA’s view is based on the following reasons:
 - a) Digicel has a substantial degree of market power in the national mobile voice service market;²
 - b) this significant market power along with Digicel’s price discrimination between on-net and off-net prices, raises the switching costs of Digicel’s customers, which in

¹ NICTA. “Response to Comments Report: Public consultation into whether a recommendation should be made to the Minister for a retail service determination for voice and data services”, issued on 27 July 2022, page 4, Section 3. See also, Public Notice: PUBLIC INQUIRY – POTENTIAL RETAIL SERVICE DETERMINATION IN RELATION TO VOICE AND DATA SERVICES – ON-NET/OFF-NET VOICE AND MESSAGING SERVICES. Published 25th October 2022.

² Second Discussion Paper. Sec. 4.3.

turn creates barriers to expansion to Digicel's competitors, cementing Digicel's quasi monopoly position in the mobile voice market;³ and

- c) the proposed retail service determination meets the Retail Regulation Criteria under Section 158 of the Act, namely:

“(a) that making a retail service determination for the retail service in respect of an operator licensee for a particular period will further the achievement of the objective set out in Section 124 but disregarding 124(2); and

(b) specifically, in relation to the competition objective, that –

(i) that operator licensee has a substantial degree of power in the market within which the retail service is supplied; and

(ii) in the absence of the retail service determination for that period, that substantial degree of power is likely to –

(A) persist in the market over that period; and

(B) expose retail customers to a material risk of higher prices and/or reduced service where they acquire the retail service from that operator licensee during that period; and

(c) specifically, in relation to the efficiency objective, that the operator licensee will not be prevented from achieving a return on assets during that period sufficient to sustain investment necessary to supply the retail service; and

(d) the aggregate likely benefits of making that retail service determination outweigh any aggregate likely detriments.”

7. Following the publication of the Second Discussion Paper, NICTA received comments from the following stakeholders:
- a) Digicel (PNG) Limited, dated 30 November 2022;
 - b) Digitec Communications Limited T/A Vodafone PNG, dated 30 November 2022; and
 - c) Telikom Limited, dated 30 November 2022.
8. In addition, Digicel (PNG) Limited submitted comments on Digitec Communications Limited and Telikom's submissions, dated 17 February 2023.
9. Digicel provided extensive comments in its submission dated 30 November 2022. We proceed to respond first to Digicel's comments and then address the comments from other stakeholders and Digicel's cross-submission.
10. For ease of exposition, NICTA is responding first to Digicel's Specific Comments in Section D of its submission dated 30 November 2022, and then will address the other comments in the following order:

³ *Id.* Sec. 4.3

- (a) comments in Section D, Specific Issues, paragraphs 42 through 51 – NICTA has erred in its analysis of the relevant market and Digicel’s dominance in it,
- (b) comments in Section D, Specific Issues, paragraphs 52 through 71 – Customer choice is driven by coverage and service quality considerations,
- (c) comments in Section D, Specific Issues, paragraphs 72 through 73 – The terms of the proposed RSD are harsh, oppressive and unwarranted in the circumstances,
- (d) comments in Section D, Specific Issues, paragraphs 74 through 78 – NICTA’s cost benefit analysis is simplistic and flawed,
- (e) comments in Section B, Introduction – paragraph 34,
- (f) comments in Section C, Legal Framework, in particular paragraphs 38 through 41,
- (g) comments in Section E, Proposed Terms of the RSD, paragraphs 79 through 82 – Proposed terms of the RSD.

B. COMMENTS RECEIVED FROM DIGICEL (PNG) LIMITED⁴ AND NICTA’S RESPONSES

(i) Digicel’s comments in Section D, Specific Issues, paragraphs 42 through 51 – NICTA has erred in its analysis of the relevant market and Digicel’s dominance in it.

11. In paragraphs 42 through 51, Digicel asserts that NICTA has erred in its analysis of the relevant market and Digicel’s power in that market. Digicel goes on to cite the opinion memorandum provided by Mr. Jason Ockerby, dated 28 November 2022 and attached to Digicel’s submission.

(ii) NICTA’s response to comments in Section D, paragraphs 42 through 51 of Digicel’s submission

12. Digicel’s main contention is that, in their view, NICTA has not provided enough evidence to support NICTA’s assertion that Digicel has a substantial degree of power in the market in which national mobile voice service is provided.

13. In the Second Discussion Paper, NICTA made the argument that having Digicel in excess of 90 percent market share (by revenue) in conjunction with the barriers to entry and expansion that exist in such market, amounted (*per se*), to a substantial degree of market power. For the sake of clarity, NICTA is providing a fuller analysis in this report to address Digicel’s concerns, and where needed, NICTA has revised its prior views on the relevant markets within which the services that would be affected by the proposed Retail Service Determination are supplied.

⁴ Digicel (PNG) Limited. Submission to NICTA Discussion Paper: To facilitate public consultation on potential Retail Service Determination in relation to On-net and Offnet Calls, issued 21 October 2022. 30 November 2022.

(iii) The prepaid and postpaid national retail mobile voice services

14. As stated in NICTA's Second Discussion Paper and the accompanying draft Retail Services Determination, the proposed determination seeks to regulate two of Digicel's retail services: (a) the prepaid national mobile voice service, and (b) the postpaid national mobile voice service. In particular, NICTA seeks to regulate the price difference between on-net and off-net calls, but not the level of prices.⁵ This would leave Digicel to price their retail services as it sees fit but would restrict the price difference between national on-net and off-net calls.⁶
15. Prepaid retail mobile services are sold typically in bundles. Bundles are sold as a single-service bundle or bundled with other services. Single-service mobile bundles refer to voice only service, Short Messaging Services (SMS) only, or data (i.e., Internet) only service. Operators provide a menu of options for consumers to pick different quantities of minutes, or SMS, or Gigabytes of data. Bundles have a term (time until expiration) and maximum quantities to be consumed. Consumption outside the bundle is charged at the standard rates, which are higher than the unit price charged for consumption within a bundle.
16. Multiple-service bundles typically combine voice, SMS, data services. Bundles come with various combinations of minutes, SMS and Gigabytes with different prices and terms (1 day, 7 days, and 30 days). Again, bundles have a term and maximum quantities to be consumed. Consumption outside the bundle is charged at the standard rates, which are higher than the unit price charged for consumption within a bundle.
17. The national prepaid retail mobile voice service is typically purchased as either a single-service bundle (i.e., voice-only bundle),⁷ or bundled together with SMS and data.
18. The national post-paid retail mobile voice service is sold typically bundled with SMS and (mobile) data (Internet) service. The majority of users of the postpaid service are medium/large businesses and organizations including government, and the bundle of services can be customized to the clients' needs with various options of add-on services.

(iv) Market Definition

19. NICTA notes Digicel's comments regarding their view that insufficient analysis and justification was provided in NICTA's Second Discussion Paper regarding the relevant market definition. Below, NICTA provides a fuller analysis and justification, to address Digicel's concerns. While undertaking this analysis, NICTA came to the realization that its prior relevant market definition needed revisions, which are detailed below.

⁵ See Section 1 of NICTA's Second Discussion Paper.

⁶ The maximum price difference that the proposed (revised) determination would allow is addressed later in this report.

⁷ In general, the voice only service also includes emergency call number, voicemail, and customer services.

20. To define the relevant markets, NICTA followed the widely accepted methodology known as the Hypothetical Monopolist Test (HMT), also known as the SSNIP test, after its acronym that stands for small but significant non-transitory increase on price.⁸
21. The methodology is based on the notion that a relevant market for a good or service includes all services that are considered to be close substitutes. The focus of the delineation of relevant markets is therefore based on those services that are possible close substitutes from the point of view of the consumer (i.e., demand-side substitution), and those suppliers who produce, or could quickly produce, those services (i.e., supply-side substitution). As the European Commission Guidelines states:
- “According to settled case-law, the relevant product/services market comprises all those products or services that are sufficiently interchangeable or substitutable, not only in terms of their objective characteristics, by virtue of which they are particularly suitable for satisfying the constant needs of consumers, their prices or their intended use, but also in terms of the conditions of competition and/or the structure of supply and demand on the market in question. Products or services which are only to a small, or relative degree interchangeable with each other do not form part of the same market. NRAs [national regulatory authorities] should thus commence the exercise of defining the relevant product or service market by grouping together products or services that are used by consumers for the same purposes.”⁹*
22. To implement this methodology, NICTA starts with a focal service or group of services and assess the demand-side substitution with alternative services outside the group that could be perceived by consumers as substitutes of the focal services. This is done by applying the SSNIP test to the focal group of services and asking whether an hypothetical monopolist supplying the focal services would be able to sustain a small but significant non-transitory increase on price (usually 5% to 10%)¹⁰ over the foreseeable future (usually one year) and remain profitable. If the price increase is such that it will lose sales to make the SSNIP unprofitable, it means that a nontrivial number of consumers would switch to buying the alternative services. Thus, the alternative services and the focal services would be close substitutes, and therefore, must belong to the same relevant market.
23. The group of services is then expanded to include the alternative services, and the thought experiment is repeated until a SSNIP on the group of services becomes profitable. At that point a tentative relevant market containing all the services in the group has been identified.

⁸ See for example, European Commission. Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. (2002|C 165|03). Official Journal of the European Commission. 11.7.2002. Paragraphs 40-43. OECD, Defining the Relevant Market in Telecommunications (2014), pages 10-11. U.S. Department of Justice and the Federal Trade Commission. Horizontal Merger Guidelines. Revised, April 8, 1997, pages 4-7.

⁹ European Commission. Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. (2002|C 165|03). Official Journal of the European Commission. 11.7.2002. Paragraph 44.

¹⁰ *Id.*, paragraph 40.

24. The assessment of demand-side substitution involves doing the assessment without regard for the technology used to supply the services.¹¹ The focus of the attention is on how consumers use the focal services, and how easy or costly would be for consumers to switch to buying the alternative services. The analysis is performed holding all other factors constant.
25. The next step is to assess supply-side substitution; that is, how quickly suppliers of other services would be able to supply the focal services or a close substitute in response to a SSNIP on the focal services.
26. Once the relevant service market has been defined, one must assess the relevant geographic market. To that end, one must consider the geographic area where the services in the relevant market are demanded and supplied, and assess whether the conditions of competition in a geographic area, are sufficiently similar relative to those in contiguous geographic areas.¹² In practice, regulatory authorities have often defined the relevant geographic market based on the area covered by a network or the area covered by an operator's license.¹³

(v) Relevant Markets – Prepaid Services

27. NICTA used the foregoing methodology to define the relevant market or markets within which the prepaid national mobile voice service is supplied. As mentioned before, the national mobile voice service is typically purchased as either a voice only service (single-service bundle), or as a multiple-service bundle together with SMS, and data service. Importantly, a non-trivial proportion of consumers use simple button phones (also called one-bang) for their voice service needs. Moreover, NICTA estimates that 82% of PNG's population is covered only with 2G mobile technology, permitting only voice and SMS services. This has important implications for the definition of market(s) as we explain below.
28. First, NICTA used the prepaid voice-only service as the focal service to analyse demand-side substitution with alternative services. As indicated in the Second Discussion Paper, one of the alternative services considered was fixed voice service.¹⁴ However, the inclusion of the fixed voice service in the same market as the mobile service was rejected because not enough customers would switch from a mobile service to a fixed service after a SSNIP on the mobile service.
29. Another alternative tested was the prepaid mobile bundled services, which includes voice, SMS, and data. NICTA considers the buyers of the voice only service to have typically a lower budget than buyers of the bundled services. A nontrivial proportion of the buyers of the voice-only service access that service using low-cost simple button phones (2G/3G phones). In a recent survey conducted by NICTA among 309 phone users in Port Moresby and Mt. Hagen, we found that 45% still use the simple button phones (2G/3G). See Table below.

¹¹ *Id.*, paragraph 45.

¹² *Id.* Paragraphs 55-56.

¹³ *Id.*, paragraph 59.

¹⁴ Second Discussion Paper, Section 4.2.

Table 1. Smartphone users v. simple 2G/3G phone users

	No. users	% users
No. smartphone users	170	55%
No. of simple (2G/3G) phone users	139	45%
Total	309	100%

Source: NICTA's 2022 survey in Port Moresby and Mt. Hagen.

30. Users of the voice only service typically live in rural or remote areas, have a lower budget or lower income, are generally older, and do not value as much having mobile Internet access. In NICTA's assessment a SSNIP on the voice only service by an hypothetical monopolist would likely be maintained over a period of time, as not enough consumers of the voice only service would switch to buying the bundled services. There are three main reasons for this. First, not enough consumers of the voice only service value mobile Internet service as much as the consumers of the bundled services. Second, switching to buying the bundled services would likely require an increase in expenses due to the bundle containing additional services and access to applications. Third, to take advantage of those additional services and applications, a voice only consumer would need to upgrade his or her phone to a 4G enabled smartphone, which is costly. For those reasons, NICTA's view is that the voice only service is a relevant service market separate from the bundled services which include SMS and data.
31. NICTA notes that over the past few years, increasingly consumers have opted to purchase the bundled services instead of the voice only service. However, this trend does not negate NICTA's view that, holding all else constant, a SSNIP on the voice only service would not prompt enough consumers to switch to buying the bundled services. Buyers of the voice only service have a much lower willingness to pay for the bundled services than buyers of those services. They would find costly to switch to mobile over-the-top (OTT) applications as a substitute, because they would need to upgrade to a more expensive smartphone and a more costly bundle.¹⁵ Moreover, their family and friends with whom they often call would need also a more expensive 4G phone, which makes OTT applications not a close substitute for the voice only service customer.
32. Assessing supply-side substitution doesn't change our view of the relevant market as the existing mobile network operators would be the only suppliers able to supply the voice only service or the bundled services. Other licensed operators do not have the required radio spectrum assignments nor the network to rapidly switch to supply those service. Therefore, the relevant service market shall be the market for mobile

¹⁵ Bundled services may provide a lower per minute price than voice only (single-service bundle) service. However, because the bundled services come with other services in addition to voice, the total expenditure of buying bundled services would be higher than buying the voice only service.

prepaid national voice only service. Having regard to the discussion in paragraphs 34 to 39 below, this is the first relevant market for current purposes.

33. NICTA considers the geographic market to be the national territory, which is the same geographic area covered by each mobile operator's license. Moreover, the national territory is also the geographic area covered by each operator's radio spectrum assignments which are used to supply the voice only service and the bundled services.

(vi) A second relevant market - prepaid

34. While NICTA is satisfied with its view that the voice only service is a market in itself, NICTA considers that the bundled services comprising prepaid mobile voice, SMS and data service shall be considered a second relevant market for the following reasons. As mentioned before, consumers are increasingly purchasing the bundled services, rather than the voice only service. This has led to a noticeable segmentation between the consumers of the voice only service and those of the bundled services.
35. In addition to voice and SMS, consumers of the bundled services use the mobile data services to access the Internet, e-mail, OTT applications and social media. These consumers value data services to a much higher degree (expressed by their willingness to pay) than the consumers of the voice only service, holding all other factors constant.
36. NICTA used, again, the hypothetical monopolist test to assess the degree of demand-side substitution between the bundled services and the voice only service. The focal service is the bundled services, and the alternative is the voice only service. In NICTA's view, an hypothetical monopolist would be able to maintain a SSNIP on the bundled services in the near term without prompting a significant number of consumers to switch to the voice only service. As mentioned before, consumers of the bundled services value having access to all the services in the bundle, plus access to the applications that come with access to the Internet. If they were to consider switching to the voice only service, they would need to purchase each component of the bundle separately, which will be more costly for them.
37. An analysis of the supply-side substitution between the bundled services and the voice only service does not alter our findings for the same reasons explained earlier. The bundled services constitute a separate relevant market.
38. Similar to our earlier analysis of the geographic market, and for the same reasons, NICTA is of the view that the relevant geographic market shall be the national territory of Papua New Guinea.
39. Therefore, a second relevant market has been identified where the prepaid mobile national voice service is supplied. It consists of the prepaid mobile bundled services which includes national mobile voice service, SMS, and data service.

(vii) Relevant Market – Postpaid Services

40. Digicel's postpaid mobile voice service is typically supplied bundled with SMS, and data service. The consumers are primarily medium/large businesses and organizations, including government. Depending on each customer's needs, the

mobile bundle can also be supplied together with other customized business solutions. This sets the postpaid mobile voice service apart from the prepaid mass market voice service just analysed.

41. A postpaid voice only service is practically not used by customers because they generally value access to mobile SMS and data services. Hence, NICTA used the postpaid mobile bundled services (voice, SMS, and data) as the focal service for the purpose of defining the relevant market.
42. As possible alternative services, one could say that a bundle of fixed voice and fixed (wireless or wired) Internet could provide services not too different from the services in the mobile bundle. However, the lack of mobile functionality in the fixed voice or fixed wireless Internet services, makes them poor substitutes for the mobile bundled services. In NICTA's view, an hypothetical monopolist supplying the postpaid mobile bundled services would be able to maintain a SSNIP on the bundle without prompting its customers to switch to the alternative. NICTA's view is that the postpaid mobile bundled services is a relevant market on its own, and that there are no other relevant markets within which the postpaid voice service is supplied.
43. An analysis of the supply-side substitution between the bundled services and alternative services does not alter our findings. The postpaid mobile bundled services constitute a relevant market for present purposes.
44. Again, NICTA considers the geographic market to be the national territory, which is the same geographic area covered by each mobile operator's license. Likewise, it is also the geographic area covered by each operator's radio spectrum assignments.

(viii) Digicel has a substantial degree of market power in the markets within which the prepaid and postpaid mobile national voice services are supplied

45. Section 158(b)(i) of the Act requires that an operator subject to a retail service determination shall have "*a substantial degree of power in the market within which the retail service is supplied.*" The Act does not define what is meant by "*a substantial degree of power*". Therefore, NICTA has used the meaning often used in competition law guidelines, legislation, regulations, and case-law. For example, Article 14 of the framework directive for electronics communications networks and services of the European Union states that:

*"An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers."*¹⁶

46. Assessing whether an operator has significant market power, or a substantial degree of market power to use the terminology in the Act, is not as straightforward as it may seem. Significant market power is often associated with the ability to raise prices

¹⁶ DIRECTIVE 2002/21/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (7 March 2002), on a common regulatory framework for electronic communications networks and services (Framework Directive). As amended by Directive 2009/140/EC and Regulation 544/2009. Article 14.

above the competitive level without losing a significant number of customers. It is also associated with the ability to exclude rivals by owning an essential facility or resource.

47. Conceptually, those seem to be sound criteria to determine whether an operator has significant market power. However, in practice, it is not easy to quantify the markup above the competitive price, or to ascertain whether a facility or resource is essential. Instead, what is done in practice, is to use a number of criteria that taken together would indicate a firm has significant market power. It is common to start by calculating the market share of the operator concerned, but a high market share is not by itself equivalent to having significant market power. For example, the European Commission guidelines state that, *“the existence of large market shares simply means that the operator concerned might be in a dominant position.”*¹⁷
48. The Commission goes on to provide a list that could be used to infer the existence of significant market power:

“the following criteria can also be used to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers. These criteria include amongst others:

- *overall size of the undertaking,*
- *control of infrastructure not easily duplicated,*
- *technological advantage or superiority,*
- *absence of or low countervailing buyer power,*
- *easy or privileged access to capital markets/financial resources,*
- *product/services diversification (e.g. bundled products or services),*
- *economies of scale,*
- *economies of scope,*
- *vertical integration,*
- *a highly developed distribution and sales network,*
- *absence of potential competitors,*
- *barriers to expansion.*

*A dominant position can derive from a combination of the above criteria, which taken separately may not necessarily be determinative.”*¹⁸

49. A careful analysis of the markets within which the prepaid and postpaid mobile national voice services are supplied, has led NICTA to conclude that Digicel alone has a substantial degree of market power in the following relevant markets:

- Prepaid national mobile voice only service,

¹⁷ European Commission. Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. (2002|C 165|03). Official Journal of the European Commission. 11.7.2002. Paragraph 78.

¹⁸ *Id.* Paragraphs 78-79.

- Prepaid mobile bundled services, which include national mobile voice service, SMS, and data service, and
- Postpaid mobile bundled services, which include national mobile voice service, SMS, and data service.

50. The reasons for NICTA’s conclusion are several, which taken individually, may not be determinative but, when taken as a whole, provides conclusive evidence of Digicel’s substantial degree of market power. Below we explain these reasons.

(ix) Digicel has a very high market share exceeding common thresholds used to presume the existence of a substantial degree of market power

51. The latest available data indicates that Digicel’s market share based on revenue of prepaid national mobile voice service stand at approximately 95.1%. Once revenue from SMS and data services are added, Digicel’s market share is calculated at 92%. See Table 2. More recent data was not available. However, given Digicel long-term stable market share in the mobile markets,¹⁹ it is safe to presume that its current market share is within a reasonable margin of error from those numbers notwithstanding the entry of Digitec Communications (trading as Vodafone) in April of 2022.

Table 2. Market share by revenue - Prepaid mobile services²⁰

Market Share by Revenue - National Prepaid Mobile Voice			
	2018	2019	2022
Digicel	93.2%	92.1%	95.1%
Digitec-Vodafone	n.a.	n.a.	0.2%
Telikom-Bmobile	n.a.	n.a.	4.7%
Bmobile	6.0%	7.4%	n.a.
Telikom	0.8%	0.4%	n.a.
Market Share by Revenue - National Prepaid Mobile Voice/SMS			
	2018	2019	2022
Digicel	93.9%	92.5%	95.6%
Digitec-Vodafone	n.a.	n.a.	0.2%
Telikom-Bmobile	n.a.	n.a.	4.2%
Bmobile	5.4%	7.1%	n.a.
Telikom	0.7%	0.4%	n.a.
Market Share by Revenue - National Prepaid Mobile Voice/SMS and data service			
	2018	2019	2022
Digicel	95.8%	93.7%	92%
Digitec-Vodafone	n.a.	n.a.	2%

¹⁹ For example, Digicel market share on the national (prepaid and postpaid) mobile voice market by revenue was estimated to be above 95% in 2016. It is important to cite what NICTA observed at the time: “Digicel’s market shares have remained very high over the last five years despite renewed efforts by bmobile and Telikom to improve their competitiveness.” See “Public Inquiry into a potential Retail Service Determination regarding certain mobile telephony services supplied by Digicel. Discussion Paper.” 20th November 2017, paragraph 3.2.7 and Figure 4.

²⁰ Telikom figures are estimated.

Telikom-Bmobile	n.a.	n.a.	6%
Bmobile	3.2%	5.6%	n.a.
Telikom	1.0%	0.7%	n.a.

Source: NICTA, based on data provided by each operator.

52. Prepaid voice revenue data provided by the mobile operators was not disaggregated between the voice only service and the voice portion of the bundled services. Nevertheless, any reasonable allocation of revenue between the voice only service and the bundled services²¹ for Digicel and Bmobile/Telikom would end with an estimated market share of Digicel similar to the values in Table 2.
53. Similarly, the latest available data of revenue from postpaid mobile national voice, SMS and data services, indicate that Digicel’s market share is very high. Considering revenue from postpaid national voice service, SMS and data services, as revenue from the relevant postpaid market, Digicel’s market share is 95.2%. See Table 3.

Table 3. Market share by revenue for postpaid mobile voice/SMS and data services

	2018	2019	2022
Digicel	97.0%	95.1%	95.2%
Digitec-Vodafone	n.a.	n.a.	2.8%
Telikom-Bmobile	n.a.	n.a.	2.0%
Bmobile	2.4%	2.5%	n.a.
Telikom	0.6%	2.4%	n.a.

Source: NICTA, based on data provided by each operator.

54. Digicel market share estimates for the two prepaid relevant markets and the postpaid market largely exceed common thresholds for the presumption of significant market power in electronic communications markets.
55. For example, in the Republic of Vanuatu the Telecommunications and Radiocommunications Regulation Act No. 30 of 2009 establishes a 40% market share threshold for designating an operator dominant without requiring additional evidence of significant market power.²² Similarly, Section 26(1) of the Telecommunications Act 2005 in Samoa states that:

“Every service provider whose gross revenue in a specific telecommunications market constitutes forty per cent (40%) or more of the total gross revenue of all service providers in that market, shall be designated a dominant service provider in that market, unless and until the Regulator specifies otherwise in an order.”

²¹ One approach for apportioning revenue would be based on the network coverage by mobile technology: 2G, 3G and 4G, and use that in conjunction with reasonable assumptions about apportioning revenue to the voice only service and the portion of voice in the bundled services.

²² Section 21(1)(a). Republic of Vanuatu. Telecommunications and Radiocommunications Regulation Act No. 30 of 2009.

56. The European Commission guidelines on electronic communications considers market shares in excess of 50%, as “very large”, and evidence of a substantial degree of market power (dominance) except in rare cases:

“In the Commission’s decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40%, although the Commission may in some cases have concerns about dominance even with lower market shares, as dominance may occur without the existence of a large market share. According to established case-law, very large market shares --in excess of 50% -- are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position.”²³

57. It is important to stress that Digicel’s very high market share has been maintained for many years. This is a strong sign of an entrenched position of economic strength in the relevant markets, even after its main competitor, Bmobile partnered with Vodafone to challenge Digicel in 2014.

58. Bmobile was supposed to benefit from Vodafone’s knowhow in terms of products, product packaging, and procurement due to Vodafone’s buying power.²⁴ In addition, Bmobile together with Telikom, the two only competitors of Digicel at the time, undertook an aggressive expansion of their 3G/4G networks.²⁵ Despite these efforts, Digicel’s market share had barely declined by the end of Bmobile’s partnership with Vodafone in May of 2019. As Table 4 shows, between 2014 and 2019, Digicel’s market share (by number of subscribers) only declined from 93% to 87.3%. This is a clear sign of how entrenched is Digicel’s dominant position in the market. Position that has maintained over at least the past decade and that still has. The fact that Digicel’s market share fell slightly over the period of Bmobile’s partnership with Vodafone, does not negate Digicel’s substantial market power.

Table 4. Change on Digicel’s market share (by number of subscribers) during Bmobile’s partnership with Vodafone

	2014	2015	2016	2017	2018	2019
Digicel	93%	93%	89%	89.8%	91.3%	87.3%
Bmobile	3%	5%	8%	8.8%	7.6%	8.1%
Telikom	0.2%	2%	3%	1.5%	1.2%	4.6%

Note: based on total subscriber numbers (prepaid and postpaid). Sources: For 2014-2016, data is from NICTA, Public Inquiry into potential Retail Service Determination regarding certain mobile telephony services supplied by Digicel. Discussion Paper. 20 November 2017, Figure 4. Data for 2017-2019 is from NICTA based on information provided by operators.

²³ European Commission. Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. (2002|C 165|03). Official Journal of the European Commission. 11.7.2002. Paragraph 75.

²⁴ See, “Telikom PNG and bmobile rolling out joint 3G/4G network”. COMMS UPDATE, TeleGeography, 21 August 2014. <https://www.commsupdate.com/articles/2014/08/21/telikom-png-and-bmobile-rolling-out-joint-3g4g-network/>

²⁵ *Id.*

59. Digitec Communications (trading as Vodafone) entry in the PNG market in April of 2022 will cause the market share of its competitors, including Digicel, to decline. However, this does not mean, that Digicel has not a substantial degree of market power. It is worth citing what the European Commission guidelines for electronic communications says about a possible loss of market share:

“The fact that an undertaking with a significant position on the market is gradually losing market share may well indicate that the market is becoming more competitive, but it does not preclude a finding of significant market power.”²⁶

(x) *The large scale of Digicel’s network is a source of economic strength in the prepaid and postpaid relevant markets*

60. The table below shows concluding evidence of the large disparity in the scale of Digicel’s mobile network and those of its competitors. Using the number of prepaid subscribers as a proxy for scale or capacity of a network, NICTA found that Digicel’s network is nearly eight times larger than that of Telikom-Bmobile and more than 3.6 times that of Digitec-Vodafone. Using another indicator such as the percentage of the national population covered by each network, we found that Digicel’s network coverage is twice as large as its second closest competitor.²⁷

61. The large disparity in the scale of Digicel’s mobile network compared to its closest competitor confers Digicel a position of great economic strength in the prepaid and postpaid relevant markets for two reasons. First, given that Digicel’s network is by far the largest in the country, it allows Digicel to achieve economies of scale to a much larger degree than its competitors.²⁸ This translates into a lower cost of service per subscriber for Digicel, which provides an important cost advantage over its smaller competitors, holding all else constant.

Table 5. Number of prepaid mobile subscribers by operator (voice/SMS and data)

	Dec. 2019	Dec. 2022
Digicel	2,063,097	2,467,869
Digitec-Vodafone	n.a.	690,684
Telikom-Bmobile	n.a.	315,017
Bmobile	196,595	n.a.
Telikom	113,315	n.a.
Total prepaid	2,373,007	3,473,570

²⁶ European Commission. Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. (2002|C 165|03). Official Journal of the European Commission. 11.7.2002. Paragraph 75.

²⁷ Data from 2019, the latest data available indicates that Digicel has a network coverage of 88% of the population, while Bmobile has 46% and Telikom 40%.

²⁸ Economies of scale are present when the costs of supplying a service have a large component of fixed costs. As the scale increases, these fixed costs are spread over a larger number of customers. See for example, William Baumol and Alan Blinder. Economics: Principles and Policy. Tenth Edition. 2006. Thomson South-Western, pp. 138-139.

Note. 2019 Value of Bmobile & 2022 Telikom are estimated. Source: NICTA, based on data provided by each operator.

62. Second, Digicel's large network coverage means that in many rural and remote locations, Digicel is the only network available. Therefore, consumers living in those areas, are a captive (monopoly) market for Digicel. This along with Digicel's relative cost advantage arising from its economies of scale, confers Digicel a position of great economic strength in the prepaid and postpaid relevant markets.
63. Digicel's cost advantage due to its large economies of scale, is unlikely to be matched by the new entrant, Digitec Communications, trading as Vodafone ("Digitec-Vodafone"), during the term of the proposed determination. The reason is that there are important barriers to expansion for mobile networks. The rollout of an extensive network such as Digicel's, is a massive endeavour that requires billions in capital investment and many years to complete. More on this next.

(xi) Digicel controls infrastructure not easily duplicated which is a source of economic strength in the prepaid and postpaid relevant markets

64. Digicel's extensive access and backbone network infrastructure is a source of significant economic strength in the prepaid and postpaid relevant markets. It takes a considerable number of years and billions in capital expenses to roll out such a network. Aside from that, it is costly and time consuming to secure land permits and land leases for cell sites, towers, and masts, plus associated rights of way, when necessary. All of these constitute barriers to expansion of an operator's network. Barriers that Telikom/Bmobile and the new entrant, Digitec-Vodafone are facing. The fact that Digicel has overcome those large barriers to expansion to roll out its vast network in PNG is commendable, but at the same time, confers to Digicel a significant source of economic strength relative to its smaller competitors.
65. The fact that there is considerable geographic overlap between Digicel's network and those of its closest competitors in urban areas does not negate the significant source of economic strength that Digicel's extensive network confers to it. This is especially the case in rural and remote locations, where the availability of network infrastructure from other operators is sparse or non-existent. This is compounded by the fact that in PNG, there is no mandatory sharing of passive network infrastructure, or mandatory national roaming, as in other jurisdictions.

(xii) Easy or privileged access to capital markets

66. The acquisition of Digicel by Telstra during 2022 compounded Digicel's ability to access international capital markets compared to the situation before the acquisition. Digicel (PNG) Limited is in effect 100% owned by Telstra Group Limited ("Telstra").²⁹ Telstra

²⁹ Telstra acquired 100% ownership in Digicel Pacific Limited. Digicel (PNG) Limited is a wholly owned subsidiary of Digicel Pacific Limited, which is now fully owned by Telstra Group Limited. See, Telstra Group Limited – Financial results for the half-year ended 31 December 2022.

is a large publicly traded company. Its shares trade in the Australian Stock Exchange, and its American Depositary Receipts (ADRs) are tradable in U.S. stock exchanges. Thus, Telstra has the ability to raise capital on a global scale. Telstra market capitalization is 31.7 billion US Dollars (47.6 billion AUD).³⁰ This gives Digicel (PNG) Limited a significant advantage over its smaller competitors, as its parent company can raise long-term debt and equity capital at a much lower cost than its rivals in PNG.

67. For example, Telikom is unable to issue debt or shares in the domestic market, let alone in the international markets. NICTA understands that these companies are only able to access debt financing either indirectly via the government of PNG, or directly with an explicit government guarantee.
68. Meanwhile, Digitec Communications, through its parent company, Amalgamated Telecom Holdings (ATH) from Fiji,³¹ could raise capital (debt or equity) at a much smaller scale than Telstra. ATH shares trade in the South Pacific Stock Exchange (SPX) in Fiji. According to the latest information available, ATH's market capitalization is USD 409.6 million.³² Therefore, Telstra market capitalization, a proxy for the ability to raise capital for long-term financing, is approximately 80 times that of ATH.
69. Telstra's advantaged position is further compounded if we consider the difference in depth between the capital markets in Australia and the South Pacific. Deeper (higher market capitalization) capital markets make it easier for firms to raise capital than shallower markets. The Australian Stock Exchange is a much deeper market than the South Pacific Stock Exchange. The total market capitalization of the Australian Stock Exchange is approximately USD 1.67 trillion,³³ while that of the South Pacific Stock Exchange is only USD 1.48 billion.³⁴ A difference of more than *one-thousand times*.
70. Digicel's privileged access to capital markets means that it has yet another source of cost advantage over its competitors, including Digitec-Vodafone, which is that it can finance its long-term capital investments at a much lower cost.

<https://www.telstra.com.au/content/dam/tcom/about-us/investors/pdf-Financial%20results%20for%20the%20half%20year%20ended%2031%20Dec%202022.pdf>

³⁰ Schwab Equity Ratings International Report. Telstra Group Ltd. 17 March 2023.

<https://www.schwab.com/resource/equity-ratings-international>

³¹ ATH has 70% ownership in Digitec Communications (PNG) through its wholly owned subsidiary ATH International Venture Pte Limited. ATH 2022 Annual Report, pp. 10.

<http://www.ath.com.fj/images/ath2022annualreport.pdf>

³² Value as of 31 March 2022 was FJD 856.68 million. South Pacific Stock Exchange. Amalgamated Telecom Holdings Limited (ATH) Financial Analysis for the Years ending 31 March 2018-2021.

<https://www.spx.com.fj/getattachment/Investing/Already-a-Shareholder/Historical-Financial-Analysis/ATH.pdf?lang=en-US> Value converted to USD based on the exchange on 31 March 2022 from the Reserve Bank of Fiji.

³³ Statista. Largest stock exchange operators worldwide as of October 2022, by market capitalization of listed companies. <https://www.statista.com/statistics/270126/largest-stock-exchange-operators-by-market-capitalization-of-listed-companies/>

³⁴ Latest data available is from the South Pacific Stock Exchange Annual Report 2021. Page 9.

(xiii) *Digicel position of economic strength affords it the power to behave to an appreciable extent independent of competitors, customers, and consumers in the relevant prepaid and postpaid markets*

71. As mentioned earlier, the Act does not define what a “substantial degree of market power” means. As guidance, NICTA used the definition from the European Union’s Directive on a common regulatory framework for electronic communications networks and services:

“An undertaking shall be deemed to have a significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”³⁵

72. Earlier, NICTA had used signs of Digicel’s position of economic strength, together with market characteristics, both structural and regulatory, to infer that it has a substantial degree of market power. Now, NICTA will proceed to show further evidence that indicates that Digicel has considerable pricing power, affording it the ability to behave to an appreciable extent independently of competitors and consumers.

73. Much has been said in the news media and in Digicel’s own submission, about the entry of Digitec-Vodafone and its possible threat to Digicel’s position of substantial market power. Even in Digicel’s submission, it implies that such entry is already eroding its significant market power.³⁶ That purported threat is however, not reflected in Digicel’s pricing. If such a threat were real, one would expect Digicel to have lowered its prices in anticipation of Digitec-Vodafone’s entry or immediately after it. We found no evidence of that.

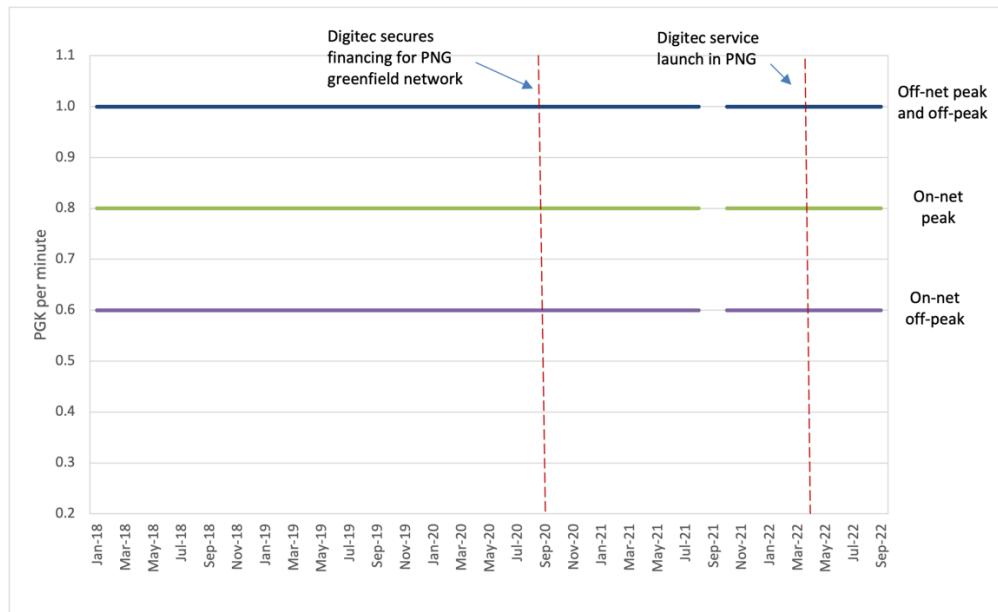
74. Figure 1 shows the Standard price per minute of Digicel’s on-net and off-net calls, at peak and off-peak times, going back to January of 2018. It also shows two important events related to Digitec-Vodafone’s entry in PNG. One is when Digitec-Vodafone secured financing for its greenfield network in PNG, and the second is the actual launch of service. These two events were widely reported in the industry and news.³⁷ Nevertheless, we observe no change on Digicel’s on-net or off-net prices; a strong sign of Digicel’s ability to behave to an appreciable extent independent of its competitors or customers.

³⁵ DIRECTIVE 2002/21/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (7 March 2002), on a common regulatory framework for electronic communications networks and services (Framework Directive). As amended by Directive 2009/140/EC and Regulation 544/2009. Article 14.

³⁶ See for example, paragraphs 43-44. Digicel (PNG) Limited. Submission to NICTA. Discussion Paper: To facilitate public consultation on potential Retail Service Determination in relation to On-net and Offnet Calls, issued on 21 October 2022. 30 November 2022.

³⁷ CommsUpdate, “ATH unit Digitec to benefit from USD25m investment for greenfield 4G network.” 7 Sep. 2020. <https://www.commsupdate.com/articles/2020/09/07/ath-unit-digitec-to-benefit-from-usd25m-investment-for-greenfield-4g-network/> See also, CommsUpdate, “Vodafone brand relaunched in PNG as Digitec enters mobile sector”. 7 April 2022. <https://www.commsupdate.com/articles/2022/04/07/vodafone-brand-relaunched-in-png-as-digitec-enters-mobile-sector/>

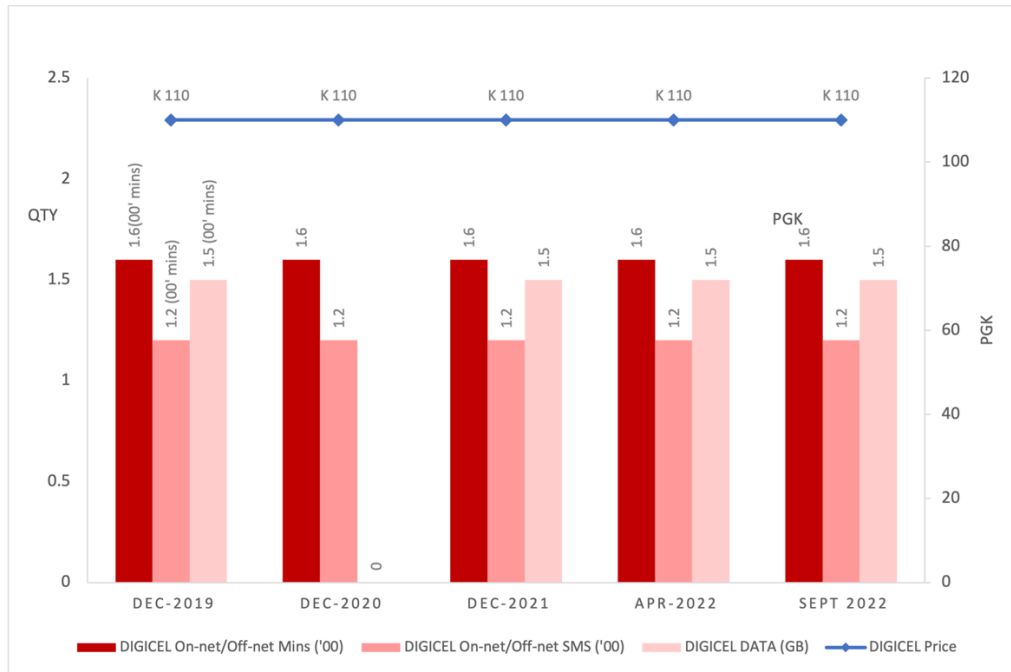
Figure 1. Digicel’s Standard price per minute of on-net and off-net calls (Jan. 2018 – Sep. 2022)



Source: NICTA based on information provided by operators. Prices are standard prices reported by Digicel.

75. Similarly, the prices and quantities of minutes, SMS and Gigabytes, of monthly bundled services prior to, and immediately after the entry of Digitec-Vodafone have no observable reaction or response to the entry of a Digitec-Vodafone in April of 2022. As shown in Figure 2, Digicel has maintained the value of its monthly bundled services at the same rate since December 2019. As an example, Figure 2 shows the price, and quantities of minutes (on-net or off-net), SMS and Gigabytes included in monthly bundle. As shown the price of K110 has been unchanged. Similarly, the 160 on-net or off-net call minutes rained unchanged, as the 120 on-net or off-net SMS and the 1.5GB of data. Again, it shows Digicel’s ability to behave independently of its competitors or consumers, a clear evidence of substantial market power.

Figure 2. Digicel’s price and quantities of minutes, SMS, and GB in a monthly prepaid bundle (Dec. 2019 through Sep. 2022)

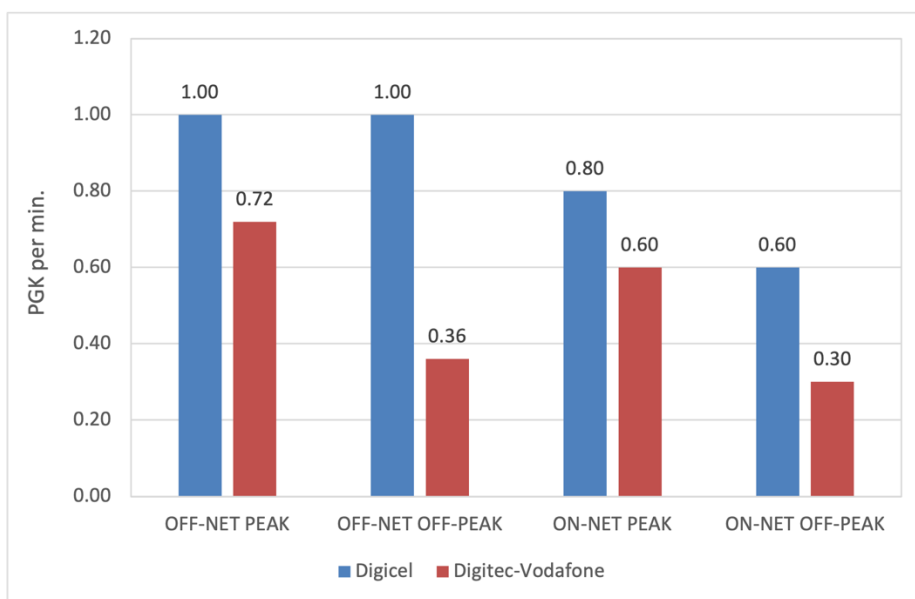


Source: NICTA. Based on information from Digicel.

76. The ability to behave to an appreciable extent independent of its competitors or customers, is what in economics is referred as the ability to exercise market power. A firm with market power can raise or maintain prices above the competitive level for a sustained period of time without incurring a significant loss of sales or revenue. As Figure 3 shows, Digicel is able to price national voice call services significantly above Digitec-Vodafone. For example, Digicel’s off-net price (off-peak) is 178% higher than Digitec-Vodafone’s. Even Digicel’s on-net prices are substantially above Digitec-Vodafone’s, with off-peak prices being 100% higher and peak prices 33% higher.³⁸ Yet, another clear sign of Digicel’s ability to exercise market power.
77. NICTA also found noticeable price differences on a per minute or per megabyte basis between comparable bundles (voice, SMS and data) offered by Digicel and Digitec-Vodafone. As an illustration, Table 6 shows a sample of comparable prepaid bundles with various terms (1-day, 7-days and 30-days) to illustrate Digicel’s ability to price higher than its competitors without fearing a significant loss of sales or revenue.

Figure 3. Digicel and Digitec-Vodafone Standard prices per minute of on-net and off-net national voice calls

³⁸ A similar comparison between Digicel and Bmobile prices indicate that Digicel’s price per minute of off-net calls (off-peak) are 14.9% higher than Bmobile’s, while the price of on-net calls (off-peak) are 53.8% higher than Bmobile’s.



Source: NICTA based on information provided by operators. Prices are standard rates for September 2022.

78. It is important to highlight that price competition between firms can take the form of offering more minutes, or Gigabytes than a rival, while charging the same price for a bundle. For example, a PGK 5 bundle that provides 100 minutes has a lower unit price (price per minute) than another PGK 5 bundle with only 50 minutes. In fact, the price per minute of the first bundle is half of that of the second bundle, holding all else constant.

79. As Table 6 shows, four similarly priced bundles from Digicel and Digitec-Vodafone. The two daily bundles offered by Digitec-Vodafone, provide the customer with considerably more on-net minutes, on-net SMS, and megabytes of data than similarly priced Digicel bundles. As we explained before, this translates into significantly higher unit prices for the bundles offered by Digicel. Similar conclusion can be gleaned from comparing the 7-day bundle from Digitec-Vodafone and Digicel. The unit price of Digicel's bundle is considerably above that of its new competitor, illustrating Digicel's ability to exercise its market power.

Table 6. Sample of similar-priced bundles from Digicel and Digitec-Vodafone

	Digitec-Vodafone	Relationship	Digicel
1 Day (PGK)	3	=	3
ON-NET MINS	50	>	10
OFF-NET MINS	0	=	0
ON-NET SMS	250	>	20
OFF-NET SMS	0	=	0
DATA (MB)	600	>	50

1 Day (PGK)	5	=	5
ON-NET MINS	100	>	15
OFF-NET MINS	0	=	0
ON-NET SMS	500	>	25
OFF-NET SMS	0	=	0
DATA (MB)	800	>	125
7 Day (PGK)	15	=	15
ON-NET MINS	200	>	65
OFF-NET MINS	0	=	0
ON-NET SMS	1000	>	65
OFF-NET SMS	0	=	0
DATA (MB)	3000	>	0
30 Day (PGK)	100	≅	110
ON-NET MINS	1500	>	160
OFF-NET MINS	0	<	160
INTERNATIONAL MINUTES	0	<	20
ON-NET SMS	5000	>	120
OFF-NET SMS	0	=	0
DATA (MB)	50000	>	1500

Source: NICTA based on information provided by operators. Prices are for September 2022.

80. The 30-day bundle shown in Table 6 for which Digicel's price is slightly higher offers under certain items more minutes (off-net and international calls) than that of Digitec-Vodafone. However, Digitec-Vodafone's bundle offers substantially more on-net minutes, on-net SMS and data than Digicel's. Weighing the differences between one and the other, in particular the significant difference between what Digitec-Vodafone offers compared to Digicel (1,500 on-net minutes v. 160 minutes of Digicel), and the 50GB of data offered by Digitec-Vodafone compared to only 1.5GB offered by Digicel, it becomes evident that Digicel's unit prices are significantly higher than its competitor. Again, it shows Digicel's ability to exercise its market power by pricing above the competitive level.³⁹
81. In conclusion, taken all these factors together, NICTA is convinced that Digicel alone holds and will continue to hold, for the period of the proposed retail services determination, a substantial degree of market power in the relevant prepaid and postpaid markets.
82. In NICTA's view, the implementation of the proposed determination may cause Digicel to experience a moderate decline on its market share (by revenue) in the relevant markets during the term of the proposed determination. However, this does not negate the finding of Digicel's substantial market power on a forward looking-basis. All it would mean is that competition would have increased to some degree. Needless to say, absent the proposed determination, a decline on Digicel's market share by

³⁹ It seems reasonable to assume that Digitec-Vodafone is pricing at or close to the competitive level given that it's a new entrant and is seeking to capture market share from Digicel and Bmobile/Telikom.

revenue would be modest, precluding consumers from the benefits of competition and lower prices.

(xiv) Digicel's comments in Section D, Specific Issues, paragraphs 52 through 71 – Customer choice is driven by coverage and service quality considerations.

83. In paragraph 52 Digicel appears to advance the argument that its market share is substantially larger than its competitors not because of the existing large on-net/off-net price difference, but due to other factors that make consumers choose to subscribe to its network. According to Digicel, this in turn causes most calls to be on-net in its network. See also paragraph 65.
84. In paragraphs 53 through 55, Digicel attributes its extensive network as one of the reasons customers prefer to subscribe to it; adding that in some areas, the only network available is theirs. This exacerbates the “calling circle” or “club” effect, which in turn makes customers want to join their network. See also paragraph 65.
85. In paragraphs 56 through 59, Digicel also considers its investments to upgrade its mobile network from 2G/3G to LTE an important factor of why consumers choose its network. Digicel also highlights its commitment to long-term investment to continuously upgrade its network, and its *“commitment to provide world class services and support the economic and social development of the people of PNG.”*
86. In paragraphs 60 through 64, Digicel considers that its investments in rural and remote areas places Digicel at a cost disadvantage compared to its competitors, alleging that its competitors do not have rollout obligations (Digitec-Vodafone), or that their obligations have not been enforced (Telikom), and who tend to serve more profitable areas without contributing fully or fairly to the delivery of services to rural and remote communities.
87. In Paragraphs 67 and 68 Digicel makes reference to NICTA's argument that Digicel's large network is a source of market power, and then asks *“why having a more extensive network is a barrier to entry or, if it is, how it can reconcile that view with the recent entry and apparent success of Vodafone.”*
88. In Paragraph 69 Digicel alleges that the proposed retail service determination would *“give Telikom and Vodafone a competitive advantage through regulation.”* Adding that *“if NICTA proceeds, that advantage will come at the expense of ordinary consumers who will be required to pay more for their services – even in areas where Telikom and Vodafone have no presence.”* Then Digicel explains its view as being that the proposed determination would lower the profitability of many of its rural and remote sites, which would lower its economic return and would affect its investment on network rollout or upgrades. Digicel mentions then that this could force them to deploy only 4G/5G services in the future, which in turn will hurt consumers that use the cheaper 2G handsets as they would need to buy more expensive 4G enabled phones, adding that it currently subsidizes the 2G phones and 4G phones in those areas. Digicel adds that a *“lower profitability in said sites will lead Digicel to stop the subsidization of such handsets.”*
89. In paragraph 70, Digicel suggest that the proposed retail service determination would be incompatible with NICTA's obligations under Section 3 (i), (ii) and (v) of the Act.

90. In paragraph 71 Digicel suggests that NICTA's implicit assumption regarding the proposed retail service determination is that it "*would not be possible for an operator with limited coverage and small market share to rapidly expand both its coverage and its volume of customers – is not backed by evidence. In fact, the evidence demonstrates the opposite.*" Suggesting that the proposed retail service determination would give Digitec-Vodafone a competitive advantage that it doesn't need.

(xv) NICTA's response to comments in Section D, paragraphs 52 through 59, and 65 of Digicel's submission

91. NICTA's contention with Digicel's on-net/off-net price differential is that the difference is too large to be justified by any difference in the cost of providing on-net and off-net calls to its subscribers. That would not be a problem on itself, if Digicel did not have a substantial degree of market power. However, given Digicel's substantial degree of market power, this price difference compounds the known "club effect" that exist in mobile voice services when on-net and off-net calls are priced significantly different. The price difference discourages consumers from switching to a smaller competitor, and cements Digicel substantial market power in the relevant markets.

92. NICTA has not said and does not believe that such a price differential is the main reason why Digicel has its large market share. As we had explained before, Digicel's sources of substantial market power are numerous. However, absent such large difference between Digicel's on-net and off-net prices, the market would be less concentrated than it currently is, and prices would be lower.

(xvi) NICTA's response to comments in Section D, paragraphs 60 through 64 of Digicel's submission

93. Digicel's assertion that NICTA has separate rollout obligations for Digitec-Vodafone as a new market entrant is misconceived. Every mobile operator licensee, including any new entrant, is subject to the same Licensing Conditions and Network rollout obligations set under NICTA's *Standard and Special Conditions of Individual License Rule, 2011*. NICTA expects Digitec-Vodafone to meet the conditions set under those licensing Rules, and the same applies to Digicel or Telikom-Bmobile.

(xvii) NICTA's response to comments in Section D, paragraphs 67 and 68 of Digicel's submission

94. As mentioned earlier, the large scale of Digicel's network allows it to achieve economies of scale, which translates into a lower cost per subscriber than those of smaller networks (all else equal). Being a low-cost supplier confers a competitive advantage against rival firms. Of course, as explained before, this is not the only source contributing towards Digicel's substantial market power.

95. In asking NICTA to reconcile the view of the existence of barriers to entry with the entry of Digitec-Vodafone, Digicel seems to equate the concept of barriers to entry to the impossibility of entry, which is wrong. There are many industries, including telecommunications, that are considered to have high barriers to entry and expansion,

but nevertheless accommodate more than one firm. For example, when the U.S. Department of Justice's Antitrust Division successfully blocked the merger of AT&T and T-Mobile, two of the four national mobile operators in the U.S., one of the reasons cited was the existence of high barriers to entry. The complaint stated that:

*“Certain aspects of mobile wireless telecommunications services markets, including transparent pricing, little buyer-side market power, and high barriers to entry and expansion,”*⁴⁰

96. Barriers to entry may deter entry of some firms or delay entry of others. The term is used with a long-term horizon. The fact that it has taken about 15 years for a third mobile operator to enter the market since Digicel's entry, demonstrates precisely the point that barriers to entry are indeed high in PNG, contrary to what Digicel implies.

(xviii) NICTA's response to comments in Section D, paragraphs 69 of Digicel's submission

97. Digicel misconstrues NICTA's position and the reasons for undertaking this public inquiry. As much as possible, NICTA is required to ensure that the market remains competitive and that there is no anti-competitive discrimination either in price or quality of service terms. Whenever there is evidence of markets not being effectively competitive, NICTA is required to intervene to address the source preventing effective competition. NICTA does not make a retail service determination to give a competitive advantage to any particular licensed operator over other competitor(s).

98. NICTA considers that the proposed determination cannot give Telikom or Digitec-Vodafone a competitive advantage because they do not have substantial market power in the relevant markets. There is no way to effectively use the “club effect” with their small networks by having a large price differential between on-net and off-net calls in their networks. In fact, Figure 3 shows that Digitec-Vodafone has a price differential of 12 Toea per minute at peak times and 6 Toea during off-peak times. Those price differentials are, on average, close to the value of the mobile termination rates (8 Toea), suggesting that Digitec-Vodafone understands that they cannot effectively use the “club effect” due to the small size of their network relatively to Digicel's. It is illustrative to contrast Digitec-Vodafone's price differentials with those of Digicel, which are 20 Toea per minute (peak) and 40 (off-peak).

99. The proposed determination will enhance competition by preventing Digicel from exercising its significant market power to lessen competition in the relevant markets by using a large and unjustified difference between its on-net and off-net prices.⁴¹ In NICTA's view, the aim of such unjustified price difference is to strengthen the so-called

⁴⁰ IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA. United States of America, Department of Justice, Antitrust Division v. AT&T Inc., T-Mobile, U.S.A. Inc., and Deutsche Telekom AG. Case 1:11-cv-01560, 31 August 2011. Paragraph 36 page 16.

<https://www.justice.gov/sites/default/files/opa/legacy/2011/08/31/Justice-ATT-TMobile-Complaint.pdf>

⁴¹ As we will discuss later, a reasonable price difference would be no greater than the wholesale mobile termination access services charge.

“club effect” on Digicel’s network, and discourage consumers from subscribing to smaller rival networks where the likelihood of placing off-net calls is much greater.

100. The reduction on the price differential to a reasonable level, will enhance competition because it would lower the cost of switching to another operator, putting downward pressure on prices, benefiting consumers.
101. Digicel’s claims that the proposed determination would cause consumers in remote areas to “*pay more for their services*” is not convincing. In NICTA’s assessment the proposed determination would prompt Digicel to reduce the off-net price it charges to its customers, which benefits consumers not only in remote locations, but in all locations in the country. Secondly, the proposed determination will lower switching costs to all consumers, making it easier to switch to other operators. This would increase competition and the current high market concentration would tend to decline, which in turn, would induce downward pressure on prices in the relevant markets.
102. Digicel claims that the proposed determination would reduce its profits and cause a reduction of investment in network rollout and upgrading, hurting consumers that use only the cheaper 2G handsets. This result is improbable. Of course, Digicel’s corporate decisions on investments are their own. NICTA’s main concern is on market wide effects. The proposed determination is expected to increase competition in the relevant mobile markets. As competition increases, we expect total investment on network rollout and upgrades to increase. When competition increases, consumer prices (holding all else equal) tend to fall benefiting consumers. As we had shown earlier, Digicel prices are higher than Digitec-Vodafone. Competition will put downward pressure on those prices.
103. Digicel’s suggestion that somehow cheaper 2G phones would be discontinued because of the proposed determination is not credible. In fact, Digitec-Vodafone, with its 4G network has an offer where buyers of Alcatel 1L 4G phones get a second simple voice only phone (button phone) for free.⁴² Of course it is up to Digicel to decide what kind of handsets they would offer to their customers.

(xix) NICTA’s response to comments in Section D, paragraphs 70 of Digicel’s submission

104. Digicel’s assertion that the proposed determination would not be compatible with Sections 3 (b) (i), (ii) and (v) of the Act is incorrect.
105. The proposed (revised) determination is proportionate and drafted to achieve results that are no more burdensome than necessary to achieve their stated regulatory objective, in accordance with Section 3(b)(i) of the Act.
106. As it is evident from the analysis presented in this report, the proposed determination is based on sound economic principles in accordance with Section 3(b)(ii) of the Act.

⁴² Vodafone PNG. <https://www.vodafone.com.pg/personal/specials-offers/devices/alcatel-1l>

107. Pursuant to Section 158(b)(i), the proposed determination shall be applicable only to licensed operators that have been found to have substantial market power in the relevant markets. Therefore, the proposed determination is non-discriminatory, in accordance with Section 3(b)(v) of the Act.

108. Section 3(b)(v) of the Act requires regulatory measures to be non-discriminatory; that is to treat similarly situated ICT licensees equivalently. Because Digicel alone has been found to have substantial market power in the relevant markets, it follows that Digicel's rivals in those markets cannot be regarded as similarly situated ICT licensees, and shall not be treated by the proposed determination, on an equivalent basis to Digicel. That is precisely what the proposed determination does, and as such, it is in accordance with Section 3(b)(v) of the Act.

(xx) NICTA's response to comments in Section D, paragraphs 71 of Digicel's submission

109. Digicel's assertions in paragraph 71 are incorrect. There is no such assumption underpinning NICTA's proposed determination. Section 158(b)(i) of the Act requires retail service determinations to be applicable only to operators with substantial degree of market power. Digitec-Vodafone has not been found to have substantial degree of market power in the relevant markets, and neither does Telikom/Bmobile. The smaller operators cannot use their smaller networks to create an effective "club effect" from price differentials as Digicel can.

(xxi) The reasons underpinning the proposed retail service determination

110. When mobile operators price their off-net calls substantially higher than on-net calls, they create or strengthen the so-called "club effect". That is the tendency of customers to subscribe to the same operator as their family, friends, and closed associates, to avoid paying higher priced off-net calls.⁴³ The effect is negligible if the price difference is small, reflecting the extra cost of the mobile termination rates, or if networks are of similar size.

111. The attempt to create a "club effect" is futile if an operator's network is small relative to others. However, if an operator's network is significantly larger than the rest, as in the case of Digicel, the effect could be powerful. By increasing the price difference between on-net and off-net calls beyond what would be reasonable to reflect differences in costs, a large operator like Digicel, could discourage potential customers from subscribing to smaller networks.⁴⁴ That is because being in a smaller network implies that most calls would be off-net to the larger network. This changes the nature of competition. In theory potential customers pondering which network to subscribe, would choose based on their prices, offers/promotions, quality of services, availability and reliability of services, and other characteristics that makes a network appealing. In practice, an operator such as Digicel, with 92% market share (by

⁴³ See BEREC, "BEREC report on best practices to facilitate consumer switching", October 2010.

⁴⁴ *Id.*, for example the BEREC report cites four national regulatory authorities (NRAs) in Europe that "described the difference between on-net and off-net tariffs as a major obstacle in respect of switching mobile telephone service. A further seven NRAs ... reported this problem to be a relevant concern." See page 59.

revenue), could raise the price differential high enough to make those other potential benefits of subscribing to a rival network not worth the high price of the off-net calls. This lessens competition in the market, increases market concentration, increases prices to all consumers compared to a situation where no such unjustified price differential exists, and discourages investment on network rollout of smaller mobile operators.

112. The proposed determination is based on NICTA's findings that, first, Digicel alone holds a position of substantial market power in the relevant markets. Second, Digicel's on-net and off-net price differential cannot be justified solely on the costs differences of providing on-net and off-net voice service,⁴⁵ so there must be another reason unrelated to cost differences. Third, the "club effect" of Digicel's mobile voice services is strong because of its exceedingly large market share and its strong brand loyalty. The unjustified price differential between Digicel's prices of off-net and on-net calls strengthen this "club effect", discouraging consumers from subscribing to smaller rival networks lessening competition. Fourth, in the absence of the proposed determination, Digicel's large and unjustified difference on the price of off-net and on-net calls is likely to persist. This will in turn enable Digicel to maintain its substantial market power over the period of the proposed determination, leading to higher prices in the relevant mobile markets.

113. The current strong "club effect" that Digicel's mobile voice service enjoys, perpetuates Digicel's position of near monopoly which leads to higher prices for consumers. The proposed determination seeks to reduce the on-net/off-net price differential to a level justifiable by cost differences in those calls.

(xxii) Digicel's comments in Section D, Specific Issues, paragraphs 72 and 73 – The terms of the proposed RSD are harsh, oppressive and unwarranted in the circumstances.

114. Digicel argues that the proposed three-year term for the RSD is excessive, especially given the entry of Digitec-Vodafone during 2022, and its apparent success gaining subscribers as reported by the news media. Furthermore, Digicel states that the proposed RSD would be harsh and oppressive to consumers who would be required to pay higher prices, including in areas where Telikom or Digitec-Vodafone do not provide competing services.

(xxiii) NICTA's response to comments in Section D, paragraphs 72 and 73 of Digicel's submission.

115. NICTA acknowledges that the entry of Digitec-Vodafone adds uncertainty to NICTA's forward-looking assessment. There is no certainty on whether this new competitor would be able to weaken Digicel's substantial degree of market power. However, absent the proposed determination, it is very likely that any erosion of Digicel's market power will be minimal, if any. If it occurs, it is likely to be gradual as well.

⁴⁵ More on this later.

116. As discussed before, an earlier strategic (non-equity) partnership between Bmobile and Vodafone,⁴⁶ similar to the current between Digitec and Vodafone, was followed by only a small reduction on Digicel's market share (voice and data) from 93% in 2014 to 87.3% in 2019 (based on subscribers) and no appreciable erosion of Digicel's substantial market power. See Table 4.
117. There have been some changes in market share in terms of subscriber numbers after the new non-equity partnership between Digitec and Vodafone entered, however these changes are not significant enough, in NICTA's view, to turn the market effectively competitive. At the same time, it seems very unlikely that Digitec-Vodafone will take enough market share to diminish Digicel's substantial market power during the term of the proposed determination, as Digicel seem to suggest. It would be expected that Digicel would use all means at its disposal, including all of possibilities that powerful incumbency permits, to defend its market share and sustain its position in the market.
118. The apparent early success of Digitec-Vodafone reported in the news media, does not imply that Digicel's substantial market power has been diminished. The six percentage-point decline on Digicel's market share during the earlier partnership between Bmobile and Vodafone, did not reduce Digicel's substantial market power in any noticeable way. Neither has the entry of Digitec-Vodafone, as evident by the price premium that Digicel's services command today (See Figure 3 and Table 6).
119. Moreover, for many years it has been common for consumers in PNG to use two SIM cards, one for each operator, to avoid placing expensive off-net calls. With the entry of Digitec-Vodafone, we do not know whether these new Digitec-Vodafone subscribers are customers switching from Digicel, or whether these subscribers are purchasing a Digitec-Vodafone SIM card as their second or third SIM card. In the latter case, Digicel would not be losing subscribers and there would be with virtually no change on its revenue, leaving its market power substantially intact.
120. Given that consumers with more than one SIM card, generally use one as their primary SIM card, and the fact that Digicel's network is by far the largest in PNG, it is conceivable, that a large proportion of these reported new Digitec-Vodafone's customers, may be buying their SIM cards as a secondary to Digicel's, or as a third SIM card. In either case, there would be no loss of subscribers for Digicel; just the total subscriber count would go up due to consumers buying their second or third SIM card. NICTA's definition of number of subscribers does not adjust subscription numbers for customers with dual or triple SIM cards. Evidence from a GSMA study⁴⁷ suggest that in PNG, the number of subscribers having more than one SIM card could be very high. Figure 4 suggests that subscriber numbers in PNG could be inflated by as much as 55%, once one eliminates double or triple SIM cards.

Figure 4. Unique Subscribers vs Number of Connections (SIM cards)

⁴⁶ Referred as a Partner Market agreement by Vodafone. <https://www.vodafone.com/news/services/bemobile>

⁴⁷ The Mobile Economy Pacific Island, 2015

	POPULATION (000)	UNIQUE SUBSCRIBERS (000)	CONNECTIONS (000)
American Samoa	55	28	55
Cocos (Keeling) Islands	0.6	0.2	0.3
Cook Islands	21	6	9
Fiji	890	591	1,020
French Polynesia	281	138	242
Guam	169	88	155
Kiribati	105	17	22
Marshall Islands	53	17	26
Micronesia	517	83	104
Nauru	10	5	9
New Caledonia	261	208	268
Niue	1	0.7	1
Norfolk Island	2	0.8	1
Northern Mariana Islands	55	19	29
Palau	21	10	19
Papua New Guinea	7,554	2,342	3,638
Samoa	193	118	240
Solomon Islands	579	275	368
Tonga	106	39	67
Tuvalu	10	3	6
Vanuatu	261	104	180

Source: GSMA, *The Mobile Economy Pacific Island, 2015*.

121. Notwithstanding what has been said, and out of the abundance of caution, the proposed retail service determination has been amended to include a provision to undertake a public inquiry to review whether the proposed determination continues to meet the retail regulation criteria under Section 158 of the Act, and whether it should be varied or revoked. The review shall be initiated 24 months after the proposed determination becomes effective.

(xxiv) Digicel’s comments in Section D, Specific Issues, paragraphs 74 through 78 – NICTA’s cost benefit analysis is simplistic and flawed.

122. Digicel’s states that NICTA has not done any proper analysis of the costs and benefits of the proposed determination. It goes on to saying that customers would face higher prices, adding that it would acts as a disincentive for Digicel to invest in new network facilities and services. In particular, possible negative effects that Digicel cites are:

- a) Increase in effective price to all consumers,

- b) increase in effective pricing for rural consumers,
- c) removal or stopping support to unprofitable cell sites,
- d) decrease network rollout to rural population beyond those areas that are required to be serviced in accordance to regulatory framework,
- e) removing standard 2G voice service in new network deployment,
- f) implementing regional pricing for data services to improve cost recovery, and
- g) stopping or reducing subsidies for handset in new rollout areas.

123. Digicel then adds that, all of these negative impacts will go against the government objective to increase digital penetration and improve access to critical infrastructure in the market. It then adds that there may also be disincentive for Telikom and Vodafone to continue to invest in their own networks or to compete as a result of the RSD.

124. Digicel cites the opinion of Mr. Ockerby regarding the international experience of regulating the on-net/off-net price differential in the mobile sectors in Chile and Colombia, suggesting in Mr. Ockerrby's opinion, that after the imposition of a ban on the price differential, "consumers have been harmed by higher prices" in those countries.

(xxv) NICTA's response to comments in Section D, paragraphs 74 through 75 of Digicel's submission.

125. NICTA notes that Digicel is not satisfied with our analysis of the likely benefits and detriments of the proposed determination that we undertook in our Second Discussion Paper. Digicel's comment refers to one of the retail regulation criteria in the Act; in particular, Section 158 (d).

126. NICTA considers it is important to expand our analysis in the Second Discussion Paper. Here we explain in more detail the reasons why the proposed determination meets the retail regulation criterion in Section 158(d) of the Act: that "*the aggregate likely benefits of making that retail service determination outweigh any aggregate likely detriments.*"

127. It is important to stress that the Act specifically uses the term "likely benefits" and "likely detriments", which conveys a meaning that there is a significant probability that those benefits or detriments would materialize. Our analysis below focuses only on those benefits and detriments that are likely to occur in accordance with Section 158(d) of the Act.

128. In paragraph 75 Digicel lists seven possible detriments, which in NICTA's view, are unlikely to occur or have a trivial probability of occurring as we explain below. Moreover, NICTA is convinced that the likely aggregate benefits far outweigh any likely aggregate detriments as explained below.

(xxvi) The aggregate of likely benefits of making the retail service determination outweighs any aggregate likely detriments in accordance with Section 158(d) of the Act

(a) Likely benefits of the proposed determination

129. NICTA is convinced that a reduction of the price difference between on-net and off-net calls to a level that can be reasonably justified by differences in costs, as described in the amended proposed retail service determination, will bring about important benefits to consumers in PNG.

First Likely Benefit

130. First, for a large majority of consumers who are in areas where Digicel's network overlap with that of its competitors, estimated to be 40% to 50% of PNG's population, will gain the freedom of choosing a network based on weighing the multiple benefits and costs associated with a given network, and not based primarily on the size of the network to avoid pricey off-net calls.

Second Likely Benefit

131. Second, the consumers' added freedom to choose between networks, will likely lead, over time, to a reduction of the market concentration in the relevant markets. This reduction on the market concentration, will likely lead to a reduction of prices in the relevant prepaid and postpaid markets, all else being equal.

132. The link between reduced market concentration and lower prices is a well-established economic fact in markets such as mobile communications, which exhibit high barriers to entry and expansion. The economic theory behind it, is the so-called Cournot model of oligopolistic competition.⁴⁸ This model shows that as the number of firms in the market increases (and the market concentration falls), the price falls towards the competitive level. The reason for the fall of prices is that as more firms enter the market, each individual firm faces a reduced demand, which forces the firms to reduce the markup above cost. Of course, the highest markup above cost is attained when there is only one firm (monopoly).

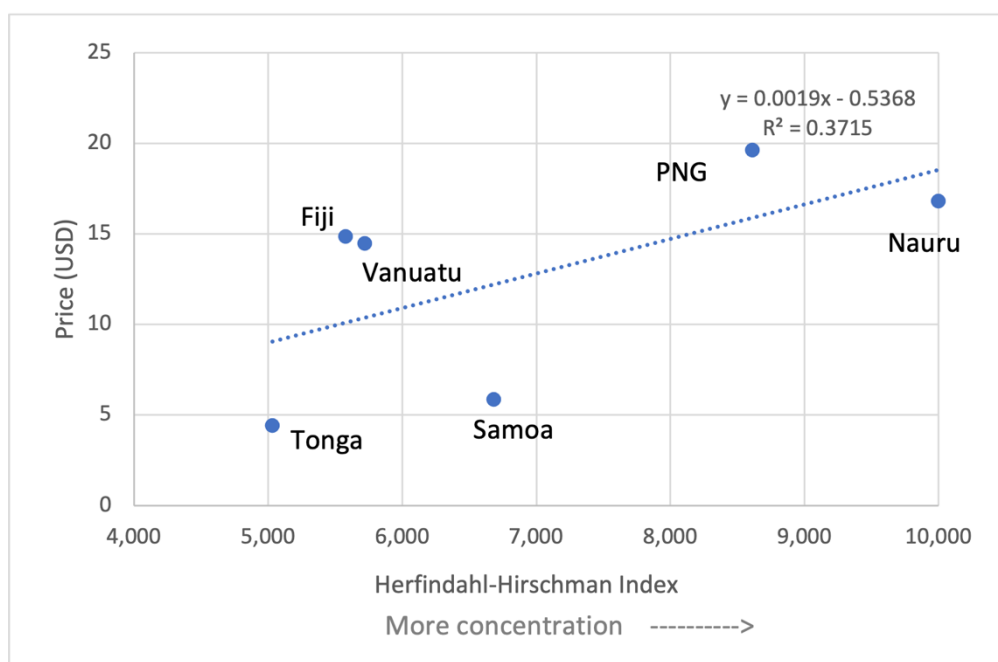
133. The Cournot model is often used in regulatory and competition cases not only because it makes intuitive sense, but also, because there is substantial empirical evidence that supports it when markets have barriers to entry and expansion, like mobile communications. It is worth quoting the New Zealand Commerce Commission regarding their use of the Cournot model of competition to assess the market consequences of a proposed merger of two airlines:

"The Commission accepts that the Cournot model provides a useful framework in which to analyse the impact of the proposed Alliance ...(...)...An Important implication of this model is it cannot be assumed that

⁴⁸ W. Kip Viscusi; John M. Vernon; and Joseph E. Harrington, Jr. *Economics of Regulation and Antitrust*. Third Edition, 2000. Cambridge, MA: The MIT Press. Pages 107-108, 149.

the presence of two or more firms in a market would be sufficient to ensure that market outcomes are workably or effectively competitive.”⁴⁹

Figure 5. Higher market concentration leads to higher prices of mobile voice/SMS



Source: Data of prices is from ITU. ICT Price Baskets (IPB). Price is in US Dollars for basket of 70 minutes and 20 SMS in year 2021. <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx> HHI calculated based on Digicel market share data from 2015, except for PNG which is based on 2019 data. Securities and Exchange Commission. Form F-1 Registration Statement. Digicel Group Limited, 26 June 2015, page 11. https://www.sec.gov/Archives/edgar/data/1645826/000119312515236163/d946689df1.htm#rom946689_5

134. The general prediction of the Cournot model is that higher prices are found in markets that are more concentrated. We can use the Herfindahl-Hirschman index (HHI),⁵⁰ a commonly used index of market concentration, to illustrate that higher market concentration leads to higher prices. Figure 5 uses data on prices of mobile voice/SMS service from the International Telecommunications Union (ITU)⁵¹ on a sample of countries in the Pacific region where Digicel operates. The HHI is computed based on market share data from Digicel.⁵² Market share data is from 2015,⁵³ but market shares are generally quite stable unless there are major changes in the market structure. We did not find evidence of major changes in the market structure in these

⁴⁹ New Zealand Commerce Commission. Final Determination on merger of Air New Zealand Limited and Qantas Airways Limited. 23 October 2003 (page 118).

⁵⁰ The HHI is calculated by adding the square of the market share of each company in the market. So, if there are three companies with market shares, s_1 , s_2 and s_3 ; then the HHI is calculated as: $(s_1)^2 + (s_2)^2 + (s_3)^2$.

⁵¹ International Telecommunications Union, ICT Price Baskets (IPB) for 2021. Price is for low consumption basket of 70 minutes and 20 SMS. Price is in USD. <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx>

⁵² Securities and Exchange Commission. Form F-1 Registration Statement. Digicel Group Limited, 26 June 2015, page 11. Except for PNG which source is NICTA using latest data available.

https://www.sec.gov/Archives/edgar/data/1645826/000119312515236163/d946689df1.htm#rom946689_5

⁵³ Except PNG which data is from 2019.

countries to lead us to believe that market shares had changed significantly. Figure 5 illustrates that where market concentration is higher, denoted by a higher HHI, prices tend to be higher, as in PNG.

135. Contrary to what Digicel says, the proposed determination will lead to a lower market concentration and lower prices for consumers. In the absence of the proposed determination, these benefits would not be attained.

Third Likely Benefit

136. Third, increased consumer choice on which network to subscribe will increase competition between mobile operators and will likely induce an increase on aggregate investment on network upgrading and expansion in PNG. This will benefit consumers as new and improved services will become available. In addition, increased investment by Digicel's rivals, implies that consumers in geographic areas where there is currently no other choice aside from Digicel, will suddenly have the opportunity to choose a competing network. As shown earlier, Digicel's competitors offer lower prices (on-net and off-net) than Digicel, all of which will benefit consumers in remote locations.

Fourth Likely Benefit

137. Fourth, due to a lower price differential, additional benefits will accrue to a large number of consumers in the form of cost savings, as they will not need to buy a second or third SIM card from different mobile operators to avoid off-net calls. Those consumers will also avoid the hassle of changing SIM cards in their phones, or the hassle of replacing lost or misplaced SIM cards, all of which is time consuming. Further cost savings will accrue to consumers that feel compelled to buy two handsets (one for each network), or more expensive phones with multiple SIM cards, to avoid pricey off-net calls.

Fifth Likely Benefit

138. Fifth, given that a lower market concentration leads to a reduction of prices not only for voice services, but also for bundled services, consumers will respond by increasing their consumption of various types of mobile voice and bundled services, an additional benefit to all consumers.

Sixth Likely Benefit

139. Sixth, given that the increased usage of mobile communications has a spill-over effect on the broader economy, it is likely that this will produce an increase on Gross Domestic Product (GDP), holding all else constant.⁵⁴ Moreover, there is a positive correlation between increased GDP and government tax revenue, therefore, it is likely that the increase in GDP will cause and increase in government tax revenue, benefiting the national government.

⁵⁴ See for example, Christine Zhen-Wei Qiang and Carlo M. Rossotto. 2009. "Economic Impacts of Broadband". In *Information and Communications for Development 2009: Extending Reach and Increasing Impact*, pages 35-50. Washington DC, World Bank.

140. An important consideration regarding the likely benefits mentioned above is that some of these benefits will require some time to materialize. While benefits in areas where the coverage of mobile networks overlap will accrue immediately. Benefits in areas covered by Digicel's network only, or not covered at all, will take longer to materialize. Because of existing barriers to expansion, investment on network rollout takes time. In those areas, palpable changes on consumer choice due to increased competition will progressively materialize towards the end of the term of the proposed determination, and even after it.

(b) Likely/possible detriments of the proposed determination

141. On aggregate there seems to be few likely detriments that are far from outweighing the aggregate likely benefits described above. As indicated earlier, Section 158 (d) of the Act requires NICTA to focus on likely aggregate detriments (or benefits). Importantly, the few likely/possible detriments, are unlikely to materialize at all. Even in the unlikely event that they do, they would occur in the immediate term only, but then dissipate towards the end of the term of the proposed determination.

First Likely/Possible Detriment

142. The first likely/possible detriment depends on the short-term response from Digicel, especially with regards to its pricing strategy, so in that sense it might or might not be a detriment. On the one hand, it is possible that, as a result of the proposed determination, Digicel may decide to increase slightly its price of on-net calls to counteract the effect of a reduced price of off-net calls. However, this is unlikely to last as the effect of increased competition arising from the proposed determination, will force prices down in the short-term (holding all else equal). Incidentally, it is worth mentioning that a 6-month review after a similar regulation was imposed on the dominant operator in Colombia, showed that the dominant operator did not raise its on-net prices.⁵⁵ If something similar occurs in PNG, then there would be no detriment.

Second Likely/Possible Detriment

143. The second likely/possible detriment also depends on the short-term response from Digicel; especially with regard to its pricing strategy in those areas where it does not face competition. It is possible that Digicel may decide to reduce the subsidy to its simple (2G) voice handsets in those areas, as it stated in its comments, effectively increasing the cost to new customers, but not to current customers as they were already subsidized. This again, may not materialize. However, if it does, it will not last long, as increased competition due to the proposed determination, will spur aggregate investment of rival networks, expanding gradually their coverage areas in remote locations. Again, this likely/possible detriment will dissipate in the medium term, and would affect a much smaller number of consumers (new subscribers to Digicel in

⁵⁵ In 2009, the Colombian regulator for telecommunications, CRC, imposed a cap on the maximum difference between the price of off-net and on-net calls of Comcel, the dominant operator in Colombia. The cap was set to the level of the mobile termination rates. The CRC undertook a 6-month review after the regulation became effective and found that Comcel lowered the price of off-net calls but did not rise the price of on-net calls. See CRC, "Diagnóstico del Mercado Voz Saliente Móvil" Regulación de Mercados, Agosto 2010. Page 33.

remote locations) than those benefiting from the likely positive effect of the proposed determination.

(c) Weighing the likely benefits against likely detriments

144. In weighing the likely benefits and likely detriments, NICTA has considered how numerous the customers or potential customers of the services affected would be. Thus, more weight is placed when more customers would be affected. We have also weighed more the likely benefits or detriments that last longer as opposed to those that have only short-term effects. Based on these considerations, we developed the table below that qualifies each benefit and detriment identified, according to the two criteria mentioned. The table makes it clear that the likely benefits largely outweigh the likely detriments.

Table 7. Weighing the likely benefits and detriments

	No. of consumers or potential consumers affected	Duration of benefit or detriment
Likely benefits		
First likely benefit	Large	Long duration
Second likely benefit	Large	Long duration
Third likely benefit	Large	Long duration
Fourth likely benefit	Large	Long duration
Fifth likely benefit	Large	Long duration
Sixth likely benefit	Effect on government and general population	Long duration
Likely/possible detriments		
First likely/possible detriment	Large (uncertain; would depend on Digicel's response)	Short duration
Second likely/possible detriment	Medium (uncertain; would depend on Digicel's response)	Short duration

(xxvii) NICTA's response to comments in Section D, paragraph 76 of Digicel's submission.

145. The detriments that Digicel alleges would occur have a negligible probability of occurring in NICTA's assessment. As NICTA's analysis above has shown, the

aggregate likely net benefits of the proposed determination will increase consumer choice, increase competition, lower prices, and spur investment on telecommunications networks, all of which will help the Government achieve its objective under Section 2 of the Act, which is to “ensure that the ICT industry contributes to the greatest extent possible to the long-term economic and social development of Papua New Guinea.”

(xxviii) NICTA’s response to comments in Section D, paragraph 77 of Digicel’s submission.

146. In addition, Digicel alleged detriments to Telikom and Digitec-Vodafone, are not convincing; otherwise, why would they be in favour of the proposed determination? Moreover, as we have shown above, the proposed determination will change the nature of competition and provide greater freedom to consumers to choose between the competing networks. That would have the opposite effect of what Digicel claims. It would spur competition, lower the mobile market concentration, reduced prices, and spur aggregate investment on network rollout and upgrading, especially, but not exclusively, from smaller networks.

(xxix) NICTA’s response to comments in Section D, paragraph 78 of Digicel’s submission.

147. Digicel cites the opinion of Mr. Ockerby, who provided an independent expert report which was attached to Digicel’s submission. Mr Ockerby considered two studies that analysed the experience in Chile and Colombia after regulation was imposed on the price differential between on-net and off-net mobile calls. Digicel cites Mr. Ockerby stating that in “*Chile and Colombia, consumers have been harmed by higher prices.*”

148. NICTA has analysed both studies and have found material shortcomings in both of them, suggesting that they should not be used to inform regulatory intervention in PNG. NICTA also analysed Mr. Ockerby’s memorandum to Digicel and his quotation of the study from Colombia.

(a) Study from Chile

149. The study from Chile⁵⁶ is not applicable and should not be relied upon for the following reasons. First, the market conditions in Chile at the time, were significantly different than those in PNG today. Chile had three efficient private mobile operators with approximately similar market shares. Entel and Movistar (Telefonica), had approximately 37% and 38% respectively, while Claro (America Movil) had approximately 24%. The rest of the mobile market was divided between two new entrants at the time.⁵⁷ It is clear that in such a divided market, the “club effect” present in PNG today is orders of magnitude stronger than it was in Chile at the time. Compare

⁵⁶ Christian Rojas. “The welfare effects of banning off-net/on-net price differentials in the mobile sector”. *Telecommunications Policy*. Vol 39 (2015): 590-607.

⁵⁷ Id. Page 596 Figure 2, and page 604.

the 92% of voice market share (by revenue) in a single company in PNG today, with Chile's market divided 37%, 38% and 24%. Therefore, any attempt by one of the Chilean operators to use the price differential to strengthen the weak club effect that may have existed there, was largely attenuated by the relatively even market shares. The situation in PNG today is completely different.

150. Second, and more important, the analysis relies on a methodology with flawed assumptions. The author calculates the changes on consumer welfare due to the regulatory ban based on his projections of subscribers, minutes of use, and prices in a counterfactual scenario; that is, an hypothetical scenario without the regulatory ban.⁵⁸ The author did not have data on the average price of voice service.⁵⁹ He just assumed there was an increase on the price of voice service based on data that shows a slight decline in minutes per user after the imposition of regulation.⁶⁰ In addition, the author exaggerates the purported decline in voice minutes by projecting an unrealistic growth of minutes in the counterfactual scenario (i.e., what would have occurred without the regulation) based on historical trends.⁶¹ The author failed to take into account important changes in the mobile market in Chile that meant that prior historical trends were bound not to be repeated going forward.

151. First, at the time, Chile had a mobile penetration of 138%,⁶² it was obvious that with such a high penetration, the growth on the number of subscribers will not follow a linear historical trend as the author assumed. Second, given Chile's high income, the country's transition from mainly voice traffic to increasingly data traffic was already underway. Moreover, OTT traffic for voice applications was increasing as Chile's adoption of 4G was accelerating. It was again evident that the voice traffic per user was about to, or had already, peaked, implying that future growth will not follow the prior historical trend. All of these foreseeable changes on historical trends were ignored by the author. In one unrealistic assumption, the author projected mobile penetration using a linear extrapolation from historical data, projecting that the mobile penetration should have increased to 155.5 % ignoring the realities of a saturated market.⁶³

152. For these reasons, the counterfactual projections of the author should not be relied upon, and neither should his conclusions based on flawed projections.

(b) Study from Colombia

153. This study is different from the Chile study in that the authors used an econometric analysis and market data to infer whether the imposition of regulation

⁵⁸ *Id.* pp. 597.

⁵⁹ *Id.* See pp. 602: "Since I do not have access to data on the actual average price per minute in the market (only information on price per plan), it is not possible to know for sure whether my conjecture that consumer welfare declined is correct."

⁶⁰ *Id.* See pp. 602, Section 4.6.2.

⁶¹ *Id.* Section 4.6.2 and Figure 14.

⁶² *Id.*, pp. 604 Figure 15.

⁶³ *Id.*, see in particular Figure 15 where users are projected to growth to 27.5 million which implies a penetration of 155.5 per 100 inhabitants, given Chile's population of 17.69 million in 2014.

capping the on-net/off-net price differential affected the growth of minutes used and the average price that would have prevailed in the absence of such regulation.⁶⁴

154. The study used quarterly data from 2005 until 2011, which cover a 2-year period after the imposition of regulation in early 2009. The pre-regulation period (2005-2008) covers a period of rapid growth in mobile penetration in Colombia, from approximately 29%, to 90%, after which the growth on mobile penetration flattened.⁶⁵

155. The authors used an econometric analysis to estimate the counterfactual (i.e., without regulation of the price differential) growth of minutes of use and the average price of mobile voice services.⁶⁶ Again, it is important to reiterate that in the counterfactual scenario the authors projected certain variables such as minutes of use and prices, that would have occurred, in the hypothetical case of no regulation. Therefore, these are not observations of actual market prices or minutes of use.

156. These contextual matters, which we considered to be important, are not mentioned in Mr. Ockerby's memorandum, nor in Digicel's submission and citations of Mr. Ockerby's memorandum

157. Mr. Ockerby's memorandum to Digicel cites a passage of the study from Colombia:

*"results that suggest that Colombia's regulator decision in 2010 to impose several measures (among them a ban on the off-net/on-net price differential) on the dominant mobile operator increased the average price-per minute in the market and produced a sizeable reduction in consumption."*⁶⁷

158. The authors of the Colombian study did not find that the average price per minute of mobile calls increased after the regulation was imposed. The authors clearly state that the average price per minute *declined* quarterly at a rate of -1.9% after the imposition of regulation:

*"whereas the post-dominance regulation period (Q1 Y2009 to Q3 Y2011), the average decrease rate was -1.9% per quarter."*⁶⁸

159. It is also inaccurate to say that the authors of the Colombian study concluded that regulation "produced a sizeable reduction in consumption", or a sizable reduction on minutes of use. As the authors of the study found that mobile minutes of use *increased* after regulation at an average quarterly rate of 3.8%.⁶⁹

160. What the authors found was that compared to their counterfactual projections of prices (and mobile minutes) the imposition of regulation slowed down the decline

⁶⁴ Agustin Ros and Douglas Umaña. The demand for mobile services in Colombia and the impact of asymmetric mobile regulation. *Info* Vol. 15 No. 3 (2013): 54-65. See pages 54-55. The price differential was capped to a maximum equal to the mobile termination rate.

⁶⁵ *Id.* Figure 1, pp. 56.

⁶⁶ *Id.*, pp: 54-55.

⁶⁷ Memorandum from CEG Asia Pacific's Mr. Jason Ockerby, to Digicel dated 28 November 2022, paragraph 29.

⁶⁸ Agustin Ros and Douglas Umaña. The demand for mobile services in Colombia and the impact of asymmetric mobile regulation. *Info* Vol. 15 No. 3 (2013): 54-65, page 55.

⁶⁹ *Id.*, pp: 58.

on prices (and the increase on minutes) compared to their hypothetical counterfactual projections (i.e., had the regulation been absent) of those variables.⁷⁰ The key point is that the authors' results are dependent on their counterfactual projections. Those projections are based on an econometric (multiple regression) analysis with several shortcomings that produced biased and unreliable results.

161. First, the regression equation omits important explanatory variables, which produces biased results. This is referred in econometrics as the "omitted variable bias" problem.⁷¹ The problem arises, when important explanatory variables are not included in the equation which is precisely what the authors did. The authors used an equation to estimate the quarterly mobile minutes with only three explanatory variables: price, income, and a dummy regulatory variable. The authors also added a trend variable as a catch-all variable, but that is hardly adequate. For example, given that the dependent variable is the mobile outgoing minutes, it seems reasonable to add as an explanatory variable, the number of active subscribers. Of course, more active subscribers would lead to more minutes (holding all else constant). Such an important variable was omitted, leading to the so-called, omitted variable bias. Another important omitted explanatory variable that the authors should have considered, is mobile penetration. As mobile penetration gets closer to 100%, it is reasonable to expect the growth in total minutes to slow down or stop. The authors seemed to have made no attempt to identify other important variables to include in their analysis leading to biased estimates and unreliable results.⁷²
162. Second, the authors made no attempt to incorporate in their counterfactual projections the fact that by the time the regulation was imposed (early 2009), the mobile penetration in Colombia had reached approximately 94%, and that the growth of minutes of use was bound to taper in the subsequent years. Moreover, the increase on mobile penetration in Colombia was spectacular prior to the imposition of regulation and bound to slow down. For example, in the 5-year pre-regulation period, the mobile penetration grew from approximately 15% to 94%.⁷³ Obviously, once an upper middle-income country like Colombia reaches 94% mobile penetration, one should not expect the growth of mobile minutes to continue at the same historical pace, yet that is not captured by the authors' counterfactual projections.
163. The study from Colombia failed to control for important variables in their econometric analysis which leads to biased counterfactual projections of minutes of use and average prices in the absence of regulation. Moreover, the authors failed to incorporate in their analysis foreseeable breaks on prior trends in minutes once mobile penetration reaches 90% or above. For those reasons, the results in the study from Colombia should not be relied upon.

⁷⁰ *Id.*, See for example, Figure 2 and Figure 4.

⁷¹ See for example, Jeffrey M. Wooldridge. *Introduction to Econometrics. A modern approach*. Third Edition. Thomson South-Western (2006), pages 95-97 and 510-512.

⁷² For example, it would have been reasonable to also include variables to control for seasonality; one quarter is not the same as another quarter for voice calls, Christmas for example. Other variables could have been included to control for changes in the deployment of mobile technology at the time (2G versus 3G).

⁷³ *Id.*, See Figure 1.

164. It is important to review what the Colombian Communications Regulatory Commission (CRC) had to say after a 6-month review following the imposition of said regulation on Comcel, the dominant operator:

*“It was also possible to observe in principle, an increase on Comcel’s customers welfare, to the extent that the off-net prices were lowered to adjust to the regulatory order and that there was no tariffs rebalancing [no increase of on-net prices]”.*⁷⁴

165. Although a 6-month review is still a short time to evaluate changes on prices and consumer use of on-net and off-net calls following the imposition of regulation, it is nevertheless telling that the dominant operator chose not to increase the on-net prices while it reduced the off-net prices after the regulatory order.

166. Leaving aside the shortcomings and flaws of these two studies, what they show is that the realities of competition, market concentration, and mobile service adoption in those countries at that point in time, were completely different than today’s reality in PNG. Therefore, even ignoring the flaws in these studies, they should not be used to draw conclusions about likely regulatory impact in PNG.

(xxx) Digicel’s Comments in Section B, Introduction – paragraph 34

167. In paragraph 34(a) Digicel implies that NICTA reached a conclusion that a prohibition of price discrimination between on-net and of-net calls was warranted without giving the affected parties a reasonable opportunity to make submissions and to be heard. Furthermore, Digicel states that if that were the case, it would indicate that NICTA has already predetermined the matter, adding that in that case, it would be a very serious procedural failure on NICTA’s part and one that undermines the integrity of this proceeding.

168. In paragraph 34(b) Digicel states that regulation of Digicel’s prices should not be imposed on the basis of its popularity with other interested parties. Instead, Digicel adds, it should be carefully weighed against the mandatory criteria specified in the Act and NICTA’s broader duties to conduct itself in accordance with the Act’s objectives and regulatory principles.

169. In paragraph 34(c) Digicel states that NICTA did not provide any actual evidence or analysis in the First Discussion Paper to support the case for regulating on-net/off-net price differentials. Digicel also adds that it did not consider the retail regulation criteria, and provided no properly reasoned basis for intervention.

170. In paragraph 34(d) Digicel takes issue with the stated objectives of NICTA’s Second Discussion Paper, indicating that NICTA has not yet made any case for a retail service determination to eliminate Digicel’s on-net and off-net price differential of voice calls.

⁷⁴ CRC, “Diagnostico del Mercado Voz Saliente Movil”. Regulacion de Mercados. August 2010, page 33. Translated from Spanish: *“También se pudo observar, en principio, un incremento neto en el bienestar de los usuarios de Comcel en la medida en que las tarifas off-net de los usuarios bajaron para ajustarse a la medida regulatoria, y no se presentó ningún tipo de rebalanceo tarifario.”*

(xxxi) NICTA’s response to comments in paragraph 34 (a) of Digicel’s submission

171. NICTA made its preliminary conclusion based on its own findings and assessment of the available evidence including information that was provided in the first phase of this retail service inquiry. This approach is not new; it has been a common practice in NICTA’s public inquiries and consultations. Stakeholders, including licensed operators, are invited to comment and substantiate their point of view with evidence and, or reasoned arguments, in support or against NICTA’s assessment, its findings and the preliminary conclusions reached. This process gives a fair opportunity to all interest parties. Sometimes, arguments and new evidence is presented that NICTA may consider compelling enough to make us reconsider or review our initial views. It is for this reason that NICTA refers to our initial assessment of the issues analyzed as ‘preliminary conclusions’ which are not final.

(xxxii) NICTA’s response to comments in paragraph 34 (b) through 34 (d) of Digicel’s submission

172. NICTA concurs with Digicel’s view that the regulation of Digicel’s prices should not be imposed based on its popularity amongst interested parties but should be weighed against the mandatory criteria specified in the Act and NICTA’s broader duties to conduct itself in accordance with the Act’s objectives and regulatory principles.

173. NICTA’s preliminary conclusion, in particular regarding the anti-competitive effect of its on-net/off-net price discrimination was based on NICTA’s assessment of the information available, and against the retail regulation criteria under Section 158 of the Act. NICTA did not make the preliminary conclusion based on the popularity of its conclusions in the first part of this inquiry. For Digicel to think that NICTA has made the preliminary conclusion because of its popularity is simply misconstrued. The statement “*The majority of the submissions received to the first consultation agreed with such an approach*” is simply a statement of fact that NICTA captured in its Second Discussion Paper to reflect the position of other interest parties on the issue. In no way that influenced NICTA’s preliminary conclusion.

174. NICTA understands that in Digicel’s view, NICTA has not made its case for the proposed retail service determination clear enough. Moreover, in Digicel’s view, NICTA has not satisfactorily explained whether the proposed retail service determination, meets the retail regulation criteria in Section 158 of the Act, and also, NICTA’s broader duties in accordance with the Act’s objectives and regulatory principles. Below NICTA addresses Digicel’s comments in detail.

C. REASONS FOR THE PROPOSED RETAIL SERVICE DETERMINATION

175. As explained earlier, when mobile operators price their off-net calls significantly higher than on-net calls, they create the so-called “club effect”. That is

the tendency of customers to subscribe to the same operator as their family, friends, and closed associates, to avoid paying higher priced off-net calls. The effect is negligible if the price difference is small, reflecting the extra cost of an off-net call. The attempt to create a “club effect” is futile if an operator’s network is small relative to others. However, if an operator’s network is significantly larger than the rest, as is the case for Digicel, the effect could be powerful. By increasing the price difference between on-net and off-net calls beyond what would be reasonable to reflect differences in costs, a large operator like Digicel, could discourage potential customers from subscribing to smaller networks. That is because being in a smaller network implies that most mobile calls would be off-net, to Digicel. This changes the nature of competition. In theory, potential customers pondering which network to subscribe, would choose based on their prices, offers/promotions, quality of services, availability and reliability of services, and other characteristics that makes a network appealing. In practice, an operator such as Digicel, with substantial market power, as demonstrated earlier, could raise the price differential high enough to make those other potential benefits of subscribing to a rival network not worth the high price of off-net calls to Digicel. This creates a vicious circle for smaller networks, where the demand for their services is artificially dampened, which in turn leads to low revenue growth, low profitability, and low investment on network expansion and upgrades. This lessens competition in the market, increases market concentration, reduces the smaller operators’ incentive to invest on network expansion, and increases prices compared to a situation where no such unjustified price differential exists. That is what the proposed determination seeks to address.

(i) Digicel’s price difference of on-net and off-net calls cannot be justified based on costs differences

176. In NICTA’s Second Discussion Paper, we proposed to ban any price difference between Digicel’s on-net and off-net calls.⁷⁵ Upon further consideration, we have revised our earlier view and recognized that a reasonable argument can be made that the cost of Digicel’s outgoing national calls may be different depending on whether it is an on-net or an off-net call.

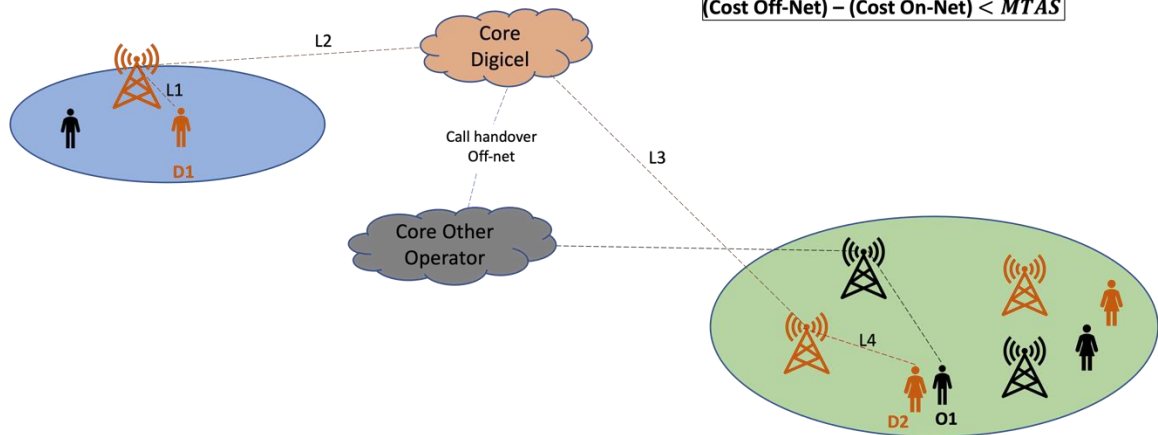
177. Figure 6 below is used to illustrate this plausible cost difference. The figure depicts two networks; one represents Digicel’s with orange coloured cell sites and customers marked D1 and D2. The second network is represented in black coloured cell sites and customers, one of which is marked as O1.

178. There are two localities represented by oval shapes coloured blue and green. Digicel’s customer D1 is in Blue Town, while D2 is located in Green City. The Other network customer, O1 is also in Green City as shown in the figure.

Figure 6. Illustration of the cost difference between on-net and off-net calls

⁷⁵ NICTA, Discussion Paper: To facilitate public consultation on potential Retail Services Determination in relation to On-net and Offnet Calls, 21 October 2022, paragraph 5.4.

Illustration: Digicel call from blue town to green city
 On-net call from D1 to D2
 Off-net call from D1 to O1
 Digicel is Orange Network
 Other operator is Black Network



Digicel's Cost On-net call = Cost (L1+L2+L3+L4)
 Digicel's Cost Off-net call = Cost (L1+L2)+MTAS

$$(\text{Cost Off-Net}) - (\text{Cost On-Net}) = \text{MTAS} - \text{Cost (L3+L4)}$$

$$(\text{Cost Off-Net}) - (\text{Cost On-Net}) < \text{MTAS}$$

179. Figure 6 illustrates with dotted lines the signal paths of an on-net call from Digicel's customer D1 to D2, and an off-net call from Digicel's customer D1 to O1. Different segments of the signal path are marked as L1, L2, L3, etc., and each segment has an associated cost such as, Cost (L1) or Cost (L2), for example. Note that Cost (L1) plus Cost (L2) is equal to Cost (L1 + L2). Using that notation, we can show that an on-net call from D1 to D2 could have different costs than an off-net call from D1 to O1:

Cost of on-net call from D1 to D2 = Cost (L1+L2+L3+L4), and

Cost of off-net call from D1 to O1 = Cost (L1+L2) + MTAS.

Where the MTAS is the per-minute rate for mobile termination access service (MTAS), also known as the mobile termination rate.

180. Therefore, using the expressions above, the cost difference between an off-net call and an on-net call is:

$$(\text{Cost off-net}) - (\text{Cost on-net}) = \text{MTAS} - \text{Cost (L3+L4)}.$$

181. Based on the expression above, we can infer the following. First, the cost of off-net and on-net calls would be equal only in case the MTAS rate were to be equal to the cost of segments L3 and L4. Second, if Cost (L3+L4) is very small, then the cost difference would be very close to the MTAS rate. Third, given that the cost of segments L3 and L4 is always positive, all we can conclude is that the difference in costs between off-net and on-net calls is lower than the MTAS rate, which leads us to the following expression:

$$(\text{Cost off-net}) - (\text{Cost on-net}) < \text{MTAS}.$$

182. Based on the foregoing analysis, we conclude that if Digicel were to price their off-net and on-net calls based on cost differences between these, the maximum price difference we would observe would not exceed the MTAS rate, which currently is 8 Toea per minute. In contrast we have shown earlier in Figure 3, that Digicel's off-net

prices could exceed their on-net prices by 40 Toea per minute (off-peak) and 20 Toea per minute (peak).

183. In conclusion, based on the analysis presented, NICTA is revising its earlier views, and propose to cap the maximum price difference between Digicel's off-net and on-net calls equivalent to the MTAS rate. A similar analysis is applicable to off-net calls originated in Digicel's mobile network that terminate in a fixed network. Therefore, NICTA proposes to cap the maximum price difference between Digicel on-net and off-net calls terminating in a fixed network to the rate charged for fixed termination access service (FTAS).

(ii) Proposed determination meets the Retail Regulation Criteria in accordance with Section 158 of the Act

184. NICTA understands that Digicel is not satisfied with the explanation given in our Second Discussion Paper on how the proposed determination meets the retail regulation criteria under Section 158 of the Act. NICTA shows below that the proposed determination meets all the retail regulation criteria.

(iii) The proposed determination meets the competition objective in accordance with Sections 158(a) and 158 (b) of the Act

185. The proposed determination meets the retail regulation criteria in Sections 158(a) and 158(b) of the Act. In particular:

“ (a) that making a retail service determination for the retail service in respect of an operator licensee for a particular period will further the achievement of the objective set out in Section 124 but disregarding Section 124(2); and

(b) specifically, in relation to the competition objective, that –

(i) that operator licensee has a substantial degree of power in the market within which the retail service is supplied; and

(ii) in the absence of the retail service determination for that period, that substantial degree of power is likely to –

(A) persist in the market over that period; and

(B) expose retail customers to a material risk of higher prices and/or reduced service where they acquire the retail service from that operator licensee during that period;”

186. As explained earlier, by reducing Digicel's price differential between on-net and off-net calls to a maximum value equal to the MTAS, the proposed determination will reduce the price of off-net calls and enable consumers to subscribe to smaller rival networks, encourage investment on the expansion of smaller networks, reduce market concentration, and promote effective competition in the relevant prepaid and postpaid mobile markets in accordance with Section 158(a) of the Act.

187. The proposed determination also meets the retail regulation criteria in accordance with section 158(b) of the Act. In particular, with respect to Section 158(b) (i), NICTA had demonstrated earlier that Digicel has a substantial degree of market power in the following relevant markets within which the prepaid national mobile voice service is supplied:

- The prepaid mobile national voice only market, and
- The prepaid mobile bundle which includes, national voice call service, SMS, and data service.

Furthermore, NICTA also demonstrated that Digicel has a substantial degree of market power in the following relevant market within which the postpaid national mobile voice service is supplied:

- The postpaid mobile bundle which includes, national voice call service, SMS, and data service.

188. Having NICTA established that Digicel has a substantial degree of market power in the three abovementioned relevant markets, the criterion in Section 158(b)(i) is satisfied.

189. NICTA is also convinced that the proposed determination meets the criteria in Section 158(b)(ii) of the Act; in particular, that in the absence of the proposed determination and during the term of it, Digicel substantial degree of market power is likely to:

- persist in the relevant markets, and
- expose retail customers to a material risk of higher prices where they acquire the retail service from that operator licensee.

(iv) In the absence of the proposed determination, Digicel Substantial degree of market power is likely to persist in the relevant markets over the term of the proposed determination

190. Digicel substantial degree of market power has persisted for over ten years. Its position in the mobile market is so entrenched that prior attempts to significantly erode its market power have been unsuccessful. As indicated earlier, between 2014 and 2019, Bmobile in partnership with Vodafone from Fiji, mounted an attack on Digicel to try to erode its near monopoly position on mobile communications. After 100 million USD invested jointly by Telikom/Bmobile in network upgrades⁷⁶ and five years, the partnership only managed to reduce by 5.7 percentage points Digicel's market share (by subscribers). See Table 4.

191. Once again, the Vodafone brand is back in PNG, this time in partnership with Digitec Communications. Would this time be different? NICTA does not know. But what we know is that without the proposed determination Digicel would continue to magnify its already strong "club effect" so that potential customers will find it

⁷⁶ "Telikom PNG and bmobile rolling out joint 3G/4G network." CommsUpdate, Telegeography, 21 August 2014. <https://www.commsupdate.com/articles/2014/08/21/telikom-png-and-bmobile-rolling-out-joint-3g4g-network/>

unappealing to join a much smaller rival network because most of the calls would be off-net, which Digicel price at a much higher level than on-net.

192. Digicel's price discrimination, unjustified by differences in costs between off-net and on-net calls, lessens competition and perpetuates Digicel's substantial market power.

(v) In the absence of the proposed determination, Digicel substantial market power is likely to expose retail consumers to a material risk of higher prices and/or reduced service where they acquire the prepaid or postpaid mobile national voice service from Digicel during the term of the proposed determination

193. In the absence of the proposed determination, Digicel will likely continue to price discriminate between off-net and on-net calls, to discourage consumers to join the smaller rival networks. This would perpetuate the very high concentration in the mobile market in PNG. As mentioned earlier, there is strong evidence that higher market concentration is associated with higher prices of mobile voice service as shown in Figure 5.

194. In the absence of the proposed determination, Digicel will continue to hold a substantial degree of market power. This would translate into higher prices for all consumers, not only of the voice only service, but also of bundled services, both prepaid and postpaid.

195. The current higher prices of Digicel's mobile service relative to its rivals such as Digitec-Vodafone and Bmobile/Telikom would likely persist, leading consumers to pay Digicel higher prices or receive reduced services. As demonstrated earlier, Digicel's mobile price of on-net calls (off-peak) is 100% higher than that of Digitec-Vodafone, while Digicel's price of on-net calls (peak) is 33% higher than that of Digitec-Vodafone.

196. Likewise, as shown earlier in Table 6, Digicel's mobile bundles which include national voice, SMS, and data, provide a reduced service in terms of minutes, SMS and Megabytes of data than similarly priced bundles from Digitec-Vodafone. These service differences are likely to persist in the absence of the proposed determination. For the aforementioned reasons, the proposed determination meets the criteria in Section 158(b)(ii) of the Act.

(a) The proposed determination meets the efficiency objective in accordance with Section 158 (c) of the Act

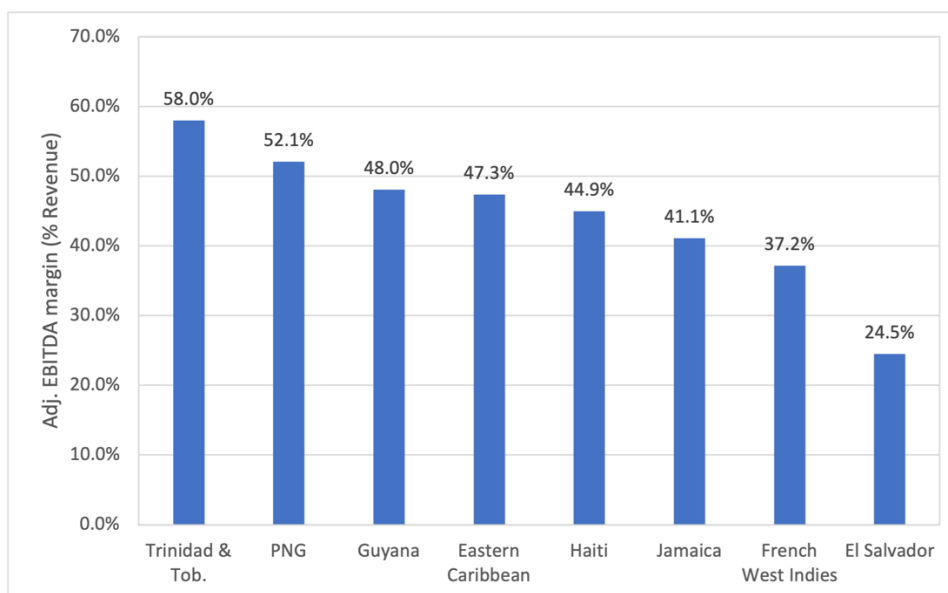
197. The proposed determination meets the retail regulation criterion in Section 158(c) of the Act. In particular:

“(c) specifically, in relation to the efficiency objective, that the operator licensee will not be prevented from achieving a return on assets during that period sufficient to sustain investment necessary to supply the retail service;”

198. NICTA is convinced that the proposed determination would not prevent Digicel from achieving a return on assets during the period sufficient to sustain investment necessary to supply the mobile national voice call services for various reasons.

199. First, the proposed determination does not cap the price level of Digicel’s on-net or off-net calls. It only caps the maximum difference between these prices. This gives ample flexibility to Digicel to adjust the level of these prices to fit its own commercial interests and maximize its return on assets.
200. Second, as we have shown earlier, Digicel prices are higher than its close competitors. That has allowed Digicel’s subsidiary in PNG to achieve profit margins that are amongst the highest compared to other subsidiaries of Digicel Group and Digicel Pacific Limited. As an illustration, we present in Figure 7 the adjusted EBITDA margin of various subsidiaries of Digicel Group and Digicel Pacific Limited around the world, including that in PNG.⁷⁷ It is clear that the subsidiary in PNG has been historically very profitable. Given that Digicel’s substantial market power in PNG has been maintained for at least a decade,⁷⁸ the current adjusted EBITDA margin should be close to the historical margin shown in Figure 7.

Figure 7. Digicel’s PNG subsidiary’s historical adjusted EBITDA margin compared to that of others subsidiaries



Source: Securities and Exchange Commission. Form F-1 Registration Statement. Digicel Group Limited. 26 June 2015. Note: adjusted EBITDA margin is weighted average of 2013 to 2015.

201. The high historical EBITDA margin enjoyed by Digicel (PNG) as shown in Figure 7, of course implies that, Digicel (PNG) has enjoyed one of the highest returns on assets⁷⁹ amongst subsidiaries of Digicel Group or Digicel Pacific Limited. Therefore,

⁷⁷ Latest available data is from 2015. Securities and Exchange Commission. Form F-1 Registration Statement. Digicel Group Limited. 26 June 2015, page 108.

<https://www.sec.gov/Archives/edgar/data/1645826/000119312515236163/d946689df1.htm>

⁷⁸ See NICTA’s Retail Service Determination of 2012.

⁷⁹ Return on Assets (ROA) is commonly defined as earnings before interest and taxes (EBIT) multiplied by (1 – tax rate) and then divided by total assets of a company. A pretax ROA is also common. In this case the earlier formula is not adjusted for taxes. Therefore, pretax ROA = EBIT/Total Assets. See Aswath Damodaran,

even in the hypothetical case that due to the proposed determination Digicel's market share were to decline to, say a level similar to that of Digicel Group's subsidiary in Jamaica, which at the time was 72%, all that would mean is that Digicel (PNG) would have a more normal level of profitability, and as a consequence, return on assets, than it had enjoyed historically. Moreover, in the context of a growing market such as that of PNG, Digicel's revenue and EBITDA, are growing. Given that the proposed determination will increase competition, that will boost the growth of the total market for mobile services, which in turn, would grow Digicel's revenue and EBITDA allowing Digicel to sustain the investment necessary to supply mobile national voice services.

202. Third, Section 158 (c) does not require NICTA to guarantee Digicel's historically high return on assets. Instead, it requires to show that Digicel's return on assets would not be affected to such a degree as to prevent it from sustaining the investment necessary to supply the national mobile voice call services. Even ignoring the likely non-existent impact of the proposed determination on EBITDA, as explained above, one can infer from Figure 7, that other subsidiaries with much lower EBITDA margins, such as that in El Salvador, are nevertheless able to undertake significant investments to supply mobile national voice service. For example, in early 2017, CommsUpdate reported that Digicel Group's subsidiary in El Salvador was going to invest USD 450 million in the rollout of its 4G network.⁸⁰ That clearly illustrates that even in the extremely improbable case that Digicel's EBITDA margin in PNG were to fall to the level of the subsidiary in El Salvador, which of course, we do not expect, it would not prevent Digicel from achieving a return on assets sufficient to sustain the investment necessary to supply the national mobile voice call service.
203. Fourth, the industry trend toward increasing data traffic at a much higher growth rate than voice traffic will likely continue. This implies that an increasingly higher proportion of Digicel's future investment will likely go towards upgrading the network to carry primarily data traffic (4G/LTE) while investment for carrying voice traffic will proportionally diminish. Therefore, compared to past years, over the period of the proposed determination, the capital investment necessary to supply mobile voice call service will diminish as a proportion of the total capital investment of Digicel.
204. Due to the reasons provided above, NICTA is confident that the proposed determination will allow Digicel to achieve a return on assets enough to sustain the investment necessary to supply the national prepaid and postpaid mobile voice call services during the term of the proposed determination.

(b) The proposed determination meets the criterion in Section 158 (d) of the Act

205. The proposed determination meets the retail regulation criterion in Section 158(d) of the Act. In particular:

“(d) the aggregate likely benefits of making that retail service determination outweigh any aggregate likely detriments.”

Investment Valuation. Third Edition. John Wiley & Sons Inc. Hoboken, New Jersey: 2012. Pages 44-45. Given that EBITDA is correlated with EBIT, a change on EBITDA (holding all else constant) will affect the ROA.

⁸⁰ CommsUpdate. “Digicel to invest USD 450m in El Salvador 4G rollout.” 15 Feb. 2017.

<https://www.commsupdate.com/articles/2017/02/15/digicel-to-invest-usd450m-in-el-salvador-4g-rollout/>

206. To avoid repeating what has been already explained in detail, please refer to paragraphs 129 through 144, where we demonstrated that the proposed determination likely benefits largely outweigh any aggregate likely detriments.

(vi) Digicel’s Comments in Section C, Legal Framework – paragraphs 38 through 41

207. In paragraph 38 Digicel reiterates that NICTA is required by Section 159(2) of the Act, to be satisfied that all of the retail regulation criteria would be met by the proposed retail service determination. In addition, in paragraph 39 Digicel reminds NICTA that it must ensure that any proposed retail service determination shall be consistent with the Act’s objective which is to *“ensure that the ICT industry contributes to the greatest extent possible to the long-term economic and social development of Papua New Guinea.”*

208. In paragraphs 40 and 41, Digicel notes that NICTA must adhere to the regulatory principles in Section 3(b) of the Act, and in Digicel’s view, NICTA has not met those standards. In addition, it says that no objective for the proposed regulation has been specified, and that the terms of the proposed retail service determination set out in the Second Discussion Paper, will fail to meet the retail regulation criteria, but will also cause significant harm to consumers and to Digicel.

(vii) NICTA’s response to comments in paragraphs 38 and 39 of Digicel’s submission

209. NICTA notes Digicel comments in paragraph 38 of its submission. NICTA has addressed those comments in this report. As demonstrated in paragraphs 184 through 206, NICTA is satisfied that all of the retail regulation criteria in Section 158 of the Act are met by the proposed (revised) retail service determination.

210. In addition, the proposed determination would increase competition and induce more investment in network expansion and upgrades. This in turn will reduce market concentration, lower prices, and increased usage of ICT services, all of which is consistent with the objective of the Act which is *“to ensure the ICT industry contributes to the greatest extent possible to the long-term economic and social development of Papua New Guinea.”*

(viii) NICTA’s response to comments in paragraphs 40 and 41 of Digicel’s submission

211. NICTA notes Digicel’s comments in paragraphs 40 and 41. NICTA is satisfied that with the clarifications and expanded analysis provided in this report, together with the revisions to the proposed retail service determination (see attached determination), such determination adheres to the regulatory principles in Section 3 of the Act.

212. As per the stated objective of the proposed retail service determination, for the sake of clarity, it is to increase competition in the markets within which the prepaid and postpaid mobile national voice services are supplied. To accomplish that, this

retail service determination caps the maximum difference between the price per minute of Digicel's off-net and on-net calls to the MTAS charge per minute, or if applicable, to the FTAS charge per minute.

(ix) Digicel's comments in Section E, Proposed Terms of the RSD, paragraphs 79 through 82.

213. Here, Digicel argues that even if the proposed determination were warranted, the terms of it are inappropriate for various reasons. First, in Digicel's view, a complete ban on the prices of on-net and off-net calls is unreasonable because, in their view, there are clear cost differences. Digicel states that in particular, in rural and remote areas where Digicel is required to transport off-net calls to its point of interconnection in either Port Moresby or Lae, so that Digicel's competitors can deliver the calls to their urban customers.

214. Second, Digicel states that it is unreasonable and irrational to impose such a ban when its competitors also differentiate between the prices of off-net and on-net calls.

215. Third, in Digicel's view the three-year term of the proposed determination is unreasonable and irrational when it has been reported in the media that Digitec-Vodafone, the new entrant, was able to connect more than 650,000 customers in the first month of operation in PNG.

(x) NICTA's response of comments in Section E, paragraphs 79 through 82 of Digicel's submission.

216. NICTA has revised its prior view and acknowledged in this report, that indeed there could be cost differences between off-net and on-net calls. That is reflected in the (revised) proposed determination accompanying this report. Accordingly, we are allowing a maximum difference between the price per minute of off-net and on-net calls equal to the MTAS charge.

217. However, NICTA disagrees with Digicel's view that the *cost difference* stems from the need to transport off-net calls originated in remote locations to Digicel's point of interconnection. In NICTA's views, the cost of transporting a call originated in a rural or remote area to Digicel's point of interconnection would be the same whether it is on-net or off-net. As shown in Figure 6, that would be the cost associated with segments L1 and L2. Because the signal travels through segments L1 and L2 whether it is an off-net or an on-net call, *there is no cost difference* attributable to segments L1 and L2 between off-net and on-net calls.

218. As explained in paragraphs 176 through 181, the cost difference between off-net and on-net calls is equal to MTAS charge minus the cost associated with segments L3 and L4, as shown in Figure 6.

219. In paragraph 81 of its submission, Digicel wants to argue that imposing the proposed determination only on Digicel would be unreasonable and irrational because the prices of Digicel's competitors' on-net and off-net calls are also different. NICTA respectfully disagrees. Digicel knows well that imposing a retail service determination

on an operator requires said operator to have a substantial degree of market power in accordance with Section 158(b)(i) of the Act.

220. Presumably, Digicel implies that a company such as Digitec-Vodafone or Telikom/Bmobile could also have a substantial degree of market power in the relevant markets. NICTA rejects that possibility. As demonstrated before, Digicel charges much higher prices for similar services than Bmobile/Telikom or Digitec-Vodafone, negating any possibility that either of Digicel's competitors could have a substantial degree of market power. Moreover, it would seem farfetched to suggest that either of Digicel's competitors would have significant market power when together, they account at present to an aggregate market share of approximately 8% (by revenue) in the relevant markets.
221. Digicel also argues that a three-year term for the proposed determination would be excessive given the recent entry of Digitec-Vodafone, and its relative early success connecting subscribers, as reported by the news media. NICTA does not agree with Digicel and considers the three-year term for the proposed determination, adequate for various reasons.
222. First, Digicel's substantial degree of market power is so entrenched due to its many sources, as explained in paragraphs 51 through 82, that we do not expect any other company aside from Digicel, to hold a substantial degree of market power over the term of the proposed determination.
223. Second, Vodafone's earlier partnership with Bmobile between 2014 and 2019, only reduced Digicel's market share by 5.7%. While, this time, the partnership with Digitec could fare differently, it would take Vodafone-Digitec many years to expand its network footprint to a degree where it could challenge Digicel's substantial market power.
224. Finally, it would take consumers some time to adjust to Digicel's changes on the relative prices of off-net and on-net calls, as a result of the proposed determination. In the short-term, Digicel's customers will progressively increase their willingness to place more off-net calls than before. This will progressively alter the balance of off-net and on-net call volumes. However, it would take longer to notice changes on consumer choice of which network to subscribe as a result of the proposed determination. Most of current Digicel customers would remain, based on Digicel's strong brand loyalty observed over the years and existing switching costs due to a lack of mobile number portability. Potential customers, on the other hand, would slowly react to the new reality of a weakened club effect of Digicel's network resulting from the proposed determination.

D. COMMENTS RECEIVED FROM DIGITEC COMMUNICATIONS LIMITED⁸¹ AND NICTA'S RESPONSES

⁸¹ Digitec Communications Limited. Response to NICTA Consultation. Proposed terminating access services declaration and retail price determinations, 30 November 2022.

(i) Digitec-Vodafone's comments

225. Digitec -Vodafone's comments covered two public consultations, one related to the proposed declaration of wholesale terminating access services, and a second, related to the proposed retail service determination, subject of this report. Here we address those comments related to the retail service determination only.
226. Digitec -Vodafone's comments were supportive of the proposed retail service determination. For example, under the heading "A LIMIT OR PROHIBITION ON ON-NET/OFF-NET DIFFERENTIALS IS SUPPORTED", Digitec-Vodafone argues that a large price -differential between off-net and on-net calls by a firm with substantial market power, such as Digicel, raises a barrier to customer acquisition for new entrants. This is turn would hinder Digitec-Vodafone's network expansion in PNG and hurt competition.
227. Under the heading "FRAMING OF THE PROHIBITON", Digitec-Vodafone supports NICTA's view in our Second Discussion Paper, regarding a prohibition of any price difference between Digicel's off-net and on-net calls, unless such price difference has been approved by NICTA in writing.
228. Under the heading "TIME PERIOD OF THE PROHIBITION", Digitec-Vodafone supports a 5-year term for the proposed determination instead of the three years in NICTA's proposed determination.
229. Finally, under the heading "ALIGNING BILLING METHODS", Digitec-Vodafone states that they bill their retail services by the second to provide lower prices to its customers. However, when their customers place an off-net call to Digicel, Digitec-Vodafone is not charged the interconnection rate on a per second basis. This means that for some very short calls, Digitec-Vodafone receives less from its retail customers than it owes in wholesale interconnection charges. Digitec-Vodafone wants Digicel and other mobile operators to charge wholesale interconnection on the same per-second basis as Digitec-Vodafone charges its retail customers.

(ii) NICTA's responses to Digitec-Vodafone's comments under the heading "A LIMIT OR PROHIBITION ON ON-NET/OFF-NET DIFFERENTIALS IS SUPPORTED"

230. NICTA shares Digitec-Vodafone's view that Digicel's large difference on their price of off-net and on-net calls, lessens competition by increasing the barriers to expansion of smaller networks such as Digitec-Vodafone and Telikom/Bmobile. However, as mentioned in paragraphs 176 through 183, we have changed our view regarding a prohibition of a price difference between off-net and on-net calls, and have decided to limit such difference to a maximum equal to the charge for the MTAS (or FTAS when applicable).

(iii) NICTA's responses to Digitec-Vodafone's comments under the heading "FRAMING OF THE PROHIBITON"

231. As mentioned earlier, NICTA has revised its views about prohibiting any price difference between Digicel's off-net and on-net calls. NICTA's revised proposed

determination limits the difference to a maximum equal to the MTAS charge between mobile licensed operators.

(iv) NICTA’s responses to Digitec-Vodafone’s comments under the heading “TIME PERIOD OF THE PROHIBITION”

232. NICTA considered the possibility of a five-year term for the proposed determination as Digitec-Vodafone suggests. Out of the abundance of caution, given the added uncertainty due to the entry of Digitec-Vodafone in 2022, NICTA decided instead for a shorter three-year term for the proposed determination. This will allow NICTA to reassess Digicel’s position in the market after a shorter period of time compared to a five-year term.

(v) NICTA’s responses to Digitec-Vodafone’s comments under the heading “ALIGNING BILLING METHODS”

233. NICTA notes Digitec-Vodafone comment about having a standard basis for licensed operators to charge customers and consumers. NICTA is supportive of Digitec-Vodafone charging by the second which reduces the costs of voice calls to consumers.

234. Per Digitec-Vodafone’s comment, the lack of a standard basis for charging customers and consumers seems to affect both wholesale and retail services. NICTA is bound to address issues only related to this public consultation. NICTA considers the matter for standardizing the basis for charging wholesale interconnection services outside of the scope of this public consultation. NICTA also considers that the matter of standardizing the basis for charging retail services outside of the scope of this public consultation.

E. COMMENTS RECEIVED FROM TELIKOM LIMITED⁸² AND NICTA’S RESPONSES

(i) Telikom’s comments

235. Telikom’s comments are supportive of the proposed determination, including that it meets the retail service regulation criteria under Section 158 of the Act. Telikom also agrees with the terms of the proposed determination.

236. In paragraph 4.1 Telikom states that there is currently a price war between the smaller operators, Digitec-Vodafone and Telikom/Bmobile. It then advances an unsupported argument that such price war may be detrimental to competition and requests NICTA to intervene to set a floor on the price of on-net and off-net calls across all operators.

⁸² Telikom Limited. Response to NICTA’s Public Inquiry into Potential Retail Service Determination (RSD) in Relation to Voice and Data – On-net/Off-net Voice and Messaging Services. 30 November 2022.

237. In paragraph 4.1 Telikom also suggests that NICTA should consider the introduction of mobile number portability to lower the switching costs between mobile operators.

(ii) NICTA's responses to Telikom's comments

238. NICTA acknowledges Telikom's comments about preventing a price war but reminds Telikom that such matter, regardless of its merit, is outside the scope of this public consultation and shall not be addressed here. Similarly, NICTA acknowledges Telikom's comment about the desirability of regulating mobile number portability. Again, the matter is outside the scope of this public consultation and shall not be addressed here.

F. COMMENTS RECEIVED FROM DIGICEL IN REFERENCE TO DIGITEC COMMUNICATIONS AND TELIKOM'S SUBMISSIONS⁸³ AND NICTA'S RESPONSES

(i) Digicel's comments on Digitec Communications submission

239. Some of Digicel's comments on Digitec-Vodafone's submission reflect comments received from Digicel on NICTA's Second Discussion Paper, dated 30 November 2022. Digicel repeats some of its comments regarding lack of evidence or analysis showing that Digicel has a substantial degree of market power in the relevant market.

240. Digicel also considers that Digitec-Vodafone has not provided a clear justification as to how the proposed determination meets the retail regulation criteria under Section 158 of the Act.

241. Digicel, reiterates, its view that the proposed determination intention is to make Digicel increase its on-net prices. It also states that Digitec-Vodafone sole objective is to get "*an easy ride through regulation of its competitor*".

(ii) NICTA's responses

242. Digicel didn't provide any additional information, evidence, or new reasoned argument that would make NICTA change our responses to Digicel's comments earlier in this report.

243. Digicel's argument that the proposed determination's purpose is to make Digicel increase its on-net prices is not supported by any credible evidence or reasonable argument, as shown in this report. If Digicel wants to further increase its already high on-net prices it is free to do so. To the extent that its prices are set to

⁸³ DIGICEL (PNG) LIMITED. Submission to NICTA. Response to Submissions by Telikom PNG & Vodafone PNG on NICTA's Discussion Paper: To facilitate public consultation on potential Retail Service Determination in relation to On-net and Offnet Calls. 17 February 2023.

maximize its profits, a price increase over current levels would tend to reduce its profits. Therefore, it is unlikely to happen.

244. As we have shown in this report, the proposed determination seeks to put a stop to Digicel's unjustified on-net/off-net price difference. This will increase competition, reduce market concentration, spur investment on network rollout and upgrades, and reduce the prices of mobile voice service and mobile bundled services.

(iii) Digicel's comments on Telikom's submission

245. Digicel uses some of Telikom's comments to argue again that Digicel does not have substantial market power in the relevant markets and therefore, that it does not meet the retail regulation criteria.

246. It goes on to say that Telikom's call for NICTA to impose some kind of price floor on mobile services would hurt competition.

(iv) NICTA's responses

247. Digicel's argument that it has no substantial market power has been addressed already in this report, so NICTA will not repeat the evidence and arguments already presented. NICTA however, notes that Digicel is contradicting itself by claiming it doesn't have a substantial degree of market power, while at the same time threatening to further increase its already high on-net price, a clear sign of a significant market power.

248. As indicated above NICTA considers that Telikom's call for imposing a price floor on mobile services is outside the scope of this consultation and will not be addressed here.

G. CONCLUSION AND REVISIONS TO THE PROPOSED FINAL DETERMINATION

249. NICTA has summarized and addressed each comment received providing extensive justification for the proposed retail service determination. NICTA's responses clearly demonstrates that the proposed determination meet all retail regulation criteria under section 158 of the Act, and is in accordance with the objective of the Act under Section 2, and applicable regulatory principles under Section 3 of the Act.

250. As a result of the analyses undertaken to address the comments received on the Second Discussion Paper, NICTA has revised its views regarding some of the terms of the proposed retail service determination, while other terms remain the same.

(i) Terms revised in the proposed retail service determination

251. The pricing principles have been revised to permit a maximum price difference between Digicel's off-net and on-net calls equal to the wholesale charge for mobile terminating access services (MTAS), or the FTAS if applicable. That is, Digicel's price of off-net calls per minute minus the price of on-net calls per minute, must be lower or

equal to the applicable charge per minute for the MTAS (or FTAS if applicable). In a formulaic way this is represented as:

$$(Price\ off - net) - (Price\ on - net) \leq MTAS\ charge ,\ or$$

$$(Price\ off - net) - (Price\ on - net) \leq FTAS\ charge$$

252. NICTA has dropped the requirement to have the MTAS charge used in the formula above to be approved in advance. The MTAS charge is the applicable per minute charge between Digicel and the corresponding interconnecting mobile licensed operator in PNG. However, NICTA considers that the MTAS rate that is currently being implemented between licensed operators is not cost-based. It has been in place for many years during which time the unit costs involved have likely reduced substantially. Given its market share, Digicel is a net beneficiary of mobile termination revenues, and this outcome is exacerbated by the rate exceeding efficiently incurred costs. Rather than require that the MTAS rate be approved in advance, NICTA will now move to formally review the rate as soon as possible. In the meantime, the current actual MTAS charge will be used in the formula.
253. NICTA has maintained its instructions to Digicel under Section 6 of its proposed determination related to consistent billing and charging between on-net and off-net calls.
254. The implementation date has been revised to allow Digicel ample time to make changes to its price schedules, billing systems, and inform its customers and the general public as needed. NICTA is given Digicel 30 days from the Commencement date to implement the retail service determination.
255. NICTA has also added a provision to initiate a review of this determination 12 months before the expiration date, to determine whether this determination should be renewed, amended, or revoked.

(ii) Monitoring compliance

256. NICTA intends to monitor Digicel's compliance with the proposed determination on a quarterly basis. NICTA shall monitor that Digicel standard per minute rates of off-net and on-net calls, are within the maximum difference allowed by this determination, during peak and off-peak times.
257. In addition, NICTA shall monitor that the difference between the average price per minute of off-net and on-net calls is within the allowed limits.
258. To that end, the average price per minute will be calculated based on the average revenue per minute. That is, the revenue accrued to Digicel from selling national mobile voice service divided by the total mobile outgoing minutes. The average revenue per minute will need to be calculated separately for on-net calls and for off-net calls, according to the following formulas:

$$\textit{Average on – net price} = \frac{\textit{Revenue national on – net calls}}{\textit{Minutes of national on – net calls}}$$

$$\textit{Average off – net price} = \frac{\textit{Revenue national off – net calls}}{\textit{Minutes of national off – net calls}}$$

259. Compliance monitoring will be performed separately for prepaid voice services and postpaid services, whether they are sold as voice only (single-service bundle) or charged outside a bundle (i.e., charged at standard rates), or as bundled services.