Vodafone PNG response to NICTAs 5th June 2024 Discussion Paper entitled "Domestic Mobile Terminating Access Services and Domestic Fixed Terminating Access Services" as part of the Public Inquiry into Service-Specific Pricing Principles for Domestic Mobile and Fixed Terminating Access Services – Methodology and Principles.

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Dear CEO

VODAFONE PNG SUBMISSION -

PUBLIC INQUIRY INTO THE SERVICE-SPECIFIC PRICING PRINCIPLES FOR DOMESTIC MOBILE AND FIXED TERMINATING ACCESS SERVICE

Introduction

On 5th June 2024, NICTA published a Discussion Paper as part of a Public Inquiry into mobile termination rates (MTR) and fixed termination rates (FTR). Termination rates in Papua New Guinea (PNG) have historically been negotiated on a bilateral basis by the telecom network operators and NICTA is now considering either using benchmarking or a cost modelling approach to calculate cost-based rates.

Benchmarking has the advantage of being quick and cheap to do. However, the challenge is to decide which are the most appropriate overseas countries to include in the benchmarking exercise; this is a greater challenge for PNG because of the extreme topographic conditions and wide disbursement of the population over the country's land mass. Digicel, who will want to keep the MTR as high as possible, will undoubtedly use this argument in any benchmarking exercise.

The alternative is a bottom-up long run incremental cost (LRIC) model which will more accurately estimate the cost of delivering each voice minute of traffic over a hypothetical network which is efficiently constructed and operated. With the proliferation of data usage over mobile networks in recent years, coupled with more efficient 4G and 5G technology, the effect on the cost of handling voice traffic has led to lower MTR rates using this methodology.

In this submission, Vodafone provides the responses to the Questions in NICTA's Discussion Paper

Question 1: Do you think an international benchmark approach to determine the price of the declared services would be consistent with the general pricing principles in Section 134 of the Act? If you do, please explain your rationale.

Vodafone response:
The international benchmarking approach offers the attraction that it requires less data and therefore less imposed cost on operators, it can be implemented relatively rapidly and will tend to lead to a consistent operating environment from one market to another. On the other hand, it offers only an indirect route to costs and, as NICTA points out, would rely on finding reasonably similar comparator markets to include in the sample – this may be difficult for a country like Papua New Guinea.

To this extent, benchmarking can be consistent with the "cost recovery principle", as set out in Section 134 of the Act. For example, as an interim solution, it could be used to identify whether existing termination rates are likely to be significantly out of line with service costs and corrections to be made to the rates to bring them into closer alignment with costs where appropriate.

Question 2: In case you think that both approaches (the cost modelling and an international benchmark) are consistent with Section 134 of the Act, which approach do you think would be preferable for NICTA to implement and why?

Vodafone response:
Vodafone agrees with NICTA's preliminary views on this matter (paragraph 29 of the Discussion Paper) that cost modelling is preferable to benchmarking in this instance. A cost model can be designed to reflect the efficient costs of a reasonably efficient operator in the specific context of the PNG market, in line with international best practice and without the potential distorting factor of an imperfect match between the PNG market and those of comparator countries.

That being said, we believe a distinction needs to be made between mobile and fixed terminating access services in light of the heavy skew towards the volume of mobile terminating traffic versus fixed. From a practical perspective Vodafone recommends that NICTA focus on developing a cost model for mobile termination access services and in the short term rely on benchmarking for fixed termination access service pricing. At a later date, once the industry has finished the mobile cost modelling, consideration can be given to a fixed cost model.

Question 3: Do you agree that NICTA should use a top down (if data is available) or a bottom-up approach to cost modelling to calculate cost-based prices for the Declared Services in accordance with Section 134 of the Act? Please explain your reasons for why one approach would be preferable over the other.

Vodafone response:
Vodafone agrees with NICTA's preliminary views on this matter (paragraphs 44 - 48 of the Discussion Paper) that a bottom-up cost model, with suitable cross-checking of assumptions against operators' accounting data, would be more likely to yield results that are consistent with Section 134 of the Act in ensuring that only efficiently incurred costs are recovered. The top-down approach necessarily involves constructing models that are specific to a particular operator. In a multi-operator environment, it is not obvious how the results of individual operator models should be applied to meet the objective of gauging the efficient level of costs.

Question 4: Do you agree that NICTA could also use a hybrid approach should enough data becomes available from the operators? Explain your reasons for agreeing or disagreeing.

Vodafone response:
Vodafone agrees that the hybrid approach, as described, could usefully be applied and, in our view, this kind of assumption checking might provide operators with some additional reassurance that the results are reasonable. Operators already provide a range of relevant data in their annual returns to NICTA.

Question 5: With respect to the inclusion or exclusion of common costs; do you agree that Section 134 (2) of the Act rules out the use of a pure LRIC cost allocation approach because the Act requires the inclusion of "fair and reasonable common costs" in the calculation of the costs of the Declared Services? If you disagree, please explain why.

Vodafone response:
Vodafone does not agree that pure LRIC is necessarily inconsistent with the terms of the Act. The issue here is what level of fixed and common costs is "fair and reasonable" for operators to recover from the service in question, given that they must be recovered in some proportion from the different services which they enable and this pattern of cost recovery is, by definition, not driven by cost causation. It should be noted that the EU framework also provides for a cost recovery principle, and this is generally enshrined in the legal frameworks of Member States. Nevertheless, it is the EC's view that common costs can be and should be recovered from prices levied on network operators' own subscribers. Thus the view taken by the EC is that it is fair and reasonable for operators to recover none of their fixed and common costs from call termination services.

Question 6: Do you agree that NICTA should use a LRIC+ approach for allocating cost in the cost model? Please explain why you agree or disagree.

Vodafone response:
As stated previously, it is Vodafone's view that pure LRIC should not be discounted on the basis of it not providing for an element of recovery of fixed and common costs from the Declared Services. Nevertheless, should NICTA be minded to reject pure LRIC, then LRIC+ provides a well-understood alternative that is, as NICTA states, adopted in many countries outside the EU, for example Australia, Indonesia, Malaysia and Pakistan.

Question 7: Are you in agreement with NICTA's view that the use of current cost accounting (CCA) to value the capital assets used for the supply of the Declared Services would reflect the efficient costs of those assets, and that historical accounting costs wouldn't?

Vodafone response:
Vodafone is in agreement with NICTA's preliminary views on this matter (paragraphs 89-90). In essence, the requirement is for costs to be *forward-looking*. This is because in a reasonably competitive market the existing operators must compete not only with each other (in which case historic costs might be adequate), but also with potential entrants, who would have at their disposal the latest, more efficient, technologies. If operators in such a market were to price on the basis of historic costs, they would risk being driven out of the market by new entrants. It is for this reason that forward-looking cost approaches, including CCA, are generally considered to be best practice for regulatory cost modelling.

Question 8: Do you agree with the approach of valuing assets using the cost of a modern equivalent asset (MEA)?

Vodafone response:
Vodafone is in agreement with NICTA's preliminary view on this matter (paragraph 95) that MEA is the appropriate complement to CCA in ensuring that cost are forward-looking.

Question 9: Do you agree that NICTA should implement a modified scorched node approach, but if not enough information is available from the reference operators, NICTA may use a scorched earth approach? Please explain why or why not.

Vodafone response:
In Vodafone's view it is unlikely that the necessary information to adopt a "scorched node" would not be available to NICTA. For mobile networks, the critical nodes are likely to be the mobile base stations and NICTA already routinely collects such information in the normal course of exercising its functions. Furthermore, it has powers under Section 246 of the Act to require operators and others to provide information it has reason to believe is relevant to the performance of its powers and functions under the Act.

Furthermore, the selection of sites by operators is a critical part of their investment programme and their decisions about this take into account multiple factors, including projected demand, physical terrain, regulatory and competitive factors. As such, it is no small challenge for a cost model to replicate the efficient investment choices for an operator in planning and implementing their site roll-out. For this reason, it is rare for regulators to attempt a "scorched earth" approach, notwithstanding the Peruvian example cited by NICTA, and little reason to believe that the significant additional information requirements and modelling effort would yield a better result than scorched node.

Question 10: Do you agree that NICTA should use one single model for the determination of the price of DMTAS and a separate model for the DFTAS? Please explain your reasons for why or why not.

Vodafone response:
To the extent that NICTA's objective is to model the costs of a notional reasonably efficient operator in order to meet the requirements of the efficiency principle, it is Vodafone's view that this would best be achieved by modelling a single, notional operator with the required characteristics for DMTAS.

In principle, the same would be true for DFTAS, but in Vodafone's view practical considerations and proportionality suggest that the not-inconsiderable challenges of constructing a model where reliable information may be difficult to obtain and the numbers of subscribers is small render the balance of costs and benefits from such an exercise questionable. At any rate, should NICTA decide to proceed with a DFTAS model, Vodafone would welcome an assurance from NICTA that such an exercise would not be allowed to delay the more important DMTAS process.

In Vodafone's view, the question of symmetricality of rates and that of the number of models is separate. Whilst it may be the case that regulators around the world have tended to move towards symmetrical rates, this is not inconsistent with the position that asymmetrical rates may be justified in certain circumstances. In particular, asymmetrical rates have in the past been applied in a number of markets, for example the UK, Ireland, The Netherlands and Nigeria, with the objective of overcoming one of the key barriers to entry for new operators, which is that they tend to face an imbalance between incoming and outgoing traffic and hence experience a substantial net outpayment to their established competitors. This barrier can be mitigated to some extent by allowing new entrant operators to charge a higher termination rate for a limited time. The benefit of this arrangement, aside from fairness, is that reducing barriers to entry to the market creates a stronger spur to existing operators to improve their efficiency so as to be ready to compete with potential entrants.

Question 11: For the DMTAS model; do you agree that the reference operator should be modelled based on a market share and network coverage equivalent to that of Digicel's mobile network, or should NICTA use a market share of 1/N and the average network coverage of the operators? Please explain your reasons for preferring one over the other.

Vodafone response:
In Vodafone's view, the structure of the market in PNG is somewhat atypical in having a dominant incumbent operator. For this reason, we believe that modelling a notional operator with a market share of 1/N would be premature, in that it would allow the dominant operator to over-recover its costs for a substantial period of time, based on its scale, rather than on its relative efficiency. On the other hand, a lower DMTAS price would go some way towards mitigating the disadvantage faced by small and new entrant operators who typically face an imbalance in traffic with the incumbent and a consequent net outpayment to them.

Question 12: For the DFTAS model; do you agree that the reference operator should be modelled based on a market share and network coverage equivalent to that of Telikom's fixed network? Please explain your reasons for why or why not.

Vodafone response:
As stated previously, Vodafone is doubtful of the value of the DFTAS model. However, should NICTA decide to go ahead with it, the market share and coverage of the largest operator would be the same as 1/N, where N =1 (Telikom is a monopoly). A model that posited some other scale or intensity of investment than that of Telikom might represent a more "efficient" allocation of resources but would seem to us to be unfair and arbitrary.

Question 13: In the context of the cost model to set the price for DMTAS, do you agree that NICTA should define the relevant incremental service as the DMTAS provided to third parties? Please explain your reasons for why or why not.

Vodafone response:
There would appear to be some potential inconsistency between NICTA's preference for LRIC+ and for a narrow increment (just the DMTAS provided to third parties). The European Commission recommendation cited at paragraph 125 is made in the context of pure LRIC – the "pure" meaning a strict interpretation of incremental costs as relating solely to those costs associated with providing the service to be costed, as compared to not providing it, all other things being equal. Under LRIC+, by contrast, the increment is usually taken to be all network services. Having defined and costed this larger increment, costs are apportioned among services according, as far as possible, to their use of the different network facilities under the principle of cost causation.

Vodafone is in agreement with NICTA's preliminary view that the relevant service increment should be defined as DMTAS for the mobile network model.

Question 14: In the context of the cost model to set the price for DFTAS, do you agree that NICTA should define the relevant incremental service as the DFTAS provided to third parties? Please explain your reasons for why or why not.

Vodafone response:
Vodafone is in agreement with NICTA's preliminary view that the relevant service increment should be defined as DFTAS for the fixed network model.

Question 15: In reference to the DMTAS cost model; do you agree with the proposed technologies and services to model? Explain why or why not.

- **i. Technologies:**
  - **a. GSM (2G): voice, data, SMS**
  - **b. UMTS/HSPA (3G): voice, data, SMS**
  - **c. LTE (4G): voice (VoLTE), data**
- **ii. Modelled Services:**
  - **a. Voice: On-Net, Incoming, Outgoing, International calls**
  - **b. Data**

Modelled service increment: Wholesale domestic mobile voice call termination provided to third parties.

Vodafone response:
The mobile network model needs to model all service demands on the modelled network facilities. Otherwise, the model will not provide an accurate view of the difference in costs between providing the incremental service and not doing so. Furthermore, to the extent that fixed shared costs are included, as they would be under LRIC+, excluding certain significant services such as SMS, MMS, USSD and so forth would risk over-allocating these costs to the services that are included. This does not mean that the model needs to provide cost estimates for all services.

Question 16. In reference to the DFTAS cost model; do you agree with the proposed technologies and services to model? Explain why or why not.

- **i. Technology: Next Generation Network (NGN)**
  - **a. Copper Access Network (ADSL)**
  - **b. Fibre Access Network (PON)**
- **ii. Modelled Services:**
  - **a. Voice: On-Net, Incoming, Outgoing, International calls**
  - **b. Data: Fixed internet service**
  - **c. Video: Cable TV**

Modelled service increment: Wholesale domestic fixed voice call termination provided to third parties.

Vodafone response:
If NICTA decides to proceed with the DFTAS model, it should be confined to those services and network facilities that are usage-sensitive. Under a fixed network LRIC+ approach, core and access networks are treated as separate increments. The logic for this is clear. No conceivable increase in the volume of domestic fixed voice call termination traffic would cause a change in the amount of either copper or fibre access network. This distinction is normally reflected in fixed network operators' pricing structures, where access capacity (number of lines, bandwidth) is charged for separately from usage (minutes, megabytes, etc.). Looked at another way, whilst access and core network services are *consumed* jointly, they are *produced* separately.

As with the mobile network model, the fixed network model needs to encompass the capacity demands of all services that use the core network but does not need to generate separate costs for all of them.

Question 17: Do you agree that for the allocation of network related joint and common costs, NICTA should use the capacity-based allocation and the Shapley-Shubik approaches depending on the network element analyzed? Please explain your reasons for why or why not.

Vodafone response:
Vodafone is not aware of any other regulator who has used the Shapley-Shubik method and NICTA do not cite any in their discussion of this topic. It would appear that this method relies on either Monte Carlo simulation, or complex dynamic modelling and so would be unlikely to provide transparent results. In proposing to use capacity-based allocation for some network elements and Shapley-Shubik for others, NICTA does not give any indication of how they would decide which method to use for any particular network element. For these reasons, Vodafone would prefer a capacity-based allocation for fixed shared costs (e.g. base station site costs). This approach would coincide with international best practice for LRIC+ models and is transparent within the model.

Question 18: Do you agree that for the allocation of overhead common costs, NICTA should use the equal proportionate mark-up (EPMU) approach? Please explain your reasons for why or why not.

Vodafone response:
Vodafone agrees with NICTA's proposal to use EPMU for fixed and common costs (e.g. general administration). Whilst this approach has been shown to be potentially distorting, it has also been found that such distortions are likely to be minor in comparison to a theoretically robust, but practically challenging methodology like Ramsey pricing.

Question 19: Do you agree that NICTA should use the tilted annuity approach to calculate the depreciation of assets? Please explain your reasons for why or why not.

Vodafone response:
NICTA's discussion of alternative depreciation methodologies neglects to mention an option that has been applied in a number of administrations, e.g. the UK and a number of other European countries, where an attempt is made to approximate economic depreciation (ED) more directly. Under this methodology, both capital and operating costs for each network asset captured in the model and projected out for their full economic life and both costs and volumes of traffic carried by the element in question are discounted over time by the cost of capital. This produces a single cost per unit of usage for each element that, it is argued, corresponds to the logic that a network operator would apply when considering a network investment, in that it would set whole life costs against the use made over time of the asset.

There are some disadvantages to this ED approach, including the need to project volumes and cost forward into the future by many years – corresponding to the asset life of the longest-lived assets in the model, which can be as much as 50 years. The methodology also produces some counter-intuitive results, for example when volumes are forecast to decline over time, a higher discount rate tends to lead to a lower calculated ED cost.

In view of the issues with the ED methodology, Vodafone is content with NICTA's proposal to use tilted annuities, in common with many other administrations around the world.

Question 20: Do you agree that NICTA should use the after-tax and pre-tax WACC formulas presented earlier to calculate two separate costs of capital; one for the DMTAS modelled access provider and a different for the DFTAS modelled access provider? Please explain your reasons for why or why not.

Vodafone response:
Vodafone agrees with the proposed approach of calculating separate WACCs for fixed and mobile operators, in line with the approach generally adopted by regulators around the world.

Question 21: Do you agree that NICTA should not use the gearing values from the financial statements of the domestic operators, and that instead, should calculate notional gearing values based on international benchmarks from telecom companies that can be regarded as having an efficient capital structure? Please explain your reasons for why or why not.

Vodafone response:
Vodafone is in agreement with the proposed approach of using international benchmarking to estimate an efficient gearing for fixed and mobile operators. This appears to us to be consistent with generally adopted practice and should avoid distortions created by inefficiencies in the local capital market, or by the capital and corporate structures of individual operators.

Question 22: Do you agree that NICTA should use formula No. 6 to calculate the cost of debt of the modelled access provider of DFTAS and DMTAS? Please explain your reasons for why or why not.

Vodafone response:
Vodafone agrees with the proposal to use formula no 6 to calculate the cost of debt of the modelled access providers for DFTAS and DMTAS, respectively. We recognise this as the standard approach for calculating WACC.

Question 23: Do you agree that NICTA should use the interest rate on a 10-year U.S. bond or comparable sovereign bond interest rate, as the risk-free rate of return? Please explain your reasons for why or why not.

Vodafone response:
The main alternative to using a developed market sovereign bond interest rate and adjusting it for an estimated country risk premium (CRP) would be to use a local equivalent bond rate. This would avoid some potential distortions caused by a) potential inaccuracy in the estimated CRP, and b) temporary instability factors such as wars that may cause central bank rates to be more volatile than usual. Using a local rate, on the other hand, would only yield an accurate estimate of the RFR if the local bond market is efficient. The most common issue with local bond markets is a lack of liquidity, or in other words that the volume of trading is too low to smooth out temporary random factors and imbalances between supply and demand.

Given that the PNG sovereign bond market is relatively small and lightly traded, it seems likely that this risk might outweigh the risks of using an adjusted developed market sovereign bond rate. Temporary instability factors can be assessed by looking at rates over a period of time and measuring their variability.

In conclusion, Vodafone is content with the proposed approach.

Question 24: Do you agree that to calculate the country risk premium (CRP) NICTA should use either the difference between the interest rate of the PNG government bonds and the risk- free interest rate of comparable maturity, or the widely used CRP calculated by Prof. Damodaran from NYU? Please explain your reasons for why or why not.

Vodafone response:
The problem with estimating the CRP by reference to the spread between PNG Government bonds and comparable developed market sovereign debt is that it compounds sources of distortion from both elements. There would seem to be little point in trying to avoid distortions introduced by using a local market RFR and then adding them back in through the calculation of the CRP. Vodafone would therefore prefer to see Professor Damodaran's reference estimate of CRP used for this purpose, in common with many other regulators.

Question 25: To calculate the debt-risk premium, do you agree that NICTA should use the spread between the interest rate of comparable corporate bonds and government bonds in other jurisdictions, as long as the corporate bonds are from efficient operators that provide comparable services as the modelled operator? Please explain your reasons for why or why not.

Vodafone response:
The task here is to calculate the debt risk premium (DRP) for a notional efficient operator and not for any particular actual operator and so the option of comparing the operator's specific bond rates with those of comparable government bonds is not available. Vodafone would therefore favour using the reference rates produced by Professor Damodaran.

Question 26: Do you agree that NICTA should use formula No. 8 to calculate the cost of equity capital for the modelled access provider of DFTAS and DMTAS? Please explain your reasons for why or why not.

Vodafone response:
Vodafone is in agreement that the Capital Asset Pricing Model (CAPM) is an appropriate methodology for calculating the cost of equity in the WACC models. This, as NICTA has argued, is the generally adopted methodology.

Question 27: Do you agree that to calculate the market-risk premium (MRP), NICTA should use the difference between the rate of return on the U.S. Standard & Poor's 500 Index and the risk-free rate of return? Please explain your reasons for why or why not.

Vodafone response:
Vodafone is in agreement with the proposal to estimate the market risk premium (MRP) based on a long-term comparison between equity market and sovereign bond rates. There seems little point in trying to reproduce the estimate produced by Professor Damodaran, who has made the comparison using data stretching back as far as 1928.

Question 28: Do you agree that to calculate the equity beta of the modelled access provider NICTA should either use benchmarks of equity betas from comparable publicly traded companies in the U.S or use the widely cited estimates from the U.S. telecommunications sector from Prof. Damodaran? Please explain your reasons for why or why not.

Vodafone response:
Vodafone would be in favour of using either Professor Damodaran's published estimates of sectoral betas for fixed and mobile operators, or a benchmarking approach based on the findings of comparable regulatory authorities in the region. Using equity betas from companies traded on the US stock markets does not seem appropriate in that it would limit the sample to those companies in the fixed and mobile telecommunications sector that are traded on the US stock markets.

For any queries to Vodafone regarding this submission, please contact, Mr. Ateen Kumar through email on ateen.kumar@vodafone.com.pg or cell phone (675) 81100008.

Yours sincerely

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