

**MOBILE NUMBER PORTABILITY  
INQUIRY & RECOMMENDATIONS  
REPORT**

**A report to the Minister on the potential  
implementation of mobile number  
portability**

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# 1 PURPOSE OF THIS REPORT

This report is a final report from NICTA to the Minister pursuant to Section 235 of the National ICT Act, being the report of a public inquiry into the costs and benefits of the implementation of mobile number portability (MNP) in Papua New Guinea as required by Section 189 of the same Act. The report includes NICTA's recommendations to the Minister on the implementation of MNP in PNG and takes account of the comments and information received in submissions in the course of a Public Consultation in the period from 7 October 2016 to 3 February 2017. In addition the conclusions and recommendations take account of information received more recently particularly in relation to:

- a. Market share and subscription levels for existing mobile operators, particularly Digicel and bmobile; and
- b. National Executive Committee Decision No. 44/2017 of 23 February 2017 in which the Government reaffirmed its decision to amalgamate and reorganise its telecommunications assets (Telikom, bmobile and DataCo) within a new single entity, Kumul Telecommunications Holdings (KTH).

The purpose of this report is to enable the Minister to consider NICTA's recommendations and seek submissions from the public on whether he should accept them, pursuant to Section 189(5) of the Act.

For the avoidance of doubt, this report is the **final report** identified in Section 189(4) of the Act, as well as being the public inquiry report required pursuant to Section 235(1) of the Act.

## 2 BACKGROUND

### 2.1 What is Number Portability?

There are different types of number portability. All of them involve retention of service (or calling) number notwithstanding changes in other aspects of service provision.

The three basic types of number portability are:

- **Service provider number portability** – which enables users of telecommunications services to change service provider but retain their service number
- **Service portability** – which enables a service number issued for one type of service to be used for another type of service, either retaining with the existing service provider or changing service provider. An example would be where a service number issued for a fixed service could be used for a mobile service
- **Location portability** – which enables a service number that has been issued for use for a service provided within one location (such as a fixed location service where the number may have a prefix which identifies the local telephone exchange area) to be used in another location

### 2.2 Scope of Number Portability for the purposes of this Report

In this report NICTA is only concerned with service provider number portability and is only concerned with the porting of numbers relating to cellular mobile services.

NICTA considers that the extent of fixed narrowband services in PNG is limited and that there is effectively only one provider of such services. Consequently competition in fixed services will not be improved nor will other social or economic objectives be advanced by introducing fixed number portability at this time. The key number portability issues need to be considered in the context of the overwhelming bulk of services – that is, for mobile services. This decision to restrict the scope of number portability to MNP does not preclude reconsidering the matter at a future time. NICTA considers that there will be benefits in terms of improved prospects for success if initially number portability is limited to MNP. If competition in the fixed sector develops to support the feasibility of fixed number portability (FNP) in the future, then the MNP service will be designed and implemented to enable an aligned FNP service to be added on to the PNG MNP platform at that time.

### 2.3 Mobile Number Portability – objective

The main benefit of number portability is to reduce the costs of changing operator for subscribers. This benefits the subscriber directly and increases competition in the provision of telecommunications services – in this case in the market for retail mobile services. The attachment to service numbers and inability to retain numbers when switching service providers acts as a barrier for some subscribers to switch, and therefore prevents competing service providers from attracting those subscribers. The reverse is also true. In the

absence of MNP service providers do not have to compete as hard to retain their existing subscribers, knowing that in the case of some of them attachment to their existing service numbers locks them in.

Since the introduction of number portability services in Singapore in 1997, customers across more than half of the world's countries are able to change service providers whilst retaining their number. It is the number that is retained or ported. MNP services are available across both developed and emerging markets in North and South America, Europe, Africa, Asia and the Caribbean.

There are two fundamentally different forms for a requirement for MNP (or for number portability generally):

- An obligation on all operators to implement number portability so that it is available to any user as a user right from a given date. This is the form of requirement that leads to the highest costs.
- An obligation on operators with significant market power to export numbers on request to another operator. This is a form of requirement focused on promoting competition at minimum cost. It does not ensure the provision of portability for all users because its availability depends on commercial decisions and actions by the operators. This form of requirement leads to the lower mandatory costs and allows greater flexibility to minimize costs.

The National ICT Act 2009 ("the Act") emphasises costs and benefits of MNP implementation and therefore reflects the second approach. The Act indicates that a consideration of costs and benefits will be important in determining whether NICTA should recommend the implementation of MNP in the first place. This is not the case with a user right approach, where costs and benefits will be important in shaping decisions on the best approach to implementation, but will not be determinative of the fundamental issue of whether to implement MNP in some form or not.

## **2.4 Mobile Number Portability in the Act**

Potential implementation of MNP in PNG is considered in Section 189 of the Act.

Section 189(1) requires NICTA to hold a public inquiry under Section 230 of the Act and to publish a **discussion paper** identifying the costs and benefits of the implementation of MNP in PNG. Section 189(2) leaves the timing of any such public inquiry to NICTA to determine having regard to the objectives of the Act and the regulatory principles. MNP is therefore a matter for NICTA to initiate.

Section 189(3) permits NICTA to consult with any person in the preparation of the discussion paper with a view to determining the form of MNP that would be most appropriate in PNG and the costs and benefits of implementing that form of MNP. NICTA has employed a consultant, Incyte Consulting Pty Limited, to provide expert advice and to draft the discussion paper.

Section 189(4) requires that following receipt of submissions on the discussion paper, NICTA shall prepare a **final report** for the Minister under Section 235 identifying NICTA's recommendation whether the national numbering plan should be amended to implement MNP in any form; the basis of NICTA's recommendation; the proposed form of rules and/or recommendations to the national numbering plan required for MNP implementation, if any; and the costs and benefits from implementing the recommended form of MNP.

Section 189(5) requires, in the event of NICTA recommending MNP, that the Minister shall seek submissions from the public on whether he should accept NICTA's recommendation.

Section 189(6) provides that, following receipt of submissions, the Minister shall release a **public report** identifying the extent to which the Minister accepts NICTA's recommendations, and the reasons why any of those recommendations are not accepted in whole or in part.

Section 189(7) requires NICTA, in consultation with the Minister, to implement those recommendations that the Minister has accepted.

For the avoidance of doubt, this report is the **final report** identified in Section 189(4) of the Act, as well as being the public inquiry report required pursuant to Section 235(1) of the Act.

## **2.5 Discussion Paper**

A discussion paper was prepared for NICTA by the consultants, Incyte Consulting, and that paper was then made the subject of a public inquiry and public consultation.

The discussion paper has been and remains posted on NICTA's website at [www.nicta.gov.pg/nicta-consultative-papers/122-mobile-number-portability-for-png-discussion-paper-on-costs-and-benefits](http://www.nicta.gov.pg/nicta-consultative-papers/122-mobile-number-portability-for-png-discussion-paper-on-costs-and-benefits)

## **2.6 NICTA's Public Inquiry and Public Consultation**

On 7 October 2016, NICTA commenced a public consultation seeking submissions on the matter of Mobile Number Portability (MNP) and a Discussion Paper entitled "Mobile Number Portability for PNG: Discussion Paper on costs and Benefits". The paper was prepared by consultants Incyte Consulting Pty Limited, who were retained by NICTA for this project.

NICTA made it clear that the discussion paper and the tentative conclusions and recommendations that it contained were the consultant's, and that NICTA had not formed a view on the costs and benefits, and general desirability, of implementing MNP in PNG. Further, NICTA also made it clear that it would form its view of the matter after taking account of the comments of stakeholders received as a result of the consultation process.

The deadline for submissions was set as 3 February 2017, enabling an extended period for stakeholders to consider the matter and to prepare submissions if they wished.

Written submissions, in alphabetical order of organisation, were received from:

- bmobile-Vodafone PNG Limited ("bmobile")

- Digicel (PNG) Limited (“Digicel”)
- Independent Consumer and Competition Commission (“ICCC”)
- Telikom PNG Limited (“Telikom”)

NICTA has prepared a Response Report in which the key points raised in submissions have been assessed and responded to by NICTA. The Response Report and the submissions have been included on NICTA's public register and are available to all interested parties. In the case of Digicel's submission Digicel has claimed confidentiality and a redacted version of the submission appears on the public register. The other submissions are included in full.

As part of the public consultation process NICTA has received additional information, particularly in relation to subscriber numbers, and has amended the costs and benefit calculations that appeared in the original discussion paper. The revisions are set out later in this report. However, the assessment of the costs and benefits and of the overall feasibility of MNP in PNG has not changed as a result of those amendments and is the basis of the recommendations contained in this report.

Overall, bmobile and the ICCC favoured the introduction of MNP. Digicel did not object to MNP in principle, but was concerned about procedural issues and whether a case had been made out for its implementation in PNG at this time. Telikom favoured MNP but had some further proposals to make that would enable lower cost implementation. All submissions were useful and NICTA appreciates them.

### **3 ASSESSING THE FEASIBILITY OF MNP**

#### **3.1 Pre-conditions for MNP**

The introduction of MNP does not dramatically change the competitive market dynamics in isolation; the market should already be competitive. MNP acts merely as a catalyst to enhance and progress competition.

Based on MNP implementations in other countries, the successful introduction of MNP requires that all of the following criteria need to be met:

- a. Adequate Market Scale and Size – in very small markets the cost of implementation and continued operation of a system to support MNP may be too much for the market, or the individual operators, to bear. There are fixed costs associated with MNP which need to be recovered, ultimately, via prices charged to users. It should be noted however that MNP has been successfully introduced into some very small markets
- b. Competition – if the market is uncompetitive at the outset, then MNP will not make it so. The aim of MNP is to enhance competition by removing one obstacle, namely the barriers that exist when subscribers seek to switch from one service provider to another and, at the same time, retain the value of or investment in, their current service number
- c. Sufficient consumer Interest in MNP – if there is little consumer awareness of or interest in MNP the facility will tend not to be used and the investment in MNP by operators will be largely wasted. However consumer interest can be sparked by appropriate publicity and consumer education at the time of implementation and after
- d. Established Interconnection between Operators – subscribers switch service providers to gain improved value (either through improved service performance or lower prices) and expect to be able to retain the ability to call other subscribers on their current or other networks. This can only be achieved through effective interconnection arrangements between operator networks
- e. Adequate tariff transparency – subscribers need to be aware of the tariffs of their current and prospective future service providers to make sensible choices to switch providers. They may also need to be aware of the impact of tariffs on users who call them, although the evidence suggests that this is secondary (or not even considered) by most subscribers
- f. Adequate Regulatory Requirements – experience strongly suggests that if regulatory arrangements and specifications for MNP are not comprehensive or lack rigor then the implementation will likely be unsuccessful. In particular donor operators (those losing a subscriber who has ported out or intends to do so) may well game the system and delay or undermine porting

## 3.2 Options for MNP in PNG

NICTA has considered the costs and benefits of MNP in PNG in two dimensions:

(a) various scenarios or **cases** involving different forms of requirement and numbers/circumstances of the operators. These cases consider the different requirements when MNP is considered as a user right, and when it is introduced to enhance improved competition.

(b) technology/system options: the assessment of the scenarios requires assumptions to be made about the technology/system options for upgrade that might be employed, because the technology and systems changes determine the key stakeholder investment and operating costs. Technology and system options and recommendations are set out in Section 5 of this report (MNP Implementation).

The following cases have been identified and assessed:

### **Requirement on all operators to support portability as a user right**

**Case 1a:** The existing operators<sup>1</sup> only with an annual porting rate of 0.3%.

**Case 1b:** The existing operators only, but with Kumul (bmobile and Telikom/Citifon ) having increased investment and competitiveness leading to a higher porting rate of 1% in year one, 2% in year two and 3% thereafter.

### **Requirement on all operators to support portability as a user right, with new entrant after two years**

**Case 2a:** The existing operators only with an annual porting rate of 0.3% for the first two years of operation then a new entrant enters the market and the porting rate rises to 1% in year 3, 2% in year 4 and 3% in year 5 and thereafter.

**Case 2b:** As per Case 2a above but it is assumed that **national roaming** has been mandated in response to a request from any mobile operator, and that, in consequence, the porting rates have increased to 1.5% in Year 1, 2.5% in Year 2, 3% in Year 3 and thereafter. [Note that it is not clear from experience elsewhere whether national roaming would have this impact on the porting rate in PNG. One would expect that a mobile network with a limited geographic coverage would become more attractive with enhanced coverage resulting from national roaming provided if it was able to offer price or other benefits to consumers to switch from their current service provider.]

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<sup>1</sup> bmobile and Citifon (Telikom) were treated as separate operators for the purpose of the analysis in the Discussion Paper that was the subject of public consultation. The NEC (National Executive Council) decision requires that they be amalgamated into a single operation within the Kumul framework, and the analysis has been revised to reflect this. The result is not significantly different, as shown later in this report.

## **Requirement on Digicel only, as the operator with substantial market power in the mobile market, to export numbers on request from other operators, with new entrant after two years**

**Case 3a:** A new entrant enters the market for year 3 and the porting rate is 1% in year 3, 2% in year 4 and 3% in year 5 and onwards. The new entrant requests porting from Digicel, but the other operators do not request porting because of the high setup costs and the risk that they will lose their most valuable customers to Digicel. Digicel customers can port to the new entrant and back, but we assume that Digicel will not initially offer to import new entrant numbers because of the extra costs to do this and the low level of such porting expected in the early years of the new entrant's business. As stated above, both bmobile and Citifon, operating as Kumul, are assumed not to request portability and are not involved.<sup>2</sup>

**Case 3b:** The same as case 3a but with higher setup costs included both for Digicel and the new entrant associated with the technology deployed for MNP.

Note that the porting rates assumed in each of the cases above have in many cases been amended to be more nuanced than the rates used in the calculations in the discussion paper for public consultation. Nevertheless the rates remain as best estimate assumptions taking account of experience in many other countries.

### **3.3 Methodology for assessing feasibility**

The economic costs and benefits for each of the cases identified above have been assessed over a period of 15 years and compared on a net present value (NPV) basis.<sup>3</sup> Where the NPV of the benefits exceeds the NPV of the costs the case may be considered feasible. However some margin must be allowed to reflect the uncertainty about the range of costs and benefits, and also the uncertainty of the porting rates that will follow. The analysis has been based on the experience of number portability in a range of other countries, some of which have similarities to PNG. As a result NICTA is seeking to base its conclusions and recommendations for implementation on a conservative view of the matter and therefore is looking for a clear difference between the value of the benefits and the costs that are required to achieve those benefits.

### **3.4 Benefits**

The classification of benefits has followed the approach that administrations have used for number portability studies, based on the approach taken by Oftel (now Ofcom) in the UK in the 1990s. The Oftel definition of benefit types has been globally recognised in subsequent MNP CBA studies. Using this approach benefits have been classified into 4 types, as follows:

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<sup>2</sup> bmobile and/or Citifon could request portability and become involved but this would be a voluntary commercial decision where presumably they would foresee increased commercial benefits that would outweigh the respective incremental costs. This possibility can be omitted from the cost benefit analysis as it is not a requirement. The cost benefit analysis only includes unrecoverable MNP related costs that arise directly from what is required of the participating operators.

<sup>3</sup> Using a discount rate of 12%

### **a. Type 1A Benefits**

The Type 1A benefit is the benefit to people who change operator anyway through the saved cost of avoiding a number change. These savings are in avoiding:

- Advising or sending SMS messages about the number change to contacts
- Buying new business cards and associated stationery
- Changing signs that show the number
- Running old and new accounts in parallel for a period

### **b. Type 1B Benefits**

These are the benefits to the people who change operator only if they can keep their mobile service number. Lack of portability prevents them from obtaining lower prices or better coverage and quality of service.

These benefits are estimated as the avoided cost of running multiple subscriptions for two years. However as multiple subscriptions would provide greater benefits than number portability, only 80% of the avoided costs are used in the assessment.

### **c. Type 2 Benefits**

These are the benefits to all subscribers from increased competition reducing prices, improving coverage and quality of service.

This benefit is hard to estimate for many reasons. Firstly, the benefits are usually second and third order effects which cannot be anticipated with any certainty. By this it is meant that the benefit results from an initial lowering of prices by one operator (to attract mobile users to switch from competitors and to encourage existing subscribers not to switch to competitors) which are available to all consumers, those who consider porting and those who do not. This is a second order effect and its extent and value will depend on many factors, including the margin available in existing prices. A third order effect will be the response to such moves by other operators. It may take some time and many competitive initiatives and responses for price equilibrium to reappear in the market. None of these moves or their value can be anticipated in detail in any given market. Secondly, in many cases it has been difficult to isolate the effect of mobile number portability on the market because its introduction has coincided with the entry into the market of a new player.

The overall experience associated with the introduction of MNP is that the operators normally review and improve competitiveness when portability is launched. Often this focuses on retention measures for higher ARPU subscribers such as on-net offers. It is not clear, however, whether this is a short term effect or whether the increased competitiveness endures for long. It may well differ from market to market in this respect.

In this study Type 2 benefits are characterised as a percentage reduction in prices over a period of four years from the start of portability. After the four years ends prices and service are at the same level as would be reached without portability. In other words, the

conservative assumption for the purposes of the current study is that portability brings forward the effects of price competition. Over the four years it is assumed that the second and third years have twice the effect of the first and fourth years, that is, the ratio of the effects in the different years is 1:2:2:1. A rate of 4% price reduction per year is used for years 2 and 3 and 2% for years 1 and 4.

#### **d. Type 3 benefits**

This is the benefit to callers to people who change network from not having to update address books or having failed calls. These benefits apply in proportion to the Type 1A portings.

#### **Population and subscriber categories**

These benefits were assessed in PNG having regard to the different categories of people in the population for whom the value of the benefits will differ significantly. The population categories are:

- Type 0 (No phone) - those without mobile phones
- Type 1 (Low Income) - those on relatively low income
- Type 2 (Higher Income) – those on relatively higher income
- Type 3 (Own Small Business) - those owning and operating a small business
- Type 4 (VIP) - the relatively wealthy, often referred to in MNP studies as VIPs

### **3.5 Costs**

The costs of MNP are incurred by operators and vary depending on the implementation chosen and the functionality of their current systems.

MNP costs can be subdivided as follows:

- (1) One-time costs. They are the initial investments and expenses incurred for installing and commissioning MNP. One-time or set-up costs can be further categorized as follows :-
  - a. Common/ Shared Costs - which include central number portability administration set-up costs; regulator MNP programme management costs; and regulator MNP public awareness and education costs
  - b. Individual Operator Costs - which include core network upgrade costs to support MNP related traffic routing changes; business systems upgrade costs to support processing and administration of porting transactions and supporting MNP related billing changes; MNP programme management costs; engineering and testing costs; business process impact assessment and change costs; staff training and awareness costs; and legal and commercial costs

(2) Recurring costs. These are the additional costs incurred that are required for ongoing operations and maintenance of the MNP system. Two categories of recurring costs that are relevant for cost recovery purposes are:

- a. Additional costs for handling traffic. These are internal/ inter-operator specific traffic-sensitive costs.
- b. Administrative costs incurred with every request to port a number. These are the administrative costs incurred to transfer or port a user from a donor network to a recipient network. The costs are associated with procedures undertaken when a user orders number portability. These administrative costs are incurred no matter what technical approach is used to implement number portability and include allocation and sharing of central porting administration system/ service operating costs; internal operator incremental operational resourcing costs required to process porting transactions; and regulator MNP service monitoring and management resourcing costs

## 4 ASSESSMENT OF FEASIBILITY OF MNP IN PNG

### 4.1 PNG Mobile Market

The estimated size and composition of the PNG mobile market in 2016, as shown in Figure 4.1 below, have been based on information provided by the operators both before and after the public consultation.<sup>4</sup>

**Figure 4.1 – Estimated Mobile Subscriptions per Operator (2016)**

<b>Operator</b>	<b>Estimated 2016 Active Subscriptions</b>	<b>Market Share (%)</b>
Digicel	2,670,000	92.8%
Kumul (bmobile and Telikom Citifon)	205,961	7.2%
Total	2,875,961	100%
Penetration	Population: 7.3 million	Est. penetration 39.4%

### 4.2 MNP Pre-conditions in PNG

The pre-conditions are set out in Section 3.1 of this report. Outlined below is an assessment of the circumstances in PNG against each of the pre-conditions.

- a. Adequate market scale and size: PNG has significant existing market scale (1.372 billion Kina/ \$432 million USD), with significant potential for organic market growth based on the relatively low market penetration of 39%. MNP has been introduced successfully into similar as well as smaller markets.
- b. Competition: Competition in the PNG market is currently not effective. Digicel has a commanding position of apparent market dominance, economic strength and this has been reinforced in the past by various strategies including establishing substantial differences between on-net and off-net call charges. Digicel has also been competitively advantaged by the weak position of its current competitors, who have not enjoyed adequate capital funding from the

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<sup>4</sup> These figures differ from those provided in past years to the ITU. ITU data was also based on information provided by operators, so a choice has to be made. NICTA has chosen to base its assessment on more recent data.

owner (Government) on a reliable and ongoing basis. Effective competition could result from (1) a strong new competitor entering the market; and/or (2) substantial and ongoing capital investment in an existing operator. The merger of the operations of bmobile and Telikom (Citifon) would improve the competitive position of these operators but will not address underlying and ongoing capital requirements that have not been met to date.

- c. Consumer awareness of and interest in MNP: A limited consumer survey conducted by NICTA strongly suggests that there would be a significant level of consumer interest in MNP. This should not be left to chance. If MNP is approved NICTA will ensure that consumers are made aware of the benefits of portability – through media and other publicity and advertising. In addition it can be anticipated that the operators would respond with appropriate marketing campaigns and attractive new price/package offers.
- d. Established interconnection between operators: Interconnection arrangements have been agreed and working since 2008.
- e. Need for tariff transparency: It is unclear whether pre-paid customers (who constitute over 95% of all mobile customers) understand the prices that are being charged on a unit basis (per call minute/ second or per message). That many do not understand pricing is suggested by the nature and content of complaints made to NICTA. Many mobile customers appear to top-up the credit balance of their accounts by amounts that they can afford rather than to purchase a given number of pre-paid minutes or messages. Therefore they may not be well placed to assess prices by other operators and the benefits, if any, they might gain through switching or porting, or making calls and sending SMS to ported numbers. Tariff transparency is often assisted by specific and targeted marketing and consumer education messages once porting is introduced without the need to implement more invasive or complex call based tariff notification approaches.
- f. Adequate regulatory requirements: This paper and the detailed arrangements to be put in place should MNP be required, will provide a detailed and comprehensive set of regulatory requirements to address all situations. NICTA is proposing that the detailed arrangements should take the form of Rules under Section 218 of the Act and be made in accordance with the procedures set out in Section 219 of the Act. The proposed content, but not the final form of such rules, is set out later in this report in the recommendations at Section 6.2.

## Summary

Figure 4.2 below summarises NICTA's assessment of PNG against the MNP pre-conditions.

**Figure 4.2: PNG assessed against MNP pre-conditions**

Criterion	Assessment
Adequate Market Scale and Size	Pass
Effective Competition	FAIL unless (1) there is a strong new entrant or (2) there is substantial and ongoing capital investment in an existing operator
Sufficient consumer Interest in MNP	There is some evidence of consumer interest, but public education is yet to occur
Established Interconnection between Operators	Pass
Adequate tariff transparency	Needs improvement
Adequate Regulatory Requirements.	Proposed in this report

### 4.3 Population by category

Population categories 0 to 4 have been described in Section 3.4 of this report. The proportion of the population in each category is important because the benefits from MNP for each category vary significantly.

The estimated proportion of the populations in each category is shown in Figure 4.3.

**Figure 4.3: Proportions of Population in each Category**

Customer numbers	Type 0	Type 1	Type 2	Type 3	Type 4	
Customer type	No Phone	Low income	Higher income	Own small business	VIP	Total
Percentage of population	45.8%	45.2%	4.0%	4.0%	1.0%	100%

### 4.4 Cost Benefit Analysis for each Case

The cases being assessed have been identified and described in Section 2.2 of this report. The assumptions about porting rates are set out for each case as part of the description.

All of the cases, except for Case 3a, assume that operators implement all call query (ACQ) as well as onward routing (OR) technical solutions for call routing. Case 3a is based on OR

only. Figure 4.4 shows the cost benefit analysis for each case, together with some key calculations for the value of benefits and the level of costs. All costs are in Kina.

### Interpretation of Results

Where the total benefits outweigh the total costs (that is, where the total benefit/ cost ratio is greater than 1.0) then the case in question is economically feasible. On that basis all cases other than Case 1a are economically feasible. In Case 1a each Kina of expenditure yields only 30 toea of benefit.

**Figure 4.4: Cost Benefit Analysis for each MNP Case in PNG**

	Case 1a	Case 1b	Case 2a	Case 2b	Case 3a	Case 3b
Description	Existing operators only	Existing operators only but more investment in Kumul	Existing operators for two years, then a new entrant from Year 3	As per Case 2a, but with national roaming	New entrant from Year 3, only Digicel required to port out if requested by new entrant	As per Case 3a, but with changed costs due to different routing technology
National Roaming	No	No	No	Yes	No	No
Porting Technology	ACQ	ACQ	ACQ	ACQ	OR	ACQ
Benefits (Discounted)						
Type 1A	14.7%	23.2%	22.8%	23.3%	22.7%	22.7%
Type 1B	36.5%	57.7%	56.7%	57.9%	56.5%	56.5%
Type 2	41.5%	7.4%	9.0%	7.1%	9.3%	9.3%
Type 3	7.4%	11.7%	11.5%	11.7%	11.5%	11.5%
Total benefits	K 18,603,220 (100%)	K 104,671,557 (100%)	K 85,381,952 (100%)	K 108,583,651 (100%)	K 83,034,696 (100%)	K 83,034,696 (100%)
Benefits per porting (Kina)						
Type 1A	77	77	77	77	77	77
Type 1B	192	192	192	192	192	192
Type 3	39	39	39	39	39	39
Costs – Kina (Discounted)						
Central Data Base	4,998,953	4,998,953	4,998,953	4,998,953	4,998,953	4,998,953
Digicel	38,46,6116	38,466,116	38,466,116	38,466,116	6,457,247	28,442,542
Kumul	17,567,788	17,567,788	17,567,788	17,567,788	4,153,191	4,307,204
New Entrant	0	0	7,234,562	7,234,562	5,598,962	7,234,562
Variable	1,059,542	9,437,110	7,559,533	9,817,899	7,331,060	7,331,060
OR	0	0	0	0	1,209,341	0
Regulation	700,327	700,327	700,327	700,327	544,463	544,463
Total Costs	62,792,725	71,170,294	76,527,278	78,785,645	30,293,217	54,068,125
Total Benefit/ Cost Ratio	<b>0.30</b>	<b>1.47</b>	<b>1.12</b>	<b>1.38</b>	<b>2.74</b>	<b>1.54</b>

All other cases have a benefit to cost ratio above 1.0, ranging from 1.12 (Case 2a) to 2.74 (Case 3a). The most difficult benefit to calculate reliably is that resulting from general competition (benefit Type 2) for the reasons already stated in Section 3.2 of this report. If the complete amount of the Type 2 benefit were to be ignored, the ratios of Cases 1b, 2a, 2b, 3a and 3b would be reduced by 7.1% to 9.3%. The ratios for these Cases would remain above 1.0, but, in Case 2a the amended ratio would be only 1.01, too close for comfort given the estimates and the corresponding accuracy margins that must be used in analyses of this kind.

It is also important to examine the absolute costs that are associated with each case. They vary from K 30.3 million in Case 3a to K 78.8 million in Case 2b. The lower the absolute cost on the sector the better since all additional costs are borne by users or shareholders, and have the potential to reduce investment.

For the purposes of the feasibility study NICTA has considered the status quo (current situation) in the PNG mobile market to be:

- (a) Where there is no existing challenging operator (which in this report has been called “Kumul” but which might have a different name in future) with sufficient guaranteed financial resources to be able to sustain network development to compete with Digicel; and
- (b) Where there is no new entrant (with sufficient financial resources to be able to compete with Digicel).

The status quo or current situation is represented in Case 1a (where existing operators are assumed to be no better or more reliably funded than at present). NICTA’s analysis shows that MNP in the circumstances of Case 1a is not economically justified.

Something has to change to make MNP viable. In the recommendations later in this report, and in the proposed Rules which will be based on those recommendations, the change to the status quo that would affect consideration of MNP is called a “Triggering Event” and it may be one (or both) of the events contemplated in (a) and (b) above –a financially strengthened existing competitor to Digicel or a new entrant.

Case 1b covers the situation where the Triggering Event is associated with financial strengthening of Kumul. Cases 2a, 2b, 3a and 3b cover the situation where the Triggering Event is associated with a new entrant.

As noted above, in all Cases (except Case 1a) there is a net benefit on NICTA’s analysis, but the net benefit is much stronger for some cases than for others. NICTA prefers to establish MNP on the basis of improving competition in the mobile market, and considers that, at least initially, a user rights approach should not apply. This is the view of most of the respondents to the public consultation that NICTA has held on the subject. Whether a Triggering Event, in the sense in which that term has been used in this report, happens is not a matter that NICTA can determine. It cannot determine that there will be a suitable new entrant to the market, and NICTA cannot determine whether Kumul will receive appropriate and ongoing investment to support the growth and development of its mobile network in order to become and remain effectively competitive with Digicel. All NICTA can do is to

recommend the approach that will enable a competition case to arise. Cases 3a and 3b are the relevant cases.

The preferred approach therefore is the one that has the highest benefit to cost ratio while also having low absolute costs. Case 3a is the case which wins on both criteria in the analysis. The lower costs are a result of not requiring ACQ routing, but it would be open for any operator to adopt ACQ on a voluntary basis. In the case of new entrants, or of existing operators that are substantially extending their switching capability, network switching design incorporates ACQ, and they might find it cost effective to adopt ACQ at the outset. Being the lowest cost solution the option to use only OR would satisfy the point made by Telikom in its submission to the public consultation that a low cost solution should be available to the industry at the outset in case the level of portings is well below that assumed in the feasibility study. NICTA considers that its assumptions about porting levels are reasonably conservative, but generally accepts the point that Telikom has made.

## **5 MNP IMPLEMENTATION IN PNG**

### **5.1 Introduction**

Technical details of the implementation of MNP in PNG were not discussed in detail in the Discussion Document that was subject to public consultation earlier in the year. The Discussion Document concentrated on the fundamental issues associated with the feasibility, including costs and benefits, of MNP. Nevertheless some useful comments were forthcoming in the comments received from stakeholders.

Implementation of MNP involves a consideration of the administrative and technical issues that need to be assessed. In the case of PNG there is a further consideration of timing, and of when and if the market has met the criteria that will enable MNP to deliver the boost to competition that is being sought.

These matters are discussed later in this section of the report.

### **5.2 Triggering Event**

The term, “Triggering Event”, has been defined in Section 4 of this report to refer to the change in the mobile services market that will enable the conditions for MNP (set out in Section 3.1 and assessed in relation to PNG in Section 4.2) to be met.

If the Triggering Event takes the form of licensed new entrant, the date of the event becomes an issue. The date of the event is the date on or after which the new entrant or Kumul may request porting of numbers from Digicel – and be prepared to port numbers to Digicel in return, if Digicel requires.

#### **New Entrant**

NICTA has considered whether the date of the event should be either the date of licence issue for the new entrant, the commencement date of commercial operations or a date between those dates. There have been instances in developing mobile markets, including at an earlier stage in PNG’s development, when licensees have not proceeded to fulfil the obligations of their licence and to roll out network services. For that reason the date of licence issue is considered to be too soon to trigger a request for porting. On the other hand the date of commencement of commercial operations might be considered to be too late, because it will take some time to implement MNP, typically 9 to 15 months.

NICTA therefore proposes that the date of effect of the Triggering Event shall be either the date on which the new entrant provides NICTA with evidence that it has commenced commercial operations, or such earlier date as may be determined by NICTA based on evidence provided by the new entrant of its progress in establishing commercial services by a nominated date. It is not envisaged that the earlier date that NICTA may determine would be more than 90 days before the nominated date for commercial operations. The nominated date might be one identified by the new entrant or may be specified in the new entrant’s licence conditions.

## **Strengthened Kumul**

NICTA and the Minister are aware that over the years Government-owned telecommunications operators (bmobile and Telikom) have been capital-rationed and have had to rely unduly on retained profits as a source of investment capital for network upgrade and expansion. The result has been that they have not been able to maintain a level of effective competition against private sector operators, such as Digicel. There may have been other factors contributing to less than effective competition, but inadequate capital investment has been a major factor.

Consequently, before Kumul should be entitled to request porting of numbers from Digicel, its circumstances need to have changed sufficiently to amount to a Triggering Event. In this case the assessment of whether changes have been sufficient and from what date are matters for NICTA to determine, based on an application from Kumul supported by evidence that it has access to an ongoing source of investment capital that will enable it to be sustainably competitive into the future as well as to fund the necessary core network, business system and operational investments required to support the MNP service.

The question then arises: What evidence would NICTA reasonably require to show capital adequacy of the kind described above? It is inappropriate to attempt a comprehensive list at this stage. As Kumul is currently engaging consultants to advise it on its restructuring options, there is a good case for some flexibility to be afforded to NICTA in making its assessment. However, the following are matters that NICTA will definitely consider:

(a) whether Kumul has fully paid its licence fees and other regulatory charges to NICTA. If Kumul does not have the resources to pay priority debts such as these then that is very compelling evidence that it does not have the financial strength required to invest and compete effectively in the mobile market;

(b) whether Kumul has fully or substantially complied with licence network and service rollout obligations, including obligations inherited in its licence from bmobile and Telikom; and

(c) Whether it has entered into substantial, longer term contracts with international vendors for the supply of network systems and equipment for the provision of mobile services, and the content of those contracts.

The date of the Triggering Event in this case would be the date of the formal advice from NICTA that it is satisfied that Kumul has the level of capital access and financial strengthening to be effectively competitive. Note that this will not be a forecast that Kumul will be effectively competitive in the future, only that NICTA believes on reasonable grounds that one of the requirements for effective competitiveness has been met in Kumul's case.

### **5.3 Date of Effect of Rules to Implement MNP**

The detailed administrative and technical arrangements for MNP should be incorporated into Rules issued pursuant to Section 218 of the Act, so that they may be suitably enforced in the event of non-compliance.

The recommendations in this report are based on the notion of a Triggering Event occurring, and also on whether a new entrant or a strengthened Kumul take advantage of that Triggering Event to request porting of numbers (that is, “pull the trigger”).

The proposed Rules will define a Triggering Event and the role of NICTA in determining whether and when such an Event has occurred. In addition, to set out the Rules in advance will provide a level of certainty for the market about MNP. It will provide regulatory certainty for intending new entrants and also for currently licensed operators.

NICTA proposes that the Rules should come into effect on the date that they are published in the Gazette (which is normal), but that no request for porting can be made before NICTA certifies that a Triggering Event has occurred.

#### **5.4 MNP Coordination Committee**

In the short term (following a Triggering Event) it is possible that the porting of numbers for MNP might be confined to two operators, whether a new entrant and Digicel, or Kumul and Digicel. In the longer term it is expected that, if there are more than two mobile operators, the third operator will want to participate and receive exported numbers. In any case the subscribers of all operators, both fixed and mobile, will need to be able to make calls to mobile numbers that have been ported. Therefore the arrangements for re-directing mobile numbers that have been ported will affect all operators. There are decisions to be made about the process by which the new network address of ported numbers, if any, are to be ascertained and how calls to such numbers are to be routed.

In addition, all operators need to be involved in the process of determining the administrative arrangements – both initially and as they evolve – for actually porting a number. This is because all operators could potentially be involved in that process.

NICTA therefore proposes that a MNP Coordination Committee be established to coordinate these matters under the chairmanship of NICTA. The Committee is intended to deal with administrative and technical MNP implementation matters, but it is recommended that the key decisions regarding the design and implementation of the MNP service are made by NICTA, based on recommendations from the Committee. It is a matter for NICTA to determine when the Committee should be established but it would be inappropriate unless there was a reasonable likelihood of a Triggering Event occurring in the near future.

#### **5.5 Recipient Led versus Donor Led MNP**

Some early implementations of number portability in other countries were designed around a donor process where the customer was required to contact the current or donor operator to request permission to port and then the customer coordinated the porting transaction between the donor and recipient operators. However, the donor led approach is viewed as not delivering a positive customer porting experience since the customer is required to drive the porting transactions, porting timeframes are often extended and donor operators try to dissuade customers from porting or just frustrate the porting process.

Most recent number portability implementations have adopted the recipient led porting approach in which the customer agrees a limited power of attorney with the new or recipient operator authorising the recipient operator to close the customer's account with the donor operator and to arrange the porting or transfer of their number to the new recipient network. Recipient led porting is viewed as being much more customer friendly and efficient, since the recipient as beneficiary in the porting process is responsible for driving the smooth transfer of number to their network. Consequently, recipient led porting is seen to offer faster porting timeframes, much lower porting rejection rates and simpler porting processes.

NICTA recommends a recipient-led approach to MNP in PNG.

## 5.6 Centralised or De-Centralised Porting?

A key element in the operation of NP services is the efficient and reliable administration and processing of porting requests between recipient and donor operators. Decentralised and centralised approaches have been developed in different countries. Some countries who have launched MNP services commenced with a decentralised approach and later moved to a centralised approach. This approach may be appropriate for PNG, but a decision does not have to be taken initially.

**De-Centralised Solutions:** Bilateral peer-to-peer solutions allow operators to enter into individual arrangements for porting. These arrangements may be standardized across the industry or may be unique to each agreement between individual operators. Although internationally, such peer-to-peer arrangements are fewer given the availability and convenience of centralized solutions, it is nonetheless arguable that the arrangement may be suitable for jurisdictions with limited number of operators. In the case of PNG it is possible that there will be few operators involved.

**Centralised Database Solutions:** This is the most popular approach to delivering number portability services. These solutions are centred around a reference database or number clearing house owned or operated by an independent third party or sometimes maintained by a consortium of providers, is established and operated for the purposes of facilitating NP. These systems can facilitate direct routing by updating operator local routing databases to determine whether a call is to a ported number and to ensure that the call is then efficiently directed to the destination network. It should be noted that the central clearing house/ database does not participate in the actual call routing process which is managed by each operator's local routing database (a real-time copy of the reference database) and core network. Most recent NP implementations and those involving similar jurisdictions have adopted this option, since they ensure an efficient and consistent porting experience for consumers, irrespective of which operators are involved in the porting transaction. These centralised databases provide advantages which make them attractive solutions for regulators, including that they can be operated by third parties with specialised systems. This means that costs can usually be shared by providers. In addition the central database solution may be readily adapted to cover fixed and other service numbers if these are to be ported in future.

NICTA considers that a centralised database solution might be more appropriate for PNG in the longer term, but that if porting is confined initially to two mobile operators then a

decentralised approach may be appropriate for some time. A hybrid approach is also possible in the database maintained by the largest operator is the centralised database initially. The database issue is one that would need to be considered by the industry through the proposed MNP Coordination Committee. In the meantime the decentralised approach is the default.

### 5.7 Routing of calls

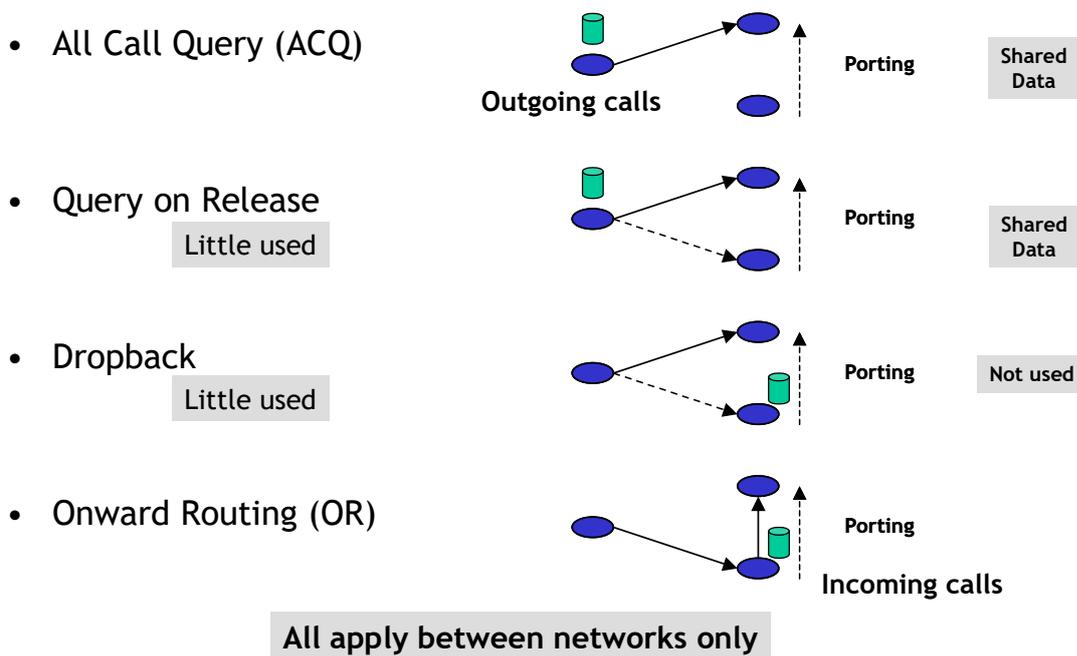
After a subscriber has ported his number calls to that number need to be routed to the correct network.

The European Telecommunications Standardisation Institute (ETSI) has defined the following four technical options for number portability routing:

- Onward routing;
- Drop-back;
- Query on Release; and
- All call query.

ETSI's intention was that these terms should apply only to solutions for use between networks (not within networks). Solutions for use inside networks do not need to be standardised and should not be specified by regulators.

**Figure 5.1: ETSI Routing Solutions**



In **All Call Query** the network that originates the call looks up its local routing database which contains a copy of the list of ported numbers and which network serves them. This list may be updated regularly from a central reference database if the latter exists. The network then routes the call direct to the recipient network that is serving the ported number.

In **Query on Release**, the network that originates the call routes the call to the block (“donor”) network. If the block network no longer serves the number because it is ported, this network releases the call back to the originating network who then looks up the number as for All Call Query. Query on Release was designed to reduce the rate of looking up the database when databases were more expensive than they are now. Query on Release is seldom used.

In **Dropback**, the network that originates the call routes the call to the block network. If the block network no longer serves the number because it is ported, this network drops the call back to the originating network after adding information on where the call is currently served. Dropback is seldom used, if at all.

In **Onward Routing** the network that originates the call routes the call to the block network and the block network routes it to the recipient network that is serving the ported number.

Onward routing is an issue for terminating networks. In practice all networks that port out numbers have to implement onward routing because they may receive calls from other networks for numbers that they have ported out.

All call query in contrast is an issue for networks that originate calls to enable them to route the call in the most direct way to the network that serves the called number.

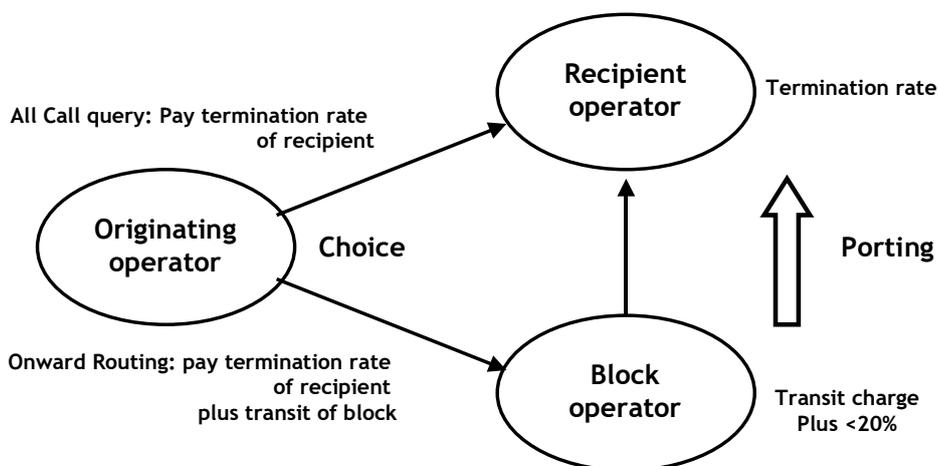
Thus onward routing and all call query are not alternatives; the implementation choice is between the following:

- Implementing just onward routing for terminating calls; and
- Implementing all call query onward for outgoing calls as well as implementing onward routing for terminating calls.

In the case of mobile networks the technology used for implementing onward routing can normally also be used for implementing all call query and so most mobile networks will implement both as the marginal cost of all call query is very low.

Onward routing requires all operators to maintain network capacity for ported out numbers (i.e. users who are no longer customers) and also has the disadvantage that call quality is dependent on the quality of the block operator’s network.

**Figure 4.2: Routing to ported numbers**



Depending on the interconnection routes available, the Originating network, O, has the option to determine which network is serving the called number and route the call there directly, e.g., along the route between the Originating and Recipient operators, or to pass the call to the Block operator identified by the number block.

If the call is passed to the Block operator, then the Block operator has to onward route the call to the Recipient operator. The Block operator will need the capability anyway to route its own subscribers' calls to numbers ported to the Recipient.

Each operator is entitled to charge for what it does and so the Block operator can both charge for their work as a transit operator and for the costs of changing the routing of the call.

When an operator determines which network is serving the ported number, it adds a number portability prefix in front of the called number to indicate the recipient network. The existence of this prefix indicates that the routing for the number has already been determined and need not be repeated.

Even if ACQ direct routing is adopted it should be noted that the routing of incoming international traffic will be via onward routing since the international originating operator will not be aware if the called number is ported or not and will therefore route the traffic to the Block operator who will then onward route to Recipient operator if the called number has been ported out.

NICTA recommends that all fixed and mobile traffic to ported and non-ported numbers originated and terminated in PNG must be routed by the originating network to the terminating network. As a minimum all operators must make arrangements for this and may rely on OR (onward routing) and compensate Donor Operators to forward calls. However, NICTA's preference is that operators establish All Call Query direct routing for all national traffic that is originated and terminated in PNG. Some operators will find this approach to be less expensive and more efficient in the longer term, particularly if the facility is available from their network vendor as a design feature and if they anticipate high volumes of calls to ported numbers.

## **5.8 Routing of SMS messages**

Whilst SMS message routing can be direct (ACQ) or indirect (Onward Routing), the actual routing arrangements are different to voice traffic because of the more complex signalling involved with SMS and further specific discussions with the operators are needed via the proposed MNP Coordination Committee for implementation to find out about their current routing arrangements and how best SMS messages can be routed with MNP.

## **5.9 Cost Recovery**

NICTA considers that each operator should be responsible for its own establishment/setup costs and that such costs should not be recovered from other operators or consumers. This is particularly appropriate because each operator has some control over the costs that might be incurred as a result of its choice of routing option for routing calls to ported (or all) numbers.

Each operator should bear the costs associated with establishing and maintaining its own local routing function (including its own local routing database if ACQ is adopted), its interworking with a potential central clearing house, changes to business systems to facilitate porting and corresponding organisational and training needs. If a decision is made at a later date, after consultation with the proposed MNP Coordination Committee, to establish a centralised database for the industry, the MNP Coordination Committee will be requested by NICTA to

consider how establishment costs might be recovered and how usage costs might be set. There are a number of options that need not be considered at this stage but will need to be considered if and when a decision on the matter is required.

Approaches to customer charging for porting numbers vary. In some countries in which a charge may be levied on a customer to port his number the Recipient operator often has a policy of waiving the charge (in order to encourage the customer to switch in the first place). Experience suggests that in low income economies, the imposition of a porting charge on the customer may have an undue dampening effect on the level of porting and to undermine the industry investment in establishing porting arrangements. In line with international, NICTA recommends that Donor operators should not be permitted to levy charges, including porting charges, on customers who leave their network. Although the matter is less clear cut for Recipient operators, NICTA is of the view that, at least initially, the same prohibition on customer charging should apply.

### **5.10 Porting Times in PNG**

Research shows that consumer demand for MNP services is directly linked to the time taken to port a customer's number. In early number portability implementations, porting times could be up to one month, but developments in porting process approach have enabled recent number portability implementations to reduce porting times to less than two working days. In some countries, porting can be completed consistently in a matter of a few minutes or hours. The link between porting time and consumer demand recognised by regulators across the world as being critical, and in fact, the European Union (EU) has recently mandated that all EU countries must ensure that number supported within one working day.

NICTA's research indicates that international best practice suggests that mobile numbers to be ported within one working day measured from the time when the Donor operator is made aware of the porting of the customer's number via a request from the Recipient operator. That is the standard that NICTA is now recommending.

### **5.11 Validation of Porting Requests**

It is necessary, particularly in a recipient led process, for the recipient operator to be able to reliably ensure that the person requesting the port is the legitimate owner of the number to be ported and is eligible to request the porting service. Consequently, with recipient led porting, it is necessary for the Recipient Operator to verify the customer's identification and ownership of the number to be ported, normally via a face to face interaction between the customer requesting porting and a sales representative of the Recipient operator.

Various validation methods are used across the world to address these issues, with varying levels of success. In some countries, it is not necessary to transfer a wide range of customer confidential data between the recipient and the donor for verification, which can extend porting timeframes significantly and result in unnecessarily high reject levels of porting requests. NICTA understands that a number of successful number portability implementations, in which porting timeframes are short and fraud and rejection levels are low, limit the amount of customer data transfer between donor and recipient during the porting process, through the use of additional secure customer validation mechanisms, for instance, requiring the customer to send a dedicated validation SMS to the NP clearinghouse.

NICTA understands that secondary customer validation mechanisms, such as, parallel customer initiated Short Message Service (SMS) or Interactive Voice Response (IVR) validation, work well in other similar jurisdictions and enable the porting process to be efficient, quick and secure.

NICTA recommends that the data transfer during the porting process between the Recipient and Donor Operators should be limited to:

- Mobile Station Integrated Services Digital Network (MSISDN) identification or number to be ported;
- Confirmation by the recipient operator, that the validation process has been completed correctly
- Current service type with the Donor operator, i.e. Pre-Pay or Post Paid; and
- Name of the Donor operator.

In parallel, NICTA recommends that the PNG MNP process should allow for the use of secondary customer initiated validation/authorisation by SMS for MNP requests and that porting initiation should be limited to a face to face interaction between the customer requesting porting and a sales representative of the Recipient operator. Thus, porting initiation should not be permitted by a remote channel, such as online or via a call centre.

## **5.12 Outstanding porting customer debts**

The porting process should not be considered to be part of debt management by the Donor Operator. This is usually not an issue with pre-paid customers (the overwhelming majority of mobile service customers in PNG) but there will always be a debt in the case of post-paid customers. NICTA is of the opinion that outstanding debt at the time of porting should not be reason for a Donor operator to reject a porting request, as long as the customer's number/ account was not barred or suspended from making calls/ sending SMS, at the time porting request was initiated.

NICTA accepts that customers are absolutely obliged to settle all outstanding debts and charges with the donor operator. NICTA believes such settlement should be completed outside of the porting process. Consequently, NICTA proposes that a key element of the education associated with MNP is to ensure that all customers are aware of their absolute obligation to settle outstanding debts and charges to the Donor Operator, and that such charges may also include any early termination fees applicable to their service or contract.

## **5.13 Winback Protection**

Winback is contact initiated by the Donor Operator with the customer the purpose of which is to either dissuade the customer from porting out their number or to encourage the customer to return to the Donor Operator's network.

Whilst NICTA believes that the making of winback attempts may in certain circumstances be a legitimate competitive activity, it has the potential to quickly undermine the benefits of MNP by acting as a further barrier to switching and compromising the MNP process. On this basis, NICTA proposes that winback activity should be prohibited for a defined period.

The length of the period of “winback protection” is a matter for further discussion but, pending that, NICTA believes that it should be 60 days. This length of time is supported by the approach in some other jurisdictions that have addressed the winback problem.

NICTA’s research indicates that when winback is permitted in some jurisdictions, it also becomes a source of customer frustration and irritation.

NICTA recognises that it may be appropriate and necessary for the donor operator to engage the customer after the porting process is completed to discuss the settlement of outstanding debts and charges.

NICTA does not advocate prohibiting donor operators from making winback contact to customers after a suitable period. NICTA believes that former/donor operators should be allowed to contact former customers in the future with the intention of encouraging them to return to their networks, but there should be a reasonable winback prohibition period to enable the customer to form a relationship with and form an opinion of the new recipient operator. NICTA’s research to benchmark with other similar NP jurisdictions, suggests that an appropriate winback prohibition period would be 60 days.

#### **5.14 Customer Porting Restrictions**

MNP is intended to enable customers to move their number to the operator who best meets their needs and requirements and thus MNP enables customers to form constructive and meaningful relationships with their new operator. Providing MNP services to the PNG market involves costs to operators and MNP should be considered as a finite resource, which must be effectively managed for the best interests of the PNG market and customers. NICTA recognises that the MNP service could be abused by customers frequently switching from one operator to another to merely avail themselves of the latest or best offers or price promotions, without any concern for the costs that are being generated for operators to bear.

To prevent MNP services being abused, many implementations enforce onward porting restriction periods which prevent customers from onward porting their number to another operator for a minimum period from the date of the previous porting transaction.

NICTA recommends that an appropriate porting restriction period would be 60 days, which also aligns with the corresponding winback prohibition period, outlined in Section 5.13 of this report.

## **6 RECOMMENDATIONS**

### **6.1 Recommendations and Rules**

The purpose of this Section is to draw together in a summary the specific recommendations that NICTA is making to the Minister and which have been discussed earlier in Section 5 and elsewhere in this report

It is proposed, following consultation pursuant to Section 189(5) of the Act, to develop Rules (pursuant to Section 218 of the Act) as the appropriate means for giving formal effect to the content of the specific recommendations set out below. It is noted that Section 219 requires public consultation as part of the rule-making process, and this will be undertaken separately.

### **6.2 Specific Recommendations**

NICTA recommends that:

#### **Conditional MNP implementation**

1. MNP should be implemented in PNG but not before such time as NICTA certifies that a Triggering Event has occurred, and only after a subsequent request has been made for porting of mobile service numbers by an operator entitled to make such a request, but not otherwise.

#### **Triggering Event**

2. A Triggering Event is the event, or last of a number of events, that causes the pre-conditions to be met so that a licensed operator entitled to request porting of mobile service numbers from another licensed operator in PNG may do so.
3. A Triggering Event can be either:
  - (a) the issue of a licence to a new entrant mobile network operator with resources that enable that operator to compete effectively with current market operators; or
  - (b) the financial strengthening of Kumul (howsoever named) to enable it to compete effectively and sustainably in the PNG mobile services market, as well as demonstrate it can fund the requisite network/ system investments to support the MNP service.

#### **Criteria for Triggering Event in the case of a New Entrant**

4. The criteria for a Triggering Event relating to a new entrant being licensed to provide mobile network services in the PNG market are:
  - (a) That an operator licence has been issued by NICTA to the proposed new entrant pursuant to Section 47 of the Act which shall be an individual licence

including facilities rights to enable the licensee to build and operate network facilities and infrastructure for the provision mobile services in PNG;

- (b) That a radiocommunications licence has been issued to the proposed new entrant pursuant to Section 171 of the Act; and
- (c) That the new entrant shall have in place either a commercial mobile service operations in PNG or clear contractual commitments with one or more vendor organisations to install mobile service networks on behalf of the new entrant.

### **Criteria for Triggering Event in the case of Financially Strengthened Kumul**

- 5. The criteria for a Triggering Event relating to adequate financial strengthening of Kumul to enable sustainable investment are:
  - (a) Payment of all licence fees and regulatory charges due and owing to NICTA at the time of claimed Triggering Event; and
  - (b) Full or substantial compliance with licence network and service rollout obligations, including obligations carried over in Kumul's licence from bmobile and Telikom; and
  - (c) Demonstration by Kumul of capital and financial resources as are necessary for investment and operations to sustain modern, expanded and upgraded network equipment and services for effective competition in the current and future mobile services market in PNG, as well as demonstrate it can fund the requisite network/ system investments to support the MNP service.

### **Determination that Triggering Event has occurred**

- 6. NICTA may determine whether a MNP Triggering Event has occurred and the date of that Triggering Event in response to an application from a relevant licensed operator.

### **Date of Triggering Event**

- 7. NICTA shall determine the date of the Triggering Event taking into consideration the parameters set out in the Rules.

### **Date of Effect of Rules**

- 8. The Rules that govern the implementation and provision of MNP in PNG should come into effect when they are made and published in the Gazette, notwithstanding that the processes in the Rules associated with the implementation of MNP are conditional on determination that a Triggering Event has occurred and on the making of a request for porting by a licensed operator entitled to make such a request.

## **Porting Requests**

9. No valid request from one relevant licensed operator to another licensed operator for mobile number porting may be made until after NICTA has determined that a Triggering Event has occurred.

## **MNP Coordination Committee**

10. NICTA shall establish at any time that is no later than the determination of a Triggering Event, a MNP Coordination Committee comprising NICTA as chair and representatives of all licensed operators impacted or potentially impacted in operational terms by the provision of MNP in PNG. The purpose of the Committee shall be to ensure that all parties are able to coordinate and plan for the expeditious and effective implementation and operation of MNP and to provide industry advice on detailed aspects of MNP administration and process that need attention. The procedures and agenda for Committee meetings shall be matters for NICTA to determine after discussions with operator representatives.

## **Recipient-led MNP**

11. MNP shall be Recipient-led in PNG – that is, the porting customer shall agree a limited power authorising the Recipient Operator to close the customer's account with the Donor Operator and to arrange the porting the customer's number to the Recipient Operator's network. Porting initiation should be limited to a face to face interaction between the customer requesting porting and a sales representative of the Recipient operator. Thus, porting initiation should not be permitted by a remote channel, such as online or via a call centre

## **Centralised Porting Solutions**

12. A centralised number database solution might be more appropriate for PNG in the longer term, but that if porting is confined initially to two mobile operators then a decentralised approach may be appropriate while that situation continues.
13. The number database issue is one that NICTA will consider with the proposed MNP Coordination Committee.

## **Routing of Calls and SMS**

14. All licensed operators that originate calls or receive calls shall be responsible for routing such calls to the correct network, whether the number called has been ported or not. As a minimum all operators must make arrangements for this and may rely on OR (onward routing) and compensate Donor Operators to forward calls. Alternatively, operators may establish All Call Query direct routing.
15. NICTA shall refer the routing of SMS messages to the proposed MNP Coordination Committee to consider the best approach to be taken.

## **Cost Recovery**

16. Each operator should be responsible for its own establishment/setup costs and that such costs should not be recovered from other operators or consumers, including the costs associated with establishing and maintaining its own database of numbers.
17. If a decision is made at a later date, after consultation with the proposed MNP Coordination Committee, to establish a centralised database for the industry, the MNP Coordination Committee will be requested by NICTA to consider how establishment costs might be recovered and how usage costs might be set.
18. No charges may be imposed on customers who port their numbers.

## **Porting Times**

19. Mobile numbers shall be ported within one working day measured from the time when the Donor operator is made aware of the porting of the customer's number, via a porting request from the Recipient Operator.

## **Validation of Porting Requests**

20. The information transferred during the porting process between the Recipient and Donor Operators should be limited to:
  - (a) Mobile Station Integrated Services Digital Network (MSISDN) identification or number to be ported;
  - (b) Confirmation by the Recipient Operator, that the validation process has been completed correctly;
  - (c) Current service type with the Donor operator, i.e. Pre-Pay or Post Paid; and
  - (d) Name of the Donor Operator.

## **Porting customer debts**

21. The porting process should not be considered to be part of debt management by the Donor Operator. Outstanding debt at the time of porting should not be reason for a Donor operator to reject a porting request, as long as the customer's number/ account was not barred or suspended from making calls/ sending SMS, at the time porting request was initiated.
22. Customer need to be made aware of their absolute obligation to settle outstanding debts and charges to the Donor Operator, and that such charges may also include any early termination fees applicable to their service or contract.

## **Winback protection**

23. Donor Operators may not seek to winback or otherwise dissuade porting customers from porting through direct contact with those customers for 60 days after a porting

agreement has been advised by the Recipient Operator to the Donor Operator. This prohibition does not apply to debt recovery.

### Customer Porting Restrictions

24. A customer who has ported a mobile number to a Recipient Operator may not port that number to another operator within a period of 60 days from the initial port.

### Target for the commencement of MNP

25. Once a valid request for MNP has been made by a mobile services operator entitled to do so, NICTA and the MNP Coordinating Committee shall seek to enable all preparations to be completed to enable MNP to commence within 12 calendar months of the request date.

### Requests for Porting by Other Licensed Operators

26. A licensed mobile operator that has received a valid request to port mobile service numbers from another licensed mobile service operator entitled to make such a request may require that other licensed mobile service operator to reciprocate and to port mobile service numbers to it.
27. Once MNP has commenced between any operators in PNG any other licensed mobile service operator may request porting of mobile service numbers from such operators to commence within a period of 3 calendar months from the date of the request.

## 6.3 Proposed Steps for MNP Implementation in PNG

The sequence of steps set out in Figure 6.1 assumes that the Minister has sought submissions from the public pursuant to Section 189(5) of the Act, and released a public report identifying the extent to which the Minister agrees with the recommendations and the reasons for any recommendations not being accepted.

**Figure 6.1: Steps for MNP Implementation in PNG**

<ol style="list-style-type: none"><li>1. NICTA prepares draft MNP Rules</li><li>2. Public consultation on MNP rules (Sections 219 and 229 of the Act)</li><li>3. Finalise and Gazette MNP Rules</li><li>4. On request from New Entrant or Kumul NICTA determines whether a Triggering Event has occurred</li><li>5. If NICTA determines a Triggering Event has occurred, New Entrant or Kumul may require that Digicel ports mobile service numbers to them, and Digicel may require same</li></ol>	<ol style="list-style-type: none"><li>6. Once there is a request for MNP, NICTA establishes MNP Coordinating Committee to assist with specifications and detailed procedures</li><li>7. MNP commences within 12 months of request (Step 5) or such other date as determined by NICTA (after taking advice from the Committee)</li><li>8. MNP starts between Digicel and New Entrant, or between Digicel and Kumul</li><li>9. Other operators may request MNP with porting operators from date of MNP starting, to be implemented within 3 calendar months</li></ol>
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