



Comparative Evaluation of Mobile Network Porting Activities in Nigeria

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ABSTRACT

This research paper examines the implementation of Mobile Network Portability (MNP) in Nigeria since 2013 by the Nigeria Communication Commission (NCC). This study analyzes the trend of porting activities since the inception of MNP and its impact on the subscriber base of network providers. The findings reveal that there were porting activities across all networks, with MTN experiencing the highest net loss of 274,751 subscribers, while 9mobile gained the most with a net increase of 486,361 subscribers. The study also found that the use of MNP services has decreased significantly, with MTN having the highest share of incoming subscribers and the lowest share of outgoing subscribers in recent times. Overall, this research provides insights into the effects of MNP on the Nigerian telecommunications market, highlighting the winners and losers among network providers and the implications for future industry competition.

Keywords: portability, mobile network, subscribers, impact and trend

1. Introduction

Mobile network portability (MNP) is a service that allows mobile phone users to retain their mobile phone number when switching from one mobile network operator to another. It is a network function, implemented to enable customers to have the freedom to switch between service providers while keeping their unique phone number (Gurjeet, K., & Ritika, S.,2016)(Yi-Bing, L.,2003). This means that customers can change their service provider without losing contact with families and friends or having to inform all of their contacts of a new number. MNP is implemented by having a central database that keeps track of which mobile number belongs to which service provider. MNP is available in many countries although the specific details of the service may vary depending on the country and is regulated by the relevant telecommunications authorities such as Nigeria Communication Commission. MNP was first introduced in Singapore in 1997 (Reddy, M. Vinod Kumar., & Prasad, S. Rajendra.,2013). Sixteen years after, the Nigeria Communications Commission (NCC) implemented it in Nigerians in 2013 as a means of increasing a healthy competition (B.I. Bakare & S. Kukuchuku.,2019) among mobile service providers and providing greater flexibility for consumers (Ominike, Akpovi A.,2016)(Yi-Bing, L.,2003), it is regulated by NCC and it has been a success in providing consumers with more control over their mobile services. Over the years, the service has improved on the quality of user experience (QoE) and enhance the quality of service provision in the following ways:

2. Benefits of Mobile Network Portability

This service have many benefits both to the customers and service providers. Within 48 hours of the launch of mobile number portability in Nigeria, approximately 4,000 Nigerians switched networks (Bosede Akanbi, Arogundade Sodiq, Caleb Akanbi., 2015). showing the significance of MNP to the subscribers.

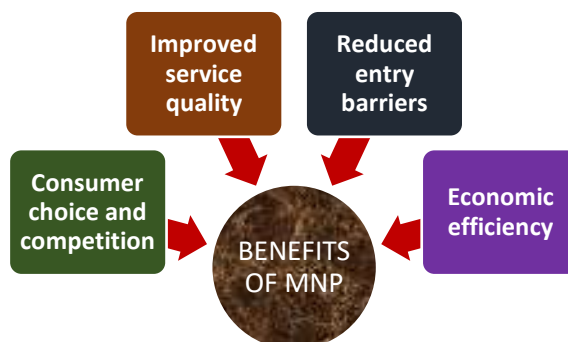


Fig. 1: Benefits of Mobile Network Portability

Consumer choice and competition: MNP allows consumers to switch to a service provider that offers better coverage, better service, or lower prices without having to give up their existing phone number.

Improving service quality: By allowing customers to switch service providers, MNP creates an incentive for providers to improve their service quality in order to retain customers.

Reducing barriers to entry: MNP makes it easier for new service providers to enter the market, as they can attract customers from existing providers by offering better service or lower prices.

Economic efficiency: MNP can lead to more efficient use of resources by allowing service providers to expand their customer base without having to invest in new infrastructure.

To adequately deploy number portability network services there are attendant costs such as: initial system setup costs, customer transfer costs, and call routing costs (Yi-Bing, L.,2003).

3. Limitations to Mobile Number Portability (MNP)

The implementation of MNP in Nigeria faced some challenges, including delays in the roll-out of the service, technical issues, and a lack of awareness among consumers. However, these challenges were eventually overcome, and the service became widely available throughout the country.

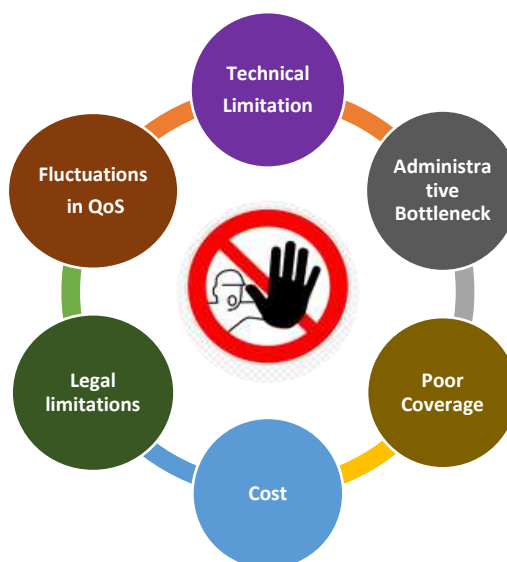


Fig. 2: limitations to Mobile Number Portability (MNP)

Technical limitations: In some cases, the technology used by different service providers may not be compatible, making it difficult or impossible to port a phone number.

Administrative limitations: The process of porting a phone number can be complicated and time-consuming, involving multiple steps and requiring coordination between multiple parties.

Coverage limitations: MNP may not be available in all areas, and customers may not be able to take advantage of the service if they live in a region with poor coverage.

Financial limitations: MNP may not be offered free of charge and customers may have to pay a fee to port their number, which can be a deterrent for some customers (Odii Juliet N, Ejiogor V.E, Osuagwu O.E.,2015)..

Legal limitations: Some countries may have laws and regulations that restrict or prohibit MNP, which can limit the ability of customers to switch service providers.

Quality limitations: Quality of service may be affected during the transition period, after the porting process, until the new service provider fully activates the ported number.

In mobile network services, all the Mobile Station International Subscriber Directory Number (MSISDN) based functionalities and their attendant services as listed below are affected by Mobile Number Portability (Ayushi, P., & Ashish, B.,2016). (Reddy, M. Vinod Kumar., & Prasad, S. Rajendra...,2013).

- All mobile completed calls
- All out-bound calls

- Short Message Service (SMS) and MMS
- Prepaid services

The switching pattern, its effect on the state of operations on mobile network services and the motivation for using MNP services among subscribers are analyzed in (Boateng, Kofi A. & Owusu, Oscar O.,2013). Among others, service cost, low customer service performance and network hitches are the bane of porting activities in Ghana. Birgul Kutlu conducted a Reliability analysis in (Birgul, Kutlu.,2013) to model the underlying factors affecting porting activities in Turkey. The study revealed that factors such as contract type, quality of user experience and age are the motivation behind MNP in turkey. In addition, the reasons for using MNP by subscriber are more elaborate in (Gurjeet, K., & Ritika, S.,2016)., factors such as awareness level about MNP, reputation and image significantly motivate subscribers to port to another network.

Result

MNP brought freedom and better quality of service to subscribers since inception. However, from the data collected from NCC, its obvious Nigerians are losing interest in the service.

4. Outgoing Port Activity

Table 1- Outgoing Mobile Number Port Activity

	YEAR										
Network	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
Airtel	26019	25883	41527	54323	49784	21680	49867	67596	1532	7119	345330
9mobile	7040	21124	20656	21513	26697	21042	19425	28372	6573	17978	190420
glo	9471	33654	30286	45469	44044	22704	32327	52714	1318	2831	274818
Mtn	29457	67039	125515	97147	50944	20380	19535	38500	1827	2565	452909
Total	71987	147700	217984	218452	171469	85806	121154	187182	11250	30493	1263477

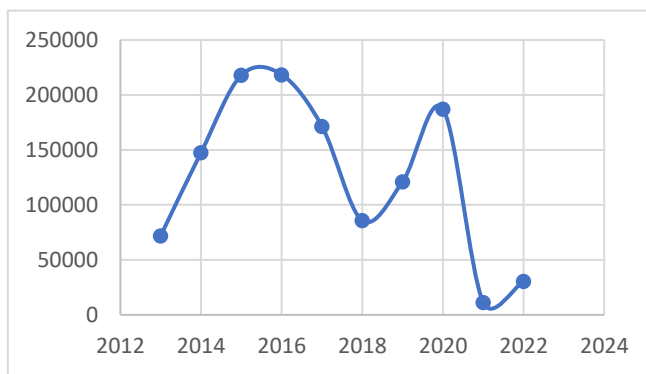
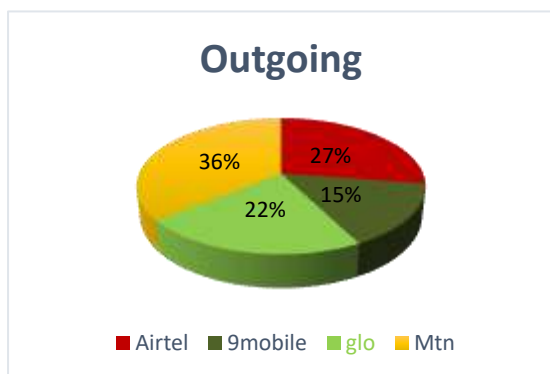


Fig. 3a: Percentage spread of outgoing porting activities

Fig. 3b: Yearly outgoing porting activities

In 2013 when MNP was introduced a total of 71987 subscribers ported to new network provider. 40.9% was from MTN, 36.1% from Airtel, 13.2% from Globacom and 9.8% from 9mobile. MTN lost the highest number of subscribers when MNP was introduced in 2013. MTN continued to lose higher percentage each year until 2018 whereas 9mobile lost the lowest number of subscribers due to MNP till 2021. Most recently in 2022, a total number of 30493 subscribers ported to other networks. 9mobile is the biggest loser with 58.9% of her customers porting to other network, Airtel lost 23.3%, Globacom lost 9.3% and MTN lost only 8.4%. there is drastic reduction in the number of outgoing port activity from 2021 to 2022 across the networks except in 9mobile. This show a loss of interest in MNP services or an improved quality of service provision across the networks.

5. Incoming Port Activity

	YEAR										
Network	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
Airtel	46457	39461	47733	47482	25895	15296	30026	67927	5437	5030	330744
9mobile	23582	69364	137466	140663	115280	35642	77492	74134	1298	1860	676781

glo	9830	28326	16264	16526	9895	7866	7653	3870	1832	3478	105540
Mtn	4908	11526	10936	13309	21924	28174	23851	37027	6380	20123	178158
Total	84777	148677	212399	217980	172994	86978	139022	182958	14947	30491	1291223

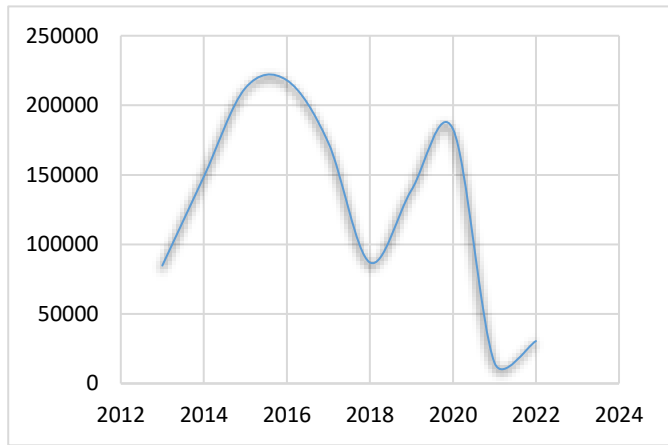
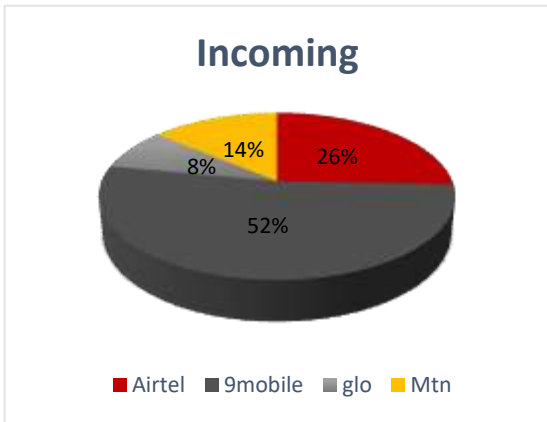


Fig. 4a: Percentage spread of outgoing porting activities

Fig. 4b: Yearly outgoing porting activities

In 2013, a total of 84777 subscribers were received due to MNP across the networks. Airtel received 54.8%, 9mobile received 27.8%, globacom received 11.6% and MTN received 5.8%. This spread indicates that subscribers' quality of experience was low with MTN but high with 9mobile on the inception of MNP. 9mobile network continued to attract more subscribers till 2020. In 2022, 30491 subscribers were received across the networks with MTN having 66%, Airtel received 16.5%, globacom received 11.4% and 9mobile received 6.1%. Though there is a high decline in the MNP usage, MTN received the highest share of the number. The decline is an evidence of loss of interest in using MNP or a general network upgrade across the network providers.

6. Net Gain or Loss

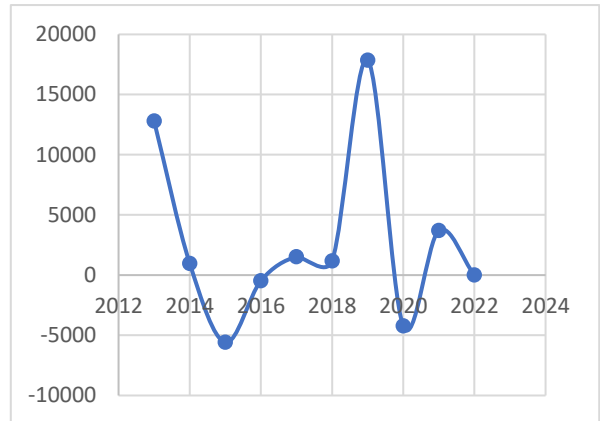
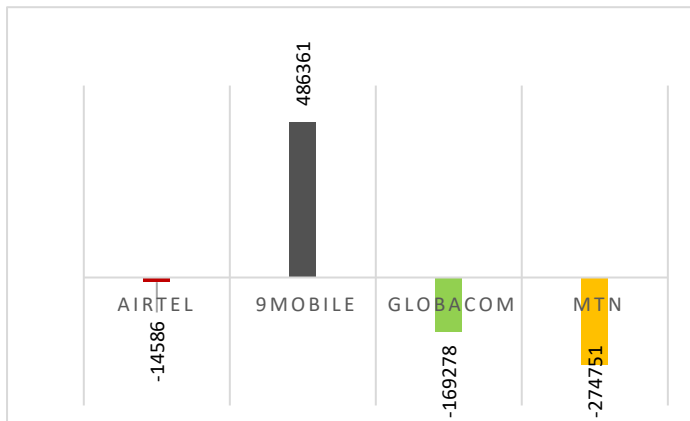


Fig.5a: Total Net Gain/Loss of subscribers Due to MNP

Fig.5b: Yearly Net Gain/Loss of subscribers Due to MNP

Generally, the effect of MNP across the networks is shown in fig.5a. MTN network lost a total of 274751 subscribers to other networks due to MNP, followed by globacom with a total loss of 169278 and Airtel with a total loss of 14586. The statistics show that MTN is the biggest loser in MNP services whereas 9mobile is the biggest winner which attracted a total of 486361 subscribers to their network from 2013 to 2022.

7. Conclusion

There is a general decline in the use of MNP service. The service favored some networks while some were not. Multiple SIM phones seem to have played a significant role in the downward trend as well as improved network coverage and quality of service. Though MTN is the biggest loser but there seems to be an attempt to reclaim their customers in the most recent times.

References

- Ominike, Akpovi A. (2016). Mobile Number Portability (MNP) in Nigeria. *European Journal of Computer Science and Information Technology*, 4(4), 441-52. Retrieved from <https://www.eajournals.org/wp-content/uploads/Mobile-Number-Portability-MNP-In-Nigeria.pdf>
- Boateng, Kofi A. & Owusu, Oscar O. (2013). Mobile Number Portability: On the Switching Trends among Subscribers within the Telecommunication Industry in a Ghanaian City. *Communications of the IIMA*, 13(4), 75-90. DOI:10.58729/1941-6687.1228.
- Birgul, Kutlu. (2013). Effects of Mobile Number Portability: Case of Turkey. *International Journal of Business and Social Science*, 4(14), 120-124. Retrieved from https://ijbssnet.com/journals/Vol_4_No_14_November_2013/16.pdf
- Gurjeet, K., & Ritika, S. (2016). Exploring Predictive Switching Factors for Mobile Number Portability. *Indian Institute of Management, Ahmedabad, Article Reuse Guidelines* 41(1), 74-95. <https://doi.org/10.1177/0256090916631>
- Ayushi, P., & Ashish, B. (2016). Mobile Number Portability. *International Conference on Advanced Computing (ICAC-2016)*. 96-98. Retrieved from <http://icac.tmu.ac.in/wp-content/uploads/2018/04/0416170.pdf>
- Yi-Bing, L. (2003). Mobile Number Portability. *IEEE Network*, 8-16. Retrieved from <https://ir.nctu.edu.tw/bitstream/11536/27619/1/000185635300002.pdf>
- Reddy, M. Vinod Kumar., & Prasad, S. Rajendra. (2013). Implementation Procedure for Mobile Number Portability. *International Journal of Innovations in Engineering and Technology*. Special Issue - ICAECE-2013, 50-57. Retrieved from <https://ijiet.com/wp-content/uploads/2013/03/8.pdf>
- B.I. Bakare & S. Kukuchuku. (2019). Assessment of Mobile Number Portability (MNP) in Nigeria. *International Journal of Electronics Communication and Computer Engineering*. 9(1), 15-18. Retrieved from [file:///C:/Users/User/Downloads/IJECCE_4233_FINALShadrachBakare2018%20\(1\).pdf](file:///C:/Users/User/Downloads/IJECCE_4233_FINALShadrachBakare2018%20(1).pdf)
- Odi Juliet N, Ejiofor V.E, Osuagwu O.E. (2015). A Predictive Model for Evaluating Mobile Number Portability in Nigeria. *International Journal of Computer Trends and Technology (IJCTT)* – 29(3), 142-149. <http://www.ijcttjournal.org>
- Bosede Akanbi, Arogundade Sodiq, Caleb Akanbi (2015). Mobile Number Portability and Telecom subscribers in Nigeria: A Case of Panel data Analysis. www.journals.cz. 10(1), 32-34. Retrieved from <file:///C:/Users/User/Downloads/709-Article%20Text-1417-1-10-20160306.pdf>