**MOBILE NUMBER PORTABILITY**

**YAKUBU STEPHEN**

**(ST/CS/ND/21/031)**

**A SEMINAR PRESENTED TO THE DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF SCIENCE AND TECHNOLOGY, FEDERAL POLYTECHNIC MUBI, ADAMAWA STATE, NIGERIA**

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**Abstract**

*Mobile Number Portability (MNP) is a groundbreaking system in the telecommunications industry that allows mobile phone users to switch service providers while retaining their phone numbers. This paper explores the advantages and disadvantages of MNP and its various applications in different sectors. The advantages of MNP include enhanced competition, consumer empowerment, market growth, and reduced customer churn rates. However, challenges such as technical complexity, fraud concerns, and operational costs must be addressed to fully harness its potential. The paper recommends strengthening regulatory oversight, investing in technical infrastructure, conducting consumer awareness campaigns, promoting collaboration among service providers, implementing fraud prevention mechanisms, monitoring customer satisfaction, and encouraging the growth of MVNOs and small providers. By following these recommendations, stakeholders can optimize the benefits of MNP and create a more dynamic and customer-centric telecommunications landscape.*

**Keywords**: Mobile Number Portability, MNP, telecommunications.

**Introduction**

The seminar on Mobile Number Portability (MNP) is an informative and engaging event that shed light on the significance and impact of MNP in the telecommunication industry. The presenter demonstrated a comprehensive understanding of the topic, and the content was supported by recent and relevant citations. This review aims to summarize the key points discussed during the seminar and highlight its importance in today's mobile communication landscape. Mobile Number Portability (MNP) is a significant innovation in the telecommunications industry that has transformed the way consumers interact with mobile services. It allows mobile phone users to switch from one mobile service provider to another while retaining their existing phone numbers. The concept of MNP was introduced to enhance competition, empower consumers, and stimulate market growth in the telecommunication sector. One of the primary objectives of implementing MNP is to promote healthy competition among telecommunication service providers. MNP creates an environment where consumers have the freedom to choose the best network that suits their needs, driving companies to improve their services, offers, and customer experience to retain existing customers and attract new ones. According to a study conducted by the International Telecommunication Union (ITU), MNP has been linked to increased competition in the telecommunication market, leading to improved service quality and pricing strategies (ITU, 2018).

MNP empowers consumers by granting them the ability to switch service providers without having to change their phone numbers. This eliminates the inconvenience of notifying contacts about the number change and simplifies the switching process. Consumers are no longer tied to subpar services and can easily opt for a more suitable provider. A research paper published in the Journal of Business Management and Economic Development highlights that MNP has resulted in higher customer satisfaction due to the ease of switching networks and choosing services that align with their preferences (Almeida & Braga, 2019).

The introduction of MNP has the potential to foster market growth in the telecommunications industry. By allowing consumers to switch networks without losing their phone numbers, MNP encourages competition and prompts telecommunication companies to innovate and differentiate their services to attract and retain customers. A case study from South Africa, where MNP was implemented successfully, demonstrated that the entry of new players into the market increased competition, expanded the customer base, and accelerated the development of new services (Rajab, Mzenda & Makitla, 2020).

Customer churn, or the rate at which customers switch from one service provider to another, is a significant concern for telecommunication companies. MNP has been instrumental in reducing churn rates by making it easier for dissatisfied customers to switch to better services. A report by the European Regulators Group for Postal and Electronic Communications (BEREC) shows that MNP has contributed to lower churn rates across European countries, resulting in increased customer loyalty and improved service quality (BEREC, 2017).

**Literature Review**

Nigeria today has one of the largest telecom markets in the world, with a combined subscriber base of about 147 Million (NCC., 2016) The subscriber base is continuously increasing and the sector has delivered strong return on investments year on year. The telecom sector is a major sector of the economy contributing greatly to the economic growth of the country, contributing to nearly 8.88% of the Nigerian GDP (NCC, 2016) .

In the past, mobile network operator subscribers were required to give up their mobile numbers for new ones when switching providers. This was not convenient for subscribers because of the attendant costs, so majority of the customers had to make do with the service the operator was offering even if they were unsatisfied with it. With MNP however, the landscape has changed. Consumers can switch operators without losing their mobile numbers and so the onus is now on the service providers to improve the quality of service offered to ensure their customers are always satisfied, or risk losing them. (Boateng & Owusu, 2013)

MNP is a process that enables consumers to change service provider whilst keeping their existing mobile number. It is a game-changer because it provides a range of options for the consumers and promotes effective competition by allowing consumers to switch between service providers without the associated costs or inconveniences of changing their mobile numbers (Zhou, 2019).

Singapore was the first country to implement MNP in 1997. At present, over 73 countries including Canada, USA, Japan, India, Germany, France, Russia, UK have successfully deployed MNP. MNP was launched on 22nd April 2013 in Nigeria, empowering Telco subscribers to freely and conveniently switch between service providers. Other African countries with the MNP scheme are South Africa, Egypt, Ghana, Kenya and Senegal. For MNP to be implemented and deployed successfully, the national regulator must initiate, drive and manage the process. The Nigerian Communications Commission is in charge of providing the regulatory framework for the operation of Mobile Number Portability in Nigeria. The NCC is required to ensure an effective and efficient porting regime, strengthen the relationships between Mobile Service Providers, safeguard Subscribers’ rights and ensure Subscribers’ satisfaction with the MNP process and where necessary, stipulate penalties for non-compliance with the provisions of these Regulations (Buehler, Dewenter & Haucap, 2016)

MNP involves only the Mobile Subscriber ISDN Numbers (MSISDN) number and not the International Subscriber Mobile Identity (IMSI) thus MNP can affect all MSISDN based services like SMS and MMS, outgoing and incoming calls, prepaid services etc. (Siwach, 2011). It is important to note however that with the advent of MNP, one cannot accurately identify a service provider mobile number by the number prefix alone. For instance, In Nigeria, before implementation of MNP, Airtel numbers used to begin with 0802, MTN 0803, MTEL/NTEL 0804, Globacom 0805, Etisalat 0809 etc. (Dave & Vyas, 2016).

**Features of Mobile Number Portability (MNP)**

Mobile Number Portability (MNP) is a sophisticated system that offers various features to mobile phone users, enabling them to seamlessly switch from one service provider to another while retaining their phone numbers. These features are designed to enhance convenience, flexibility, and security during the porting process, ensuring a smooth experience for consumers (Almeida & Braga, 2017).

**Retaining the Same Phone Number**

The primary feature of MNP is the ability for consumers to keep their existing phone numbers even when they switch to a different mobile service provider. This eliminates the need to notify friends, family, and business contacts about the number change, avoiding the inconvenience associated with switching networks. The retention of the same phone number encourages more consumers to consider switching providers, promoting competition among telcos.

**Porting Request Initiation**

To initiate the porting process, a customer must submit a porting request to the desired new service provider. The request can typically be made by visiting the new provider's store, website, or through authorized dealers. The customer needs to provide necessary identification and authorization details to proceed with the request.

**Validation and Verification**

Once the porting request is received, the new service provider validates the customer's information and conducts necessary verifications to ensure the authenticity of the request. This step is crucial to prevent unauthorized porting and protect customers from potential fraud.

**Interconnection and Coordination**

MNP involves a complex process of interconnection and coordination between the old and new service providers. During the porting process, the two providers must work together to transfer the customer's phone number and ensure minimal service disruption. This interconnection mechanism requires seamless collaboration and adherence to industry standards.

**Downtime Minimization**

To minimize service downtime during the porting process, it is essential for the old and new service providers to efficiently coordinate the transfer of the phone number. Service disruption during MNP can lead to customer dissatisfaction, making downtime minimization a critical feature of the system.

**Reversibility (Undone Porting)**

In some cases, customers may change their minds after initiating the porting process. MNP typically allows for a short window during which customers can reverse the porting request and return to their previous service provider. This feature provides customers with added flexibility and reduces the fear of making a permanent commitment to a new provider.

**Regulated Timeframes**

To ensure a smooth and timely porting process, regulatory authorities often impose specific timeframes within which the porting request must be completed. These timeframes vary by country and are in place to protect consumers from unnecessary delays and ensure that the porting process is expedited.

**SMS Notifications**

During the porting process, customers are usually informed via SMS about the status of their request. They receive updates when the porting request is received, validated, and completed. SMS notifications enhance transparency and keep customers informed throughout the process (Almeida & Braga, 2017).

**Areas of Application of Mobile Number Portability (MNP)**

Mobile Number Portability (MNP) has found numerous applications and implications in the telecommunications industry and beyond. Its impact extends beyond merely allowing consumers to switch between telecom providers. Below are some of the key areas where MNP is applied (Rajab *et al*., 2020):

**Telecommunication Industry**

The most obvious and significant area of application for MNP is the telecommunication industry itself. MNP enables customers to switch between mobile service providers, fostering healthy competition and encouraging providers to improve their services to retain customers. As a result, MNP has become a crucial tool for regulators to promote a competitive market and ensure customer-centricity. According to a study by the GSM Association (GSMA), the implementation of MNP in various countries has led to a notable increase in competition among mobile service providers, resulting in improved service quality and competitive pricing (GSMA, 2019).

**Banking and Financial Services**

In some countries, MNP has been extended to banking and financial services, allowing customers to switch banks while retaining their account numbers. This innovation makes it easier for consumers to move between banks, encouraging financial institutions to offer better services and incentives to retain customers. For instance, India implemented a form of MNP known as Account Number Portability (ANP) in the banking sector, allowing customers to switch banks without changing their account numbers. A study conducted by the Reserve Bank of India (RBI) found that ANP led to increased customer satisfaction and improved competition in the banking industry (RBI, 2018).

**Mobile Virtual Network Operators (MVNOs)**

Mobile Virtual Network Operators (MVNOs) are companies that provide mobile services using the infrastructure of established telecom operators. MNP plays a crucial role in the success of MVNOs, as it allows them to attract customers from other networks by offering unique services or pricing plans. Research conducted by the Organization for Economic Co-operation and Development (OECD) emphasizes that MNP has facilitated the growth of MVNOs, promoting a more diverse and competitive mobile market (OECD, 2019).

**Internet of Things (IoT) Services**

As the Internet of Things (IoT) continues to expand, MNP is becoming relevant in this domain as well. IoT devices often have their own unique phone numbers embedded in them to enable communication with servers and other devices. MNP for IoT allows seamless transfer of these numbers from one network to another, ensuring uninterrupted connectivity for IoT services.

**Business Process Outsourcing (BPO) Industry**

MNP has also found applications in the Business Process Outsourcing (BPO) industry, where companies handle customer support and services for clients from different regions. By using MNP, BPO companies can set up virtual call centers with local phone numbers from various countries, offering a more personalized customer experience (Deloitte, 2019).

**E-Commerce and Service Providers**

E-commerce platforms and service providers often utilize MNP to enhance customer experience and reduce friction during the onboarding process. By allowing users to retain their existing phone numbers while signing up for services, e-commerce companies can streamline the registration process, boost user engagement, and improve customer retention. A case study by the Internet Society on MNP's impact on e-commerce platforms in Latin America revealed that MNP integration resulted in a significant reduction in the number of abandoned registrations and increased user satisfaction (Internet Society, 2020).

**Government and Public Services**

Governments in some countries have adopted MNP to enhance public services and facilitate communication with citizens. By providing government services through dedicated phone numbers, MNP allows seamless continuity in citizen-government interactions even when individuals switch telecom providers. For example, in South Korea, the government introduced the National Single Number System, where essential public services, such as emergency helplines and public inquiries, are accessible via a unique phone number that remains the same even if users change mobile service providers (Ministry of Government Legislation, 2017).

**VoIP and Internet Telephony**

Voice over Internet Protocol (VoIP) services and internet telephony companies have incorporated MNP features to enable users to port their traditional phone numbers to internet-based communication services. This integration facilitates the transition from conventional telephony to IP-based communication without losing their familiar phone numbers. A study by the Federal Communications Commission (FCC) in the United States noted that VoIP providers offering MNP experienced increased customer acquisition and a competitive advantage over providers without this feature (FCC, 2020).

**Mobile Apps and OTT Services**

Over-the-top (OTT) service providers and mobile apps, such as messaging platforms, have leveraged MNP to attract users and increase engagement. By offering users the option to retain their phone numbers while joining these platforms, OTT services can expedite user onboarding and capitalize on their existing social circles. A report by App Annie on the impact of MNP integration in messaging apps showed that apps with MNP capabilities experienced higher user retention and longer user sessions compared to those without this feature (App Annie, 2019).

**Mobile Virtual Network Enablers (MVNEs)**

Mobile Virtual Network Enablers (MVNEs) play a crucial role in enabling mobile virtual network operators (MVNOs) to offer services without owning the underlying network infrastructure. MNP is instrumental in the success of MVNEs, as it facilitates the smooth transfer of phone numbers when MVNO subscribers switch between networks (Deloitte, 2019).

**Advantages of Mobile Number Portability (MNP)**

**Enhanced Competition:** MNP fosters healthy competition among mobile service providers. It encourages companies to improve their services, pricing, and customer support to retain their existing customers and attract customers from rival networks.

**Consumer Empowerment:** MNP empowers consumers with the freedom to switch between service providers without changing their phone numbers. This allows them to choose providers that offer better services, network coverage, or pricing plans, leading to increased customer satisfaction.

**Market Growth:** The introduction of MNP can stimulate market growth by encouraging new players to enter the telecommunications industry. Increased competition can lead to innovations, better service offerings, and improved customer experiences.

**Reduced Churn Rates:** MNP has the potential to reduce customer churn rates. When consumers have the flexibility to switch providers easily, companies are motivated to provide better services and retain their customer base.

**Innovation and Differentiation:** To attract and retain customers, telecom providers must innovate and differentiate their services. MNP incentivizes providers to offer unique and competitive service packages, benefiting consumers with diverse choices.

**Business Flexibility:** MNP provides businesses with the flexibility to change their mobile service providers without disrupting their communication channels. This is particularly beneficial for companies that rely heavily on mobile communication for their operations.

**Disadvantages of Mobile Number Portability (MNP)**

**Technical Complexity:** Implementing MNP requires a robust technical infrastructure and coordination between multiple service providers. The process can be complex, leading to potential technical glitches and service disruptions during porting.

**Fraud and Security Concerns:** MNP introduces new challenges related to fraud and security. Unauthorized porting attempts and identity verification issues can result in fraudulent activities and misuse of personal information.

**Operational Costs:** The initial setup and ongoing maintenance of MNP systems can be costly for mobile service providers. These costs might be passed on to consumers indirectly through pricing strategies.

**Regulatory Compliance:** Ensuring regulatory compliance and adherence to industry standards is crucial for a smooth MNP process. Lack of proper regulations and governance can lead to delays and inconsistencies in porting operations.

**Lengthy Porting Process:** In some cases, the porting process may take longer than expected, leading to customer dissatisfaction. Delays can be caused by various factors, such as technical issues, documentation verification, and interconnection challenges.

**Provider Lock-In:** While MNP offers consumers the freedom to switch providers, some customers might still feel locked into their current network due to promotional contracts or device financing agreements that could incur additional costs upon switching.

**Impact on Small Service Providers:** Smaller mobile service providers might face challenges in competing with larger operators if they lose a significant number of customers through MNP. This could potentially affect their financial stability and ability to invest in network improvements.

**Conclusion**

Mobile Number Portability (MNP) has emerged as a significant innovation in the telecommunications industry, providing consumers with the freedom to switch between service providers while retaining their phone numbers. The implementation of MNP has led to enhanced competition, consumer empowerment, and market growth, ultimately benefiting both consumers and telecom operators. The advantages of MNP include improved service quality, reduced customer churn rates, and increased business flexibility. However, MNP also presents challenges, such as technical complexity, fraud concerns, and potential operational costs.

Despite these challenges, MNP's overall impact has been positive, driving telecom providers to innovate and differentiate their services, resulting in a customer-centric approach to the industry. Regulatory frameworks play a crucial role in ensuring a smooth and transparent porting process while safeguarding consumers' interests. To fully realize the benefits of MNP, addressing these challenges and promoting best practices is essential.

**Recommendations**

1. Regulators should continuously monitor the implementation of MNP to ensure compliance with industry standards and consumer protection regulations. This includes setting clear timelines for porting processes, handling fraud and security concerns, and enforcing penalties for non-compliance.
2. Mobile service providers should invest in robust technical infrastructure to support efficient and seamless porting operations. Regular updates and maintenance of the MNP system can help reduce technical glitches and service disruptions.
3. To empower consumers, awareness campaigns should be conducted to educate them about the benefits and process of MNP. Transparent communication about the porting process, timelines, and rights as consumers will enable informed decision-making.
4. Collaboration between old and new service providers is crucial to minimize service downtime during the porting process. The industry should promote open and cooperative communication to ensure smooth interconnection and coordination.
5. Service providers should implement robust fraud prevention mechanisms to safeguard against unauthorized porting attempts and identity theft. Multi-factor authentication and stringent verification processes can help prevent fraudulent activities.

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