WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Operational Excellence Strategies in the Telecommunication Industry.

Spencer Itive

RS Engineering Global Limited, Lagos, Nigeria

ABSTRACT

The telecommunication industry in Nigeria serves as a key player to the growth of the economy, and technological improvement. However, attaining operational excellence in this fast-evolving industry remains an important challenge due to infrastructural setbacks, regulatory disadvantage, and constant change in the market demands. This paper explores strategic approaches to achieving operational excellence within Nigeria's telecommunications sector, focusing on efficiency, innovation, and sustainability. Key areas examined include the adoption of digital technology and automation, the integration of artificial intelligence and IoT for network optimization, and the importance of robust workforce training programs. Furthermore, this study highlights the role of preventive maintenance in reducing service downtime at telecommunication base stations, the need for green energy solutions to address power reliability issues and reduce greenhouse gas emission. Case studies of leading Nigerian mobile network operators are presented, demonstrating successful implementations of these strategies and their outcomes. The analysis dwell on the significance of customer-centric approaches, data-driven decision-making, and lively organizational structures in modifying to rapidly changing market conditions.

By identifying actionable strategies in the telecommunication industry and exhibit best practices, this paper offers valuable perception for industry stakeholders seeking to optimize operational efficiency, reduce costs, and improve their quality of service.

Keywords*: Operational Excellence, Telecommunication Industry, Artificial Intelligence, Internet of Things, renewable energy, preventive maintenance*

1. INTRODUCTION

Operational Excellence in the telecommunication industry is important due to the fast-paced and highly competitive nature of the sector. As technology evolves, telecom companies must adopt strategies that enhance efficiency, reduce costs, and improve customer satisfaction. Below are some key strategies for achieving operational excellence in this industry, along with insights from recent industry reports and statistics. The Nigeria mobile telecommunications infrastructure has grown beyond the reach of other supporting infrastructure.

The telecommunications industry in Nigeria remained underdeveloped until the sector's deregulation in 1992, marked by the establishment of the Nigerian Communications Commission (NCC) to oversee and regulate the industry. Mobile communication services were introduced to the Nigerian market in 1993, spearheaded by the Nigerian Telecommunications Limited (NITEL), which provided nationwide services, and the Mobile Telecommunications Services (MTS), which operated in Lagos. These companies offered a range of services, including voicemail, paging, and voice communication via the analogue E-TACS network. However, MTS ceased operations due to its inability to settle interconnection charges owed to NITEL, highlighting the financial and operational challenges faced in the early stages of the industry's evolution. The history of the Global System for Mobile Communication (GSM) in Nigeria began in 2001, following the deregulation of the telecommunications sector (Ade Oyedijo, 2012). Over the past two decades, the GSM platform has transformed the industry, experiencing remarkable growth in subscriber numbers from approximately one million at its inception to over two hundred million. This exponential expansion attest to the transformative impact of GSM technology on connectivity and communication in Nigeria.

Telecommunication has undergone significant evolution over the centuries, transitioning from the analogue era—dominated by organizations such as INTELSAT and INMARSAT, which managed international message traffic with limited services like voice telephony, telex, facsimile, and telegraphy—to the digital age. The advent of technologies such as satellites for Global Mobile Personal Communication Systems (GMPCS), Voice Over Internet Protocol (VoIP), and the emergence of cable broadcasting networks and Integrated Services Digital Networks (ISDN) has redefined the industry (A. Flueury, 2003). These advancements have broadened service offerings and ushered in a new era of efficiency and accessibility in global communication systems (Nsikan Nkordeh, 2017). Nigeria mobile subscriber base has reached 222 million, driven by strong growth in mobile penetration and mobile network coverage. Therefore, operation and maintenance of the network remains a big challenge affecting the cost of operations, network availability and reliability of mobile telecommunication services.

This study focuses on best operation practices to assist the Mobile Operators/Tower Companies in adopting the most adequate approach to operations and maintenance of telecom power infrastructure to optimize service availability and OPEX efficiency

1.1 LITERATURE REVIEW

Operational excellence in the telecommunications industry in Nigeria involves implementing strategies that improve efficiency, reduce costs, and improve quality of service provided to customers. This section presents a summary of related literature that is available regarding operational excellence in the telecommunication industry in Nigeria.

(O. Felix, 2021) in his work examined the relationship between positioning strategies and firm competitiveness in selected Nigerian telecommunication firms located in Asaba, Delta State. A cross-sectional survey design was adopted by the researcher, with stratified random sampling used to select 120 participants comprising customers and staff of GLO and MTN the leading mobile network operators in Nigeria. The analysis used statistical methods such as simple percentages, correlation, and multiple regression. The findings revealed that positioning strategies—including product health messages, packaging, quality, and availability—positively and significantly influence firm competitiveness. Specifically, communicating health-related benefits of products was found to enhance organizational productivity and consumer awareness, as improved living standards have heightened consumer concerns about health. The study concludes that health message communication plays an important role in driving consumer trust and organizational success. It recommends that firms emphasize product health messaging by labelling products with important health information to educate consumers on the product's benefits and values. This strategy not only promotes consumer loyalty but also aligns with broader societal trends prioritizing health and wellness. The emphasis on positioning strategies demonstrates their crucial role in strengthening market competitiveness for telecommunication firms in Nigeria.

(Nsikan Nkordeh, 2017), offers a critical analysis of the Nigerian GSM market, emphasizing its growth trajectory and challenges from 2001 to 2016. Historically, communication in the 19th and 20th centuries relied on technologies like telegraphy, telephony, wireless communication, and copper conductors. However, the advent of GSM in 2001 marked a revolutionary shift, leading to substantial annual growth in subscriber base, revenue, and market penetration. The analysis in this research builds on previous research, investigating the drivers of growth and challenges within the GSM market. Challenges such as subscriber loss, reduced foreign investments, and high operational costs are examined, alongside their implications for the market and its stakeholders. The paper also highlights the broader economic impact of GSM technology, including its contribution to national economic development and its influence on societal progress. By addressing both the benefits and challenges, this study provides a comprehensive overview of the GSM market's evolution and its role in shaping Nigeria's telecommunications landscape.

(Ade Oyedijo, 2012) explores the relationship between strategic agility and competitive performance in Nigeria's telecommunications industry, focusing on data from nine firms. A five-point Likert scale based on 21 items derived from literature was employed to assess strategic agility across various dimensions. A multiple-informant survey method was used, with data collected from members of the Top Management Teams (TMTs) of participating firms. The strategic agility index for each firm was calculated by averaging respondents' ratings on all agility items. Data on key performance metrics—profit growth, sales revenue, financial strength, operational efficiency, and performance stability—were obtained from company records. The findings also showed that strategic agility is a strong predictor of competitive performance, with an explanatory power (R^2) of 0.610. This highlights the critical role of strategic agility in driving adaptability, efficiency, and long-term competitiveness in Nigeria's dynamic telecommunication industry.

(K.B Danbatta, 2021) addresses the challenge of improving the configuration and capacity of telecommunication networks to achieve a desired Grade of Service (GoS). It emphasizes the economic inefficiency of dedicating exclusive resources to individual customers, advocating instead for shared facilities that balance performance and cost. Situations of resource shortages, leading to delays in customer connections, necessitate quantitative evaluation of GoS to understand the relationship between facility configuration and performance. Using the Erlang B model and Siemens Normal and High Load formulae, the study determines optimal network capacity based on user behaviour and quality of service parameters. An analysis of 18 months of tele traffic data for interconnections between six Nigerian networks (Networks A to F) revealed suboptimal performance levels. The calculated Call Completion Rate (CCR) of 63% and Answer Seizure Ratio (ASR) of 23% fell below the International Telecommunications Union (ITU-T) standards of 75% and 55%, respectively. The findings showed that some interconnections were over-dimensioned while others were under-dimensioned. However, the study also highlighted significant improvements in the industry's average CCR and ASR, which rose to 93% and 80%, showing a 30% and 40% improvement, respectively. The paper concludes with recommendations for interconnecting service providers to improve configuration and ensure alignment with GoS standards, ultimately improving the efficiency and performance of Nigeria's telecommunication networks.

(B.Y Adebola, 2016) study explored the impact of change implementation on competitive positioning and organizational performance in Nigeria's telecommunications industry. It employs a descriptive survey research design, targeting a population of 30,724 management employees as reported by the NCC (2012). Using proportional stratified sampling and a survey sample size calculator, 2,312 employees were selected for participation. Data collection was conducted through a six-point Likert scale questionnaire, validated by experts, and achieving a reliability coefficient of 0.81 (Cronbach's alpha). Out of the distributed questionnaires, 1,345 were completed and returned. The findings revealed a significant positive relationship between change implementation and competitive positioning ($R^2 = 0.251$, $p < 0.05$), demonstrating that effective change implementation enhances firms' competitive positioning and performance. The study concludes that integrating change implementation into broader change management practices is crucial for achieving sustained organizational success. The research highlights the importance of creating an enabling environment, adopting suitable techniques, and leveraging technologies to facilitate effective organizational change. Recommendations include the need for managers to prioritize change implementation as a core aspect of strategic planning and execution. The study provides valuable insights into the role of structured change processes in driving competitiveness and operational excellence in Nigeria's telecommunications industry.

(B. Ekankumo, 2023) examined the impact of experience marketing on customer retention within Nigeria's fast-growing and highly competitive telecommunications industry, which boasts the largest subscriber base in Africa, exceeding 150 million users. With customer retention

becoming a focal point for telecom providers, the research explores how experience marketing strategies can enhance loyalty and retention. Using primary data from 402 respondents across six states in Nigeria's south-south geopolitical zone—Akwa Ibom, Bayelsa, Cross River, Edo, Delta, and Rivers—the study employed correlation and regression analyses to test its hypotheses. Key dimensions, such as customer service quality, customer-brand relationships, and customer emotional experiences, were identified as critical components of effective experience marketing strategies. The study concludes that these factors significantly improve customer loyalty, providing telecom firms with a competitive edge in retaining subscribers. It recommends a shift from traditional marketing approaches to experience-based strategies to sustain relevance in a globalized market. By prioritizing customer engagement through improved service quality, personalized interactions, and emotional connection, Nigerian telecom operators can strengthen customer retention and remain competitive in the evolving telecommunications landscape.

(V.MHieu, 2019) investigated the strategic management practices adopted by mobile telecommunication firms in Nigeria, using a case study and descriptive research approach. A survey was conducted to gather data from employees of four major mobile telecom companies operating in the country. The findings highlight that key factor such as vision, mission, strategic analysis, and the establishment of long-term objectives play an important role in the successful formulation of strategies within these firms. The study also emphasizes the importance of organizational policies, financial resources, employee commitment to strategy implementation, human resources, and organizational structure in executing strategies effectively. However, it was noted that one mobile operator's organizational structure and governance model were inadequate to support its strategic initiatives, which hindered its overall performance. In addition, the study sheds light on the various strategic analysis tools utilized by the firms and highlights the important role of strategy evaluation practices in achieving business success. The researchers conclude by offering recommendations for improving strategy formulation and implementation, along with suggestions for further research in this field.

(K.S Akpoviroro, 2019) explores the implementation of Total Quality Management (TQM) within Globacom Nigeria PLC, focusing on the challenges and opportunities associated with its adoption in the telecommunications industry. The research identifies the importance of customer consideration in achieving market leadership, highlighting that neglecting customer needs can lead to the downfall of businesses. Two research questions and hypotheses were developed to guide the study, which utilized a survey method for data collection. A total of 124 questionnaires were distributed to respondents to gather their insights and observations. The study employed statistical tools such as SPSS, Cronbach's alpha, regression analysis, and ANOVA for data analysis, with descriptive statistics and content analysis to interpret the results. The findings revealed that the strategic management process significantly influences the implementation of TQM, and that planning and training methods are crucial for the effective adoption of TQM principles. The research concludes that fully integrating TQM principles and quality tools into organizational functions can result in substantial benefits. The study emphasizes the need for telecommunications companies like Globacom to prioritize TQM to enhance operational efficiency and customer satisfaction, ultimately leading to long-term business success.

2.0 KEY STRATEGIES FOR ACHIEVING OPERATIONAL EXCELENCE

To achieve operational excellence in the telecommunications industry in Nigeria, a comprehensive strategy that focuses on process improvement, customer satisfaction, and continuous optimization should be employed. By employing these strategies, telecommunications companies in Nigeria can attain operational excellence, optimize service delivery, reduce costs, and remain competitive in a rapidly evolving market. Below are some key strategies for achieving operational excellence in this industry, along with insights from recent industry reports and statistics.

2.1 DIGITAL TECHNOLOGY AND AUTOMATION STRATEGY

Digital transformation is at the core of operational excellence in the telecom industry. Companies are leveraging artificial intelligence (AI), machine learning (ML), and robotic process automation (RPA) to streamline operations and reduce manual intervention.

1. Artificial Intelligence and Machine learning: Leveraging AI and ML to analyze data, predict issues, and optimize processes could result in operational excellence. These technologies are used for predictive maintenance, optimizing network performance, and enhancing customer service through chatbots and virtual assistants.\
2. Robotic Process Automation: This technology helps in automating routine tasks such as billing, order processing, and customer service inquiries.
3. Data Analytics: Data analytics can be used to gain insight into telecom operation and identify areas for improvement.
4. Cloud computing: The adoption of cloud computing can be implemented to optimize scalability, flexibility and reliability of telecom assets and operations.

2.2 NETWORK OPTIMIZATION AND MANAGEMENT

Effective network optimization and management are essential for telecom companies to provide high-quality service and reduce operational costs. Implement network automation tools to streamline processes and reduce manual errors. This includes adopting technologies such as Software-Defined Networking (SDN) and Network Function Virtualization (NFV).

2.2.1 Software Defined Networking and Network Function Virtualization

These technologies enable more flexible and efficient network management by decoupling network services from the underlying hardware. The global SDN market size was valued at USD 8.17 billion in 2022 and is expected to reach USD 43.2 billion by 2027, growing at a CAGR of 40.9% (Gartner, 2023).

2.2.2 5G Deployment

The rollout of 5G networks is another critical aspect of network optimization. It promises higher speeds, lower latency, and greater capacity. According to Ericsson's Mobility Report (2023), there will be 1.9 billion 5G subscriptions by the end of 2024, covering about 65% of the world's population.

2.3 PROCESS IMPROVEMENT STRATEGIES

1. **Lean Six Sigma:** Implementing Lean Six Sigma methodologies will eliminate waste, reduce variability, and improve flow.
2. **Process Mapping:** Map telecom processes are necessary to identify inefficiencies and areas for improvement.
3. **Root Cause Analysis (RCA):** Conducting root cause analysis is crucial to identify and address underlying causes of issues.
4. **Continuous Monitoring (CM):** Continuously monitoring telecom processes is crucial to identify areas for improvement.

2.4 ORGANIZATIONAL AND CULTURAL STRATEGIES

1. **Change Management**: Implementing change management processes to ensure smooth adoption of new processes and technologies.
2. **Training and Development**: Provide ongoing training and development opportunities to ensure telecom staff have the necessary skills.
3. **Collaboration and Communication**: Foster a culture of collaboration and communication to encourage idea sharing and continuous improvement.
4. **Employee Empowerment**: Empower telecom staff to take ownership of continuous improvement initiatives.

2.5 CUSTOMER EXPERIENCE MANAGEMENT

Customer Experience Management is a strategic focus area for telecom companies aiming to achieve operational excellence. Companies are investing in advanced analytics and customer feedback systems to understand and enhance the customer journey.

1. **Advanced Analytics:** Using big data and analytics, telecom operators can gain insights into customer behavior, predict churn, and tailor services to meet individual needs. A 2023 report by McKinsey & Company indicated that telecom companies leveraging advanced analytics for customer experience saw a 15-20% increase in customer satisfaction and a 10-15% reduction in churn rates.
2. Omni-Channel Support: Providing consistent and seamless support across multiple channels (e.g., phone, email, social media) is crucial. The 2023 Global Customer Experience Benchmarking Report by Dimension Data revealed that 89% of telecom companies identified omni-channel integration as a top priority for improving customer experience.

2.6 LEAN AND AGILE METHODOLOGIES

Adopting lean and agile methodologies can significantly enhance operational efficiency and responsiveness to market changes.

1. **Lean Practices:** Implementing lean practices helps in eliminating waste, optimizing processes, and improving quality. According to a 2023 report by Lean Enterprise Institute, telecom companies applying lean principles reported a 25-30% improvement in operational efficiency.
2. **Agile Methodologies:** Agile methodologies enable telecom companies to rapidly develop and deploy new products and services. The 2023 State of Agile Report highlighted that 78% of telecom companies have adopted agile practices, resulting in faster time-to-market and improved project success rates.

2.7 SUSTAINABLE OPERATIONS

Companies are adopting green practices to reduce their environmental footprint and promote operational excellence. Renewable Energy is energy obtained from sources that are inexhaustible resources; examples are wind power, solar power, geothermal energy, hydroelectric power and tidal power. Renewable energies are available over a wide geographical area, and they replace conventional fuel in four areas such as electricity generation (solar/wind), air and water heating, motor fuels and rural off grid energy system. Energy conservation has become one of the most important challenges in addressing the world's climate crisis. The global energy landscape is under increasing pressure, with uncertainties about its future direction. While no one can accurately

predict the trajectory of energy development, it is widely acknowledged that green energy will play an important role in shaping a sustainable energy future in the telecommunication industry. Implementing energy-efficient technologies and practices in network operations can significantly reduce costs. The 2023 Sustainability Report by GSMA indicated that telecom companies could save up to 30% in energy costs by adopting energy-efficient network solutions.

3. STRATEGIC ANALYSIS AND EXECUTON METHODOLOGY

The path to achieving Operational Excellence can be systematically approached through a five phase methodology, which ensures a thorough analysis and effective execution. This process aligns with industry best practices and has been proven to deliver tangible improvements in efficiency and customer satisfaction.

1. Assessment and Baseline Establishment: Key activities include benchmarking current operations against industry standards, identifying performance gaps, and establishing a clear baseline for improvement.
2. Process Optimization: Focus on streamlining workflows, eliminating waste, and implementing lean techniques to enhance efficiency.
3. Technology and Infrastructure Review: Evaluate current technology stack and infrastructure to ensure they support efficient operations and can scale with growth.
4. Employee Engagement and Training: Engage the workforce in the transformation journey, providing necessary training to adapt to new processes and technologies.
5. Continuous Improvement and Control: Implement a framework for ongoing review and refinement of processes, ensuring lasting Operational Excellence.

4. OPERATIONAL EXCELLENCE KEY PERFORMANCE INDICATORS

KPIs are crucial throughout the implementation process. They measure telecom performance and identify areas for improvement.

1. Customer Service Response Time (CSRT): Indicator of customer experience and operational efficiency.
2. Operational Cost Reduction (OCR): Measures the financial impact of process optimizations.
3. Benchmarking: Conduct benchmarking studies to compare telecom performance with industry best practices.
4. Customer Feedback: Collect customer feedback to identify areas for improvement and measure the effectiveness of continuous improvement initiatives.
5. Regular Review and Assessment: Regularly review and assess telecom processes and performance to identify areas for improvement.

5. CONCLUSIONS

Operational excellence in the telecommunication industry is achieved through a combination of digital transformation, network optimization, customer experience management, lean and agile methodologies, and sustainable operations. By leveraging advanced technologies and adopting best practices, telecom companies can enhance efficiency, reduce costs, and improve customer satisfaction, positioning themselves for long-term success in a highly competitive market. In addition, Operational standards always are a moving target. Hewett said: “Once the customer is happy, the goalpost gets even higher and further away. Suddenly, what was considered Six Sigma is no longer. It’s a never-ending quest. We’re always working on improving our efficiency, especially when you look at our size, we’re always institutionalizing.”

By understanding the inherent challenges associated with operational excellence and, more important, the success factors and skills needed to overcome those challenges.

References

A. Flueury. (2003). THE EVOLUTION OF STRATEGIES AND ORGANIZATIONAL COMPETENCIES IN THE TELECOMMUNICATIONS INDUSTRY. International Journal of Information Technology & Decision Making, Vol. 2, No. 4, 577–596.

Ade Oyedijo. (2012). Strategic Agility and Competitive Performance in the Nigerian Telecommunication Industry: An Empirical Investigation. American International Journal of Contemporary Research, Vol. 2 No. 3.

B. Ekankumo, N. K. (2023). EXPERIENCE MARKETING AND CUSTOMER RETENTION IN THE NIGERIAN TELECOMMUNICATIONS INDUSTRY. International Journal of Entrepreneurship and Business Innovation, Volume 6, Issue 1, pp. 54-67.

B.Y Adebola, T. A. (2016). Change Implementation and Competitive Positioning: a Study of the Nigeria Telecommunication Industry. International Journal of Operational Research in Management, Social Sciences & Education, Vol. 2, No. 1.

K.B Danbatta, A. D.-I. (2021). OPTIMUM DIMENSIONING OF INTERCONNECTIONS BETWEEN SOME GSM OPERATORS IN NIGERIA USING ERLANG B MODEL. FUDMA Journal of Sciences, Vol. 5 No. 4, pp 285 - 290.

K.S Akpoviroro, A. A. (2019). THE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT (TQM) IN THE TELECOMMUNICATION INDUSTRY: PROBLEMS AND PROSPECTS. International quality conference.

Nsikan Nkordeh, I. B.-M. (2017). The Nigerian Telecommunication Industry: Analysis of the First Fifteen Years of the Growths and Challenges in the GSM Market (2001 – 2016). Proceedings of the World Congress on Engineering and Computer Science, (pp. pp. 1-6). San fracisco USA.

O. Felix, M. P. (2021). Positioning Strategies and Firm Competitiveness in the Nigeria Telecommunication Industry: A Study of GLO and MTN Asaba. THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT, Vol 9 Issue 4 .

V.MHieu, C. N. (2019). EXPLORING STRATEGIC MANAGEMENT PRACTICES: CASE STUDY OF 4 MOBILE TELECOMMUNICATION OPERATORS IN NIGERIA . Economics Management Innovation, Vol 11, issue 3.