

Creating and using Exclusive Technologies to Gain a Competitive Edge in the Southern Region of Nigeria

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ABSTRACT

This article examined the crucial significance of proprietary technologies in promoting competitive advantage among enterprises in South-South Nigeria, an area of economic importance renowned for its abundant natural resources and growing industries. The study underscores the significance of technical advancement in crucial industries such as oil and gas, agriculture, and manufacturing while drawing attention to the distinct obstacles and prospects in the area. Despite making progress, the southern region of Nigeria, known as the South-South, still encounters major obstacles such as insufficient financing for research and development, restricted availability of state-of-the-art technology, a scarcity of highly qualified personnel, and ineffective frameworks for protecting intellectual property rights. The research examined the present condition of proprietary technology development, identify key barriers, and evaluate the effect on competitive advantage. Research indicates that increasing investment in research and development, boosting technical infrastructure, aligning educational curricula with industrial requirements, and strengthening the intellectual property rights framework are crucial measures for fostering technological innovation and creating economic diversity in the area.

Keywords: Advancements in technology, Exclusive Technologies, Strategic advantage over competitors, Research and Development, Intellectual Property Rights.

INTRODUCTION

Today's multinational corporations need technological innovation to be competitive. Particularly in southern Nigeria, known for its natural resources and booming economy. For long-term development and market supremacy in a competitive sector, enterprises in this area are developing and exploiting their technology. The one-firm-owned proprietary technology provides significant competitive advantages. They help organisations differentiate their products, improve operational efficiency, and build market barriers. In South-South Nigeria, oil and gas, agricultural, and industrial enterprises compete fiercely [1]. These technologies are vital. Develop and use distinctive technologies to boost market position and profits. Delta, Bayelsa, Akwa Ibom, Cross River, and Edo are key economic centres in Nigeria's south-south. Oil and gas production accounts for most of Nigeria's GDP and foreign currency income [2]. Increased awareness of the need to widen the economic base and reduce oil dependence is growing. To diversify, Nwosu and Ugwuegbu [3] suggest developing unique innovations in agriculture, renewable energy, and information technology. Though slower than in developed regions, south-south Nigeria is making technological development. For innovation, the Nigerian government and corporate sector are committing more money to R&D. Tech clusters and incubators in Port Harcourt and Uyo show devotion to innovation [4]. Small and large firms may use these institutions to develop and promote their unique technologies. Southern Nigerian

exclusive technologies face several challenges despite progress. The problems include inadequate research and development funding, limited access to cutting-edge technology, low technical expertise, and a weak IPR framework [5]. Making technological innovation possible requires addressing these issues. Exclusive technology offers several competitive advantages. The area's youthful, lively populace provides inventive talent. The global shift towards sustainable and environmentally friendly technology also allows South-South Nigeria to develop innovative solutions for local and international markets. Recent successes in south-south Nigeria demonstrate the potential of proprietary technology. The area's technology company, Andela, has developed unique software development training methods to create a highly competitive staff [6]. Accordingly, the Niger Delta Development Commission (NDDC) has implemented indigenous waste management and water purification projects [7]. Developing and utilising distinctive technologies are essential for South-South Nigerian enterprises to compete in a fast-changing sector.

For firms to compete in today's globalised market, innovation and distinctive technology are essential. Exclusive technology may give companies a competitive edge in Nigeria's Southern Region, with its dynamic economy, various sectors, and plentiful natural resources. Although these potentials exist, firms in this area confront several obstacles that prevent them from creating and using such technology. One challenge is the lack of infrastructure to facilitate sophisticated technology development and implementation. Like much of Nigeria, the Southern Region lacks reliable electricity, internet, and sophisticated research and development facilities. Inadequate infrastructure makes it hard for firms to develop and adopt cutting-edge technology, placing them at a disadvantage compared to global competitors [8]; [9]. In addition, human capital development is lacking. With multiple educational institutions in the area, the relationship between academics and industry is inadequate, resulting in a scarcity of competent workers who can drive technical innovation. The brain drain, when smart people leave for greater chances, worsens this skill deficit [10]; [11]. Nigeria's regulatory climate also hinders technological innovation. Businesses seeking to develop and employ unique technology are deterred by bureaucratic procedures, uneven IP enforcement, and a lack of government research and development incentives [12]; [13]. In the South, regulatory compliance costs and political instability risks are greater [14]; [15]. Access to finance remains a major issue. Financial institutions in the area are wary of high-risk technical enterprises, particularly those using untested technologies. Lack of funding hinders innovation and company scaling [16]; [17]. Unregulated marketplaces and informal companies in the South also affect competition. While they generate economic activity, these enterprises seldom invest in technology, giving formal businesses an unfair advantage [18]; [19]. Additionally, industry, government, and research organisations have struggled to collaborate. Successful innovation ecosystems worldwide have strong relationships that transmit knowledge and technology. In the South, distrust, competitiveness, and a lack of a framework for cooperation hamper these partnerships [20]; [21]. Lastly, the continually changing global technology environment adds complications. Businesses must adapt and innovate with artificial intelligence, blockchain, and the Internet of Things. Without the right support systems, Southern Region enterprises struggle to keep up with these changes, losing out on competitive advantages [22]; [23]. The Southern Region of Nigeria has great potential for generating and deploying proprietary technology to obtain a competitive advantage, but several obstacles stand in the way. Infrastructural issues, skills gaps, regulatory impediments, finance shortages, informal marketplaces, insufficient coordination, and the fast-changing global technology environment are among them. Regional enterprises must address these problems to harness technology and maintain a competitive edge. The study was designed to develop and apply unique technology to compete in southern Nigeria. This involves reviewing existing studies, identifying gaps, and surveying and interviewing key technology company executives. The study will choose a diverse sample of technology-focused companies using corporate financial records, industry data, and market evaluations. SWOT, PEST, and Porter's Five Forces will be used. Industry specialists will validate the findings, show them visually, and ensure participant confidentiality. The report gives insights to improve the region's strategic and economic growth.

The significance of proprietary technologies in gaining a competitive edge

The exclusive ownership and control of proprietary technology gives a corporation an edge over rivals. Private technology's scarcity, value, difficulty to copy, and lack of replacements provide them a long-term competitive edge, according to Barney [1]. In South-South Nigeria's competitive sectors of oil and gas, agriculture, and manufacturing, proprietary technology is crucial [2].

The current status of technological innovation in the southern region of Nigeria is being assessed.

Technological progress in southern Nigeria. Technology incubators are needed in Port Harcourt and Uyo, according to Akinwale [4]. These centres foster creativity. These institutions inspire unique discoveries by providing facilities, mentorship, and money to entrepreneurs and inventors. Tech progress is behind world norms.

Nigeria's R&D investment is below the worldwide average, limiting its innovation, according to Ogundipe et al. [5]. A lack of R&D funding limits distinctive technological creation.

Obstacles in Creating Exclusive Technological Advancements

A big issue is research and development funding. Companies and research institutions lack the funds to innovate. According to the World Bank [24], Nigeria's R&D industry's underinvestment hinders technological innovation. Access to cutting-edge technologies is difficult. Technology is lower in the South-South of Nigeria, limiting its ability to innovate. Nigeria's technological infrastructure, which includes access to modern equipment and software, is underdeveloped, impeding innovation, according to Akinwale [4].

The Lack of Skills and Human Resources

Talent shortages are a major issue. South-South Nigeria's education system fails to prepare pupils for today's technology world. STEM, which drives technological progress, is highly skill-constrained [24]. Missing technical skills impair firms' capacity to build and manage breakthrough technology.

Inadequate Intellectual Property Rights (IPR) Framework

An effective IPR framework promotes innovation and protects private inventions. The current intellectual property rights (IPR) framework in Nigeria is weak, discouraging corporations and individuals from investing in new technologies. Poor intellectual property rights and legal protections discourage R&D and innovation, according to Ogundipe et al. [5]. Patented technology and competitive advantage. Unique technology boosts company competitiveness. They helped organisations differentiate their products and services, improve operational efficiency, and block competitors. South-South Nigerian technology company Andela has enhanced its market position by using its unique training methods to teach its workforce [6]. Oil and gas businesses might gain a competitive edge by developing sophisticated exploration and extraction technology, according to the Nigerian National Petroleum Corporation [2]. This greatly reduces costs and boosts efficiency. Unique crop and pest management technology may boost yields and lower production costs, offering farmers a competitive edge [2]. Increase R&D spending. Technological innovation requires more R&D spending. To produce unique technologies, governments and private sector organisations should increase R&D spending. Innovation and financial deficit reduction need public-private partnerships [4]. Improving technological infrastructure and giving businesses the skills and resources to innovate improves access to cutting-edge technologies. Access to cutting-edge equipment and technical expertise at technology hubs and innovation centres may help [7]. To fill the skills gap, technical education and skills training must be improved. STEM subjects must be prioritised in educational institutions to meet modern technology demands. Additionally, industry-academia alliances may help develop a skilled workforce that can improve technology [24]. Enhancing intellectual property rights (IPR) protects new ideas and encourages R&D investment. Enhanced legal and regulatory frameworks protect intellectual property and ensure the effective execution of intellectual property rights (IPR) laws [5].

Government and Private Sector Roles

Technology innovation relies on government laws and private sector interventions. Technology innovation requires government policies that encourage research and development, tax breaks for creative enterprises, and infrastructure development [3]. Corporate efforts and collaborations with research institutions help businesses promote innovation and R&D. Andela's successes in the private sector show how proprietary technologies may boost competitiveness [6]. Exclusive technology is essential for competitiveness in south-south Nigeria. Insufficient funding for R&D, limited availability of cutting-edge technology, skill gaps, and a shaky intellectual property rights environment hinder technological growth. Public and private sector strategies are needed to solve these problems. South-South Nigeria can strengthen its research and development budget, access to contemporary technology, technical skills, and intellectual property rights framework to foster technological innovation and economic progress.

CONCLUSIONS AND RECOMMENDATIONS

To compete in southern Nigeria, you need unique technology. Insufficient research and development funding, limited availability of cutting-edge technology, skills and knowledge gaps, a weak intellectual property framework, excessive dependence on oil and gas for economic stability, and infrastructure flaws are highlighted in the analysis. These issues need government and industry cooperation. Exclusive technology may boost product differentiation, operational efficiency, and market entry barriers, giving organisations a competitive advantage. To fully realise these benefits, strategic initiatives must foster technical innovation. To progress unique technology, government and private sector organisations should increase R&D spending. For resource sharing and innovation, public-private partnerships are essential. More technology hubs and innovation centres may allow companies to employ cutting-edge equipment and technological expertise. To ensure accessibility, these facilities should be strategically placed

throughout south-south Nigeria. Schools should adapt their courses to modern technology. Boosting STEM education and business-academia cooperation may help create a skilled workforce ready to lead technological advances. To strengthen IPR protections, the government should upgrade it. Strong enforcement is needed to safeguard inventors' inventions from unauthorised exploitation. Encourage innovation in other industries to reduce the region's oil and gas dependence.

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