

## Reviving Nigerian Ceramics through Technology and Entrepreneurship

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### Abstract

Nigeria has a lengthy history, reflected in its beautiful and meaningful ceramic art, ranging from traditional pottery to modern clay designs. In recent years, many young people no longer see ceramics as a valuable or profitable career, due to their association of the craft with traditional approaches, without considering the modern trends behind it. On this basis, this paper explores how to revive the Nigerian ceramics industry by applying technological tools and fostering entrepreneurial mindsets while engaging in this craft. By combining these two modern skills, ceramics may receive a contemporary touch. Today, digital tools, such as computer-aided design (CAD), 3D printing, and artificial intelligence, have become key tools that assist artists in creating unique ceramic pieces more quickly and with new styles. Technology can also facilitate ceramic artists' learning, experimentation, and skill development. Entrepreneurship can also allow artists to build their own brands, sell their work online, and reach customers in Nigeria and abroad. However, by combining traditional and modern methods with sound business strategies, ceramics can serve as a powerful channel for promoting Nigerian culture, creating more jobs, and boosting the economy. This paper, therefore, encourages artists, students, and other stakeholders to perceive ceramics not just as an art form but as a growing and exciting creative industry, thereby fostering the passion that the younger generation will adopt.

**Keywords:** Artificial intelligence, Creative industry, Cultural heritage, Digital tools, Entrepreneurship

## Introduction

The Nigerian ceramic industry has rich historical and cultural value, but has faced significant challenges in recent decades. Despite its potential, the sector has struggled and declined within this period, with many ceramic industries shutting down or operating below capacity. Agberia (2017) points out that, among the ceramic industries established between 1960 and 2013, fewer than 20% operate at above-average capacity (Adebayo, 2018). The decline in Nigeria's ceramic industry can be attributed to several impediments, including low productivity, limited innovative activity, and inadequate entrepreneurship, which have led to a lack of competitiveness and visibility in the global market (Okonkwo, 2019; Shaw, 2018). Additionally, the industry's reliance on obsolete technologies and insufficient investment in research and development has contributed to its decline. Furthermore, research has revealed that the influx of imported ceramics has led to a significant decline in demand for locally produced ceramics, with the country importing ceramic products valued at over \$800 million in 2018 and \$900 million in 2019.

However, as the literature on Nigerian ceramics highlights the industry's potential and challenges, Abubaka (2017) and Obinna (2018) argued that the quality of ceramic products is crucial to the overall performance of Nigeria's ceramic industry. Moreover, the use of clay in ceramic applications and the quality of ceramic products have been reported in the literature, with scientific evidence informing product quality. This research revealed that the environmental impacts of ceramic waste in Nigeria negatively affect the quality of ceramic products. These wastes pose hazards from materials and processes, as well as from noise, air, water, soil, and ecosystems. This study, therefore, aims to explore the potential of technology and entrepreneurship in reviving the Nigerian ceramics industry.

## Overview of Nigerian Ceramics

Nigerian ceramics have a rich history and cultural relevance, with evidence of pottery dating back to the ancient period. The Nok culture, known for its terracotta sculptures and pottery, is a significant part of Nigerian history, showcasing advanced skills and artistry (Fagg, 1997). Nigerian pottery and ironworking techniques demonstrate the advanced skills of ancient Nigerians. Traditional ceramics have played an essential role in

Nigerian culture, featuring in daily life, rituals, and traditions for generations. Moreover, traditions among Nigerian potters employ hand-building and coiling techniques to create intricate designs and patterns on their pottery pieces (Nwankwo, 2020). Ceramics are not only functional materials but also hold spiritual and cultural significance, reflecting the country's rich heritage and artistic tradition.

Nigerian potters combined traditional techniques with modern styles, creating unique and distinctive pieces (Ogunnaike & Adeola, 2018). The artistry and craftsmanship of Nigerian ceramics demonstrate exceptional skills and creativity, thereby making them highly valued both locally and internationally (Ogundiran, 2019). However, efforts to preserve and promote Nigerian ceramics are essential to maintaining the country's cultural heritage (Eze, 2015). This concerns supporting local artisans, promoting cultural events, and documenting traditional techniques. Thus, by preserving and promoting Nigerian ceramics, the continuation of this ancient craft and its significance in Nigerian culture can be ascertained.

### **Colonialism and Traditional Ceramics in Nigeria**

The impacts of colonisation on traditional ceramics in Nigeria are multifaceted, as in many other colonised countries, with both negative and positive effects. Research has revealed that colonisation introduced new techniques and materials and significantly altered the trajectory of traditional ceramic production (Breunig, 2016; Akinbogun, 2015). The impacts of colonisation on traditional ceramics in Nigeria are categorised as both positive and negative. These were discussed below;

- Positive impacts: Colonisation brought new art styles and techniques to create intricate designs in Nigerian ceramics. Despite the negative impacts of colonialism on the black nations, it equally created an avenue for the emergence of new art styles and movements in post-colonial Nigeria (Falola, 2018). This blending of creative skills is evident in the development of unique ceramic styles that reflect on traditional and European art traditions (Esezobor & Olorunniwo, 2019). In addition, colonialism also created avenues for innovation and adaptation. During the colonial period, new techniques and materials initiated innovation and adaptation in traditional ceramic production (Okpoko, 2018), potentially leading to the creation of new and exciting art forms.

For instance, drawing on the development of Mexican ceramics, the arrival of the Spanish colonists in Mexico led to the emergence of a new ceramic style that reflected both indigenous traditions and European influences. Perhaps this blending of styles led to the creation of distinctive ceramics that are features of Mexican art.

Negative impacts: Despite the positive effects of colonialism on the arts, there are also adverse effects. Firstly, colonialism marginalised traditional Nigerian art forms, including pottery, in favour of European art forms (Breunig, 2016; Fagg, 1997). This shift in focus resulted in a decline in the production and appreciation of traditional ceramics. Secondly, the loss of traditional techniques is another side-effect of European contributions to art. The introduction of European techniques and materials may have led to the loss of traditional ceramic-making methods, potentially threatening the cultural heritage of Nigeria associated with these arts (Eze, 2015). Thirdly, changes in cultural significance are also a negative factor. The influence of colonialism altered the cultural significance of traditional ceramics, potentially diminishing their values in Nigerian culture (Falola, 2018).

#### Ceramics in Nigeria before the Introduction of Technology and Entrepreneurship

Prior to the introduction of modern technology and entrepreneurship, ceramics in Nigeria were largely traditional and artisanal. Some of the key characteristics of this period are elaborated by Ogundiran (2019), Afolabi (2018) and Akinbogun (2015) below:

1. Traditional techniques: Nigerian ceramic production relied on traditional techniques, such as hand-building and coiling, passed down through generations of artisans.
2. Local Materials: Potters used local materials like clay, wood, and natural pigments to create functional and decorative items.
3. Functional and Ritual Uses: Ceramics were used for various purposes, including functional items like pots, bowls, and cooking vessels; ritual and ceremonial items, such as ancestral figures and ritual vessels.
4. Cultural Significance: Ceramics played an important role in Nigerian culture, reflecting the traditions, values, and artistic expressions of different communities.

5. Limited Market: Ceramics were often produced for local consumption, with limited access to a broader audience and markets.

### **Ceramics and Technology**

The intersection of technology and ceramics has led to significant advancements in the field, enabling the creation of Innovative materials and products with enhanced properties. Some major areas where technology has impacted ceramics, pointed out by Ogundiran (2019) and Ogunbiyi and Adeyemi (2019), include:

1. **Advanced Materials:** The development of advanced ceramic materials with improved strength, durability, and thermal resistance has expanded their applications in industries such as aerospace (advanced ceramic materials are being used in the development of heat shields for spacecraft and other aerospace applications), energy (ceramic materials are being used in the development of more efficient energy storage and conversion systems, like batteries and fuel cells), and healthcare (ceramic materials are being used in medical implants, like hip and knee replacements, due to their biocompatibility and durability).
2. **3D & 4D Printing:** The use of 3D and 4D printing technologies is enabling the creation of complex ceramic structures and geometries, thus opening up new possibilities for product designs and development.
3. **Digital Designs:** Computer-aided designs (CAD) software and digital fabrication techniques have streamlined the designs and production processes, thus allowing for increased precision and efficacy.
4. **Nanotechnology:** Research in nanotechnology has led to the creation of nanostructured ceramics with unique properties, such as enhanced toughness and thermal conductivity.
5. **Artificial Intelligence:** This uses computer-assisted applications to help in solving ceramic problems. AI can answer questions about ceramics. It is used to develop unique ceramic styles and patterns. AI-designed ceramics are more appealing and sophisticated than naturally human-designed ceramics. AI assists in identifying emerging ceramic styles and patterns and in sourcing for the most demanding markets.

### **Ceramics and Entrepreneurship**

Entrepreneurship in the ceramics industry can be a very lucrative and rewarding venture. Some of the potential opportunities as disclosed by Willett (2017) and Tylecote (2018) are;

1. Unique products: Ceramics offer a wide range of possibilities for creating unique and innovative products, from functional items like tableware and cooking ware to decorative pieces like sculptures and art installations.
2. Sustainable practices: Many ceramic entrepreneurs are focused on Sustainable practices, such as using eco-friendly materials, reducing waste, and promoting recycling.
3. Local and Global markets: Ceramics can be marketed locally through crafts fairs, galleries, and online platforms, or globally through e-commerce and international trade shows.

However, many successful ceramic entrepreneurs operate studio pottery businesses, enabling them to create handmade ceramics sold through galleries, online platforms, and craft fairs. Some ceramic entrepreneurs focus on designing and producing ceramic products for mass production, thereby working with manufacturers and retailers to bring their designs to market. Besides, with the rise of e-commerce, many ceramic entrepreneurs are successfully selling their products online, thus reaching a global market and building a loyal customer base.

Ceramic entrepreneurs should be able to create a distinctive brand identity that reflects their values, styles, and products. They should ensure that their products are high-quality, durable, and meet the needs of target markets. Ceramic entrepreneurs should use social media and online marketplaces, as well as create their own websites, to showcase their products and connect effectively with customers. They should connect with other ceramic artists, designers, and entrepreneurs to share knowledge, resources, and opportunities.

### **Challenges Encountered by the Nigerian Ceramics Industry**

The Nigerian ceramics industry faces several challenges that hinder its performance and growth in the global market. Some key challenges highlighted by Adeyemi (2019) and Oluwasemire (2017) include:

1. Multifaceted problems: The Ceramics industry is faced with various issues that affect its overall performance and productivity. Most of these issues are both internal and external. Internal issues include difficulty entering markets due to market dealers' politics, government unfavourable policies, adverse weather, import regulations, and poor road conditions, which cause breakages during distribution. Some external problems

include import tariffs, high exchange rates, high customs duties, and other unnecessary charges.

2. Declining state of industry: Many ceramic industries in Nigeria are either in a state of decline or moribund, indicating the need for revitalisation and support. Poor and unfavourable policies, along with a high cost of living, are contributing to the reduction in sales volume in the ceramics industry. Most ceramic industries are deteriorating because they cannot meet industry demands.

3. Raw materials sourcing: Although there is the potential for obtaining about 85% of its raw materials locally, the industries might still face challenges in accessing quality materials at competitive prices. The high cost of materials is adversely affecting the cost and quality of ceramic products. As industries seek to produce high-quality products while achieving comparable returns, they find this difficult.

4. FX volatility: The uncontrolled fluctuations in foreign exchange rates can impact the industry's ability to import necessary materials for product production, thus affecting the cost of production and pricing. This situation adversely affects the business's feasibility and the owners' ability to sustain it.

5. Supply chain disruptions: Disruptions in the supply chains can hinder the industry's ability to maintain consistent quality and quantity of production and meet customers' demand.

6. Competition and market dynamics: The Nigerian ceramic industry faces competition from both local and international manufacturers, which can impact market share and pricing.

### **Strategies for Overcoming Challenges and Reviving the Ceramics Industry**

To overcome the challenges facing the ceramics industry, the following strategies have been suggested:

1. Investing in high technology: By adopting advanced technologies to improve efficiency, quality, and competitiveness and utilising computer-aided design (CAD) software to create innovative and complex ceramic designs. Leverage 3D printing technologies to produce intricate ceramic pieces with precision and accuracy. Showcasing and selling ceramic products through e-commerce websites, social media platforms, and online marketplaces. These will help revive the ceramics industry, which is experiencing liquidation or failing to meet customer satisfaction.

2. Developing local supply: By strengthening local supply chains to reduce dependence on imports, and improve access to raw materials, ceramics industries can survive from business failure, and be revived.
3. Enhancing product quality: Focusing on quality control to improve product standards and competitiveness. Enhancing ceramic product features and compositions can improve appeal to users and potential users.
4. Market Diversification: Exploring new markets and applications for ceramic products to increase demand and revenue can help boost the capacity of the firm.
5. Access to adequate funding: There should be access to adequate funding and financial resources to support ceramic entrepreneurs and small businesses.
6. Market Research: Conducting market research helps artists and business owners to understand consumer preferences and trends, and thus, develop products that meet customers' needs.
7. Branding and Marketing: Developing strong brand identities and marketing strategies to help in promoting Nigerian ceramics globally.
8. Training and Workshop Programs: Companies should organise training programs and workshops to equip ceramic artists and business owners with modern skills and techniques for developing ceramics.
9. Collaboration: Building relationships with other ceramic artists, designers, and entrepreneurs to share knowledge, resources, and opportunities.
10. Digital Marketing: Employ digital marketing strategies to promote ceramic products, and equally have access to reach a wider audience and ceramics markets.

## **Conclusion**

The Nigerian ceramics industry has a rich history and cultural significance, encompassing a wide range of traditional and modern ceramic pieces. The ceramics industry has significant potential for growth and development, driven by its rich cultural heritage and increasing demand for ceramic products. To realise this potential, it is important to address the industry's challenges, including low productivity, limited innovation, and inadequate entrepreneurship. Perhaps technology and entrepreneurship can play a crucial role in reducing the impacts of these problems, thereby reviving the industry by improving and sustaining productivity, enhancing innovation, and strengthening competitiveness. However,

successful ceramic businesses in Nigeria can be driven by effective procurement strategies, cultural significance, and a focus on showcasing traditional craftsmanship with modern twists.

In addition to other strategies for revitalising the Nigerian ceramics industry, ceramic artists and businesspeople should invest in technology and Innovation to enhance productivity and competitiveness. They should foster entrepreneurship and also support small businesses in the ceramics industry. Promoting cultural heritage and traditional craftsmanship in industrial products warrants consideration. Thus, developing effective procurement strategies to improve organisational performance is a viable approach. Finally, by adopting these technological and entrepreneurship strategies, the Nigerian ceramics industry can unlock its potential, drive economic growth, and preserve its unique, rich cultural heritage.

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