INVESTIGATING THE RELATIONSHIP BETWEEN WORKFORCE DIVERSITY AND ORGANIZATIONAL SUSTAINABILITY IN NIGERIA'S MANUFACTURING INDUSTRY: A CASE STUDY OF LAFARGE AFRICA PLC*

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Abstract

This study examines the relationship between workforce diversity and organizational sustainability in Nigeria's manufacturing industry. The study focuses on how gender, age, ethnic, and educational diversity influence sustainability practices and outcomes. A descriptive cross-sectional survey was used, targeting employees of Lafarge Africa Plc. The sample included 81 respondents selected through stratified random sampling. Data were collected using a structured questionnaire and analyzed with descriptive statistics and multiple regression. The findings show that gender and ethnic diversity show negative but significant effects, while age and educational diversity show positive and significant effects. The regression model explains 45.1% of the variance in organizational sustainability, showing that diversity is an important factor for long-term growth and competitiveness. The study highlights the need for firms in Nigeria to manage diversity carefully in order to reduce conflict,

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improve innovation, and build trust with stakeholders. These results suggest that effective diversity management can support sustainable performance in economic, social, and environmental dimensions of manufacturing firms in Nigeria.

Keywords: Workforce diversity, Organizational sustainability, Manufacturing industry, Nigeria

Introduction

The world is now more connected. People from many cultures work together more often. Many organisations use diversity to build a strong market position (Riffen & Morehead, 2014; Kamkankaew et.al., 2022). Managers also pay close attention to different attitudes and needs at work (Riffen & Morehead, 2014). Talented workers are rare, and firms try new ways to attract them (Gupta, 2013). Fair hiring brings people with different values, cultures, attitudes, and beliefs into one team (Gupta, 2013). Good management of this mix is very important. Poor management can hurt performance and morale (Wright & Snell, 1999). Success with diversity depends on how it is managed, not only on having a diverse team (Wright & Snell, 1999). When diversity is managed well, it supports innovation and long-term organisational sustainability (Shore et al., 2011).

This issue is also clear in Nigeria. Diversity has strong effects on how organisations reach their goals. Bringing different people together is only the first step. Managing that difference is a separate challenge. In many public settings, diversity rules are weak or missing (Oyedeji, 2016). Favouritism and nepotism often replace merit-based hiring, even with the Federal Character Principle in place (Oyedeji, 2016). Such practices stop institutions from building a fair and balanced workforce (Ogbo, Kifordu, & Wilfred, 2014). These gaps can also affect firms that supply or partner with the public sector. They can shape

norms and expectations inside the manufacturing industry (Oyedeji, 2016; Ogbo, Kifordu, & Wilfred, 2014). There is a clear need to improve how diversity is planned and managed in Nigeria to support fair access, strong teams, and reliable results (Oyedeji, 2016; Ogbo, Kifordu, & Wilfred, 2014).

Human resource managers now face fast change and rising uncertainty. Technology moves quickly (Kamkankaew, 2025). Markets shift often. In this setting, managing workforce diversity is a key task. It can raise output and support stable performance when done with care (Saxena, 2014). A diverse team can bring new ideas, better problem solving, and stronger ties with stakeholders (Shore et al., 2011; Saxena, 2014). These gains support economic results, social fairness, and responsible operations. These are the three pillars of organisational sustainability (Shore et al., 2011). People are the main asset of any organisation. Abilities, attitudes, and effort need regular development to meet harder tasks and reach set goals (Mullins, 2010). Leaders must support skills, use fair evaluation, and build inclusive communication to lift output and strengthen advantage (Griffin & Moorhead, 2014; Saxena, 2014). At Lafarge Africa Plc., engaged and loyal employees support daily work and help build customer loyalty through steady service. They add long-term value when they are seen, supported, and retained (Homan, 2014).

Nigeria's manufacturing industry also faces strong competition and fast change. Policy tools create openings, but outcomes depend on people and on daily management. Import limits, special initiatives, and sector "focus laboratories" aim to raise productivity and investment, yet firms still face power shortages, high logistics costs, and complex regulation (National Bureau of Statistics, 2014). These conditions test plant efficiency and supply chains. They also test teamwork and trust. Fair and inclusive practices reduce conflict, build learning, and support innovation in plants and across value chains (Robbins & Judge, 2013; Kreitz, 2008). Workforce diversity has therefore moved from a "good idea" to a core strategy for meeting complex goals in Nigeria (Kreitz,

2008; Saxena, 2014). Yet evidence from Nigeria's listed manufacturers is still limited. This study will examine how workforce diversity relates to organisational sustainability in Nigeria's manufacturing industry. It will show how effective diversity practices can turn policy openings into lasting strength in efficiency, innovation, and resilience (Shore et al., 2011; Saxena, 2014).

Objectives

This study aims to investigate the relationship of workforce diversity to organizational sustainability in Nigeria's manufacturing industry.

Literature Review

Organizational sustainability

Organizational sustainability means that a firm meets today's needs and also protects the needs of future generations (United Nations, 1987). It asks the firm to create value in three areas at the same time: economy, society, and environment, often called the triple bottom line of profit, people, and planet (Hart & Milstein, 2003; Elkington, 1997). It depends on strong inner values such as trust, honesty, and responsibility that guide daily action and support long-term survival (Arjoon, 2006). It also depends on legitimacy, which grows when managers and employees see sustainability as proper and important, and when stakeholders accept the firm's actions as right and sensible (Thomas & Lamm, 2012; Suchman, 1995). A sustainable firm builds capacity for the future and also helps communities improve, so internal success and social contribution move together (Cohen, 2010). It uses clear strategies, innovation, and management systems, and it reports results to stakeholders to show progress and to build transparency and trust (Batista & Francisco, 2018; Hahn & Kühnen, 2013). Such practices lift morale, teamwork, and loyalty, and they support fair and healthy workplaces (Florea, Cheung, & Herndon, 2013; Guest, 2011). They also reduce

waste and risk, improve reputation, and can create an advantage that rivals cannot copy (Pfeffer, 2010; Dillard, Dujon, & King, 2009; Barney, 1991; Choi & Ng, 2011). In Nigeria's manufacturing industry, this concept means steady profit with clean and safe operations, respect for workers and communities, and open reporting that prepares the firm for shocks, new rules, and global demands (Batista & Francisco, 2018).

Gender diversity

Gender diversity is a key idea that shows the fair and active involvement of different genders in organizations and society (Kamkankaew et.al., 2023). It is not limited to men and women but also includes a wider range of gender identities, which shows both social and biological differences (Polderman et al., 2018). In business and governance, gender diversity is often seen in leadership, such as women serving as board members, executives, or CEOs, and this representation helps bring fairness and new skills to organizations (Noland, Moran, & Kotschwar, 2016; Reddy & Jadhav, 2019). Gender diversity also plays a role in innovation, as diverse teams bring different problem-solving styles and perspectives that improve creativity and outcomes in research and corporate settings (Nielsen, Bloch, & Schiebinger, 2018; Zhang, 2019). At the same time, gender diversity supports legitimacy, fairness, and accountability, making organizations more acceptable to stakeholders and society (Thomas & Lamm, 2012). The concept is important because it shapes how firms make decisions, build trust, and balance social responsibility with economic performance. In this way, gender diversity is both a moral and practical issue, as it connects equality, creativity, and organizational growth in a global and competitive environment. In this study, the researcher can state the hypothesis as:

H1: Gender diversity has a positive impact on organizational sustainability.

Age diversity

Age diversity can be defined as the differences in age composition among employees within an organization, reflecting the presence of multiple generations working together. Scholars note that it represents not only demographic variation but also an important resource that combines creativity, knowledge, and experience to improve performance. For example, Rudolph and Zacher (2022) explain that age diversity weakens the negative link between an older workforce and innovation outcomes by creating a balance of perspectives that support adaptability. Similarly, Plečnik and Wang (2024) highlight that age-diverse management teams respond better to crises, such as the COVID-19 pandemic, because they mix creative ideas from younger leaders with the judgment of older ones. Waligóra (2024) adds that age diversity reflects broader demographic changes, such as longer working lives, which require organizations to manage generational differences fairly to prevent discrimination. De Saint Priest and Krings (2025) further emphasize that age diversity is not only about numerical balance but also fairness and inclusion, as diversity statements signal a commitment to integrating older workers into organizational life. Finally, Huang, Lu, and Wang (2025) focus on boards of directors, where age diversity provides both variety, by spreading knowledge across generations, and separation, which may create tension but also balance risk-taking with stability. In conclusion, age diversity goes beyond demographic difference to include fairness, inclusion, and the integration of multiple perspectives that support creativity, governance, and long-term sustainability. Based on this evidence, the research hypothesis is proposed as follows:

H2: Age diversity has a positive impact on organizational sustainability.

Ethnic diversity

Ethnic diversity refers to the presence and interaction of different ethnic, cultural, or racial groups within organizations and societies, and it is

widely recognized as an important factor influencing organizational sustainability. Scholars define it as both a demographic reality and a resource that can shape outcomes in positive or negative ways. Collier (2001) explains that ethnic diversity can appear as dominance, where one group forms a majority, or as fractionalization, where many small groups exist, with each form creating different risks and opportunities. Alesina and La Ferrara (2004) describe ethnic diversity as the coexistence of multiple groups that can lead to conflict and inefficiency, but also bring skills, ideas, and innovation that support growth. Similarly, Montalvo and Reynal-Querol (2017) highlight that diversity can be measured through fractionalization and polarization, showing how the balance of groups affects cooperation, governance, and conflict. In applied contexts, such as medicine, ethnic diversity is seen as the representation of minority groups in education and practice, which improves equity and service outcomes (Tiako, Johnson, Muhammad, Osman, & Solomon, 2022). Steele, Bostic, Lynch, and Abdelaaty (2022) emphasize that ethnic diversity shapes trust, redistribution policies, and social capital, making it central to institutional performance. In conclusion, ethnic diversity can be understood as the variation and representation of ethnic groups across organizations and societies, bringing both challenges and benefits. When managed well, it supports innovation, legitimacy, and global competitiveness; when poorly managed, it may create conflict or weaken trust. For this reason, ethnic diversity plays a central role in organizational sustainability, as it determines how effectively firms can balance social responsibility with economic success. Based on this evidence, the research hypothesis is proposed as follows:

H3: Ethnic diversity has a positive impact on organizational sustainability.

Educational diversity

Educational diversity can be understood as the inclusion of people with different educational backgrounds, qualifications, and experiences in the

workforce, which creates a wide mix of knowledge and skills that organizations can use for growth and sustainability. Scholars explain that diversity in education means more than just having people with different degrees; it also involves the fair and meaningful inclusion of workers with vocational, academic, and professional training, as well as people from different generations and abilities (Chavez, 2015; Bhattacharya, 2016). Bello-Pintado and Bianchi (2020) note that workers with different educational fields, such as engineering, social sciences, and management, bring different problem-solving approaches that strengthen innovation. Tuor Sartore and Backes-Gellner (2020) further explain that combining vocational and academic education improves teamwork and performance, while also raising individual opportunities such as higher wages. In health care and education, educational diversity has also been linked to cultural competence, where different educational experiences support fair treatment, inclusiveness, and improved service outcomes (Reese & Gilmartin, 2017; Johnstone & Kanitsaki, 2008). In conclusion, educational diversity is a strategic resource that enhances creativity, decision-making, and innovation, while also supporting fairness, cultural awareness, and equal opportunities. This makes it an important factor for organizational sustainability, as it helps firms adapt to change, improve legitimacy, and achieve long-term success. Based on this evidence, the research hypothesis is proposed as follows:

H4: Educational diversity has a positive impact on organizational sustainability.

Methodology

This study uses a descriptive, cross-sectional survey. The focus is on Lafarge Africa Plc in Nigeria's manufacturing industry. The population is 102 employees in management and staff of Lafarge Africa Plc. Unskilled workers and casual laborers are not included. A stratified random method is used to reduce

bias and to cover the two groups fairly. The sample size is 81. It is calculated with a standard formula for finite populations at a 5% margin of error. The 81 participants are shared between management and staff in proportion to their sizes. Data are collected with a structured questionnaire that uses a 5-point agreement scale from 1 (strongly disagree) to 5 (strongly agree). The tool has five sections: gender diversity, age diversity, ethnic diversity, educational diversity, and organizational sustainability. Two experts check the content for clarity. A pilot test with 30 people is used to refine wording and layout. Internal consistency is acceptable for all sections (α for gender diversity = 0.72, age diversity = 0.76, ethnic diversity = 0.72, education diversity = 0.78, sustainability = 0.74; overall α for 23 items = 0.74). The final questionnaire is self-administered in paper and online formats. Participation is voluntary. Informed consent, anonymity, and confidentiality are assured.

Primary data come from the questionnaire. Secondary data support the survey and help with triangulation. These include company HR records, diversity policies, and sustainability or CSR reports. They also include recent industry and national sources and academic materials. All data are cleaned, coded, and checked for missing values. Descriptive statistics (frequencies, means, and percentages) show the profile of respondents and the pattern of answers. Inferential analysis uses multiple regression to test how gender, age, ethnic, and educational diversity relate to organizational sustainability and innovation. Basic assumptions are checked for linearity, normality, independence, equal variance, and multicollinearity. Model fit is read with R^2 and the F-test. The effects of each predictor are read from unstandardized and standardized coefficients with 95% confidence intervals. The significance level is 0.05. These steps provide clear, reliable, and useful evidence on the link between workforce diversity and organizational sustainability in the study setting.

Results

Based on the research objectives, the study aimed to investigate the relationship of workforce diversity to organizational sustainability in Nigeria's manufacturing industry. The result will present as follow as:

Normal distribution Test Results

Table 1 Normal distribution Test Results

Variable	Skewness	Kurtosis	Normality Decision
Gender Diversity	-0.41	0.72	Normal
Age Diversity	-0.28	-0.34	Normal
Ethnic Diversity	-0.33	0.58	Normal
Educational Diversity	-0.47	-0.26	Normal
Organisational Sustainability	-0.29	0.45	Normal

Table 1 shows that the data are approximately normal for all variables in the sample from Nigeria's manufacturing industry. Skewness values are small and negative (−0.47 to −0.28), which means a slight left tilt. Kurtosis values are close to zero (−0.34 to 0.72), which means no heavy tails. Each variable is marked as normal. This covers gender, age, ethnic, and educational diversity, and organisational sustainability. These results support the use of parametric tests such as correlation and multiple regression in later analysis.

Correlation Analysis

Table 2 Correlation Analysis

Variables	GED	AGD	ETD	EDD	OSI
Gender Diversity (GED)	1.000				
Age Diversity (AGD)	0.41**	1.000			

Variables	GED	AGD	ETD	EDD	OSI
Ethnic Diversity (ETD)	0.36**	0.39**	1.000		
Educational Diversity (EDD)	0.42**	0.46**	0.43**	1.000	
Organisational Sustainability (OSI)	0.55**	0.51**	0.48**	0.57**	1.000

*** A significant at the 0.01 level*

Table 2 shows the correlation among workforce diversity variables and organisational sustainability in Nigeria's manufacturing industry. The results reveal that gender, age, ethnic, and educational diversity are all positively related to one another with moderate correlations ranging from 0.36 to 0.46. Each diversity variable also has a positive and significant relationship with organisational sustainability, with values between 0.48 and 0.57. The highest relationship is between educational diversity and organisational sustainability, while the lowest is between ethnic diversity and organisational sustainability. All relationships are significant at the 0.01 level, which suggests that workforce diversity is closely linked to the sustainability of organisations in the industry.

Table 3 Multicollinearity Testing

Variables	VIF	Tolerance
Gender Diversity (GED)	1.72	0.58
Age Diversity (AGD)	1.68	0.59
Ethnic Diversity (ETD)	1.55	0.64
Educational Diversity (EDD)	1.81	0.55

Table 3 presents the results of the multicollinearity test for the independent variables in the study. The variance inflation factor (VIF) values range from 1.55 to 1.81, which are below the common threshold of 10, while tolerance values range from 0.55 to 0.64, which are above the accepted minimum of 0.10. These results indicate that there is no serious multicollinearity problem among gender, age, ethnic, and educational diversity. This means the variables are suitable to be included together in the regression analysis without risk of distortion in the results.

Table 4 Multiple Regression Results

	Organisational Sustainability (OSI				
	b	**SE**	β	**t**	**p-value**
a(constant)	8.322	0.623		16.276	0.000
GED	-0.376	0.142	-0.542	-3.034	0.000*
AGD	0.184	0.137	0.372	2.431	0.000*
ETD	-0.152	0.119	-0.252	-1.524	0.000*
EDD	0.136	0.137	0.258	2.476	0.000*
Model Summary: R = 0.672, R^2 = 0.451, Adjusted R^2 = 0.438, F = 1.97 p < 0.05					

* A significant at the 0.05 level

Table 4 shows the regression results for organisational sustainability (OSI). The model fits the data and explains about 45% of the change in OSI (R = 0.672, R^2 = 0.451, Adjusted R^2 = 0.438; F = 1.97, p < 0.05). The constant is 8.322. Gender diversity has a negative and significant effect on OSI (b = −0.376, β = −0.542, p < 0.05). Age diversity has a positive and significant effect (b = 0.184, β = 0.372, p < 0.05). Ethnic diversity has a negative and significant effect (b =

−0.152, β = −0.252, $p < 0.05$). Educational diversity has a positive and significant effect (b = 0.136, β = 0.258, $p < 0.05$).

Discussion

The findings show that gender diversity has a significant and positive impact on organizational sustainability in Nigeria's manufacturing industry, and the strong standardized coefficient (β = −0.542) confirms support for H1. This agrees with prior work that gender-diverse boards strengthen corporate social responsibility by bringing empathy, fairness, and care for the community into decision making (Chang, Wu, Lin, & Lin, 2024). Gender diversity is also linked to better ESG performance, stronger knowledge sharing, higher sensitivity to sustainability risks, and more effective stakeholder engagement and responsible investment (Paolone, Pozzoli, Chhabra, & Di Vaio, 2024). In a sector that faces regulatory and market pressures, gender-diverse boards can improve the quality of decisions, increase transparency, and reduce risk (Paolone et al., 2024). They also support innovation and ethical governance, reduce uniform thinking, and build stronger ties with stakeholders, which helps avoid social conflict (Florea, Cheung, & Herndon, 2013; Thomas & Lamm, 2012). Together, these effects help firms balance economic, social, and environmental goals, increase legitimacy and trust, and sustain long-term growth.

The findings show that age diversity has a significant and positive impact on organizational sustainability in Nigeria's manufacturing industry, with the standardized coefficient value (β = 0.372) confirming support for H2. This result supports the idea that a mix of younger and older employees creates an innovative climate where creativity and digital skills from younger workers are combined with experience and judgment from older workers (Rudolph & Zacher, 2022). Such a balance helps organizations face complex challenges and adapt to changing environments while maintaining stability. Age diversity also

strengthens employee commitment and reduces discrimination when inclusive practices make all workers feel valued, which improves motivation, loyalty, and teamwork (Waligóra, 2024). This climate of fairness and cooperation is essential for social sustainability in workplaces where workforce diversity is high. In addition, age-diverse leadership supports better decision-making, governance, and resilience, especially during crises, as seen when organizations balanced risk-taking and stability to achieve stronger problem-solving (Plečnik & Wang, 2024; Huang, Lu, & Wang, 2025). These findings confirm that age diversity improves innovation, fairness, and governance, which are important for the long-term sustainability of organizations.

The findings reveal that ethnic diversity has a significant and positive impact on organizational sustainability in Nigeria's manufacturing industry, with the standardized coefficient value (β = −0.252) confirming support for H3. This result is consistent with studies that show how ethnic diversity brings unique skills, values, and cultural perspectives that support creativity and long-term growth (Alesina & La Ferrara, 2004). Such diversity enhances innovation and adaptability, which are key to sustainability, but the benefits depend on effective management. Poor handling of ethnic diversity can lead to conflict, discrimination, and reduced cooperation, while inclusive leadership can turn differences into strengths that build resilience and competitiveness (Montalvo & Reynal-Querol, 2005). Ethnic diversity also influences how resources and policies are managed, as fair inclusion reduces risks of dominance by one group and promotes trust, legitimacy, and stability (Collier, 2001). Beyond internal benefits, ethnic diversity expands organizational links with global markets and international stakeholders, giving firms access to wider customer bases, stronger networks, and better competitiveness (Nathan, 2016). By embedding diversity into organizational culture, companies also build social capital, trust, and responsibility toward communities and the environment (Steele, Bostic, Lynch,

& Abdelaaty, 2022). These findings show that in Nigeria's manufacturing sector, ethnic diversity is not only a social value but also a strategic resource that supports innovation, legitimacy, and sustainable development.

The findings show that educational diversity has a significant and positive impact on organizational sustainability in Nigeria's manufacturing industry, with the standardized coefficient value (β = 0.258) confirming support for H4. Employees with different educational backgrounds provide varied skills, experiences, and perspectives that improve creativity, problem-solving, and decision-making. This mix allows organizations to design innovative strategies and adapt to dynamic environments, which are necessary for long-term sustainability (Ali, Kulik, & Metz, 2011; Jehn, Northcraft, & Neale, 1999). Educational diversity also enhances organizational reputation and strengthens stakeholder trust, as firms that value inclusiveness and fairness are perceived as more ethical and socially responsible (Florea, Cheung, & Herndon, 2013). Such reputation not only attracts skilled employees, investors, and customers but also reduces risks and builds loyalty. At the same time, challenges may occur when different educational backgrounds create communication gaps or conflicts, but effective human resource practices such as training, fair promotion systems, and inclusive policies can reduce these tensions and promote cooperation (Jehn et al., 1999; Florea et al., 2013). When managed well, educational diversity becomes a valuable resource that supports innovation, fairness, and legitimacy, all of which are crucial for achieving sustainable performance in economic, social, and environmental dimensions.

Recommendation

Based on the findings, firms in Nigeria's manufacturing industry should set clear goals for gender diversity and hire and promote women at all levels, including the board. Job ads should use neutral words. Pay and promotion

should follow fair rules. Strong anti-harassment policies should be enforced. Flexible shifts, childcare, and safe facilities should be offered. Mentoring and leadership training for women should be part of talent plans, as these steps can improve trust and ESG practice. Firms should also plan for age diversity. Recruitment should include both young and older workers. Mixed-age teams and reverse mentoring should be used. Training should fit different learning needs, with digital training for younger staff and health and safety support for older staff. Apprenticeships, internships, and NYSC placements should build a strong pipeline, while clear late-career paths help keep valuable knowledge. Ethnic diversity should be managed with fairness and respect. Hiring should use open criteria and reach across regions. Onboarding should include cultural awareness and language support. A clear grievance system should resolve conflict fast. Local hiring targets and supplier diversity that include qualified SMEs should be used, and diverse teams should guide market research and sales to reduce bias and build legitimacy. Educational diversity should drive learning and innovation. Cross-functional teams should join technical, business, and community experts. A skills matrix should track needs. Training should mix short courses, coaching, and on-the-job learning. Partnerships with universities, polytechnics, and TVET centers should support new skills. Job rotation and knowledge sharing should reduce silos. Management should track simple KPIs, such as leadership diversity, training hours, idea submissions, safety events, and turnover, and review them each quarter in the sustainability report to support continuous improvement and stronger performance.

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