INSTITUTIONAL WEAKNESSES AND SAFETY ENTREPRENEURSHIP: A CONCEPTUAL FRAMEWORK FOR OCCUPATIONAL HEALTH INNOVATION IN NIGERIA

Okhawere, Paulson Young Ofenimu Ph.D
Federal University of Education, Kontagora.
Niger State, Nigeria
Email: gainsp@yahoo.com Phone: +2349156215770

Abstract
Occupational health and safety (OHS) governance in Nigeria continues to face significant challenges arising from regulatory fragmentation, weak enforcement mechanisms, inadequate institutional coordination, and limited coverage of the informal sector. These challenges have contributed to persistent workplace hazards and inadequate protection for a substantial proportion of the workforce. Against this background, this study examines how institutional weaknesses within Nigeria's OHS system simultaneously constrain effective workplace safety management and create opportunities for entrepreneurial innovation. Drawing on institutional theory and the institutional void perspective, the study develops a conceptual framework for understanding the relationship between governance deficiencies and safety-oriented entrepreneurship. The study adopts a conceptual review methodology based on the analysis and synthesis of relevant literature on occupational health and safety governance, institutional theory, entrepreneurship, and innovation in emerging economies. The review reveals that regulatory gaps, weak inspection systems, and the exclusion of informal enterprises generate unmet demand for safety services, thereby creating opportunities for entrepreneurial ventures in digital safety technologies, private safety consultancy services, occupational health solutions, safety-product development, and public-private partnership initiatives. The study further finds that these entrepreneurial responses not only address market needs but also function as complementary governance mechanisms that support workplace safety improvement where formal institutions are unable to adequately fulfil their roles. The study concludes that institutional weaknesses should not be viewed solely as barriers to effective OHS governance but also as catalysts for entrepreneurial innovation and value creation. It recommends strengthening regulatory capacity, promoting safety-oriented entrepreneurship, expanding public-private partnerships, enhancing professional standards, supporting digital safety innovation, and extending occupational safety interventions to the informal sector to foster a more inclusive and innovation-driven OHS ecosystem in Nigeria.

Keywords: Entrepreneurship, Institutional theory, Occupational health and safety, Public-private partnerships, Regulatory voids

Introduction
Occupational health and safety (OHS) remain critical challenges in Nigeria's economic landscape, where workplace injuries, occupational diseases, and hazardous working conditions continue to impose substantial human and economic costs. These risks affect workers across both formal and informal sectors and undermine

productivity, organisational performance, and national economic development. Despite growing policy attention to workplace safety reforms, institutional enforcement in Nigeria remains weak and fragmented, creating persistent gaps in worker protection (International Labour Organization [ILO], 2023a; World Health Organization [WHO], 2024). Government initiatives aimed at strengthening labour inspection systems and improving regulatory coordination demonstrate increasing recognition of these deficiencies, yet enforcement capacity and regulatory clarity still lag behind the country's expanding industrial and commercial activities (Akinwale & Olusanya, 2022; World Bank, 2023; Federal Ministry of Labour and Employment, 2023).

Nigeria's occupational safety governance framework continues to face challenges associated with outdated regulatory mechanisms, inadequate institutional capacity, and limited coverage of the informal sector. Although existing legislation provides a basis for workplace protection, many industries, including construction, manufacturing, agriculture, transportation, and small-scale enterprises, continue to experience significant safety risks that are insufficiently addressed by current enforcement structures (Akinwale, 2021; ILO, 2023a). Efforts to modernise workplace safety regulations and expand protection to underserved worker populations demonstrate increasing awareness of these challenges, particularly given the dominance of informal employment within the national economy (ILO, 2024; World Bank, 2023).

Beyond their regulatory implications, these institutional shortcomings also create opportunities for entrepreneurial intervention. In contexts where formal institutions are unable to fully address societal needs, entrepreneurs often develop innovative products, services, and governance mechanisms that complement existing systems and fill critical service gaps (Adomako et al., 2023; George et al., 2021). Within Nigeria's OHS environment, unmet safety needs have created opportunities for the emergence of safety-oriented entrepreneurial ventures, including consultancy services, digital safety technologies, and collaborative public-private initiatives.

Against this background, this study examines how institutional weaknesses shape the emergence and development of safety entrepreneurship in Nigeria. Specifically, it explores how regulatory fragmentation, weak enforcement capacity, and the exclusion of large segments of the workforce from formal safety protections simultaneously constrain workplace safety outcomes and create opportunities for entrepreneurial innovation. By reframing institutional deficiencies as both challenges and opportunity structures, the study contributes to understanding the relationship between governance gaps and entrepreneurial responses within occupational health and safety systems.

Literature Review

This section reviews the literature relevant to the study and is organised under the following subheadings: Theoretical Foundations: Institutional Theory, Regulatory Voids, and Entrepreneurial Response; Occupational Health and Safety Governance in Nigeria: Structural Gaps and Enforcement Challenges; Informal Sector Vulnerability and Safety Service Demand; Emergence of Safety-Tech Startups and Digital Occupational Innovation; Private Safety Consultancy Markets and Professionalisation of OHS Services; and Public-Private Safety Partnerships and Hybrid Governance Models**.** These themes collectively provide the conceptual and contextual basis for understanding how institutional deficiencies influence the development of safety-oriented entrepreneurial ventures in Nigeria.

Theoretical Foundations: Institutional Theory, Regulatory Voids, and Entrepreneurial Response

Institutional theory explains how organisational behaviour is shaped by the formal and informal structures within a society. These structures include laws, regulatory agencies, enforcement systems, cultural norms, and accepted business practices that influence how organisations operate (Scott, 2014; Bruton et al., 2022). The theory suggests that when institutions are effective and well coordinated, organisations are more likely to comply with established regulations and standards. However, when institutions are weak, fragmented, or inconsistently enforced, institutional voids emerge, creating uncertainty and governance gaps that affect organisational decision-making and behaviour (Khanna & Palepu, 2010; Mair et al., 2022).

This theoretical perspective is particularly relevant to Nigeria's occupational health and safety environment, where weak enforcement mechanisms, regulatory fragmentation, and limited institutional coordination have reduced the effectiveness of workplace safety governance (Akinwale & Olusanya, 2022; ILO, 2023a). Such deficiencies create unmet safety needs and increase the demand for alternative mechanisms capable of improving workplace safety outcomes.

Institutional theory underpins this study by explaining how institutional deficiencies can simultaneously constrain and stimulate entrepreneurial activity. While weak institutions may hinder compliance and effective regulation, they can also create opportunities for entrepreneurial actors to provide alternative solutions through safety consultancy services, digital safety technologies, workplace training programmes, and collaborative governance initiatives (Adomako et al., 2023; Mair et al., 2022). Consequently, the theory provides a useful lens for understanding how regulatory weaknesses in Nigeria's OHS system contribute to the emergence of safety entrepreneurship as a complementary mechanism for addressing workplace safety challenges.

Occupational Health and Safety Governance in Nigeria: Structural Gaps and Enforcement Challenges

Nigeria's occupational health and safety governance framework is marked by a multifaceted regulatory system that is constrained by weak enforcement mechanisms. While existing laws clearly define employers' obligations regarding workplace safety and employee protection, their implementation remains inadequate due to shortages of labour inspectors, insufficient technical capacity, and limited monitoring and surveillance infrastructure (Akinwale, 2021; ILO, 2023). These enforcement deficiencies have reduced the effectiveness of regulatory oversight across many sectors of the economy. Consequently, ongoing policy debates and reform initiatives increasingly emphasise the need to modernise occupational safety regulations, strengthen institutional capacity, and enhance coordination among relevant regulatory agencies to improve workplace safety outcomes (World Bank, 2023).

The regulatory framework remains fragmented, with multiple government agencies exercising overlapping responsibilities without a single authority responsible for comprehensive workplace safety oversight. Such fragmentation weakens regulatory accountability and allows non-compliant practices to persist, particularly among smaller enterprises and businesses operating outside formal industrial clusters (Akinwale & Olusanya, 2022). Consequently, many workplaces receive limited or irregular inspection, reducing the effectiveness of formal safety regulations.

Resource constraints further undermine effective governance. Regulatory institutions responsible for labour inspection often face budgetary limitations, insufficient personnel, and inadequate technological tools required for proactive monitoring and enforcement (ILO, 2023). In addition, bureaucratic inefficiencies and governance challenges can weaken the credibility of regulatory oversight, thereby reducing incentives for consistent compliance among employers (World Bank, 2023).

Another major challenge concerns the limited inclusion of the informal sector within formal occupational safety frameworks. A large proportion of Nigeria's workforce is employed in informal enterprises where safety regulations are rarely monitored or enforced (ILO, 2024). As a result, many workers operate in hazardous environments without adequate protection, training, or risk mitigation mechanisms. This structural exclusion not only increases vulnerability to occupational injuries but also creates unregulated markets where safety practices remain largely informal.

In all, institutional weaknesses in Nigeria's occupational safety governance system manifest through both regulatory fragmentation and capacity limitations. These deficiencies contribute to unsafe working conditions and persistent occupational risks, while simultaneously creating environments where entrepreneurial actors may develop innovative safety services, technologies, and advisory mechanisms to address unmet workplace safety needs.

Institutional Weaknesses, Governance Challenges, and Opportunities for Entrepreneurial Innovation

While institutional weaknesses and governance challenges are often viewed as barriers to effective occupational health and safety (OHS) management, they can also create significant opportunities for entrepreneurial innovation. In Nigeria, regulatory fragmentation, weak enforcement capacity, inadequate inspection systems, and the exclusion of the informal sector from formal safety frameworks have created substantial gaps in workplace safety governance (Akinwale & Olusanya, 2022; International Labour Organization [ILO], 2023a). These gaps result in unmet needs for safety services, information, technologies, and compliance support that existing public institutions are unable to adequately provide. Consequently, entrepreneurs are presented with opportunities to develop innovative solutions that address these deficiencies while creating economic value (Adomako et al., 2023; Mair et al., 2022).

One major opportunity lies in the development of digital safety technologies. Limited inspection capacity and inadequate monitoring infrastructure create demand for mobile-based hazard reporting systems, digital compliance platforms, wearable safety devices, and artificial intelligence-driven risk assessment tools. Such technologies can help organisations identify hazards, monitor compliance, and improve workplace safety performance in real time. By leveraging advances in digital innovation, entrepreneurs can provide scalable and cost-effective solutions that complement traditional regulatory oversight (Autio et al., 2021; World Bank, 2022a).

Institutional weaknesses also create opportunities for the growth of private safety consultancy services. Many organisations require professional guidance in interpreting safety regulations, conducting risk assessments, developing safety policies, and training employees. Where regulatory agencies lack sufficient capacity to provide these services, private consultants can fill the gap by offering specialised expertise. This creates entrepreneurial opportunities in occupational hygiene, safety auditing, emergency preparedness, environmental health management, and compliance advisory services (International Labour Organization, 2023a; Organisation for Economic Co-operation and Development [OECD], 2023).

The vulnerability of workers in the informal sector presents another important avenue for innovation. Because millions of informal workers operate without access to formal safety education or regulatory protection, there is growing demand for affordable and context-specific safety solutions. Entrepreneurs can develop community-based safety programmes, mobile advisory services, low-cost training initiatives, and locally adapted safety equipment targeted at artisans, traders, transport operators, and small-scale producers. Such interventions not only improve worker protection but also create sustainable business opportunities (ILO, 2023b; World Bank, 2022).

Similarly, governance gaps create opportunities for occupational health service enterprises. Entrepreneurs can establish businesses that provide workplace health screening, wellness programmes, ergonomic assessments, mental health support services, and occupational disease prevention initiatives. As organisations become increasingly aware of the economic costs associated with workplace injuries and illnesses, demand for such services is likely to increase (World Health Organization [WHO], 2022; ILO, 2023a).

Weak institutional coordination also encourages the emergence of public-private partnership innovations. Governments increasingly require support from private actors to expand regulatory reach and improve service delivery. Entrepreneurs can therefore participate in collaborative initiatives involving safety training, digital inspection systems, workplace certification programmes, and safety awareness campaigns. These partnerships enable private innovation to complement public regulatory objectives while expanding market opportunities (World Bank, 2023; OECD, 2023).

In addition, the limited availability of affordable safety equipment in many sectors creates opportunities for safety-product entrepreneurship. Entrepreneurs can design, manufacture, distribute, or customise personal protective equipment (PPE), hazard detection devices, and workplace safety tools suited to local environmental and economic conditions. Such ventures help improve access to safety resources while contributing to local industrial development (ILO, 2023a; OECD, 2023).

In all, the institutional weaknesses and governance challenges identified in this study do not merely represent regulatory deficiencies. They also create opportunity spaces for entrepreneurial innovation by revealing unmet needs within Nigeria’s occupational safety ecosystem. Consequently, safety entrepreneurship emerges as both a commercial response to market demand and a complementary governance mechanism that helps strengthen workplace safety outcomes where formal institutions are unable to fully meet societal needs (Adomako et al., 2023; Mair et al., 2022).

Informal Sector Vulnerability and Safety Service Demand

Nigeria’s informal economy accounts for a substantial share of employment and economic production, yet it remains largely outside the scope of formal occupational health and safety (OHS) regulation. Labour market statistics indicate that over 90% of employed Nigerians participate in informal employment, reflecting the dominance of small-scale enterprises, self-employment, and unregistered economic activities across sectors such as agriculture, trade, transportation, and artisanal services (International Labour Organization, 2023). Beyond its role as a major source of employment, the informal sector also constitutes a critical pillar of Nigeria's economic structure. Economic assessments suggest that informal economic activities contribute more than 50% of the country's Gross Domestic Product (GDP), highlighting the sector's significant contribution to national production, income generation, and household livelihoods (International Monetary Fund, 2023; World Bank, 2022).

Despite this considerable economic importance, most informal enterprises operate outside structured regulatory oversight, including occupational health and safety systems. Consequently, millions of workers carry out their daily activities without adequate institutional protection, formal safety training, or enforceable workplace standards. This regulatory gap exposes workers to hazardous environments and increases the likelihood of occupational injuries and illnesses. The disconnect between the sector's economic significance and the absence of comprehensive safety governance therefore presents a major policy challenge while simultaneously highlighting opportunities for innovative policy responses and entrepreneurial safety solutions tailored to informal economic environments.

Informal enterprises, including artisans, market traders, roadside workshops, and independent service providers, typically operate with minimal supervision or regulatory oversight, thereby exposing workers to multiple occupational hazards without adequate protective frameworks or enforceable standards (International Labour Organization, 2023). Workers in these environments often lack access to essential workplace safety information, personal protective equipment, and risk management training. In the absence of structured regulatory obligations or institutional support, they frequently rely on informal coping strategies and improvised safety measures to manage workplace risks, which increases both the frequency and severity of injuries (International Labour Organization, 2023). These vulnerabilities are further intensified by limited access to occupational health services and low levels of formal safety education, resulting in significant gaps in preventive and remedial safety mechanisms (World Health Organization, 2022).

The exclusion of the informal sector from formal OHS protection frameworks not only exacerbates worker vulnerability but also creates a latent demand for safety-related services. As informal enterprises increasingly recognise the human and economic consequences of workplace hazards, demand is growing for accessible and affordable safety solutions. These include tailored safety training programmes, mobile-based hazard assessment tools, risk communication platforms, and community-based safety initiatives that operate independently of formal regulatory enforcement systems.

Recent research suggests that informal entrepreneurs themselves can play an important role in advancing workplace safety practices by leveraging peer networks, trade associations, and local knowledge to disseminate safety norms and practices (International Labour Organization, 2023; World Bank, 2022). Their close proximity to everyday work environments enables them to identify practical and context-sensitive safety interventions suited to informal economic settings.

In this context, institutional weakness in the informal sector does not merely represent regulatory omission; it also reveals unmet needs and emerging market opportunities for safety-oriented entrepreneurial ventures. By providing specialised services that directly address hazard mitigation in informal workplaces, entrepreneurial actors can contribute to reducing occupational risks while simultaneously developing sustainable and socially valuable business models.

Emergence of Safety-Tech Startups and Digital Occupational Innovation

Digital transformation is increasingly reshaping occupational health and safety governance in emerging economies, particularly where enforcement institutions face significant resource constraints (International Labour Organization, 2023). In Nigeria, regulatory stakeholders have begun recognising the potential of artificial intelligence, digital inspection systems, and data-driven monitoring tools to strengthen workplace safety management (Federal Ministry of Labour and Employment, 2024). These developments align with global research showing that digital safety technologies, such as predictive analytics, wearable sensors, and cloud-based compliance platforms, enhance hazard identification and real-time risk mitigation (World Bank, 2022; International Labour Organization, 2023).

Recent institutional entrepreneurship scholarship indicates that where inspection regimes are weak or inconsistent, entrepreneurial actors frequently deploy technological innovations to substitute for regulatory monitoring mechanisms (Autio et al., 2021; Puffer et al., 2022). Nigeria’s uneven inspection capacity therefore creates opportunity spaces for safety-technology ventures that provide digital compliance dashboards, mobile hazard reporting systems, and virtual safety training modules. These ventures respond directly to unmet needs for scalable risk-management solutions in sectors where regulatory presence is limited (World Bank, 2022).

The rapid expansion of Nigeria's broader digital entrepreneurship ecosystem, supported by innovation hubs, venture accelerators, and technology incubators, also facilitates experimentation with occupational safety technologies (Organisation for Economic Co-operation and Development, 2023). Such ecosystems provide infrastructure for startups to develop context-specific solutions incorporating local language interfaces, offline functionality, and sector-specific hazard identification tools.

Nevertheless, adoption of digital safety technologies remains uneven. Infrastructure constraints, including unstable electricity supply, limited broadband penetration, and low digital literacy in some labour segments, restrict widespread implementation (World Bank, 2022). Employers operating in micro-enterprise and informal sectors may also perceive digital safety tools as additional costs rather than productivity investments. Consequently, safety-technology entrepreneurs must balance technological sophistication with affordability and contextual simplicity.

Despite these challenges, digital innovation represents a significant complement to traditional regulatory oversight. Rather than replacing formal institutions, safety-technology platforms can enhance transparency, automate compliance documentation, and generate real-time risk data useful for regulators. In this context, technological entrepreneurship functions both as a commercial response and as a supportive institutional mechanism within Nigeria's evolving occupational safety governance landscape.

Private Safety Consultancy Markets and Professionalisation of OHS Services

Where state inspection systems are overstretched, private safety consultancy markets frequently emerge to bridge regulatory compliance gaps (International Labour Organization, 2023). In Nigeria, organisations increasingly outsource risk assessments, safety audits, environmental impact evaluations, and workplace safety training to professional consultants. This trend reflects growing awareness among firms of the legal, financial, and reputational risks associated with workplace accidents, particularly in high-hazard sectors such as oil and gas, construction, and manufacturing (Organisation for Economic Co-operation and Development, 2023).

Professionalisation of occupational safety practice is reinforced by industry institutions such as the Institute of Safety Professionals of Nigeria (ISPON), which promotes certification frameworks and competency standards for safety practitioners (ISPON, 2024). Through accreditation programmes, continuing professional development activities, and industry conferences, professional bodies help formalise safety consultancy as a specialised field of expertise. This institutionalisation enhances credibility, reduces information asymmetry, and builds trust between consultants and organisations seeking compliance guidance.

Contemporary institutional research suggests that when regulatory enforcement is inconsistent, firms often pursue legitimacy through external advisory services and professional certification mechanisms (Puffer et al., 2022; Autio et al., 2021). In such contexts, consultancy firms effectively function as quasi-regulatory actors by interpreting statutory requirements, developing compliance policies, and conducting internal audits that simulate formal inspection processes.

The growth of consultancy markets also stimulates entrepreneurial activity by creating specialised service niches. Areas such as fire safety engineering, ergonomic risk assessment, occupational hygiene testing, and digital compliance management enable knowledge-based entrepreneurs to monetise technical expertise while simultaneously improving workplace safety outcomes..

However, several challenges remain within the evolving private safety consultancy landscape. Variations in service quality may weaken professional standardisation where oversight and regulatory monitoring mechanisms are insufficient. In addition, commercial pressures can sometimes conflict with strict compliance requirements, particularly when consultants prioritise client retention over objective hazard identification and reporting. Addressing these concerns requires stronger accreditation frameworks, clearer professional standards, and closer collaboration between regulatory authorities and professional bodies to ensure accountability and service quality.

Despite these challenges, private consultancy markets increasingly function as an adaptive governance mechanism within Nigeria’s occupational safety ecosystem. By providing specialised expertise, compliance support, and professional safety services, these consultancies help bridge institutional gaps while simultaneously fostering knowledge-based entrepreneurship and contributing to improved workplace safety practices.

Public-Private Safety Partnerships and Hybrid Governance Models

Hybrid governance arrangements are increasingly shaping occupational safety reform in developing economies (World Bank, 2022). Public-private partnerships provide institutional mechanisms through which regulatory agencies, professional organisations, and private innovators collaborate to strengthen workplace safety standards. In Nigeria, national labour policy frameworks emphasise multi-stakeholder collaboration as essential for improving occupational risk management (Federal Ministry of Labour and Employment, 2024).

Within such partnership arrangements, private safety consultants may jointly deliver training programmes with government agencies, while technology firms provide digital inspection platforms integrated into national reporting systems. These collaborations expand regulatory reach beyond the capacity of public institutions alone. They also encourage knowledge transfer, enabling regulators to benefit from private-sector innovation capabilities (Organisation for Economic Co-operation and Development, 2023).

Hybrid governance models further help reduce institutional fragmentation by clarifying complementary responsibilities among stakeholders. In many cases, regulators maintain enforcement authority while outsourcing specialised technical services, such as risk assessments or safety training, to accredited providers. This division of labour enhances efficiency while preserving the legitimacy of public oversight.

Nevertheless, effective public-private partnerships require transparency, clearly defined accountability mechanisms, and aligned incentives among participating actors. Without structured governance arrangements, partnerships may lead to duplication of responsibilities or coordination failures. When carefully designed, however, hybrid governance frameworks transform institutional weakness into collaborative opportunity, enabling safety-oriented entrepreneurship to function within a coordinated regulatory environment.

Integrated Conceptual Framework

The integrated conceptual framework developed in this study positions institutional weaknesses as the central antecedent shaping the emergence and growth of safety entrepreneurship in Nigeria. Within the Nigerian occupational health and safety (OHS) system, persistent challenges such as regulatory fragmentation, weak enforcement capacity, and the marginalisation of the informal sector continue to undermine effective workplace safety governance. Recent national policy discussions emphasise that strengthening Nigeria’s OHS architecture requires coordinated regulatory systems, improved institutional capacity, and stronger collaboration among stakeholders (Federal Ministry of Labour and Employment, 2023; International Labour Organization [ILO], 2023). These structural limitations simultaneously constrain regulatory compliance while creating opportunities for entrepreneurial actors to identify and address unmet safety needs.

The framework proposes a sequential and interactive process. First, institutional deficiencies generate unmet safety needs across both formal and informal sectors of the economy. These gaps arise because regulatory institutions often lack adequate resources, coordination mechanisms, and enforcement capacity to ensure comprehensive safety coverage across industries. Contemporary policy initiatives such as Nigeria's National Occupational Health and Safety Strategic Plan (2024–2028) highlight the growing recognition that the country must strengthen workplace safety systems to protect workers and sustain productivity in an increasingly diversified economy (Federal Ministry of Health and Social Welfare, 2024).

Second, entrepreneurial actors interpret these unmet needs as opportunity spaces for innovation and service provision. In response, three major forms of safety entrepreneurship emerge: digital safety innovation, professional safety consultancy services, and hybrid public–private governance arrangements. Digital safety ventures introduce technology-based solutions that improve hazard reporting, workplace monitoring, and data-driven safety management. Safety consultancy services provide professional expertise, regulatory interpretation, and training programmes that assist organisations in complying with evolving safety standards. Public-private partnerships further strengthen safety governance by aligning private sector expertise with public regulatory oversight, an approach increasingly recommended in contemporary occupational safety governance frameworks (International Labour Organization, 2023; World Bank, 2022).

The framework also recognises dynamic feedback effects within the safety governance system. As entrepreneurial solutions scale and become institutionalised, they may improve compliance outcomes and reduce workplace risks. However, they may also reveal new regulatory gaps that require further policy reform. Recent policy debates in Nigeria have emphasised the importance of strengthening occupational safety laws, institutional coordination, and stakeholder collaboration to ensure sustainable workplace protection (Federal Ministry of Labour and Employment, 2025).

Consequently, safety entrepreneurship should not be viewed merely as a market response to regulatory deficiencies. Rather, it functions as a complementary institutional mechanism that contributes to the transformation of Nigeria's occupational health and safety governance architecture.

Figure 1 illustrates this integrated conceptual framework. It shows how institutional weaknesses create unmet safety needs that stimulate entrepreneurial responses in the form of digital safety innovation, safety consultancy services, and public-private partnership arrangements. These interventions influence compliance outcomes and governance reforms through continuous feedback loops, thereby shaping the ongoing evolution of Nigeria's OHS ecosystem.

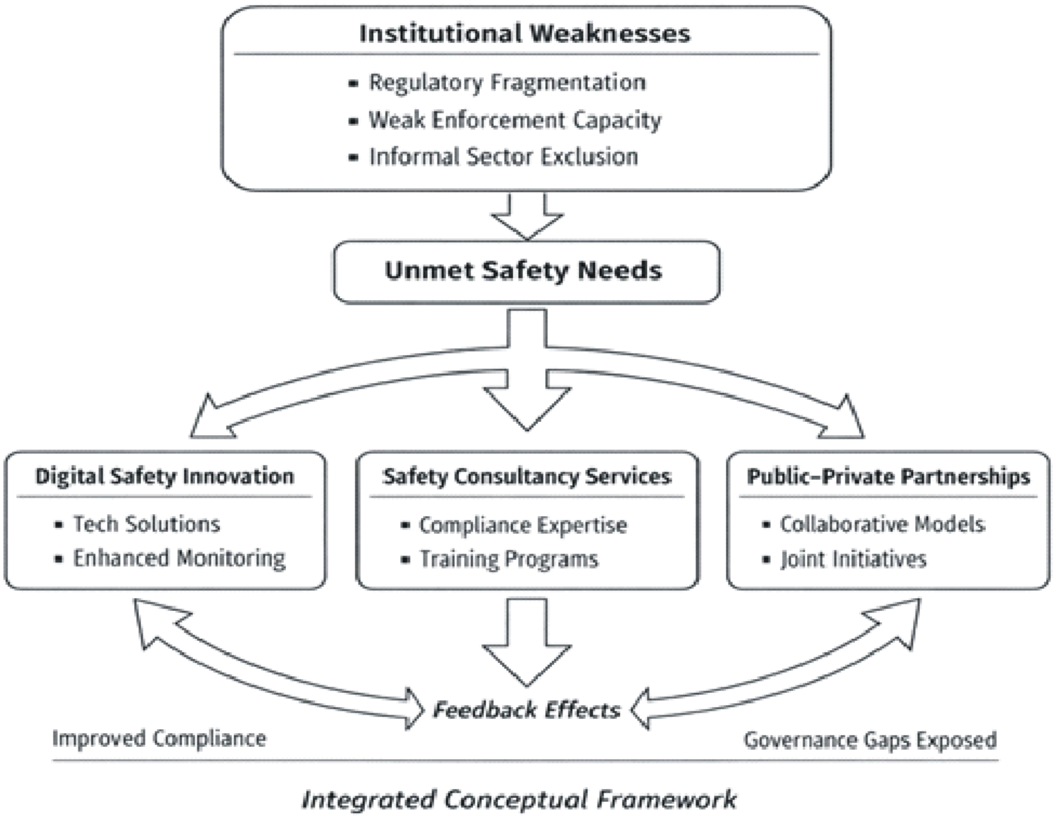

Figure 1: Integrated Conceptual Framework

Findings, Implications and Recommendations

Findings

This conceptual study examined how institutional weaknesses influence the emergence of safety entrepreneurship within Nigeria's occupational health and safety (OHS) ecosystem. The review reveals that Nigeria's OHS governance system is characterised by regulatory fragmentation, weak enforcement capacity, inadequate institutional coordination, and limited coverage of the informal sector. These deficiencies reduce the effectiveness of workplace safety regulation and contribute to persistent occupational hazards across both formal and informal economic sectors (International Labour Organization [ILO], 2023a; World Bank, 2023).

The study further finds that the informal sector, which accounts for more than 90% of employment and contributes over 50% of national economic output, remains largely excluded from formal safety governance frameworks (ILO, 2023b; International Monetary Fund [IMF], 2023). Consequently, a substantial proportion of workers operate without adequate safety training, risk management support, or regulatory protection, creating significant unmet demand for occupational safety services.

Another important finding is that institutional weaknesses simultaneously create opportunities for entrepreneurial innovation. The inability of existing institutions to fully address workplace safety needs has encouraged the emergence of alternative solutions such as safety consultancy services, digital safety technologies, workplace training programmes, compliance management systems, and hybrid public-private governance initiatives. These entrepreneurial responses help bridge institutional gaps by providing services that improve safety awareness, compliance, monitoring, and risk mitigation.

The study also finds that safety entrepreneurship extends beyond commercial activity. By providing innovative mechanisms for addressing workplace hazards, entrepreneurial ventures increasingly function as complementary governance actors that support institutional effectiveness and contribute to improved occupational safety outcomes. Thus, institutional weaknesses serve both as constraints on workplace safety and as catalysts for entrepreneurial responses aimed at addressing unmet safety needs.

Implications

The findings have important theoretical, policy, and practical implications. From a theoretical perspective, the study extends institutional theory by demonstrating that institutional weaknesses should not be viewed solely as barriers to organisational effectiveness. Rather, they can also create opportunity spaces that stimulate entrepreneurial innovation. This dual role of institutions enriches understanding of how entrepreneurs respond to governance deficiencies in emerging economies.

From a policy perspective, the findings suggest that improving workplace safety requires more than strengthening regulatory enforcement alone. While effective regulation remains essential, policymakers should recognise that entrepreneurial actors can complement public institutions by providing innovative solutions that expand safety coverage, particularly in underserved sectors. Consequently, occupational safety policies should incorporate mechanisms that encourage collaboration between regulators, entrepreneurs, professional bodies, and civil society organisations.

The study also has implications for economic development and employment generation. The emergence of safety-oriented enterprises creates opportunities for business formation, job creation, and knowledge-based entrepreneurship. Growing demand for workplace safety services may stimulate new ventures in areas such as occupational health consulting, safety training, digital compliance management, hazard monitoring technologies, and safety equipment distribution. Such developments can contribute simultaneously to economic growth and improved worker welfare.

For organisations, the findings highlight the importance of embracing innovative approaches to workplace safety management. Firms that utilise professional safety services, digital monitoring tools, and collaborative safety initiatives are likely to improve compliance, reduce workplace accidents, and enhance organisational performance. Thus, safety entrepreneurship represents not only a response to regulatory deficiencies but also a strategic mechanism for improving organisational resilience and competitiveness.

Recommendations

The following recommendations therefore outline strategic actions through which policymakers, professional bodies, and industry stakeholders can promote a more effective, inclusive, and innovation-driven OHS governance framework.

I. Strengthening Regulatory and Institutional Capacity

Government should intensify efforts to modernise occupational health and safety regulations and strengthen enforcement institutions. This includes improving labour inspectorate capacity, enhancing inter-agency coordination, and investing in digital monitoring systems that facilitate effective workplace inspection and compliance management. Regulatory reforms should also prioritise extending occupational safety protections to workers in the informal sector.

II. Promoting Safety-Oriented Entrepreneurship

Policymakers should establish programmes that encourage the development of safety-focused entrepreneurial ventures. Innovation grants, business incubation programmes, regulatory sandboxes, and startup support initiatives can stimulate the creation of digital safety technologies, workplace training platforms, compliance management solutions, and other safety-related services. Such initiatives would help transform institutional gaps into opportunities for innovation and value creation.

III. Strengthening Professional Standards

Professional accreditation systems should be strengthened to ensure that occupational safety consultants maintain high standards of competence, ethics, and service quality. Professional bodies such as the Institute of Safety Professionals of Nigeria (ISPON) should continue to promote certification programmes, continuing professional development, and industry-wide quality assurance mechanisms.

IV. Expanding Public-Private Partnerships

Government agencies should establish formal frameworks for collaboration with private safety providers, technology firms, and professional organisations. Public-private partnerships can facilitate knowledge sharing, technology transfer, joint training programmes, and the development of integrated workplace safety solutions. Such partnerships can significantly expand the reach and effectiveness of occupational safety interventions.

V. Enhancing Informal Sector Safety Coverage

Targeted interventions should be developed for informal enterprises, which remain the most vulnerable segment of Nigeria's workforce. Mobile-based safety advisory services, community outreach programmes, subsidised training initiatives, and affordable safety equipment schemes can improve workplace safety awareness and risk management practices among informal workers.

VI. Supporting Digital Transformation in Workplace Safety

Government and industry stakeholders should encourage the adoption of digital technologies that improve workplace safety management. Investments in mobile applications, cloud-based compliance systems, wearable safety devices, artificial intelligence-driven hazard detection tools, and digital reporting platforms can enhance monitoring, transparency, and real-time risk mitigation across industries.

Collectively, these recommendations recognise that sustainable improvements in occupational health and safety require a balanced approach that combines stronger institutions with entrepreneurial innovation. By aligning regulatory reform with market-based solutions, Nigeria can develop a more inclusive, responsive, and innovation-driven occupational safety ecosystem capable of protecting workers while supporting economic development.

Conclusion

This study reframes institutional weaknesses in Nigeria's occupational health and safety system as both constraints and catalysts for entrepreneurial adaptation. Rather than depicting regulatory fragmentation and enforcement deficits solely as governance failures, the conceptual framework demonstrates how these gaps stimulate innovation in digital safety technologies, consultancy services, and collaborative governance models. By integrating institutional theory with the institutional void perspective, the paper highlights the dynamic interaction between structural deficiencies and entrepreneurial opportunity recognition. Strengthening occupational safety in Nigeria therefore requires not only regulatory reform but also strategic engagement with entrepreneurial actors whose innovations can complement and progressively reshape the national OHS governance architecture.

References

Acs, Z. J., Autio, E., & Szerb, L. (2017). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, *46*(6), 1018– 1034.

Adomako, S., Danso, A., & Ofori-Damoah, J. (2023). Institutional voids, entrepreneurial orientation and new venture performance in emerging economies. *Journal of Business Research, 157*, 113564. https://doi.org/10.1016/j.jbusres.2022.113564

Akinwale, A. A. (2021). Occupational health and safety management in Nigeria: Challenges and prospects. *African Journal of Labour Studies*, *5*(1), 45–60.

Akinwale, A. A., & Olusanya, B. O. (2022). Workplace safety governance and labour inspection challenges in Nigeria. *Safety Science*, *149*, 105674. https://doi.org/10.1016/j.ssci.2022.105674

Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2021). Entrepreneurial innovation: The importance of context. *Research Policy*, *50*(1), 104–121. https://doi.org/10.1016/j.respol.2020.104043

Battilana, J., Leca, B., & Boxenbaum, E. (2009). How actors change institutions: Towards a theory of institutional entrepreneurship. *Academy of Management Annals*, *3*(1), 65–107. https://doi.org/10.1080/19416520903053598

Bruton, G. D., Ahlstrom, D., & Li, H. L. (2022). Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship Theory and Practice*, *46*(5), 1051–1078. https://doi.org/10.1177/10422587221108160

Estrin, S., Mickiewicz, T., & Stephan, U. (2022). Entrepreneurship, institutions, and economic development. *Small Business Economics*, *58*(1), 1–19. https://doi.org/10.1007/s11187-021-00524-5

Federal Ministry of Health and Social Welfare. (2024). *National occupational health and safety strategic plan (2024–2028).* Abuja, Nigeria.

Federal Ministry of Labour and Employment. (2023). *Nigeria reviews national profile on occupational safety and health.* Abuja, Nigeria.

Federal Ministry of Labour and Employment. (2024). *National occupational safety and health policy review report*. Abuja, Nigeria.

Federal Ministry of Labour and Employment. (2025). *Government recommits to strengthening workplace safety in*

Nigeria. (Independent Newspaper Nigeria)

George, G., Merrill, R. K., & Schillebeeckx, S. (2021). Digital sustainability and entrepreneurship in emerging economies. *Academy of Management Perspectives*, *35*(1), 1–16. https://doi.org/10.5465/amp.2019.0148

Institute of Safety Professionals of Nigeria. (2024). *Professional certification and occupational safety practice guidelines*. Lagos, Nigeria.

International Labour Organization. (2023a). *Safety and health at the heart of the future of work: Building safe and healthy workplaces*. Geneva, Switzerland.

International Labour Organization. (2023b). *Women and men in the informal economy: A statistical update*. Geneva, Switzerland.

International Labour Organization. (2024). *World employment and social outlook: Trends 2024*. Geneva, Switzerland.

International Monetary Fund. (2023). *Nigeria: Selected issues*. Washington, DC.

Khanna, T., & Palepu, K. (2010). *Winning in emerging markets: A roadmap for strategy and execution*. Harvard Business Press.

Mair, J., Marti, I., & Ventresca, M. (2022). Building inclusive markets through institutional entrepreneurship. *Organization Studies*, *43*(9), 1359–1382. https://doi.org/10.1177/01708406211056640

Organisation for Economic Co-operation and Development. (2023). *Entrepreneurship and innovation in emerging economies*. OECD Publishing.

Puffer, S. M., McCarthy, D. J., & Boisot, M. (2022). Entrepreneurship in emerging markets and institutional voids: Implications for innovation. *Journal of World Business*, *57*(2), 101295. https://doi.org/10.1016/j.jwb.2021.101295

Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage Publications.

World Bank. (2022a). *Digital technologies and firm productivity in Africa*. World Bank.

World Bank. (2022b). *Informality and productivity in Africa: Policies for economic transformation*. World Bank.

World Bank. (2023). *Improving labour governance and* *workplace safety in developing economies*. World Bank.

World Health Organization. (2022). *Global strategy on occupational health for all workers*. Geneva, Switzerland.

World Health Organization. (2024). *Global strategy on occupational health for all*. Geneva, Switzerland.