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Compliance with Global Best Practices by Garment Producers in Ghana

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Abstract

Purpose: This study investigates the level of compliance with global best practices among garment producers in Ghana, with a specific focus on sourcing compliance, production compliance, and distribution compliance. It covers aspects such as labour ethics, environmental stewardship, product quality, and adherence to international trade standards.

Methodology/Design: A cross-sectional survey design was employed, using a structured questionnaire administered to 317 garment manufacturing firms across Accra, Tamale, and Kumasi. Compliance was assessed across sourcing, production, and distribution domains using Likert-scale items adapted from international benchmarks such as the International Labour Organisation (ILO) conventions, ISO certifications, and the Higgs Index. Descriptive statistics were used to analyse patterns and gaps in compliance practices, including mean scores and standard deviations.

Findings: The study revealed moderate to low overall compliance, with mean scores. While firms exhibited higher compliance in ethical labour practices, employee training, and quality assurance, substantial deficiencies were identified in environmental sustainability, automation, data-driven quality control, and adherence to international trade regulations. Notably, blockchain use, recycling initiatives, and lean manufacturing practices were poorly rated, indicating limited digital and ecological transformation across the sector.

Practical and Social Implications: These findings underscore the pressing need for policy reforms, capacity building, and infrastructure enhancements to facilitate Ghana's integration into ethical and sustainable global garment value chains. For policymakers, the results underscore the importance of embedding compliance support within national industrial strategies. For garment producers, the study offers a roadmap for targeted investment in technology, sustainability, and workforce development.

Originality: This study contributes original empirical evidence on compliance with global best practices in Ghana's garment sector, a topic that remains underexplored in West Africa. It offers a model for examining compliance dynamics in other emerging economies. Beyond its academic value, the study is policy-relevant, providing insights to inform national industrial strategies, regulatory frameworks, and export support programs that aim to enhance sustainability and competitiveness.

Keywords
Value chain, compliance, global best practices, garment producers

Abbreviations

ILO	International Labour Organisation
GSA	Ghana Standards Authority
ISO	International Organisation for Standardisation
AfCFTA	African Continental Free Trade Area
GHATIG	Ghana Trade and Investment Gateway Program
GEPA	Ghana Export Promotion Authority
AGOA	African Growth and Opportunity Act

1 | INTRODUCTION

The global garment industry has become one of the most dynamic and competitive sectors of the world economy, accounting for a significant share of international trade, employment, and industrial development (Hasan & Das, 2024; Repp et al., 2021; Hasan et al., 2016). Hossain et al. (2025) and Machek et al. (2020) infer that as globalisation shapes production and consumption patterns, garment

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producers are increasingly expected to conform to internationally recognised standards, encompassing ethical labour practices, environmental sustainability, safety, and quality assurance. These global best practices, articulated in frameworks such as the International Labour Organisation (ILO) conventions, the United Nations Guiding Principles on Business and Human Rights, and various ISO certifications, serve as benchmarks for responsible manufacturing.

In this context, countries with emerging apparel industries, such as Ghana, face mounting pressure to align their production systems with these global norms to enhance competitiveness and meet the expectations of both domestic and international markets (Nkrumah et al., 2024). Ghana's garment sector, though still developing, holds considerable promise (Sarpong et al., 2024) due to its strategic location, relatively low labour costs, and growing pool of skilled and semi-skilled labour. Government initiatives such as the Ghana Export Promotion Authority (GEPA), the Ghana Trade and Investment Gateway Program (GHATIG), and participation in the African Growth and Opportunity Act (AGOA) have all aimed at positioning the country as a preferred sourcing destination for textiles and garments.

Furthermore, the influx of international donor support and private investment has facilitated the expansion of garment manufacturing clusters, particularly in Accra, Tamale, and Kumasi. Yet, as Ghanaian garment producers seek to penetrate more sophisticated global markets, their ability to demonstrate compliance with global best practices becomes a vital determinant of long-term success, investment attraction, and market access (Bosso et al., 2023; Amoako, 2019). Notwithstanding these encouraging developments, a significant gap remains between policy ambitions and the operational realities within Ghana's garment industry. Oduro (2020) inferred that many small and medium-sized enterprises (SMEs) face constraints in adopting best practices due to limited access to capital, inadequate training, fragmented supply chains, and poor institutional support. Studies by Boateng et al. (2024), Anyigba et al. (2024), and Nkrumah et al. (2023) have highlighted issues such as substandard working conditions, inconsistent product quality, and limited awareness of environmental regulations. In some cases, garment producers struggle to meet the compliance requirements of foreign buyers, resulting in lost contracts or exclusion from international trade networks. These challenges raise fundamental questions regarding the preparedness of Ghana's garment sector to align with global standards and contribute meaningfully to sustainable industrialisation.

Thus, the core objective of this study is to examine the extent to which garment producers in Ghana comply with global best practices in areas such as labour rights, environmental sustainability, product quality, and workplace safety. It seeks to identify key enablers and barriers to compliance while mapping the institutional landscape that influences business practices. Specifically, the study explores how internal business strategies, external regulatory mechanisms, and market dynamics shape the behaviour and decision-making of garment producers. This inquiry is particularly timely in light of the increasing international scrutiny of garment supply chains and growing consumer demand for ethically produced clothing. The COVID-19 pandemic, for instance, revealed the vulnerabilities (Glover et al., 2024; Uddin et al., 2023; Castañeda-Navarrete et al., 2021) in global apparel supply chains and amplified calls for stronger compliance with ethical standards. Besides, the emergence of environmental, social, and governance (ESG) criteria as a critical lens for evaluating business operations has intensified the urgency for garment producers to improve transparency, accountability, and sustainability. Ghana's participation in trade partnerships and regional agreements also places new obligations on its producers to harmonise their practices with regional and global expectations.

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The significance of this study lies in its potential to inform policy reforms, enhance institutional support mechanisms, and inspire business transformation in the Ghanaian garment sector. It provides empirical evidence that can guide capacity-building programs, investment strategies, and monitoring frameworks to improve compliance outcomes. For policymakers, the study offers actionable insights for crafting more targeted interventions and incentives to support industry upgrading. For garment producers, it identifies practical pathways toward achieving compliance, reducing risks, and improving operational efficiency. For international stakeholders, the study demonstrates Ghana's readiness or lack thereof to integrate into ethical and sustainable garment value chains.

The findings relate to other emerging economies with similar industrial ambitions and development trajectories. Thus, the study supports national policy objectives and enriches academic and policy debates on global value chain integration, sustainable manufacturing, and development economics. Ultimately, achieving compliance with global best practices is not merely a regulatory or market requirement, as it is a pathway to inclusive growth, social equity, and environmental stewardship. As Ghana navigates the complex terrain of industrial upgrading and global trade integration, the garment sector offers a critical test case for how local industries can evolve in response to global standards.

1.1| Global Best Practices in the Garment Industry

Global best practices in the garment industry encompass a wide array of standards and principles designed to ensure sustainability, ethical labour practices, quality control, environmental stewardship, and responsible sourcing (Hossain et al., 2025: Macchion, 2024; Chowdhury et al., 2022). Canton (2021) pointed out that best practices include adherence to core labour standards such as the elimination of forced and child labour, freedom of association, and non-discrimination in employment. In addition, organisations such as the Ethical Trading Initiative (ETI) and the Fair Wear Foundation have established codes of conduct and auditing frameworks to guide garment manufacturers in aligning with internationally accepted practices (Ünlütürk & Öngel, 2023).

From an environmental standpoint, best practices include minimising carbon emissions, reducing water usage, adopting circular fashion models, and ensuring responsible chemical management, as outlined by the Sustainable Apparel Coalition's Higg Index. Brands and producers committed to sustainability adopt life cycle assessments (LCAs) to inform decision-making and product development (Papasolomou et al., 2023; Niinimäki et al., 2020). Furthermore, the UN's Sustainable Development Goals (SDGs), particularly Goals 8 (Decent Work and Economic Growth), 12 (Responsible Consumption and Production), and 13 (Climate Action), serve as frameworks guiding global compliance within the fashion and textile sectors (United Nations, 2015).

1.2| Compliance Trends in Developing Economies

Compliance with global best practices has gained traction in developing economies as international buyers increasingly demand greater transparency and accountability in their supply chains. However, studies show that compliance is often uneven, influenced by factors such as regulatory capacity, economic constraints, cultural attitudes, and market pressures (Locke, 2013; Amengual, 2010). In countries such as Bangladesh and Vietnam, government policy, buyer pressure, and civil society advocacy have driven substantial workplace safety and labour standards reforms, especially following high-profile industrial disasters.

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Nonetheless, while some developing countries have made strides in compliance, challenges such as limited infrastructure, weak labour inspection systems, and informality in employment persist. According to Gereffi (2019) and Gereffi and Frederick (2010), garment-producing countries often face a compliance-cost trade-off, where higher compliance burdens can reduce their competitive advantage, particularly among small and medium-sized enterprises (SMEs). Consequently, alignment with global standards often depends on state-led policy interventions, donor-funded capacity building, and buyer-driven incentives.

1.3| Opportunities and Constraints in Ghana's Garment Sector

Ghana's garment and textile sector has recently experienced renewed attention, especially under the Ghana Export Promotion Authority (GEPA) and the government's Industrial Transformation Agenda. While the sector remains relatively small compared to global garment hubs, it holds significant potential for economic development, job creation, and export diversification. The African Growth and Opportunity Act (AGOA) and the African Continental Free Trade Area (AfCFTA) offer Ghanaian producers opportunities to access larger markets, contingent upon meeting international standards of quality, labour, and sustainability (Abrokwah et al., 2021; Fofack, 2020).

However, compliance with global best practices among Ghanaian garment producers remains uneven. Factors such as limited awareness of international standards, insufficient technical expertise, and capital constraints hinder the ability of small producers to meet buyer expectations (Bosso et al., 2023). Moreover, informal apprenticeship systems dominate the local garment industry, posing additional challenges to formal compliance and regulation (Glover et al., 2024). Without targeted support and enforcement, many producers remain excluded from premium global value chains where compliance is a prerequisite.

Effective compliance in the garment sector requires the active participation of multiple stakeholders, including government agencies, private sector actors, international organisations, labour unions, and civil society. In Ghana, institutions like the Ghana Standards Authority (GSA), the Ministry of Trade and Industry (MoTI), and the Association of Ghana Apparel Manufacturers (AGAM) have taken steps to promote quality assurance and ethical sourcing practices, but these efforts require greater coordination and capacity. However, studies emphasise the importance of embedding compliance frameworks within national development strategies, ensuring compliance is not merely buyer-driven but locally owned and institutionally supported (Barrientos, 2013). Training, certification schemes, and incentives for compliance can bridge the gap between local production systems and global standards.

2 | METHODOLOGY

This study employed a cross-sectional survey to quantify the extent to which Ghanaian garment producers adhere to global best practices in sourcing, production, and distribution compliance. A purposive sampling frame was initially established by identifying active producers with export capacity in Accra, Tamale, and Kumasi, after which firms were stratified by size (small, medium, and large) and selected randomly to ensure proportional representation (Etikan et al., 2016). A total of 317 valid questionnaires were returned by production managers, compliance officers, logistics supervisors, and business owners, exceeding the sample size calculated using Cochran's formula for unknown populations (Cochran, 1977).

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Data were collected using a self-administered structured questionnaire, co-designed with inputs from the Ghana Export Promotion Authority and the Association of Ghana Apparel Manufacturers. The questionnaire comprised four sections: (a) sourcing compliance, (b) production compliance, (c) distribution compliance, and (d) demographic and firmographic characteristics. Questionnaire items measuring compliance dimensions were adapted from the International Labour Organization (ILO) Conventions, ISO 9001:2015 (quality management), ISO 14001:2015 (environmental management) standards, the Sustainable Apparel Coalition's Higg Index, and the Ethical Trading Initiative Base Code. All compliance items were assessed using a five-point Likert scale, ranging from highly non-compliant (1) to highly compliant (5) (Likert, 1932).

A pretest involving fifteen industry professionals assessed the questionnaire for clarity, relevance, and content validity. Cronbach's alpha coefficients confirmed acceptable internal consistency and reliability for each compliance construct individually: sourcing compliance ($\alpha = 0.84$), production compliance ($\alpha = 0.86$), and distribution compliance ($\alpha = 0.79$). Questionnaires were distributed at sectoral forums over two months, with electronic reminders sent periodically to enhance response rates. Data were analysed using SPSS version 25. Descriptive statistics (means and standard deviations) summarised compliance levels and explored variations by firm size and location. Construct validity was ensured through expert reviews and careful thematic grouping of questionnaire items under their respective compliance dimensions (Hair et al., 2010).

Ethical considerations were rigorously observed throughout the study. Ethical approval was secured from relevant institutional authorities prior to data collection. Informed consent was obtained from all respondents, clearly informing them of their right to withdraw at any stage without consequence. Confidentiality and anonymity were strictly maintained; responses were used exclusively for academic purposes and securely stored to prevent unauthorised access.

3 | RESULTS AND DISCUSSION

3.1| Characteristics of study participants

Table 1 presents the descriptive characteristics of garment enterprises surveyed in Accra, Tamale, and Kumasi. The regional distribution shows that over half of the businesses (54.9%) are located in the Greater Accra Region, confirming the area's prominence as Ghana's industrial and fashion epicentre. The Ashanti Region accounts for 24.6% of respondents, while the Northern Region represents 20.5%. This distribution highlights regional disparities in garment production, suggesting opportunities for targeted interventions to promote industry growth in underrepresented areas.

In terms of business age, the largest group of firms (34.7%) had been operating for six to ten years, followed by 25.0% with one to five years of operation. Firms established for more than fifteen years and those with eleven to fifteen years of experience each accounted for 15.1% of the sample. A smaller portion (10.1%) comprised newly established enterprises operating for less than one year. These results suggest a maturing industry with a stable core of firms, alongside consistent entry of new businesses driven by market demand and entrepreneurial interest. The legal structure data indicate a dominance of sole proprietorships, which make up 93.7% of enterprises, while only 6.3% are registered as limited liability companies. This pattern reflects a largely informal business landscape, which may limit access to capital, investment readiness, and compliance with international standards. Efforts to promote business formalisation could enhance firm scalability and competitiveness.

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Workforce size further supports the predominance of small-scale operations. Most enterprises employed between one and five workers (39.7%), followed by 30.0% employing six to ten. Only 5.1% of firms had more than twenty employees, suggesting limited production capacity among the majority of businesses. This size constraint may impact the ability of firms to meet large or export-oriented orders, reinforcing the need for investment in labour productivity and production systems. Monthly revenue levels were generally modest, with 34.7% of firms earning less than GHS 1,000 and another 25% earning between GHS 1,000 and GHS 2,999. Only 5.0% of firms reported earnings above GHS 9,000. These figures underscore the financial limitations faced by many garment producers and suggest the need for improved access to finance, enhanced market linkages, and capacity-building programs aimed at increasing profitability and business resilience.

Table1. Core Attributes of Fashion Enterprises in Ghana

Characteristic	***n***	**%**
Regional Distribution of Businesses		
Greater Accra	174	54.9
Ashanti	78	24.6
Northern	65	20.5
Age of Business (years)		
Less than 1	32	10.1
1 – 5	79	25.0
6 – 10	110	34.7
11 – 15	48	15.1
More than 15	48	15.1
Legal status of business		
Limited Liability Company	18	6.3
Sole Proprietorship	299	93.7
Number of workers		
1 – 5	126	39.7
6 – 10	95	30.0
11 – 15	48	15.1
16 – 20	32	10.1
More than 20	16	5.1
Average Monthly Revenue (Gh¢)		
< 1,000	110	34.7
1,000 – 2,999	79	25
3,000 – 4,999	48	15.1
5,000 – 6,999	32	10.1
7,000 – 8,999	22	6.9
9,000 and above	16	5.0
Not willing to say	10	3.2

3.2| Sourcing Compliance with Global Best Practices by Ghana Apparel Manufacturers

The study assesses global best practices by Ghanaian apparel manufacturing firms in sourcing raw materials for their operation. The descriptive statistical results are presented in Table 2.

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Table 2. Descriptive Statistics on Compliance with Global Best Practices in Sourcing

Statement	N	SD	SA	M	±SD
Our company strongly complies with sourcing materials locally to reduce lead times and minimise transportation emissions.	317	4	50	4.19	0.992
We prioritise partnering with suppliers who adhere to fair labour practices and ensure fair wages in our sourcing practices.	317	10	35	3.72	0.982
We ensure that all suppliers comply with local and international labour and environmental laws.	317	72	9	1.29	0.761
Our industry trains suppliers on compliance requirements and best practices in labour rights and environmental sustainability.	317	37	19	2.70	0.821
Our quality control procedures align with international benchmarks.	317	82	13	1.08	1.098
My industry regularly conducts audits and assessments to monitor compliance and quality.	317	9	18	3.15	0.887
My industry opts for suppliers with certifications such as GOTS (Global Organic Textile Standard) or OEKO-TEX.	317	24	8	2.42	1.103
A dedicated team is responsible for monitoring and ensuring compliance with global standards.	317	72	1	1.31	0.954
Our industry uses organic, recycled, or sustainably sourced fabrics to reduce environmental impact.	317	26	8	2.23	0.872
Our industry ensures social compliance and alignment with ethical sourcing and social responsibility standards.	317	10	17	3.10	0.931
My industry communicates clearly about our sourcing practices and ensures supply chain transparency.	317	12	15	2.99	1.034
My industry utilises multiple suppliers to mitigate risks associated with dependency on a single source.	317	75	1	4.05	0.898
Our industry implements blockchain technology for traceability and transparency in the supply chain.	317	10	19	1.25	1.102
My industry negotiates bulk purchasing agreements to lower costs while ensuring quality.	317	41	24	3.14	0.976
Composite Score	**317**	**34.57**	**16.93**	**2.62**	**0.958**

The findings suggest that garment producers in Ghana exhibit high compliance in certain sourcing practices, particularly in local material procurement aimed at reducing lead times and minimising transportation emissions (M = 4.19, SD = 0.992), as well as the use of multiple suppliers to mitigate dependency risks (M = 4.05, SD = 0.898). These practices reflect a growing awareness of supply chain resilience and regional value addition, consistent with recommendations by Gereffi (2019) and the African Union's Industrialisation Strategy, which emphasise local sourcing as a pathway to enhancing competitiveness and economic integration.

However, critical gaps remain in aligning sourcing practices with international labour and environmental standards. For instance, compliance with supplier adherence to both local and international

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labour and environmental laws received the lowest mean score (M = 1.29, SD = 0.761), revealing structural weaknesses in enforcement and supply chain governance. This observation echoes the concerns raised by Barrientos (2013) and Locke (2013), who argue that in many developing economies, global compliance standards often clash with fragmented regulatory systems and informal business operations. Similarly, quality control procedures aligned with global benchmarks (M = 1.08, SD = 1.098) and the implementation of blockchain for traceability (M = 1.25, SD = 1.102) scored poorly. These results are consistent with findings from Ünlütürk and Öngel (2023), who observed that many small and medium-sized apparel firms in developing countries lack the technological infrastructure and expertise to implement advanced compliance tools. As digital traceability tools become increasingly essential in meeting buyer expectations and consumer demands for transparency (Papasolomou et al., 2023), the low adoption rate among Ghanaian firms raises concerns about the long-term sustainability of sourcing practices. Environmental sustainability in sourcing was also notably weak. The use of organic, recycled, or sustainably sourced fabrics (M = 2.23, SD = 0.872), and reliance on certified suppliers (M = 2.42, SD = 1.103), remain marginal, suggesting that environmental priorities are not yet fully embedded in sourcing strategies. This aligns with findings by Niinimäki et al. (2020), who argue that fast fashion supply chains in emerging markets often deprioritise environmental concerns in favour of cost and lead-time pressures. Furthermore, Oduro (2020) noted that limited access to green technologies and certification schemes impedes sustainability-oriented practices among SMEs in Ghana's fashion sector.

Moderate scores in partnering with ethically compliant suppliers (M = 3.72, SD = 0.982) and ensuring social compliance (M = 3.10, SD = 0.931) suggest partial awareness of labour rights, though implementation remains uneven. This mirrors earlier studies such as Anyigba et al. (2024), which reported variability in fair labour compliance across Ghana's garment clusters, often influenced by buyer pressure or NGO advocacy rather than institutionalised practice. Training and compliance monitoring mechanisms were moderately adopted. While audits (M = 3.15, SD = 0.887) and bulk purchasing strategies (M = 3.14, SD = 0.976) were evident, supplier training on sustainability remained low (M = 2.70, SD = 0.821). This supports the conclusions by Boateng et al. (2024), who found that limited training access hampers supplier development in Ghana's apparel industry. The composite sourcing compliance score (M = 2.62) suggests that while some elements of responsible sourcing have been adopted, substantial efforts are required to improve adherence to global labour, environmental, and technological standards. Strengthening institutional enforcement, promoting supplier training, and expanding access to certification and digital compliance tools are essential for enhancing the competitiveness and global integration of Ghana's garment sector (Hasan & Das, 2024).

3.3| Production Compliance with Global Best Practices by Ghana Apparel Manufacturers

The study assesses production compliance in apparel manufacturing firms within the study area to determine the viability of production compliance with global best practices among garment producers in Ghana. The descriptive statistical results are presented in Table 3.

Table 3. Descriptive Statistics on Global Best Practices in Production Compliance

Statement	N	Min	Max	M	SD
Do you have modern technologies?	317	1	5	3.56	0.880
Our industry implements lean principles to minimise materials, time, and labour waste.	317	1	5	1.21	1.026

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My industry establishes robust quality control measures at each production stage to ensure high standards.	317	1	5	2.85	1.122
We develop and maintain standard operating procedures (SOPs) for consistent production practices.	317	1	5	3.83	0.915
We foster a culture of continuous improvement (Kaizen) to enhance processes and efficiency.	317	1	5	3.10	1.047
Compliance with a data-driven approach aimed at reducing defects and variability in manufacturing processes.	317	1	5	1.02	1.092
We comply with standard sizes, ensure durable stitching, and meet international garment quality standards.	317	1	5	4.14	1.031
We develop strategies for recycling and reusing production waste materials.	317	1	5	1.09	0.995
We conform to environmental regulations and standards like ISO 14001, ISO 9001, and ZDHC (Zero Discharge of Hazardous Chemicals).	317	1	5	2.97	1.061
We adhere to ethical production practices, including fair labour conditions and employee rights.	317	1	5	4.18	0.974
My industry invests in research and development for innovative materials and production techniques that enhance sustainability and performance.	317	1	5	1.31	1.108
We utilise automation and robotics to streamline production processes and increase accuracy.	317	1	5	1.01	1.067
Our industry invests in training programs to enhance employee skills and knowledge.	317	1	5	4.38	1.004
We adopt agile manufacturing practices by implementing flexible production systems that enable us to adapt quickly to changing consumer demands and trends.	317	1	5	3.19	0.982
Composite Score	**317**	**1**	**5**	**2.70**	**1.022**

The findings indicate that compliance with modern technologies in production processes received a moderate rating (M = 3.56, SD = 0.880), suggesting that while some garment producers have adopted advanced manufacturing systems, many still rely on traditional manual methods. This pattern is consistent with the findings of Gereffi and Frederick (2010), who noted that small-scale firms in developing countries often face capital and skills constraints that limit the uptake of automation. The low rating for automation and robotics (M = 1.01, SD = 1.067) highlights the sector's limited digital transformation and aligns with Macchion (2024), who observed that the absence of automation tools in many emerging economies leads to persistent inefficiencies in apparel production. Lean manufacturing principles, which aim to minimise waste and optimise resource use, were also poorly rated (M = 1.21, SD = 1.026). This reflects the lack of structured, efficiency-focused production frameworks in Ghana's garment sector. Similar observations have been made by Machek et al. (2020), who reported that lean adoption remains low in sub-Saharan Africa due to limited technical capacity and the absence of process reengineering cultures. Data-driven quality control approaches received the lowest compliance rating (M = 1.02, SD = 1.092), echoing the findings of Niinimäki et al. (2020), who noted that many small apparel producers lack access to technologies such as real-time analytics and statistical quality control systems.

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Despite these challenges, Ghanaian garment producers demonstrated strong compliance with international quality standards, including standardised sizing and durable stitching (M = 4.14, SD = 1.031), as well as ethical labour practices (M = 4.18, SD = 0.974). This aligns with Ünlütürk and Öngel (2023), who highlighted increasing awareness among African producers about fair labour standards due to buyer expectations and social compliance audits. However, environmental compliance remains inconsistent. The moderate score for ISO and environmental certification adherence (M = 2.97, SD = 1.061) supports earlier findings by Hasan and Das (2024), who observed that many SMEs in the apparel sector treat sustainability as a secondary concern due to its perceived cost burden. Similarly, low compliance with recycling and waste-reuse strategies (M = 1.09, SD = 0.995) suggests weak circularity practices, aligning with Chowdhury et al. (2022), who also found significant barriers to waste management in Bangladesh's textile industry and underscored the need for a Smart Waste Management System leveraging Industry 4.0 technologies to optimise waste control.

The highest-rated compliance indicator was investment in employee training (M = 4.38, SD = 1.004), indicating the industry's recognition of human capital as a driver of quality and innovation. This aligns with the work of Anyigba et al. (2024), who emphasised the importance of upskilling in sustaining competitive advantage in Ghana's apparel sector. The moderate rating for Kaizen-style continuous improvement (M = 3.10, SD = 1.047) indicates partial integration of process optimisation practices, although the sector has yet to fully institutionalise such frameworks (Papasolomou et al., 2023). Meanwhile, investment in research and development for sustainable materials and production methods was low (M = 1.31, SD = 1.108), indicating minimal innovation activity. This supports observations by Glover et al. (2024), who reported that Ghanaian apparel firms rarely engage in product development beyond replicative tailoring. The adoption of agile manufacturing practices (M = 3.19, SD = 0.982) was moderate, indicating some responsiveness to consumer demand; however, this remains informal and underdeveloped compared to global standards (Sarpong et al., 2024).

In summary, the composite production compliance score (M = 2.70, SD = 1.022) reflects a sector characterised by strengths in labour practices and basic quality control, but with significant weaknesses in lean implementation, digital integration, and environmental sustainability. Addressing these gaps through investments in smart technologies, eco-friendly innovation, and institutional support will be critical for aligning Ghana's apparel industry with global best practices (Hossain et al., 2025; Gereffi, 2019).

3.4| Distribution Compliance with Global Best Practices by Ghana Apparel Manufacturers

The study assesses distribution practices in the apparel manufacturing firms within the study area to determine the viability of distribution compliance with global best practices among garment producers in Ghana. The descriptive statistical results are presented in Table 4.

Table 4. Descriptive Statistics on Compliance with Global Best Practices in Distribution

Statement	N	Min	Max	M	±SD
We encourage collaboration between production, logistics, and sales teams for improved coordination.	317	1	5	3.32	1.048

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Our industry complies with advertising regulations and ensures truthful representations of products during distribution.	317	1	5	4.04	0.741
We provide ongoing staff training involved in logistics and distribution to enhance efficiency.	317	1	5	1.14	0.615
My industry ensures adherence to international trade regulations and customs requirements.	317	1	5	1.17	0.674
Exporting to markets with stringent regulations presents particular challenges without proper certification and compliance measures.	317	1	5	3.60	1.080
We explore direct-to-consumer (DTC) models to enhance customer engagement and reduce reliance on traditional retailers.	317	1	5	4.27	0.923
We invest in automated systems for efficient sorting, packing, and transportation.	317	1	5	1.20	0.698
We adhere to safety standards for transporting goods, including vehicle maintenance and driver training.	317	1	5	1.51	0.901
We measure and actively work to reduce the carbon footprint of distribution activities.	317	1	5	3.12	0.877
We implement blockchain for traceability and transparency in the distribution process.	317	1	5	2.18	0.954
We develop agile distribution networks that can quickly adapt to market changes.	317	1	5	1.38	0.836
We utilise cross-docking techniques to reduce storage time and expedite shipping.	317	1	5	1.10	0.882
We implement systems for capturing customer feedback on delivery experiences.	317	1	5	3.42	0.798
Composite Score	**317**	**1**	**5**	**2.42**	**0.848**

The composite compliance score for distribution operations was low (M = 2.42, SD = 0.848), indicating limited adherence to global best practices. Key weaknesses were observed in automation, workforce training, regulatory compliance, and logistics sustainability. These findings mirror existing literature, which identifies distribution as a major constraint for apparel firms in emerging economies due to poor infrastructure, underinvestment in technology, and weak institutional enforcement (Gereffi & Frederick, 2010; Uddin et al., 2023).

Compliance with international trade regulations and customs requirements received a very low score (M = 1.17, SD = 0.674), suggesting significant difficulties in aligning with cross-border compliance standards. This finding is consistent with those of Abrokwah et al. (2021), who note that Ghana's trade facilitation environment imposes high transaction costs on SMEs due to bureaucratic customs processes and inconsistent enforcement of export regulations. Similarly, training for logistics and distribution staff was poorly rated (M = 1.14, SD = 0.615), pointing to a deficit in human capital. According to Boateng et al. (2024), limited investment in workforce development hinders operational efficiency and constrains the implementation of professionalised supply chain practices.

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Automation of key distribution functions such as sorting, packing, and transportation also recorded a low rating (M = 1.20, SD = 0.698), indicating continued reliance on manual processes. This finding aligns with observations by Macchion (2024), who highlights that in many African garment clusters, automation remains nascent due to financial constraints and inadequate digital infrastructure. Blockchain use for transparency was also low (M = 2.18, SD = 0.954), reflecting broader trends of digital lag in apparel value chains (Hossain et al., 2025). Similarly, compliance with safety protocols, including vehicle maintenance and driver training (M = 1.51, SD = 0.901), remained weak, corroborating previous studies on the under-regulation of transport operations in Ghana's light manufacturing sector. Nonetheless, certain distribution practices performed relatively well. Adoption of direct-to-consumer (DTC) models scored high (M = 4.27, SD = 0.923), reflecting firms' efforts to bypass intermediaries and connect directly with consumers. This trend aligns with literature on digital commerce as a vehicle for increasing competitiveness and responsiveness in emerging markets (Nkrumah et al., 2024). Similarly, moderate compliance with exporting to regulated markets (M = 3.60, SD = 1.080) and feedback systems (M = 3.42, SD = 0.798) suggest some firms are partially engaged in structured international trade and responsive customer service.

However, initiatives targeting environmental sustainability within distribution remain weak. Efforts to reduce carbon emissions (M = 3.12, SD = 0.877) were moderate, while agile distribution networks (M = 1.38, SD = 0.836) and cross-docking practices (M = 1.10, SD = 0.882) scored low. These outcomes are consistent with findings by Repp et al. (2021), who highlight that sustainability transitions in distribution are often deprioritised in low-margin environments due to cost and knowledge barriers.

4 | IMPLICATIONS OF FINDINGS

The findings of this study highlight several implications for Ghana's garment industry, particularly emphasising the necessity of enhanced adherence to global best practices in sourcing, production, and distribution. From a social perspective, the study reveals important insights into employment conditions, workforce development, and gender dynamics within the apparel sector. The industry demonstrates notable recognition of ethical labour practices, worker rights, and fair working conditions, which suggests a baseline of awareness and a commitment to social responsibility. However, the inconsistent enforcement across firms underscores a significant gap that must be addressed to ensure broader and more effective implementation of labour rights protection. Strengthening social compliance frameworks can significantly enhance worker welfare by promoting safer workplace conditions, equitable remuneration, and fair treatment across all job categories. Given the prominent role of women in Ghana's apparel sector, integrating gender-sensitive policies into corporate and industry-level strategies is particularly essential. Targeted training programs, equitable pay structures, career advancement opportunities, and leadership training specifically designed for women could contribute meaningfully to gender empowerment, addressing systemic inequalities and promoting more inclusive industry growth.

Practically, the study exposes critical operational deficiencies that hinder the industry's competitiveness and overall efficiency. These include limited adoption of advanced technologies such as automation, blockchain for traceability, and data-driven quality control systems. These gaps restrict firms' ability to optimise production processes, maintain consistent product quality, and manage logistics operations effectively, thereby reducing their overall competitiveness in global markets. Consequently, businesses must prioritise investments in technological innovation, including digitisation, robotics, and

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analytics-driven production processes. The increased adoption of automation and advanced quality control technologies could lead to greater production efficiency, lower operating costs, and improved product consistency, thereby facilitating stronger integration into competitive international value chains. Additionally, investing in digital traceability mechanisms, such as blockchain, would significantly enhance supply chain transparency, enabling producers to meet stringent international compliance standards and consumer expectations for ethical and sustainable sourcing.

From a policy standpoint, the findings suggest a need for substantial shifts in national industrial strategies and regulatory frameworks. The moderate to low compliance levels underscore critical weaknesses within existing policies, institutional support structures, and regulatory enforcement mechanisms. To address these issues effectively, policymakers, especially within the Ministry of Trade and Industry, Ghana Standards Authority (GSA), and other relevant institutions, should urgently realign industrial policies to incorporate more comprehensive compliance support systems. Targeted policy interventions such as the provision of certification assistance, capacity-building initiatives, and financial incentives specifically aimed at facilitating firms' transition to internationally compliant production practices should be prioritised. Strengthening regulatory enforcement and ensuring uniform adherence to environmental and labour standards will be critical in promoting Ghana's competitiveness under international trade agreements like the African Growth and Opportunity Act (AGOA) and the African Continental Free Trade Area (AfCFTA). Furthermore, policymakers need to foster strategic public-private collaborations to accelerate technology transfer, facilitate sustainable resource management, and promote industry-wide adoption of digital solutions, thereby positioning Ghana's garment sector for long-term sustainable growth.

For managerial implications, the study provides clear insights for business leaders and management professionals operating in Ghana's garment sector. Significant managerial attention is required to bridge compliance gaps in environmental sustainability, quality control, and logistics efficiency. The observed weaknesses in sustainable sourcing practices and limited application of environmentally friendly production methods necessitate immediate integration of sustainability principles into business operations and strategic planning. Managers must actively engage in fostering robust supplier relationships, prioritising partnerships with certified sustainable material providers, and implementing rigorous quality assurance mechanisms aligned with international standards. Additionally, management teams should strategically invest in workforce training programs to enhance employees' capabilities, particularly in compliance management, technological proficiency, and operational excellence. Comprehensive and continuous training will equip employees with the requisite knowledge and skills to navigate the evolving demands of international markets effectively, improve internal compliance monitoring, and facilitate proactive responses to regulatory and market-based challenges.

Finally, the findings affirm significant weaknesses within distribution operations, which represent substantial barriers to market responsiveness and operational scalability. Challenges such as inadequate adherence to international trade regulations, limited investment in logistics automation, and insufficient workforce training within the logistics and distribution domains point to an urgent need for industry-wide infrastructural and technological advancements. Firms should enhance logistics capabilities through investment in automated systems, staff training programs, and the adoption of agile distribution models. Greater integration of digital technologies for tracking, transparency, and customer feedback management can enhance responsiveness and reliability, enabling firms to better meet the demands of the contemporary retail landscape. Collectively, these implications highlight the critical need for

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coordinated and collaborative efforts among industry stakeholders, government agencies, and development partners to address existing compliance gaps comprehensively, driving the Ghanaian apparel sector toward improved global competitiveness and sustainable industry growth.

5 | LIMITATIONS OF THE STUDY

While this study offers valuable insights into compliance with global best practices among garment producers in Ghana, some limitations must be acknowledged. First, the reliance on self-reported data collected through a structured Likert-scale survey may introduce social desirability bias, where respondents tend to portray their practices more favourably than they actually are. This risk of overreporting compliance behaviours is inherent in self-assessment studies and must be considered when interpreting the results. Second, the study sample was drawn primarily from urban manufacturing clusters, namely Accra, Tamale, and Kumasi, where garment firms typically benefit from better access to donor funding, institutional support, training opportunities, and policy incentives. Consequently, the findings may not fully capture the realities of informal or rural garment producers, whose operations may differ significantly in structure, capacity, and compliance behaviour. This urban and formal sector focus limits the generalizability of the study and may overlook critical compliance challenges faced by small-scale, informal, or geographically marginalised firms.

Third, while inferential statistical tools such as t-tests or ANOVA are useful for testing differences across groups, they were not applied in this study due to the non-probabilistic nature of the sampling approach. The study's primary aim was exploratory, focusing on identifying patterns in compliance practices among purposively selected firms, rather than making generalizable inferences to the entire population. As such, descriptive statistics were deemed more appropriate to capture observable trends without overstating statistical significance. Future studies with probabilistic sampling or longitudinal designs may incorporate inferential methods to test group-level differences with greater statistical precision. Moreover, the cross-sectional design of the study restricts the ability to observe changes in compliance behaviour over time and excludes qualitative insights into the operational and institutional barriers garment producers face daily. The absence of perspectives from key stakeholders such as regulatory agencies, labour unions, certification bodies, and international buyers further narrows the scope and may miss broader systemic influences on compliance practices.

Therefore, future research should adopt longitudinal or mixed methods approaches, extend geographic coverage beyond urban centres, and incorporate diverse stakeholder voices to provide a more inclusive and dynamic understanding of compliance trends within Ghana's garment industry.

6 | CONCLUSION AND FUTURE STUDIES

This study aimed to examine the extent of compliance with global best practices by garment producers in Ghana, focusing on sourcing, production, and distribution dimensions. The findings reveal that while Ghana's garment sector demonstrates commendable efforts in local sourcing, ethical labour practices, and workforce training, the industry's overall compliance with international standards remains moderate to low. Notably, significant gaps persist in environmental sustainability, digital transformation, regulatory adherence, and supply chain transparency. These deficiencies hinder the sector's competitiveness in high-value global markets where compliance with labour, environmental, and quality

standards is increasingly non-negotiable. Production compliance recorded a relatively better performance in labour-related indicators and product quality, while distribution compliance was the weakest, constrained by low investment in logistics training, automation, and regulatory compliance mechanisms. Although strategic in local material use and supplier diversification, sourcing practices lag behind in ensuring fair labour enforcement, quality control auditing, and sustainable material adoption. These findings collectively suggest a fragmented compliance landscape in which select firms may align with global norms. However, systemic and institutional barriers continue to limit the widespread adoption of best practices across the sector.

Future studies should build on this foundational study by incorporating longitudinal approaches that track compliance behaviours and reforms over time, especially in the post-COVID-19 recovery context. In addition to expanding the geographic scope to include rural or informal garment producers, subsequent research should also prioritise stakeholder triangulation, incorporating perspectives from regulators, certification agencies, labour organisations, and international buyers to offer a more holistic understanding of the compliance ecosystem.

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ETHICS APPROVAL STATEMENT

The Ethics Committee at the Kwame Nkrumah University of Science and Technology approved the set of questions prior to the commencement of data collection. The respondent was informed about the purpose of the study; therefore, his consent was obtained before he proceeded to answer the interview questions. Also, the confidentiality and anonymity of respondents were assured.

DATA AVAILABILITY STATEMENT

Data sharing does apply to this article upon reasonable request.

CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

No Generative AI was used in the writing of this paper.

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