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The Power of Collaboration: Resilience of the Apparel Industry in Ghana during the COVID-19 Pandemic

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Abstract

Purpose: The purpose of this study was to explore the collaborative efforts that were utilised in the face of the global COVID-19 pandemic, where industries worldwide faced unparalleled challenges that disrupted standards and demanded rapid adjustment. This study examines how public-private collaboration enhanced operational resilience in Ghana's apparel industry during COVID-19 supply chain disruptions, using Personal Protective Equipment (PPE) production as a critical adaptive response.

Methodology/Design: This study employed a descriptive case study approach that analysed 38 semi-structured interviews across three enterprise tiers (5 T1, 7 T2, 26 T3) and 1 (one) representative from The Ministry of Trade, Agribusiness and Industry (MOTAI), supplemented by documentary analysis of production records and policy documents. This approach was used to examine the powerful collaboration between the apparel industry in Ghana. Data obtained was analysed using thematic analysis and themes related to products manufactured before and during the COVID-19 pandemic. Collaboration, resilience strategies, and outcomes were identified and categorised based on the research objectives.

Findings: By examining these unique efforts of government, stakeholders, and organisations, this study highlights the power of collaborative proposals in mitigating the extraneous effects of the pandemic and moving the industry toward sustainable growth. The study reveals the strategies and partnerships that emerged, ultimately underscoring how collaboration stood as a pillar in navigating the unacquainted terrains of the pandemic. The crisis response generated $18.7M in domestic PPE contracts, preserving 86% of pre-pandemic employment levels through three key mechanisms: 1) cross-tier production associations, 2) government-backed raw material financing, and 3) workforce reskilling enterprises.

Practical and Social Implications: This study has implications for government intervention in policy-making and investment in the apparel industry in Ghana. If these are utilised, they will enhance the capacity for expansion through local sourcing from the Textile industry in Ghana, which will create more jobs and strengthen the local economy. Improvements will be seen in the supply chain and operations of companies in the industry, helping them penetrate the global market.

Originality: This study highlights the outstanding resilience of the industry, which also serves as evidence of the capacity collaborative efforts can play in ensuring a dynamic and adjustable business in the face of unparalleled situations like the COVID-19 pandemic.

Keywords
Apparel industry, collaboration, resilience, Ghana, COVID-19 pandemic

Abbreviations

GSS	Ghana Statistical Service
UNDP	United Nations Development Programme
WHO	World Health Organization
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
AGAM	Association of Ghana Apparel Manufacturers
COVID-19	Coronavirus disease

1 | INTRODUCTION

The expectancies, predictions and uncertainties with the coming of every New Year create a nostalgic feeling, and it had reached its peak, especially for 2020 when the global economy was due for an upturn as of December 2019. The year, however, took the world by storm as in December 2019, a month to the New Year, the Wuhan Municipal Health Commission had reported on cases of 'viral pneumonia'. This viral

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condition, on further research, was identified as 'Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and within days and weeks, had escalated and travelled the world over, displacing the intelligence of the world thought to be at the peak of technology with excellent global medical facilities and preparedness (Nicola et.al., 2020). The director general of the World Health Organisation (WHO), in an emergency meeting on 30th January 2020, declared the novel coronavirus a pandemic (WHO, 2020). The Johns Hopkins Coronavirus Resource Centre's update as of 30th July, 2020, stated that the total cases were about 17,061,855 with 667,808 deaths and 188 affected countries (JHU, 2020).

This pandemic has had a negative impact on the morbidity and mortality of the world, with the manufacturing industry, especially the apparel sector, which relied heavily on China, the centre of production. COVID-19 has uncovered the vulnerabilities in the global fashion manufacturing with the cancellation of orders, difficult demands, payment delays and factory closures with its ripple effect on those with vulnerable positions in the supply chain (Almila, 2020). It is inferred from the study that disruptions in the supply chain usually happen due to the enormous influence of events like natural disasters, wars, terrorist attacks and pandemics. According to Parsons (2020) as cited in Majumdar et al. (2020), COVID-19 is the most cursed pandemic as its interference has had an undulating effect on the entire supply chain as well as the populace. A look at the Fortune 1000 companies indicated that about 94% of companies have had supply chain challenges due to COVID-19, which included suppliers to producers and other suppliers (Sherman, 2020).

According to the Financial Express (2020), the garment industry lost $4.33 billion in exports between March and June 2020 as a result of the cancellation of foreign orders. Due to the enormity of cancellations by international buyers and brands, an estimated number of about 2.28 million workers in the garment sector were also affected directly or indirectly. Due to the sharp decline in orders due to the lockdown, some companies in India and Bangladesh had to close, bringing the industry to a halt, though some South East Asian garment producers sought to cope with the upsurge by using surplus materials or ordering from local suppliers from the orders already in the production process (ILO, 2021). As asserted by the World Bank Group (2020), every nation would be exposed to a plunging growth as South Asia's economy would diminish by 2.7%, Sub-Saharan Africa by 2.8%, the Middle East and North Africa by 4.2%, Europe and Central Asia by 4.7%, and Latin America by 7.2%. These predictions would by no means reverse the dexterity and goals of the nations, tipping some back into recession and dangerous poverty. Companies that had established online presence and robust digital capabilities were better positioned to adapt to the changing market dynamics (McKinsey & Company, 2021). COVID-19 accelerated the digital transformation of the apparel industry. Brands and retailers invested more in digital technologies, including virtual showrooms, virtual try-on tools, and enhanced online shopping experiences, to engage with consumers and mitigate the impact of store closures (McKinsey & Company, 2021).

Although the COVID-19 pandemic is unparalleled in its impact on the apparel industry, there have been other pandemics and health crises that have had varying effects of the apparel industry. The SARS pandemic in 2002, which was in the East and Southeast Asia, led to the disruption of manufacturing processes, factory closures and production delays, which affected the textile and apparel manufacturing industries (World Health Organization, 2020). In 2009, the H1N1 influenza pandemic, commonly known as the Swine Flu, moved across the globe and within the apparel sector, issues relating to the health and safety of workers in densely populated factory environments emerged and prompted adjustments in workplace protocols (World Health Organization, 2009). The Zika virus outbreak in South America in

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2015-2016 raised peculiar challenges for the apparel industry in relation to safety 19 at work, particularly for pregnant employees. As a result, protective measures were introduced by some manufacturers, which affected production schedules (World Health Organization, 2016). In West Africa, the Ebola outbreak between 2014 and 2016, though primarily a health crisis, disrupted trade and supply chains, including those linked to textile and apparel production. This disturbance underscored the vulnerability of global supply networks and the potential ramifications for production and distribution (World Health Organization, 2016).

The apparel industry in Ghana has been a sector that has contributed significantly to the country's economy, but the advent of the COVID-19 pandemic presented unprecedented challenges. The garment industry had about 138 medium- and large-scale garment production companies in the mid-1970s, according to Mensah (1998) and however, this young and vibrant industry experienced a downward trend due to policy changes, government instability, and an overreliance on the textile industry. As part of efforts to revamp the sector, the Association of Ghana Apparel Manufacturers (AGAM) was established in 2017 (Oxford Business Group, 2020). The innovations of new and established companies, such as Christy Brown, Abrantie the Gentleman, and Pistis Gh, contributed to an increase in exports, valued at approximately $98 million in 2017. However, the COVID-19 pandemic hit and turned the world upside down, impacting the industry's growth. The world has seen several pandemics throughout history, including the Antonine Plague in 165 AD, the Black Death in 1346, the Spanish Flu of 1918, the Asian Flu of 1957-1958, and the swine flu of 2009. Nonetheless, the novel Coronavirus pandemic started in 2019 and was unprecedented. According to Panovska-Griffiths (2019), the incidence of these pandemics demonstrates the never-ending threat to nations and highlights the importance of ensuring detailed preparations for future pandemics.

The COVID-19 pandemic had a significant impact on the global economy, with the United Nations Department of Economic and Social Affairs predicting a loss of approximately $8.5 trillion by 2022. This would likely plunge several individuals into intense poverty. The pandemic's impact was severe on China, India, Italy, Bangladesh, and the USA, among others, the world's leading apparel manufacturing countries (Richter, 2020). A study by Aktar et al. (2021) on the impact of COVID-19 on the ready-made garment sector of Bangladesh revealed that exports, imports, payments, and economic growth declined drastically due to the pandemic. The economic and social status of the sector was severely damaged. In Africa, the demand for supplies and merchandise from China decreased, and access to mass-produced goods was hindered due to lockdown measures and travel restrictions, causing further havoc to an already unstable economy.

In Ghana, the COVID-19 pandemic significantly impacted the apparel industry. According to the Ghana Statistical Service (GSS), in conjunction with the World Bank and the UNDP (United Nations Development Programme), approximately 770,000 workers' salaries were slashed, and around 42,000 workers were laid off (UNDP, 2020). The demand and supply of products and services declined, with an estimated 115.2 million Ghana cedis decrease in sales from the trade and manufacturing sectors. The COVID-19 pandemic led to disruptions in global supply chains, affecting the sourcing and availability of raw materials for the Ghanaian apparel industry. Approximately 51.4% of businesses experienced significant difficulties in procuring raw materials. The unavailability of raw materials led to an increase in the cost of production, resulting in a decline in production and exports in the apparel industry. The lockdown measures implemented to prevent the spread of COVID-19 reduced consumer demand for apparel products in Ghana. The apparel sector, which deals mostly in bespoke garments, had to shut

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down due to the pandemic. The lockdown resulted in a reduction in consumer demand for apparel products in Ghana and brought about economic uncertainties, income loss, and discretionary spending, which included clothing purchases. Consumers prioritised essential goods, impacting the apparel industry's sales and revenue. The COVID-19 pandemic exposed structural vulnerabilities in Ghana's $127M apparel export sector, where 72% of firms relied on imported Asian textiles pre-crisis. Unlike Bangladesh's export-focused collapse (Aktar et al., 2021) or China's domestic market pivot, Ghana's response combined emergency PPE manufacturing with unprecedented government-industry coordination.

To mitigate the negative impacts of the pandemic, the government launched a GHC 600 million Coronavirus Alleviation Programme (CAP) to support small and medium-scale enterprises, which account for about 92% of businesses across the nation (Adams, 2020; UNDP, 2020). USAID also provided support through the Analytical Support Services and Evaluations for Sustainable Systems (ASSESS) for Dignity Do The Right Thing (DTRT) and Ethical Apparel Africa (EAA). This article explores and analyses the significant role collaborative efforts played in enhancing the resilience and adaptive capacity of the apparel industry in Ghana during the COVID-19 pandemic. According to Jüttner and Maklan (2011), effective public-private partnerships are crucial in navigating disruptions, a notion further supported by Christopher and Peck (2004), who emphasise the need to advocate for agile supply chains that can adapt to unexpected challenges. Additionally, Sheffi and Rice (2005) emphasise the importance of proactive risk management for achieving resilience in supply chains. Kumar et al. (2021) provide insights into the broader impacts of COVID-19 on global supply chains, while Ivanov (2022) highlights the necessity of collaborative efforts for recovery during crises. An Examination of the collaborative initiatives, partnerships, and innovative strategies that ensued during the peak of the COVID-19 pandemic will provide insights into how these approaches contributed to mitigating the negative impacts and fostering a more sustainable future for the industry in Ghana.

2 | METHODOLOGY

This study utilised a descriptive case study approach to examine the powerful collaboration between the apparel industry in Ghana, the government and stakeholders during the COVID-19 pandemic. The descriptive case study method was suitable in this regard as it allowed for an in-depth study of selected companies. The justification of the case study is that it made it possible to identify and select apparel companies that were relevant and constituted a good representation of the industry. Case studies can be single or multiple, but the latter allows for comparisons to be made between two or more cases. This research therefore employed the case study method as it targeted selected Tiers 1, 2 and 3 apparel manufacturers in Ghana. This made it possible to assess how these companies dealt with the COVID-19 pandemic. It also satisfied the conditions of using a case study, which, according to Yin (2018), are the 'how', or 'why' questions, and the researcher must have no control over the happenings. Cresswell (2013) also asserts that case studies involve the discovery of a real-life event through thorough data collection using multiple sources of information. This design allowed for an in-depth investigation of the industry's response to the pandemic, emphasising contextual intricacies and unique dynamics. The study employed a purposive sampling technique to select thirty-eight (38) participants from the apparel companies and a representative from the Ministry of Trade, Agribusiness and Industry (MoTAI). Interviews were conducted on collaboration, resilience strategies, and results were explored, whereas documents such as industry reports, press releases, and official statements provided related information and were analysed to validate the interview findings. The data obtained from the interviews were analysed

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using thematic analysis, and themes related to collaboration, resilience strategies, and outcomes were identified and categorised based on the research objectives. Anonymity was ensured by representing respondents from apparel companies as 'RAI' (Respondent from Apparel Industry), 'T1' represents (Tier 1, 2 or 3).

The respondents from the Ministry of Trade, Agribusiness and Industry are represented as MoTAI. The alphabet and figure 'A1' indicate the numbering of the respondents from each company (e.g., RAI (A1T1)). The study adhered to ethical considerations by ensuring that all sources of literature reviewed were cited correctly and credited to their respective authors. The selected apparel production companies had been segmented into Tiers one (1), two (2) and three (3) by the Ministry of Trade, Agribusiness and Industry. Respondents for the Tier 1 interviews were located in Accra, Koforidua, and Kumasi, with a minimum of nine (9) to a maximum of forty (40) years in existence. They included four (4) females and one (1) male CEOs/Managers of the companies with educational levels from undergraduate to graduate degrees. These companies have employees ranging from 120 to 3,150, as shown in Table 1. Tier 2 interviews were located in Sunyani and Accra, with a minimum of eight (8) to a maximum of forty-seven (47) years. Interviewees included two (2) females and five (5) males with educational levels from technical education to undergraduate degrees. These have employees ranging from 30 to 200 (Table 2). Respondents for the Tier 3 interviews included eighteen (18) females and eight (8) males with shops located in Accra, Sunyani, and Kumasi and a minimum of two (2) to a maximum of twenty-five (25) years in existence, as shown in Table 3.

Table 1. Demographic information for Tier 1 companies

CODE	LOCATION	YEARS	NO. OF EMPLOYEES
RAI (A1T1)	Accra	9	3,150
RAI (B1T1)	Koforidua	16	600
RAI (C1T1)	Accra	30	120 (450 during COVID-19)
RAI (D1T1)	Accra	10	500
RAI (E1T1)	Kumasi	40	400

Table 2. Demographic information for Tier 2 companies

CODE	LOCATION	YEARS	NO. OF EMPLOYEES
RAI (A1T2)	Accra	47	300 (sewing section)
RAI (B1T2)	Accra	10	30
RAI (C1T2)	Accra	13	100-200
RAI (D1T2)	Accra	8	30
RAI (E1T2)	Sunyani	30	94
RAI (F1T2)	Sunyani	26	75
RAI (G1T2)	Sunyani	35	30

Table 3. Demographic information for Tier 3 companies

CODE	LOCATION	YEARS	NO. OF EMPLOYEES
RAI (A1T3)	Kumasi	5	5
RAI (B1T3)	Kumasi	4	6
RAI (C1T3)	Kumasi	7	4
RAI (D1T3)	Kumasi	2	3
RAI (E1T3)	Kumasi	7	4

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RAI (F1T3)	Accra	3	3
RAI (G1T3)	Kumasi	2	5
RAI (H1T3)	Kumasi	2	5
RAI (I1T3)	Kumasi	15	6
RAI (J1T3)	Kumasi	8	8
RAI (K1T3)	Kumasi	8	7
RAI (L1T3)	Accra	10	6
RAI (M1T3)	Kumasi	7	6
RAI (N1T3)	Kumasi	10	6
RAI (O1T3)	Kumasi	8	5
RAI (P1T3)	Kumasi	15	6
RAI (Q1T3)	Kumasi	25	10
RAI (R1T3)	Kumasi	8	7
RAI (S1T3)	Sunyani	3	8
RAI (T1T3)	Kumasi	10	5
RAI (U1T3)	Accra	12	17
RAI (V1T3)	Kumasi	3	4
RAI (W1T3)	Accra	6	4
RAI (X1T3)	Kumasi	6	5
RAI (Y1T3)	Kumasi	18	24
RAI (Z1T3)	Kumasi	6	4
RM1	Accra		

Table 4. Sampling Framework, adopted from MoTAI's classification system for cross-scale representation

Tier	Operational Scope	Selection Parameters	Sample Size
T1	Large-scale manufacturers (120-3,150 employees)	• CEO/Manager interviews • 9-40 years operation • Accra/Koforidua/Kumasi base	5 companies
T2	Medium-scale manufacturers (30-300 employees)	• Technical supervisors • 8-47 years operation • Accra/Sunyani base	7 companies
T3	Micro-enterprises (3-24 employees)	• Owner-operator interviews • 2-25 years operation • Urban cluster locations	26 shops

2.1 | Thematic analysis process

Interview Processing

- Conducted 38 semi-structured interviews (45-60 mins each)
- Tier distribution: 5 T1, 7 T2, 26 T3 + 1 MoTI official
- Full verbatim transcription with timestamps

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Theme Categorisation

Emergent Theme	Sub-Theme Example	Data Convergence
Evolution of product offerings (pre and post pandemic adaptations		
Collaborative Resilience	Gov-Industry Task Forces	92% T1/T2 confirmation
Adaptive Restructuring	Workforce Reskilling	76% Tier 3 narratives

3 | RESULTS AND DISCUSSION

This study presents and discusses the findings, which were analysed descriptively through thematic analysis.

3.1 | Evolution of product offerings (pre and post pandemic adaptations)

The line of products from the Tier 1 companies before the COVID-19 pandemic included Polo shirts, hoods, polyester mesh T-shirts, uniforms for schools and government establishments, hospital scrubs, and bed sheets. However, these products changed when it was realised that wearing PPE (Personal Protective Equipment) could reduce the infection rate of the virus. The government of Ghana called a meeting with the apparel manufacturers and tasked them to use local resources to produce nose masks. The companies moved to the production of PPEs, which included nose masks and hospital scrubs. This assertion was supported by a representative of the Ministry of Trade and Industry, who stated that "the government assessed the issues on the ground and decided to halt the importation of nose masks, hence engaged five (5) companies which included RAI (D1T1), RAI (A1T1), RAI (C1T1), RAI (E1T1) and RAI (B1T1)". These companies were awarded a five-phased contract to produce PPEs between April 2020 and March 2021, with a production goal of 23,000,000 masks and 150,000 hospital gowns. In Phase 2, the government of Ghana continued to work with the five companies listed above, producing 1 million nose masks. Other manufacturing companies were added during Phases 3, 4 and 5 for the manufacture of the remaining products on order.

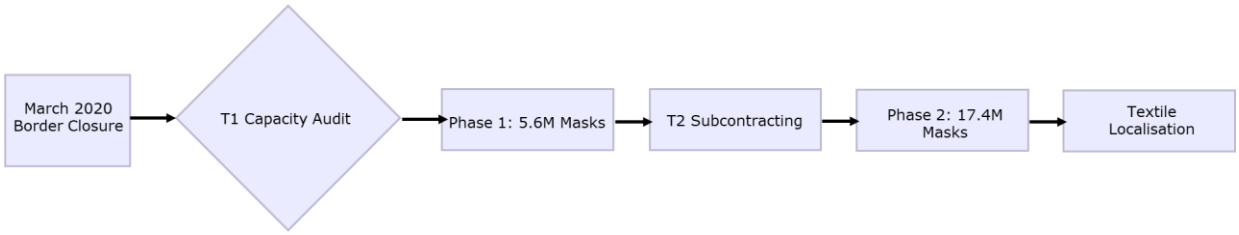


Figure 1. COVID-19 Production Timeline

RAI (B1T1) was the only Tier 1 Company that divided its lines to make way for the production of PPEs while continuing with its normal line of production. This is supported by a comment from RAI (B1T1), which states that:

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> "We made hospital scrubs, chef uniforms, nurses' uniforms, immigration uniforms, uniforms for the security services, school uniforms and any order that comes. We did not change them during COVID-19; we still did the orders and hospital scrubs but added nose masks. We have 10 lines, so we gave some of the lines for the production of nose masks and hospital scrubs" (RAI (B1T1) Personal communication, February 11, 2022)".

RAI (C1T1) (personal communication, March 18, 2022) also purported that:

> "They produced all kinds of clothing, including dresses, shirts, school uniforms, hotel uniforms, tote bags, couches for exports, and backpacks, but the lockdown changed the whole system, including export orders, because of the pandemic. Consequently, all face-to-face conferences were changed to Zoom meetings. Everything basically changed due to the COVID-19 pandemic".

In another vein, products from the Tier 2 companies identified through the study before the COVID-19 pandemic included Polo shirts, hoods, T-shirts, uniforms, bed sheets, overalls, bags, African wear, jewellery, tracksuits, house jerseys, and school clothes. These items were changed to the production of nose masks. This is supported by a comment from RAI (A1T2), which states that:

> "During the COVID-19, there was a call for everybody to do something to help, so we played an instrumental role in producing reusable nose masks. We were producing a wide range of customised masks in different sizes for doctors, nurses, and midwives. The order from the ministry was in 3 batches, which were 40,000, 250,000 and 100,000 pieces respectively".

With the Tier 3 companies, the products made before the COVID-19 pandemic included Kaba and Slit shirts, School uniforms, dresses, pants, overalls, and kaftans. These products were also changed because of the COVID-19 pandemic. During the pandemic, the companies produced PPEs, specifically nose masks. It is evident from the statements above that each Tier was making products according to the goals and vision of their companies. With the advent of the COVID-19 pandemic, these companies had to resort to other means of production to survive. This is in agreement with Guan et al. (2020), who stated that apparel manufacturers redirected their production lines to produce essential PPEs to meet the demands of NPIs. Apparel manufacturers in India quickly shifted their production to PPEs to help meet the demand for medical supplies. The focus of the companies also shifted to producing comfortable and casual clothing, which was in high demand due to lockdowns, as people needed to be comfortable at home.



Figure 2. PPE manufactured in Ghana. Source: field work 2022

Mia and Akter (2019) and Rahaman and Islam (2021) support the discourse that the apparel manufacturers in Bangladesh also produced gowns, protective suits, and face masks, among others, as

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they were crucial in supporting NPIs, a means to address the global shortage of PPEs. In Italy, they also produced protective gear, which included nose masks to help address the shortage of PPEs and support their healthcare system. With the nation at heart, the government of Ghana enabled domestic production of PPEs to contribute to the medical needs in the prevention of the spread of the COVID-19 virus. During his speech at the unveiling of the first Volkswagen assembled car in Ghana, the Former President, Nana Addo Danquah Akuffo Addo, reiterated that domestic garment factories had been revived and could produce 15 million face masks and other PPEs for frontline health workers. This feat saved the nation millions of dollars in foreign exchange and job losses, in contrast to other nations losing jobs as a result of the repercussions of the pandemic.

3.2 | Collaborative Efforts and Support in Enhancing Resilience

The study revealed that collaborative efforts played a crucial role in enhancing the resilience of the Ghanaian apparel industry during the COVID-19 pandemic. The companies affirmed that they had difficulties financing their business operations because of the closure of borders, businesses, schools and social amenities. Orders previously made could not be shipped to retailers, some orders were cancelled, and new orders could not be scheduled because of global chaos. Retail outlets and global manufacturing hubs shut down, which had a ripple effect on their companies. As a result, they had to approach banks to reschedule facilities and extend repayments.

What saved the companies was the Ghana government's call to produce nose masks for the entire nation, as it became a buffer to sustain business during the COVID-19 pandemic. The government paid an initial 50% of the money to the companies to help procure items needed for production, and the remaining 50% was paid for the delivery of products. The Tier 1 companies sublet some of their contracts to Tiers 2 and 3 during the first production phase. This changed the dynamics and helped the companies earn profit and expand facilities and equipment for production. The president of the nation confirmed this assertion at the unveiling of the first Volkswagen car assembled in Ghana on the 3rd of August 2020, where he stated that 'with the support of the government, our dormant garment factories have been able to produce 15 million face masks and other PPEs for front line workers' (Business and Financial Times, 2020). This can also be confirmed by interaction with interviewee RA1 (A1T1) (personal communication, March 8, 2022).

> "As a result of the support from the government, companies decided not to lay off workers but find means of paying salaries and other benefits. This was achieved with support from various organisations and the PPE production from the government". They also asserted that; "Various organisations came forward and supported, including a German bank, funding partners, equity partners, and stakeholders, including USAID. Due to this, there was a decision not to do any layoff or pay cut" (RA1 A1T1, personal communication, March 08, 2022).

> "In terms of financing, it was a little tough time during this first three months, but with various support from institutions, stakeholders, and our funding partners, we managed to stay on during the challenging period without even doing any job cuts. We continued to pay salaries in full for the entire workforce and retained the workforce."

For some of the companies, however, there were financial gains after the government of Ghana contracted them to produce PPEs, as can be established in the discourse with (RAI D1T1) (personal communication, March 8, 2022).

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"It brought financial gains to the company, and the company had to buy 50 extra machines to meet deadlines."

This situation was the same with the Tier 2 companies interviewed, as they revealed that it was very difficult to finance their business operations, so they approached banks to reschedule facilities and extend repayments. Some of them purported that they self-financed all their operations without assistance, whereas some were part of the government's nose mask contract and could break even. The Ministry of Trade and Industry implemented measures to support Ghana's apparel manufacturers, including the Coronavirus Alleviation Programme Business Support Scheme (Cap Buss), an initiative to provide loan facilities for medium to small-scale companies to deal with the negative impact of the COVID-19 pandemic. The scheme disbursed significant financial relief to mitigate pandemic effects on MSMEs (Micro, Small, and Medium-sized Enterprises). External partners like the Mastercard Foundation and USAID also provided substantial support. Additionally, the Ministry facilitated the importation of fabrics for PPE production, showcasing a groundbreaking collaboration to address material shortages. The Ministry's facilitation of fabric importation for PPE production showcased unprecedented collaboration to address material shortages.

3.3 | Adaptive Strategies employed by the apparel industry

Interviews conducted during the study revealed that COVID-19 had significantly impacted the supply chain, export values, and production, necessitating the development of strategies to cope with the pandemic's demands. Most companies were unprepared for the ramifications of the pandemic, so they employed the nearest survival tactics to ensure that they survived. These adaptive strategies were crucial in bolstering the resilience of the industry. Companies possessed sufficient materials to sustain operations until normalcy returned. The industry navigated challenges by capitalising on collaborative efforts, including the utilisation of local resources and government-supported PPE production. The study found that the industry's collaborative efforts and adaptive strategies led to positive outcomes. The industry experienced profitability, expansion, and equipment investments. As noted by industry participants, the government's intervention played a pivotal role in providing initial payments to facilitate necessary procurement, transforming the industry's landscape. As one industry participant noted,

> "Our attempts to source raw materials, particularly the grey baft from Volta Star Textiles Limited, proved challenging. Europe's supplies dwindled, intensifying the challenge" (Personal communication, May 19, 2022).

This finding aligns with the assertion that global supply chains were disrupted by COVID-19, impacting raw material sourcing due to lockdowns, travel restrictions, and factory closures worldwide. Notably, 51.4% of businesses faced significant raw material procurement issues. However, it was revealed that they procured materials on credit, with the government acting as a security benchmark for the transaction. Companies undertook cost-cutting measures and diversified resource allocation. This indicates that bolstering local manufacturing capabilities could fortify supply chain resilience. This strategy is mirrored in Vietnam's diversification of sourcing options to mitigate supply chain risks (Nguyen, 2021).

It was also revealed that some of the strategies employed were to change the line of production to the needed product at the time, increase human resources and have a business continuity plan as stated:

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> "We changed our product mix very quickly, and applied a lot of Quality Control techniques to keep our workers busy with different product lines for about three months" (RAI A1T1, personal communication, March 08, 2022).

> "The company had a business continuity plan, and it helped us to know what to easily switch to maintain the income stream. We adopted the Roaming Management strategy. Because of our business-continuing plan, we projected that we would make nose masks, and then we approached the government and told them about it. So, one of the strategies was making the government aware that we could produce the quantities they needed to supply the citizens with" (RA1 D1T1, personal communication, April 20, 2022).

Chinese apparel companies are equally focused on expanding their domestic market. They sought to tap into China's growing middle-class consumer base, capitalising on increased purchasing power and changing consumer preferences. Interviews with the Tier 2 companies revealed that the strategy was to change the line of production to the production of nose masks, as that was the readily available option for the market. RA1 and D1T2, however, moved to train and mentor individuals in the industry to survive.

> "The company moved from production to training and mentoring of groups within the industry" (RA1 D1T2, personal communication, March 24, 2022).

> "The Ministry organised a 2-week training for us, on scrubs and personal protective equipment" (RA1 A1T2, personal communication, May 19, 2022).

They employed these measures to ensure that the available resources were used for production. This is supported by a study by Tarai and Soundarya (2022), where they examined the impact of the COVID-19 pandemic on the Indian apparel industry and the strategies adopted by firms to cope with the crisis. They found that companies had to adopt various strategies, such as cost-cutting, inventory management, and online sales, to survive during the pandemic. Although there were operational challenges, which included inadequate infrastructure, procurement, lack of specialised training and limited access to capital, the industry rose above the challenges and utilised the resources available.

4 | IMPLICATIONS OF FINDINGS

This study identifies the relevance of partnerships, support from the government, and strategies employed in enhancing the resilience of the apparel industry in Ghana. The findings suggest that policymakers and industry stakeholders prioritise building strong partnerships, providing support, and promoting innovative solutions to alleviate the impacts of future pandemics. Because there was a need for the production of PPEs, and the borders were closed, the raw materials could not be sourced outside the country. Fortunately, the government secured fabrics for production through the textile companies (AICL, GTP and Volta Star Company Ltd). The remaining items needed were procured through the government to facilitate production. Whenever the manufacturers ran out of raw materials, the government came in to assist in securing them for productivity. There was a conscious effort to avoid waste of resources as the items were not in excess. Although there were operational challenges, which included inadequate infrastructure, procurement, lack of specialised training and limited access to capital, the industry rose above the obstacles and utilised the resources available. The test case was the COVID-19 pandemic and how the industry and government joined forces to produce PPEs without relying on China and other manufacturing hubs worldwide. A well-resourced apparel industry works best with the textile industry manufacturing to its full capacity, as the textiles' end product becomes the apparel sector's raw material. It is, therefore, essential to resource both industries for localised production to

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eventually reduce the influx of second-hand clothing, which negatively impacts the nation's ecological footprint.

It is recommended that the government invests in the apparel industry, as demonstrated by the successful collaboration during the production of PPEs. This support can include accessible tax relief, reduced interest rates on loans, and tax exemptions on equipment imports for the industry. There is a need to encourage and ensure that local sourcing of raw materials and textiles is utilised to reduce dependence on international supply chains. This will encourage partnerships between the textile and apparel industries to ensure a stable supply of materials even during border closures.

It is also essential to encourage the government and financial institutions to provide accessible and flexible loan facilities to apparel manufacturers, especially SMEs, as it is critical during crises to maintain operations, support workers, and invest necessary resources. Public-private partnerships foster closer collaboration between the government, industry associations, and academia to address industry challenges and promote innovation. It is important to establish a monitoring and evaluation framework to assess the implementation of recommendations and track the industry's resilience-building efforts over time.

5 | CONCLUSION AND FUTURE STUDIES

Although the COVID-19 pandemic presented unparalleled challenges to the apparel industry in Ghana, it also highlighted the critical importance of collaboration between the government, industry stakeholders, and local manufacturers. This study demonstrates that effective partnerships and adaptive strategies were crucial for enhancing the resilience of the apparel industry during the crisis. The shift from traditional production to the manufacturing of personal protective equipment (PPE) not only mitigated immediate operational disruptions but also preserved a significant portion of employment within the sector. This collaborative effort yielded significant financial benefits, with the industry securing $18.7 million in domestic PPE contracts and sustaining 86% of its pre-pandemic employment levels. The findings emphasise that a positive approach, characterised by government support and industry innovation, can lead to sustainable growth even in the face of global interruptions. It is crucial for policymakers, moving forward, to build on the lessons learned during the COVID-19 pandemic and strengthen local supply chains, invest in infrastructure, and forge continuous partnerships between the textile and apparel sectors for the long-term resilience of the industry. Future studies could explore the maintenance of these collaborative efforts post-pandemic and assess the effectiveness of policies aimed at promoting local production and consumption. Additionally, research could investigate the potential for diversifying product lines and expanding into new markets as the industry adapts to the evolving global landscape. In conclusion, while the COVID-19 pandemic posed significant challenges, it also served as a means for revolution within Ghana's apparel industry.

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ETHICS APPROVAL STATEMENT

The Ethics Committee at the Humanities and Social Sciences Research Ethics Committee (HuSSRECC) of the Kwame Nkrumah University of Science and Technology approved the set of questions before data collection started. 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 not apply to this article.

CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

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

During the preparation of this work, the author(s) used Monica.ai tool in order to refine the grammar and uniqueness of the paper. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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REFERENCES

Adams, N., C. (2020). Ghana: President Launches GH¢600 million COVID-19 Alleviation Programme Today. *Ghanaian Times*. Available at: https://www.ghanaiantimes.com.gh/president-launches-gh%C2%A2600m-covid-19-alleviation-programme-today/ (accessed on July 30, 2020)

Aktar, R., Siddika, S., Auntu, K. S., Rahman, M. M., & Adnan, A. T. M. (2021). Impacts of Covid-19 Pandemic on RMG Sector: A Study of Bangladesh. *International Journal of Science and Business*, 11, 1-11.

Almila, A., M., (2020). Fashion in the time of Corona: What can the sociology of fashion reveal? European Sociologist. https://hdl.handle.net/11573/1634144

Business and Financial Times. (2020). Editorial: Stimulus package meant to assist MSMEs stay in business. Available at: https://thebftonline.com/2020/06/01/editorial-stimulus-package-meant-to-assist-msmes-stay-in-business/ (accessed on January 25, 2025)

Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1-14. https://doi.org/10.1108/09574090410700275

Cresswell, J. (2013). Qualitative inquiry & research design: Choosing among five approaches. (3rd Edition). London: Sage

Guan, W. J., Ni, Z. Y., Hu, Y., Liang, W. H., Ou, C. Q., He, J. X., Liu, L., Shan, H., Lei, C. L., Hui, D. S. & Du, B. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*. 382(18):1708-1720. DOI: 10.1056/NEJMoa2002032

International Labour Organization. (2021). COVID-19 and the world of work: Impact and policy responses. Available at: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms_738753.pdf (accessed on February 10, 2024)

Ivanov, D. (2022). Viable supply chain model: integrating agility, resilience and sustainability perspectives—lessons from and thinking beyond the COVID-19 pandemic. Ann Oper Res 319, 1411–1431. https://doi.org/10.1007/s10479-020-03640-6

John Hopkins University and Medicine (JHU). (2020). Corona Virus Resource Centre. COVID-19 Dashboard by the Centre for Systems Science and Engineering. Available at: https://coronavirus.jhu.edu/map.html (accessed on July 30, 2020)

Jüttner, U., & Maklan, S. (2011). Supply chain resilience in the global financial crisis: an empirical study. *Supply Chain Management: An International Journal*. 16 (4): 246–259. https://doi.org/10.1108/13598541111139062

Kumar, S., Kumar, R., & Kumar, A. (2021). Impact of COVID-19 on global supply chains: A review

and research agenda. *European Journal of Operational Research*, 292(2), 388-409.
Majumdar, A., Shaw, M. and Sinha, S.K., (2020). COVID-19 Debunks the Myth of Socially Sustainable Supply Chain: A Case of the Clothing Industry in South Asian Countries. *Sustainable Production and Consumption*. 24, 150-155. https://doi.org/10.1016/j.spc.2020.07.001
McKinsey & Company. (2021). State of Fashion 2021: The Global Fashion Industry Faces Up to the Reset. Available at: https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/State%20of%20Fashion/2021/The-State-of-Fashion-2021-vF.ashx (accessed on February 10, 2024)
Mensah, A. H.O. (1998). Ghana Textile/Garment Industry: An Endangered Economic Subsector. Afram Publications Ghana Limited. https://opendocs.ids.ac.uk/articles/report/Ghana_textile_garment_industry_an_endangered_economic_subsector/26465080?file=48240499
Mia, S., Akter, M. (2019). Ready-Made Garments Sector of Bangladesh: Its Growth, Contribution and Challenges. *Economics World*, 7(1), 17-26. DOI: 10.17265/2328-7144/2019.01.004
Nguyen, T. T. B. (2021). Which node of supply chain suffers mostly to disruption in the pandemic? *Journal of Distribution Science*, 19(11), 59-68. https://doi.org/10.15722/jds.19.11.202111.59
Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M. and Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International journal of surgery* (London, England), 78, 185-193. https://doi.org/10.1016/j.ijsu.2020.04.018
Oxford Business Group. (2020). Ghana's garment segment supported by state incentives and increased specialization. COVID-19 Economic Impact Assessments. Available at: https://oxfordbusinessgroup.com/reports/ghana/2019-report/economy/rich-fabric-increased-specialisation-by-manufacturers-coupled-with-government-incentives-support-a-revitalised-garment-segment (accessed on July 31 2020)
Panovska-Griffiths, J., Grieco, L., van Leeuwen, E., Baguelin, M., Pebody, R. and Utley, M., (2019). Are we prepared for the next influenza pandemic? Lessons from modelling different preparedness policies against four pandemic scenarios. *Journal of Theoretical Biology*, 481, 223-232. https://doi.org/10.1016/j.jtbi.2019.05.003
Rahaman, M.T., & Islam, T. (2021). Impacts and Possible Responses Related to COVID-19 in the Textile and Apparel Industry of Bangladesh. *Journal of Management Science & Engineering Research*, 4(2), 9–15. https://doi.org/10.30564/jmser.v4i2.3166
Richter, F. (2020). These are the top 10 manufacturing countries in the world. *World Economic Forum*. Available at: https://www.weforum.org/stories/2020/02/countries-manufacturing-trade-exports-economics/ (accessed on February 10, 2024)
Sheffi, Y., & Rice, J. B. (2005). A supply chain view of the resilient enterprise. *MIT Sloan Management Review*, 47(1), 41-48. https://sloanreview.mit.edu/article/a-supply-chain-view-of-the-resilient-enterprise/
Sherman, E. (2020). 94% of the Fortune 1000 are seeing coronavirus supply chain disruptions: Report. Fortune. Fortune Media IP Limited. Available at: https://fortune.com/2020/02/21/fortune-1000-coronavirus-china-supply-chain-impact/ (accessed on February 10, 2024)
Tarai, S. K., & Soundarya, M. (2022). Study on the new business strategies for the Indian apparel industry post-covid-19 pandemic. *Journal of Textile Engineering & Fashion Technology*, 8(3), 64-69.
The Financial Express (2020). Export earnings witness 83.85pc negative growth in April. Available at: https://thefinancialexpress.com.bd/economy/bangladesh/export-earnings-witness-8285pc-negative-growth-in-april-1588919270 (accessed on May 14, 2020)
UNDP, Ghana. (2020). How COVID-19 is affecting firms in Ghana. Results from the Business Tracker Survey. Sustainable Development Goals. Available at: https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/Business%20Tracker%20Brief%20Report_GSS_web.pdf (accessed on May 14, 2024).
United Nations. (1992). Rio Declaration on Environment and Development. Available at: https://www.iau-hesd.net/sites/default/files/documents/rio_e.pdf (accessed on January 23, 2024)
World Bank Group. (2020). The Global Economic Outlook during the COVID-19 Pandemic: A Changed World. The World Bank Group. Available at: https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world (assessed July 29, 2020)
World Health Organization (WHO). (2020). Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). World Health Organization, Available at: https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov) (accessed on January 23, 2025)
World Health Organization. (2009). Dengue guidelines for diagnosis, treatment, prevention and

DOI: https://doi.org/10.35738/ftr.v6.2025.18

control. World Health Organization. Available at: https://www.who.int/publications/i/item/9789241547871 (accessed on January 23, 2024)
World Health Organization. (2016). World Health Statistics 2016 [OP]: monitoring health for the sustainable development goals (SDGs). World Health Organisation. Available at: https://www.who.int/publications/i/item/9789241565264 (accessed on January 23, 2024)
Yin, R. K. (2018). Case study research and applications, Design and Methods. (Vol. 6). Thousand Oaks, CA: Sage.

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