ESG IMPLEMENTATION AND SUSTAINABILITY IN SME SECTOR IN INDIA

By

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DISSERTATION

Presented to the Swiss School of Business and Management, Geneva

In Partial Fulfillment

of the Requirements

For the Degree

DOCTOR OF BUSINESS ADMINISTRATION

SWISS SCHOOL OF BUSINESS AND MANAGEMENT GENEVA

SEPTEMBER, 2025

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Dedication

I dedicate this thesis to my loving family, whose unwavering support and encouragement have been my guiding light throughout this journey.

Acknowledgements

I would like to thank my supervisor, Dr. George E. Iatridis., for providing me with the guidance and feedback throughout this project. Thanks also to my mother for her patience and encouragement during the long hours I spent working on this thesis. I appreciate the contributions of all the participants in my research, whose insights were invaluable.

ABSTRACT

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2025

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The integration of Environmental, Social, and Governance (ESG) practices has emerged as a vital driver of sustainable business performance, shaping corporate behavior and influencing investment decisions worldwide. While large corporations have increasingly adopted ESG frameworks, small and medium enterprises (SMEs), the backbone of the Indian economy, continue to face challenges in embedding such practices due to financial, technical, and regulatory constraints. This study investigates the extent of ESG implementation among Indian SMEs and its relationship with sustainability outcomes across environmental, social, and economic dimensions. Adopting a quantitative, survey-based methodology, data were collected from SME managers and decision-makers across diverse sectors and regions in India. The findings reveal that ESG adoption in SMEs remains limited and uneven, with governance practices relatively stronger than environmental and social initiatives. Nonetheless, SMEs that integrate ESG practices demonstrate improved operational efficiency, stakeholder trust, and resilience,

underscoring ESG's role as a strategic tool rather than a compliance burden. Key barriers identified include a lack of awareness, inadequate resources, and the absence of SME-specific reporting frameworks. This research contributes to stakeholder and institutional theory by contextualizing ESG adoption in emerging markets and provides actionable insights for policymakers, industry associations, and SMEs. By highlighting enablers and constraints, the study offers a roadmap for strengthening ESG integration in Indian SMEs, aligning with national sustainability commitments and global development goals.

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INTRODUCTION

1.1 Background and Context

In recent decades, the worldwide business landscape has undergone profound changes, and there is a growing emphasis on responsible practices (RP) and sustainability. Environmental, social, and governance (ESG) factors, beyond financial aspects, have emerged as important criteria for assessing corporate performance (CP) (Eccles, Ioannou, and Serafeim, 2014), leading to the expansion of the concept of socially responsible investing (SRI) (Nekhili *et al*., 2021; Tan and Zhu, 2022). ESG integration in companies or firms reflects an organization's commitment to environmentally sound operations, social responsibility, and transparent governance, all of which are critical to ensuring long-term sustainability (Friede, Busch, and Bassen, 2015). Although ESG rating agencies are increasingly being accepted by companies, the validity of ESG ratings remains controversial. Proponents argue that ESG ratings provide comprehensive data to objectively evaluate a company's Environmental, social, and governance efforts through its operational performance, competitive advantage, and social reputation, while also removing information asymmetries, reducing regulatory and reputational risks, and providing stakeholders access to resources (Buallay, 2019). Similarly, critics argue that larger companies have more controversies and policies that may create ethical and legal issues for companies after ESG adoption and push them to comply with external requirements, which may increase the likelihood of misleading foreign stakeholders (Garvey *et al*., 2016). According to Rawat and Gupta (2025), while large and multinational companies have made significant progress in adopting ESG scores, SMEs, especially those located in emerging economies like India, are still grappling with the complexities of ESG implementation. Given the significant contribution of SMEs to India's job creation, economic growth, and innovation ecosystem, it is important to understand the relationship between (environment, social, and governance) ESG implementation and sustainability outcomes in SMEs here.

SMEs make up the largest and most important business sector in economies around the world, so governments are increasing efforts to promote and support supportive national development strategies that promote the vibrancy and sustainability of these enterprises, recognizing their important role in financial growth, job creation, and increased use of innovation (Bayraktar and Algan, 2019). Despite governments' promotion and support, the practical implementation of these policies remains a complex challenge. While formulating criteria for small and medium enterprises (SMEs), a delicate balance needs to be struck so that the inclusion criteria ensure wide access to the desired assistance without making it too difficult to obtain. At the same time, it must also be ensured that the assistance is beneficial to small businesses or firms.

ESG is recognized as a driver of economic growth and progress as it acts as a catalyst for financial development and progress in both developed and developing countries (Fatai, 2011). Due to this, the World Bank (WB) Group has recognised SMEs as a key element in its strategy to promote economic growth, employment, and poverty alleviation. This classification follows various criteria, such as employment, sales, or investment, to define SMEs (small and medium enterprises). According to the existing literature (Buckley, 1989; Ayyagari, Beck, and Demirguc-Kunt *et al.,* 2007; Peter *et al*., 2018), the underlying concept is the same. SMEs (Small and medium enterprises) are considered the backbone of the economy of developed and developing countries due to the very important role they play in employment and income generation (Chatterjee *et al*., 2015). Unfortunately, in many emerging economies and developing countries, small and medium enterprises (SMEs) have not got their due place, and they are still facing various difficulties for their survival (Kaur, 2015).

The Ministry of MSMEs (Micro, Small and Medium Enterprises) of India has classified small and medium enterprises (SMEs) based on the size of investment. After 14 years of the Indian MSME Development Act coming into existence in 2006, the definition of MSME was amended in the Atmanirbhar Bharat package on May 13, 2020. According to the MINISTRY OF MSMEs, the investment in micro manufacturing and service units

was increased to ₹ one crore and turnover to ₹ five crore. The investment in the small unit was increased to ₹ 20 crore and turnover to ₹ 50 crore. Also, the investment in the medium unit was increased to ₹ twenty crore and turnover to ₹ hundred crore.

India's MSMEs play a vital role in the country's economic structure as engines of employment and innovation, contributing to gross domestic product (GDP), exports, and regional growth. India's MSME sector plays a powerful role in the economy with over 63 million registered businesses. The sector contributes nearly 30 percent to the national GDP, drives nearly half of all exports (Thangallapally, 2022; Shekhar and Rai, 2025), and employs over 110 million individuals (Ministry of MSME, n.d.). Despite this substantial contribution, SMEs often operate under limited financial, human, and technical resources (Ayyagari, Beck, and Demirguc-Kunt, 2007; Das, 2017). Thus, ESG implementation in the sector is often perceived as a burden rather than an opportunity, resulting in low uptake of formal ESG frameworks. Furthermore, SMEs are generally not mandated to disclose ESG-related data, unlike their larger counterparts listed on stock exchanges (Kumar and Kapil, 2023). This lack of regulatory mandate, coupled with limited awareness and capacity, has hindered the adoption of ESG in the Indian SME landscape. However, growing global awareness about climate change, supply chain transparency, and stakeholder expectations has begun to put pressure on SMEs to align with ESG principles to maintain competitiveness and ensure long-term viability.

The MSME sector in India is promoting equitable, sustainable, inclusive, and employment-friendly economic growth by increasing its representation in the transition phase from traditional to modern technology, using indigenous skills as well as high-end contemporary technology (Prakash, 2020). The relevance of ESG in SMEs becomes even more evident when considering their environmental and social impact. SMEs (in sectors such as textiles, leather, chemicals, and manufacturing) consume a lot of natural resources and contribute significantly to pollution levels. From a social perspective, SMEs play a vital role in regional development, women's empowerment, and skill building. As large enterprises are lacking in rural and remote areas, their decentralized structure facilitates

inclusive participation of people from different socio-economic backgrounds, such as women, disadvantaged groups, and first-time business starters. As a result, MSMEs play a vital role in promoting equitable regional development and reducing the income gap between urban and rural areas (Kalaiselvi and Maithily, 2024). Yet, many SMEs lack formal mechanisms to address labour rights, diversity, and community engagement (Dixit and Priya, 2023; Primadona, Rustiarini, and Rismawati, 2024). Small and medium enterprises (SMEs) in the Indian Union Territory of Puducherry face operational and structural constraints such as poor infrastructure, lack of technological advancement, lack of talented employees with limited access to finance, and market volatility that constrain and hinder their growth (Kalaiselvi and Maithily, 2024). Integrating ESG principles into SME operations can help improve operational efficiency, financial performance, reduce risk, attract ethical investors, and build resilient business models in line with the United Nations SDGs (Sustainable Development Goals) while promoting inclusive and long-term economic growth (Schaltegger and Wagner, 2017; Schaltegger, Hörisch, and Freeman, 2019; Raza, 2025).

Previous research by Dalal and Thacker (2019) and Sharma, Panday, and Dangwal (2020) and provides strong evidence of the positive impact of a company or firm's adoption of ESG practices on company performance, firm profitability, risk mitigation, stakeholder trust, and access to capital. Nevertheless, most studies of the impact of ESG practices have focused on developed markets and large enterprises (Wu, Shao, and Chen, 2018). The SME sector in emerging economies such as India is still less explored through empirical, data-driven studies (Roy, Sekhar, and Vyas, 2016; Mishra, Singh, and Govindan, 2022). Agbakwuru *et al*. (2024) in their research pointed out that there is an under-researched knowledge gap on how ESG initiatives are translated into concrete sustainability outcomes in resource-limited SME contexts. Hence, this study attempts to address this important research gap by quantitatively examining the implementation of ESG practices in the Indian SME sector and their relationship with sustainability.

Smith's (1776) and Freeman's (1984) perspectives on healthy markets suggest that all stakeholders are "customers" who make decisions based on the utility a company provides to the customer. Companies that retain the support and involvement of their stakeholders or customers by improving their well-being are those that continue to thrive over time. Stakeholder theory (Donaldson and Preston, 1995; Friedman and Miles, 2002) is a theory of business ethics and organizational management (Schaltegger, Hörisch, and Freeman, 2019) that emphasizes the importance of considering stakeholders, including customers, employees, suppliers, and the community, in organizational decision-making (Freeman, 1984; Mahajan *et al*., 2023). A key method of stakeholder management (SM) that determines the best ways to engage with organizations is by identifying and examining stakeholders (Fassin, 2009; Miles, 2017). This has led to a number of definitions and frameworks for identifying and managing stakeholder engagement (Friedman and Miles, 2006; Wood *et al*., 2021; Kujala *et al*., 2022; Chalermpong *et al*., 2023). ESG frameworks essentially revolve financial sector investments and economic activities around environmental, social, and ethical components and are inherently consistent with this approach by promoting inclusive and ethical practices (Tang, 2023). Institutional theory (DiMaggio and Powell, 1983) explains how organizational behavior is shaped by regulatory, normative, and cultural-cognitive institutional pressures (DiMaggio and Powell, 1983; Scott, 2005; Amenta and Ramsey, 2010). In the Indian context, these pressures are shaped by customers and consumers. ESG requirements are becoming increasingly evident through the expectations of the consumer, requirements of international buyers, and emerging government policies such as ESG disclosure frameworks, green finance initiatives, and sustainable procurement guidelines (Dholakia, Dholakia, and Chattopadhyay, 2018). By adopting ESG principles, SMEs can effectively respond to these external pressures as well as gain legitimacy and a competitive advantage (Scott, 2005).

MSMEs, which are predominantly family businesses, face challenges in meeting ESG requirements due to the limited legal and regulatory expertise required to comply with certain laws and regulations. MSMEs generally find it difficult to meet stringent ESG

standards due to a lack of a visionary framework, local guidance, funding, clear benefits, complex standards, expertise, and technical knowledge, whereas larger and publicly listed companies are complying with ESG; however, these companies find it difficult to adhere to various stringent ESG standards (Salin *et al*., 2023; Akilah, 2024). The major challenge faced by SMEs in ESG implementation is the lack of standardized metrics and guidance commensurate with their scale and complexity (Ioannou and Seraphim, 2015). ESG rating agencies provide comprehensive frameworks for listed companies, which prove to be complex or resource-intensive for SMEs. SMEs often lack technical expertise and financial incentives to invest in sustainability initiatives, awareness of national regulations and legal enforcement, knowledge about early practical steps to implement standards, capacity, productivity, trained workforce, and managerial and entrepreneurial skills (Windrum and Berranger, 2002; Stein, Ardic, and Hommes, 2013). Despite these barriers, empirical studies have shown that when ESG practices are adopted even at a modest level in a company, benefits accrue through improved reputation, customer loyalty, operational efficiency, and long-term profitability (Celestin and Sujatha, 2024). Companies that demonstrate strong ESG transparency outperform their competitors without ESG adoption, especially in industries that are sensitive to ecological and social challenges (Kumar, 2024).

These benefits underscore the importance of formulating environmental, social, and governance strategies that are context-specific, scalable, and relevant to the SME business environment in India. India's policy environment has recently shown growing support for ESG and sustainability, including national guidelines on responsible business conduct, sustainable finance taxonomies, and sector-specific green mandates (Bala, 2022). Financial institutions are also gradually incorporating ESG considerations into their lending criteria. It creates both opportunities and pressures for small and medium enterprises to improve their ESG performance to ensure financing and market access (Sinha *et al*., 2022). It necessitates the need for empirical research to understand the state of ESG implementation at the ground level and identify enablers and barriers in the Indian SME ecosystem.

From a methodological perspective, this study adopts a quantitative survey-based approach to collect data from managers and decision makers of small and medium enterprises (SMEs) across different sectors in India. This method allows for systematic measurement of ESG implementation practices, perceived sustainability outcomes, and influencing factors by a firm or company. Using validated survey instruments and statistical analysis techniques, this study aims to provide generalizable insights about patterns, correlations, and potential cause-and-effect relationships between ESG adoption and sustainability in small and medium enterprises (SMEs). Such empirical evidence is important and necessary to inform policy interventions, outline support mechanisms, and provide guidance to SMEs in their sustainability (Creswell and Creswell, 2017). This dissertation has three main objectives:

1. To assess the extent of ESG implementation in Indian small and medium enterprises (SMEs);
2. To evaluate the relationship between ESG practices and sustainability outcomes (environmental, economic, and social); and
3. To identify the key drivers and barriers influencing ESG adoption.

By addressing these three objectives, this research contributes to both the academic literature and practical policy discussions, while also providing a baseline understanding of ESG practices in SMEs, which is essential for formulating targeted interventions, especially given India's commitments to the Paris Climate Agreement (PCA), Sustainable Development Goals (SDGs), and net-zero targets (NITI Aayog, 2021).

This research study is particularly relevant in the post-COVID-19 context, where resilience, adaptability, and sustainability have become critical priorities for businesses of all sizes (Sharma, Thomas, and Paul, 2021). The pandemic has exposed the vulnerabilities of supply chains, labour relations, and financial systems to businesses, governments, and academia, urging companies to strongly adopt ESG principles to avoid future shocks. The sudden outbreak of the COVID-19 global pandemic in 2020 had a huge negative impact

on the production and operations of almost all companies around the world, posing a direct threat to their survival and growth (Dai and Tang, 2022; Savio, Andrassi, and Ventimiglia, 2023; Gao and Geng, 2024). SMEs are uniquely capable of leading sustainable changes if given adequate support due to their agility and proximity to communities (PwC, 2022). Hence, this research highlights current ESG practices and explores how SMEs can be empowered to become drivers of inclusive and green growth in India.

The interrelationship of ESG implementation and sustainability in Indian small and medium enterprises (SMEs) is an important area, but under-researched in the existing literature due to the lack of research work. Since SMEs are considered the backbone of the Indian economy (Chatterjee *et al*., 2021), their integration with ESG principles is imperative to achieve national and global sustainability goals.

This dissertation aims to fill the empirical and theoretical void by conducting a comprehensive quantitative analysis of the integration of ESG practices in Indian small and medium enterprises. Through a survey-based approach, this study seeks to provide actionable insights for policymakers, financial institutions, industry associations, and SMEs themselves. By doing so, it contributes to the evolving discourse on sustainable business practices in emerging markets and lays the foundation for future research and innovation in ESG for small enterprises.

1.2. Problem Statement

ESG practices have become an important cornerstone in shaping corporate behavior worldwide, making financial decisions, coping with the complexities of global markets, and guiding sustainable development (Udeh *et al*., 2024; Alhoussari, 2025). Although large companies in emerging economies such as India have integrated ESG strategies into their core business models, the adoption of ESG practices in the SME sector remains limited and under-researched. SMEs are the backbone of the Indian economy (Kumar and Kapil, 2023), contributing approximately 30 percent of the national GDP, 45 percent of total manufacturing output, and 48 percent of exports (Ministry of MSME, n.d.; Thangallapally,

2022; Shekhar and Rai, 2025). However, despite the economic role, the integration of ESG practices within SMEs has not yet become mainstream, presenting a substantial gap in achieving inclusive and sustainable economic growth (Shalhoob and Hussainey, 2022). Globally, ESG has emerged as a framework for evaluating the non-financial performance of businesses, including their environmental impact, behavior with employees and communities, and governance structures (Friede, Busch, and Bassen, 2015; Alhoussari, 2025). ESG integration supporting sustainability also enhances long-term financial performance, risk mitigation, and reputation management (Eccles, Ioannou, and Serafeim, 2014; Duque-Grisales and Aguilera-Caracuel, 2021). The positive impacts of environment, social, and governance (ESG) can also provide long-term non-financial benefits such as improved product or service quality, enhanced corporate reputation, stronger brand image, enhanced customer satisfaction, and greater employee motivation (Khan and Liu, 2023; Alhoussari, 2025). ESG discourse has largely been centered on large corporations, ignoring the challenges and contexts.

In India, SMEs face a complex and constrained environment with limited financial resources, low regulatory awareness, and a lack of technical know-how (Pachouri and Sharma, 2016; Das and Rangarajan, 2020; Rajamani *et al*., 2022) that pose formidable barriers to ESG implementation. Most SMEs operate in highly competitive and cost-sensitive markets, where short-term survival often overrides long-term sustainability considerations. Additionally, businesses lack the need to invest adequately in data collection, transparency mechanisms, and reporting frameworks for ESG compliance (Gürlevük, 2024). As a result, even if SMEs are environmentally and socially conscious in practice, the lack of formal ESG articulation deprives them of sustainability-oriented investment pools and policy incentives (Ferri and Acosta, 2019; Amini and Bienstock, 2014).

India's commitment to the UN Sustainable Development Goals and the Paris Agreement calls for widespread adoption of ESG across all business sectors (NITI Aayog, 2021). With SMEs in India employing over 110 million people across over 63 million units,

their role in achieving national and global sustainability objectives is indispensable (Ministry of MSME, n.d.). As ESG implementation is voluntary, there is uneven acceptance and wide disparity in adoption levels (Gradillas, Castro, and Salandra, 2021). Current environment, social and governance reporting frameworks such as Global Reporting Initiative, Sustainability Accounting Standards Board, and Business Responsibility and Sustainability Reports are complex and resource-intensive, leaving SMEs out of structured sustainability reporting (Kothari, 2025). The Government of India and regulatory bodies such as the Securities and Exchange Board of India (SEBI) introduced BRSR for sustainability reporting through the top 1000 listed Indian entities on 10 May 2021, primarily based on market capitalization, as reference number: SEBI/HO/CFD/CMD-2/P/CIR/2021/562. Organizations to which BRSR is applied must disclose their ESG risks and potentials, their methods of mitigating or adapting to risks, and the economic impacts associated with the process (Thirumalai, 2022). Reporting under the Business Responsibility and Sustainability Reports framework is designed to increase the transparency of corporate disclosures and help market members assess sustainability-related risks and prospects. There is an urgent need to examine how ESG frameworks can be adapted or redesigned to suit the capabilities and constraints of Indian SMEs (Majumder and Hussain, 2023).

There is an urgent need to explore how ESG frameworks can be adapted or redesigned to suit the capabilities and constraints of Indian SMEs. Despite efforts to promote ESG in Indian MSMEs through awareness campaigns and industry associations, there is insufficient empirical evidence on the slow adoption of ESG sustainable practices, regulatory inconsistencies, long-term sustainability, and impact on business performance (Chelawat and Trivedi, 2016; Kumar, 2024). Yet Indian companies are just beginning to understand the importance of ESG reporting, with international investors focusing on emerging markets.

The academic literature has mainly focused on ESG implementation in large multinational companies (Johnson and Schaltegger, 2016; Maas *et al*., 2016; López-Pérez *et al*., 2018),

while SMEs have received little attention, and the specific needs and motivations of the SME sector have been overlooked. Some previous studies (Garcia *et al*., 2017; Fatemi, Glaum, and Kaiser, 2018; Chen and Xie, 2022; Aydoğmuş, Gülay, and Ergun *et al*., 2022) highlight the positive relationship between ESG practices and firm performance, but there is limited empirical investigation of whether such positive and beneficial effects may prove beneficial for SMEs operating in resource-poor and institutionally weak environments. Existing studies on SMEs and sustainability in India are descriptive and anecdotal, lacking rigorous analytical and theoretical foundations, or even regional or sectoral analysis of ESG implementation, making it difficult to sometimes identify local barriers and opportunities.

SMEs in India operate in a culturally and institutionally diverse environment that significantly shapes their approach to ESG. The informal nature of SMEs, coupled with a lack of standardized practices and low stakeholder pressure, often results in fragmented and inconsistent ESG adoption. There is also a lack of training and awareness programs specifically targeted at SME managers and employees to facilitate understanding and application of ESG (Chelawat and Trivedi, 2016; Pachouri and Sharma, 2016; Das and Rangarajan, 2020; Rajamani *et al*., 2022). The limited availability of customized ESG-specific financial instruments for SMEs restricts their access to sustainable finance and green investments.

In this context, this study attempts to critically examine the extent, challenges, and enablers of ESG implementation in the Indian SME sector. It aims to fill the empirical and conceptual void by identifying factors impeding ESG adoption, evaluating the relationship between practices and firm-level sustainability outcomes, and exploring how institutional support mechanisms can promote comprehensive ESG integration in SMEs. This research is not only academically relevant but also has significant implications for policymakers, industry stakeholders, and investors seeking to promote inclusive and sustainable economic growth.

Unprecedented crises like COVID-19 have led to a public health crisis, as well as social, environmental, and economic crises. Furthermore, the sudden global spread of the COVID-19 pandemic has exposed the structural vulnerabilities of SMEs (Grondies *et al*., 2021; Mohammad and Issa, 2023) and increased market volatility, highlighting the need for resilient and sustainable business models (World Economic Forum). ESG can serve as a strategic tool for post-pandemic recovery by improving stakeholder engagement, building operational resilience, and ensuring long-term competitiveness.

The rationale of this study is also important to enhance ESG understanding in emerging markets, informing practical strategies that can help mainstream ESG among Indian SMEs. The insights gained from this research can guide the development of simplified ESG reporting tools, capacity-building programs, and policy frameworks that are relevant and SME-friendly. In addition, bridging the gap between ESG objectives and ESG action can help inform how SMEs understand, prioritize, and operationalize ESG dimensions in their daily operations.

As ESG becomes increasingly intertwined with capital access, supply chain inclusion, and reputation, understanding the barriers faced by SMEs has become imperative to create an equitable economic ecosystem. The potential of ESG integration to act as a catalyst for innovation, employee efficiency, and stakeholder trust in Indian SMEs has not yet been fully and adequately utilised in India. This research will play a vital role in contributing to bridging this knowledge-practice gap by providing a much-needed perspective on how ESG can promote sustainable development in one of the most important but also vulnerable sectors of the Indian economy.

The lack of ESG (environmental, social, and governance) adoption in Indian SMEs poses a major challenge to achieving sustainability goals at both national and international levels. Given the scale, diversity, and socio-economic impact of the SME sector, bridging this gap is both timely and urgent. The lack of empirical studies on ESG implementation in Indian SMEs, the need for specific ESG frameworks, and the growing importance of

sustainable business practices provide strong justification for this study. Through an in-depth investigation of the patterns, challenges, and enablers of the adoption of ESG practices in the Indian SME sector, this research aims to provide practical insights that can inform future policy, practice, and scholarly discussions on sustainability in emerging or developing economies.

1.3. Research Objectives

As ESG considerations are becoming central to sustainable development and responsible business conduct, the limited and inadequate adoption of ESG frameworks in India's SME sector is creating a serious research gap. Due to the limited and inadequate adoption of ESG frameworks, SMEs in the Indian economy are facing several structural, financial, and regulatory challenges that hinder the integration of ESG principles in their operations. Given the growing national and international emphasis on sustainability, it is important to understand how Indian SMEs view ESG, the factors influencing the adoption of ESG practices, and the implications of such practices for long-term business sustainability. Addressing these given issues requires explicit and systematic research that can guide stakeholder involvement, policy interventions, and business strategic initiatives. Therefore, based on the following objectives:

1. To understand ESG practices in Indian SMEs.
2. To evaluate the relationship between ESG implementation and the sustainability practices of SMEs.
3. To explore the barriers and challenges that SMEs in India face in integrating ESG frameworks into their business operations.
4. To develop a conceptual framework or model that illustrates ESG integration pathways specific to the Indian SME context.

1.4. Research Questions

Despite ESG considerations becoming increasingly central to sustainable development and responsible business conduct, the limited adoption of ESG frameworks in India's SME sector presents a critical research gap. Despite their significant contribution to the Indian economy, SMEs face several structural, financial, and regulatory challenges in integrating environmental, social, and governance principles into their operations. Given the growing national and international emphasis on sustainability, it is essential to understand how Indian SMEs view ESG, the factors influencing the adoption of ESG practices, and the implications of such practices for long-term business sustainability. Addressing these issues requires a systematic investigation that can inform policy interventions, business strategies, and stakeholder engagement. Therefore, based on the following questions:

1. What types of ESG practices are currently being implemented in Indian SMEs across various industries and regions?
2. What is the relationship between ESG implementation and the sustainability (environmental, social, and economic) of Indian SMEs?
3. How can a conceptual model be developed to illustrate ESG integration pathways that are specifically suited to the Indian SME context?

1.5 Significance of the Study

The growing global emphasis on ESG (environmental, social, and governance) practices has given new importance to the way businesses are evaluated, beyond their financial results, based on their contribution to sustainability and ethical governance. While large corporations in India and globally are progressively aligning with ESG standards, the small and medium enterprises (SMEs) sector, the backbone of the Indian economy (Kumar and Kapil, 2023), remains relatively underrepresented in ESG discourse and practice. This study addresses a critical gap in empirical research by focusing on ESG implementation and sustainability outcomes within Indian SMEs.

Indian SMEs contribute significantly to the country's economy's GDP, exports, and employment (Das, 2007) and operate informally in the absence of a structured framework for sustainability (Ministry of MSME, n.d.). This research highlights how ESG adoption in SMEs serves as a strategic tool to train employees, improve their efficiency, build stakeholder trust, and enhance competitiveness, rather than just compliance (Bui, 2024). While larger companies reap the benefits of ESG practices, by examining the extent of ESG integration in SMEs, this study provides insights into how smaller companies can leverage ESG practices to promote sustainable performance and long-term resilience.

This research contributes to the broader theoretical development of ESG practices in emerging and developing economies like India. Much of the existing research focuses on large enterprises in developed markets (Friede, Busch, and Bassen, 2015; Clark, Feiner, and Vieh, et al., 2014). In contrast, this research contextualizes ESG adoption in Indian SMEs, incorporating local institutional pressures, resource constraints, and socio-economic dynamics. Thus, it extends stakeholder theory and institutional theory by applying them to a sector where informal structures dominate and regulatory oversight is relatively weak.

From a policy perspective, this study provides valuable data for government bodies and regulators such as the Ministry of MSMEs and SEBI to develop targeted support mechanisms, incentives, and reporting frameworks for ESG in SMEs (SEBI, 2023). As ESG compliance has begun to influence lending decisions and access to global markets, understanding the preparedness of SMEs becomes important for policymakers aiming to promote inclusive and sustainable economic growth. These findings can help design capacity-building programs, financial instruments, and awareness campaigns tailored to the realities of SMEs.

This study serves as a practical guide for businesspeople, particularly SME owners and managers, by identifying key enablers and barriers to ESG adoption. It provides evidence of how ESG practices can impact sustainability, resource efficiency, and

stakeholder satisfaction, and helps them make informed decisions on ESG investments and strategy. Additionally, it highlights the business side of ESG even in a resource-constrained environment and emphasizes that sustainability is a necessity for long-term survival.

Finally, the methodological support of the study lies in the use of a survey-based quantitative approach to empirically validate ESG practices in Indian SMEs. It provides a replicable framework for future research in other emerging developing economies facing similar structural challenges. As environmental, social, and governance (ESG) is becoming a key differentiator in the global business ecosystem, it is essential to understand its implications for the SME sector to ensure that the benefits of sustainable development are inclusive and in-depth.

1.6 Scope of the study

The scope of this research covers examining ESG implementation in the SMEs sector in India and its impact on sustainability outcomes. Recognizing that SMEs play a critical role in India's economic growth, contributing nearly 30 percent to GDP and employing over 11 crore individuals (Ministry of MSME, n.d.). This research focuses specifically on SMEs operating in diverse industries, including manufacturing, services, and retail. The study is limited to enterprises registered under the revised MSME classification (as per the MSMED Act, 2006, as amended in 2020), which ensures a standardized understanding of SME characteristics.

Geographically, the study targets SMEs located in urban and semi-urban areas across major Indian states, including Delhi NCR, Tamil Nadu, Maharashtra, Gujarat, and Karnataka. These regions have been selected based on their dense concentration of industrial clusters and relatively higher exposure to sustainability practices and policy frameworks (Sahoo and Arora, 2021). However, rural micro-enterprises, informal businesses, and large corporations fall outside the purview of this study. The research focuses exclusively on formal SMEs that maintain basic accounting systems and are either directly or indirectly exposed to market demands for sustainable business practices.

Thematically, this study examines ESG implementation within SMEs, including environmental practices (waste management, energy efficiency), social initiatives (employee welfare, diversity, community engagement), and governance mechanisms (transparency, compliance, leadership ethics) adopted by these firms. It also explores how these practices affect sustainability dimensions such as environmental resilience, social responsibility, and economic performance. The study does not include other corporate responsibility frameworks such as CSR or ISO 26000, unless they directly contribute to ESG dimensions.

This study uses a quantitative, survey-based methodology to collect primary data from SME managers, owners, and ESG executives. The use of a structured questionnaire allows for the objective measurement of ESG variables and sustainability indicators, thereby increasing the empirical validity and generalizability of the study (Creswell and Creswell, 2017). Advanced statistical tools, particularly structural equation modelling, will be used to test hypotheses, model relationships, and investigate moderating or mediating effects between variables (Hair and Alamer, 2022). Qualitative methods (QM) such as case studies, interviews, or ethnographic research are not within the scope of this project. Additionally, the time frame of the study focuses on current ESG implementation trends and sustainability performance observed during the post-COVID period (2022-2025). This is important, as the Covid-19 pandemic has brought about dramatic changes in business priorities, risk perception, and supply chain pressures of companies in India and across the world, redefining the relevance of ESG in organizational strategy (Sharma, Panday, and Dangwal, 2020). This research does not directly address historical ESG data, retrospective analysis, or longitudinal changes.

The study aims to identify key enablers and barriers influencing ESG implementation in Indian SMEs, such as regulatory pressure, access to finance, awareness, organizational culture, and stakeholder influence; however, the impact of international ESG compliance standards, such as Global Reporting Initiative (GRI) or Sustainability Accounting

Standards Board (SASB), is considered only when they are relevant to Indian SMEs with export linkages.

In summary, this study presents a focused exploration of ESG adoption and its sustainability implications in formal Indian SMEs from a quantitative perspective. Although this research is comprehensive in its sectoral and geographical representation, it is limited in terms of time, organizational scale, and methodological orientation. The findings are intended to inform policymakers, industry associations, and SME stakeholders on how ESG practices can be realistically integrated into small business models for long-term sustainability and resilience (Clark *et al*., 2014).

1.7 Structure of the Thesis

This thesis is structured into six key chapters to ensure a comprehensive exploration of the topic.

Chapter 1 Introduction:

Chapter 1 introduces the background of the research, identifies the research purpose and problem, outlines the research objectives and questions, and highlights the significance, scope, and structure of the study.

Chapter 2: Literature Review:

This chapter lays the foundation of the study is based on the existing literature on Environmental, Social, and Governance, discusses the evolution of sustainability in business, definitions, and its various dimensions, importance of ESG practices in SMEs, examines ESG practices in the Indian SME sector, and discusses the theoretical framework and identifies research gaps.

Chapter 3: Research Methodology

This chapter of the research describes the research design, research methodology (RM), and data collection methods. Along with this, sampling techniques, instrument design, and validation procedures are also described as required.

Chapter 4: Data Analysis and Findings

Data Analysis and Findings presents the analyzed results derived from empirical data.

Chapter 5: Discussion and Conclusion

In this chapter, the findings obtained by the researcher after conducting data analysis are discussed and interpreted in detail, and the findings are compared with the existing literature. Finally, research implications, limitations, and future studies are discussed, along with practical implications, limitations of the study, and directions for future research.

Chapter 6: Conclusion

This thesis's last and most essential chapter is Chapter 6. It gives a brief summary of the results and what they mean in a broader sense. It shows how this study adds to what we already know and how it could be useful in the field. It stresses how important the results are for answering the original study questions. It talks about the study's shortcomings and suggests topics for future research to improve understanding and build on the current conclusions. The chapter ends by emphasizing the importance of the research and urging more work in this area.

CHAPTER II: REVIEW OF LITERATURE

2.1 Environmental, Social, and Governance (ESG)

Environmental, Social, and Governance (ESG) is a comprehensive framework used to evaluate and guide the sustainability, ethical impact, and governance standards of organizations, large, medium, and small, around the world. The concept of ESG emerged from the growing recognition that traditional financial metrics alone do not adequately capture the long-term health, risk, and value creation potential of companies (Ilori *et al*., 2023). Instead, ESG integrates non-financial factors to reflect how companies manage their environmental responsibilities, as well as how they conduct themselves with social interaction, transparency, and accountability. The framework has become increasingly important for investors seeking sustainable and responsible investment opportunities, as well as corporations that aim to keep up with evolving global standards, regulatory mandates, and stakeholder expectations (Tang, 2023; Singhania and Saini, 2023).

At the core of ESG are three primary pillars: environmental, social, and governance. The environmental pillar (Li *et al*., 2021; Rau and Yu, 2024) focuses on an organization's relationship with natural systems, with companies being assessed to optimize energy consumption, transition to renewable energy, reduce greenhouse gas emissions, reduce carbon footprint, pollution, and waste, sustainably manage natural resources, and actively contribute to climate change mitigation and biodiversity conservation (Henisz, Koller and Nuttall, 2019). This pillar is becoming increasingly important in businesses as climate change poses systemic risks globally, forcing organizations to rethink and redesign operating models to ensure environmental resilience.

The social component of ESG addresses how firms or companies manage relationships with employees, customers, suppliers, and the communities in which they operate. This component takes a deeper look at labor practices in businesses, diversity and inclusion efforts, human rights adherence, workplace safety, community engagement, and product responsibility (Henisz, Koller, and Nuttall, 2019). Social factors assess issues such as fairness, inclusiveness, and ethical behavior in an organization's sphere of influence, employee well-being, equal opportunity, data privacy, and social justice. This pillar

emphasizes that business success is closely linked to societal health and advocates that companies act as positive social contributors rather than simply making profits.

The final pillar of ESG, governance, evaluates a firm's internal systems, leadership, controls, and corporate policies that enable effective oversight and ethical conduct. Governance includes board composition and diversity, executive remuneration, shareholder rights, transparency, anti-corruption measures, and regulatory compliance. Strong governance practices ensure that companies operate with accountability and integrity, effectively managing risks while maintaining credibility in the eyes of investors, regulators, and the public. It lays the foundation for reliable decision-making and long-term strategic planning, which is essential and critical for sustainable business performance.

Before organizations can implement ESG principles, it is important to understand the process. Initially, firms or companies conduct a materiality assessment to identify the ESG issues most relevant to their business model, stakeholder concerns, industry sector, and geographic environment. Next, organizations set clear, measurable objectives, often encapsulated in SMART (Specific, Measurable, Achievable, Relevant, Time-bound) targets (Ahmed *et al*., 2024), which are aligned with global standards such as the UN Sustainable Development Goals (Plastun *et al*., 2020) or recognized frameworks such as the Global Reporting Initiative (Lukács and Rickards, 2023) or the Sustainability Accounting Standards Board (Goswami *et al*., 2023).

Implementation includes strategies to integrate ESG into core operations such as emissions reduction, promoting workplace diversity, strengthening governance policies, enhancing supply chain ethics, and community investments. Oversight at organizational levels often occurs at the board or executive level, with responsibilities for achieving ESG goals to ensure accountability. Additionally, companies establish robust monitoring systems consisting of well-defined key performance indicators (KPIs) that allow for continuous measurement, evaluation, and reporting of their ESG progress.

A critical part of the ESG process is reporting and disclosure. Transparent communication of ESG performance is increasingly being mandated by regulations such as the EU's

Corporate Sustainability Reporting Directive (CSRD) and encouraged by voluntary frameworks such as the GRI. Reports typically include both qualitative statements and quantitative data to reflect a company's environmental impact, social initiatives, governance practices, challenges, and future commitments. These disclosures enable stakeholders—from investors to customers and employees—to make informed decisions and increase trust.

Today, with the fast pace of globalization, almost everyone in society is pursuing technology, ignoring environmental changes (Hironaka, 2002). Chichilnisky (1997) pointed out that human activities pursuing technology have invaded the ecological balance of nature. Directly and indirectly, economic amplification, worldwide population growth, technological advancement, and lack of quality education can be the driving forces of socio-political, cultural, religious, and economic global environmental issues (Jianping *et al*., 2014; Senadheera *et al*., 2021).

Globally, the concept of environmental, social, and governance (ESG) criteria has gained significant importance in recent years as a framework for evaluating corporate behavior (CB) and sustainability practices (SP). Corporate standards for environmental protection and social responsibility are evolving globally, and ESG commitments are becoming the norm. ESG factors are primarily used by investors, stakeholders, and regulators to assess the sustainability and ethical impact of a company's or firm's operations. ESG tools are used to measure the ESG performance adopted by a firm, with a higher ESG score primarily indicating stronger social and corporate responsibility (Shakil, 2021; Gao and Liu, 2023).

This dissertation examines the fundamentals, application, and implications of ESG integration criteria in a contemporary company's or firm's business practices. In the contemporary corporate and investment landscape, the concept of ESG has emerged as an important reference for evaluating the sustainability and ethical impact of a business or investment. Originally based on socially responsible investing, ESG has become a mainstream concept among corporations, investors, regulators, and stakeholders (Friede, Busch, and Bassen, 2015).

2.1.1 Environmental (E)

Human perception of the environment has been influenced by philosophical, religious, and scientific perspectives over the centuries. Ancient Indian cultural historical books such as the Vedas and Upanishads encouraged ecological balance and sustainability, and early communities viewed nature as sacred and harmonious from a spiritual perspective. The Industrial Revolution brought about a significant shift in human-nature relations, prioritising economic growth over ecological considerations (Zhou and Zhou, 2021). This resulted in massive deforestation, pollution, and depletion of resources, turning nature into a commodity for human progress.

The concept of environment refers to the complex web of natural, social, and built factors that surround and interact with living organisms. It includes not only physical elements such as air, water, and land, but also systems and interactions between living (biotic) and non-living (abiotic) components. The environment serves as a life-support system and a centre of development, evolution, and socio-political dynamics (Gallopin, 1981). Mason and Langenheim, (1957) describe environmental phenomena as those that have an actual or potential functional relationship with organisms; the "functional environment" refers to those elements that actively influence a particular organism during its lifetime (Spomer, 1973), while the "potential environment" includes all elements that can potentially interact with the organism during its existence (Colvin, 2003). Thus, the term “environment” is not limited to the physical surroundings but also includes the relationships, systems, and interactions between biotic (alive organisms as producers, consumers, and decomposers) and abiotic (non-living factors such as soil and climate) components (Singh, 2024) that define the conditions of existence.

The environment (E) pillar in ESG is an important aspect of assessing a firm or company’s impact on the environment. The E (environment) pillar of ESG can create a competitive advantage for eco-friendly products and services, but the high capital cost of renewable and alternative technologies still hinders smaller companies from adopting a greener E approach (Dragomir, 2020; Boffo, Marshall, and Patalano *et al*., 2020; Senadheera *et al*., 2021). The growing awareness of investors and asset managers in ESG investing is a sign

of its increasing acceptance. ESG factors are used to measure a company's or firm's sustainability performance (Tripathi and Bhandari, 2014). Environmental criteria include a company's dependence on fossil fuels, emissions, water use, carbon footprint, pollution, waste management, and resource consumption. Social criteria include social factors such as workplace diversity, health and safety, labor practices, child labor, and community impact (Sharma, Panday, and Dangwal, 2020).

2.1.1.1 Key Factors of Environmental ESG

The environmental dimension of ESG evaluates how an organization manages its ecological footprint and how organizations mitigates risks associated with pollution, climate change, and the depletion of natural resources. Several key ESG factors define the environmental pillar and form the basis of ESG assessments (Friede, Busch, and Bassen, 2015). Utz, 2019; Senadheera *et al*., 2021). ESG reporting originated in the 1970s and 1980s with the rise of corporate social responsibility (CSR), which emphasized both voluntary environmental and social initiatives. However, climate change and ecological degradation made environmental performance a measurable factor for businesses (Gond *et al*., 2018).

The reason for including climate change in ESG frameworks is that carbon emissions pose financial, operational, and reputational risks. For example, with climate change being considered a significant financial risk (Dietz *et al*., 2016), investors are increasingly willing to shift capital from firms with high carbon emissions to firms with low carbon strategies, as firms with low carbon strategies face stricter regulations, carbon taxes, and criticism from stakeholders (Venturini, 2022).

Measuring these three areas is essential for the transparency of a company or firm, as the third area is considered the largest part of a company's emissions sector. Companies are implementing several climate strategies in line with ESG standards, such as transitioning to renewable energy, improving energy efficiency, carbon offsetting, green

product innovation, etc. Regulatory bodies moving towards mandatory ESG reporting have made it mandatory for Indian companies to disclose climate risks and carbon mitigation strategies (Kharola, Goyal, and Saxena, 2025). Challenges in integrating climate change into ESG include the lack of standardized standards across countries, the high cost of transition to clean energy for small and medium enterprises (SMEs), and greenwashing.

Energy management is an important component of the environmental pillar of ESG. Efficient energy use directly impacts both a company's financial performance and environmental sustainability. Companies that invest in clean technologies and renewable sources exhibit long-term resilience and lower regulatory risks (Yucel and Yucel, 2024). Water management is critical for water-intensive industries such as textiles, agriculture, and mining. Due to water scarcity, water-intensive industries or organizations are also evaluated based on their drainage, recycling, and wastewater treatment practices. Companies that actively conserve water increase resilience in areas prone to drought and water stress (Rosely, Haizan, and Voulvoulis, 2024).

Energy consumption is one of the largest and most significant contributors to global carbon emissions, with fossil fuels such as coal, oil, and natural gas accounting for approximately 75 percent of global greenhouse gas emissions (IEA, 2021). Important strategies can be adopted for sustainable energy management. The transition to renewable energy is the cornerstone of sustainable energy management, adopting renewable energy sources such as solar, wind, hydro, and geothermal; improving energy efficiency, decentralized and smart energy systems (Mills, 2021), green building initiatives (Kibert, 2016), etc.

In India, the Perform, Achieve, and Trade (PAT) scheme under the National Mission for Enhanced Energy Efficiency (NMEEE) by the government (Bhandari and Shrimali, 2018; Sarangi and Taghizadeh-Hesary, 2020) encourages industries to reduce specific energy consumption through tradable efficiency credits (BEE, 2020). Yet despite progress in its implementation, effective energy management in ESG is hindered by a number of challenges, such as the need for high initial capital investment, SMEs' lack of

access to large or advanced technologies, and policy uncertainty. Firms or companies that adopt recycling and circular economy principles also increase brand value while reducing ecological risks. Environmental innovation evaluates companies' ability to design environmentally friendly products, adopt sustainable packaging, and develop green technologies. Innovation also provides companies with a competitive advantage while reducing environmental risks (Porter and Linde, 1995).

2.1.2 Social (S)

The MCA (Ministry of Corporate Affairs) issued guidelines for corporate social responsibility (CSR) policies in 2009, recommending six key principles: fair governance, respect for stakeholders, worker welfare, environmental protection, human rights, and participation in social and inclusive activities. The Department of Public Enterprises (DPE) issued guidelines for central public sector companies (CPSEs) in 2010, requiring them to establish a CSR policy approved by their boards. In 2011, the MCA formulated National Voluntary Guidelines (NVGs) to help Indian firms comply with standards and submit their business responsibility reports on the nine principles (Wood, 1991).

One of the three pillars of ESG is the social component, which deals with the impact of a company's operations on society, with employee relations, diversity policies, community engagement, and human rights (HR) practices. Rogers, Gardner, and Carlson (2013) state that society is dependent on the environment; humans require resources from the environment and depend on the services of functioning ecosystems. The social aspects of sustainability are often mentioned but rarely examined. It is considered the weakest and least described pillar. Social responsibility is about the well-being of the individual, which takes into account many different indicators. Human development, well-being, and quality of life are some of these indicators.

Corporate social performance (CSP) aims to adopt and demonstrate ethical and moral behavior in all its undertakings by reducing social inequality (Wood, 1991; Marc and Schmidt, 2003; Diez-Cañamero *et al*., 2020; Christensen, Hail, and Leuz *et al*., 2021). CSP is broadly associated with long-term efforts made by an organization to ensure the welfare of society, such as human rights protection, employee training, skills development,

employee safety, reducing discrimination at the workplace, charity, adopting ethical labor practices, etc. (Singh, 2023). In recent times, with greater attention on a firm's responsibility towards society and its members, stakeholders are actively demanding more evidence of organizations' CSP. In the present times, due to increasing pressure and scrutiny, companies are striving to increase transparency in their disclosures and social impact.

2.1.2.1 Key Factors of Social ESG

The social pillar of ESG focuses on how organizations interact with their employees, customers, communities, and broader society, with an emphasis on the human and community-related aspects of business operations. It encompasses issues of equity, inclusion, human rights, and social welfare, reflecting a company's responsibility to people, both within and outside its organizational boundaries (Kotsantonis, Pinney, and Serafeim, 2016). The following key factors are central to the social dimension of ESG:

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Companies are being evaluated based on their treatment of employees, which includes labor practices such as fair employee pay, workplace safety, equality, inclusiveness, training and development, working conditions, diversity, and career growth opportunities, etc. that enhance employee retention, motivation, and long-term productivity (Eccles, Ioannou, and Serafeim, 2014). The social pillar of ESG focuses on how companies manage labor practices and ensure employee welfare. The backbone of any firm or company is its employees. The company’s treatment of employees directly affects corporate sustainability, productivity, and reputation. Companies that adopt fair and ethical

labor practices benefit from better employee satisfaction, lower turnover, higher productivity, and a stronger employer brand.

Bapuji *et al*. (2020) reported in their research that companies with equitable pay policies enjoy greater employee loyalty and customer goodwill. Health and safety are another cornerstone of employee welfare. Workplace accidents not only endanger the well-being of employees but also impose financial and reputational costs on companies. Regulators, investors, and civil society are increasingly demanding transparency into companies' labor practices. Reporting frameworks such as the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Task Force on Socially-Related Financial Disclosures (TSFD, under development) emphasize labor indicators such as turnover rates, health and safety incidents, diversity metrics, and employee training hours (GRI, 2020). Companies that do not implement labor practices properly may face reputational and financial risks as a result.

The core of social ESG includes companies promoting diversity (gender, race, ethnicity, age, disability, sexual orientation, and religion) in hiring and leadership (Roberson, 2006), eliminating the gender pay gap, and ensuring equitable workplace policies. Diverse and inclusive organizations have been proven to be more innovative and resilient (McCauley and Heffron, 2018). DEI is also an ethical, strategic imperative, as it enhances long-term sustainability by strengthening organizational resilience and promoting innovation (Shore *et al*., 2011; McCauley and Heffron, 2018). Empirical studies have shown that companies with diverse and inclusive workforces outperform their counterparts in terms of financial performance, creativity, and employee engagement (McCauley and Heffron, 2018).

The social pillar of ESG includes human rights and ethical supply chains, which reflect companies' responsibility to respect and uphold the fundamental rights of their employees. Companies must respect human rights in both direct operations and global supply chains by avoiding child labor, forced labor, and unsafe working conditions, and

ensuring ethical sourcing and supplier accountability. Prioritizing consumer rights, product safety, and transparent communication is vital to social ESG. Misleading advertising, unsafe products, and misuse of consumer data by a company can result in reputational damage as well as legal risks. This factor emphasizes transparency, accountability, and consumer protection by ensuring that the firm is not putting employees' health at risk or misleading customers. Within the social dimension of ESG, community engagement and social impact represent a company's responsibility to make a positive contribution to the community in which it operates. Active involvement within the company to reduce negative impacts such as displacement or pollution, including supporting local development, philanthropy, social investment, and building trust, enhances the company's social license to operate (Porter and Linde, 1995). Corporate involvement in community infrastructure, such as roads, schools, healthcare facilities, and digital connectivity, can significantly improve the quality of life of employees. Companies that provide vocational training and digital literacy programs for their employees provide the tools to thrive in a competitive economy. Despite this, firms face challenges such as superficial engagement, resource allocation, cultural sensitivity, and measurement difficulties in ensuring meaningful community impact.

An important factor is the ability of companies to engage stakeholders such as employees, customers, NGOs, and local communities. These companies' transparent communication, grievance redressal mechanisms, and collaborative problem-solving foster long-term trust (Freeman, 2010). Stakeholder engagement and social dialogue are central to the social pillar of ESG (environmental, social, and governance) as they emphasize inclusiveness, participation, and accountability in corporate decision-making. Ensuring fair labor practices, human rights compliance, and sustainable sourcing fall under stakeholder engagement. Social dialogue in global supply chains helps reduce the risks of exploitation, child labor, and environmental damage. Organizations are increasingly disclosing these standards in sustainability reports to demonstrate inclusiveness, responsiveness, and accountability and promote trust. Businesses face power imbalances, tokenism, lack of resources, and cultural challenges in executing meaningful stakeholder engagement. To

overcome these challenges, companies need to invest in long-term relationships, build trust, and prioritize participatory governance models. Nowadays, various firms or companies also contribute to social ESG by ensuring inclusivity in their finances, education of employees, and their access to essential goods and services like healthcare and technology.

2.1.3 Governance (G)

The third and key dimension of ESG performance is governance. Corporate governance ensures responsible, smooth operations while contributing to the prosperity of the organization (Kocmanová and Dočekalová, 2013) and refers to an organization's internal controls, leadership structure, and corporate governance practices. Effective governance ensures transparency, accountability, and ethical decision-making. Board independence, executive compensation practices, and anti-corruption policies are key indicators of good governance (Jackson *et al*., 2023). Regulatory frameworks such as the Sarbanes-Oxley Act in the US (United States) and similar laws globally aim to strengthen corporate governance and reduce risks associated with unethical behavior (White 2018). Governance includes the evaluation of a company's leadership, executive pay, audits, internal controls, shareholder rights, and transparency. Good governance (G) ensures that a Firm or company's leadership acts in the best interest of its stakeholders and adheres to ethical standards. Issues of concern include board composition, bribery and corruption, shareholder voting, and disclosure practices (Starks, 2023).

Achieving good corporate governance (CG) is an ongoing process in which laws and regulations are reviewed and changed to minimize the impact of problems by implementing them. These factors include cultural and religious traditions, political stability, and legal systems, depending on where the company is located (Ademi and Klungseth, 2022). Corporate governance has been a factor in the collapse of many large companies in the past decades (Ahmad, Mobarek, and Roni, 2021).

2.1.4 Environmental, Social, and Governance (ESG) in the Indian context

Amidst increasing global and domestic pressures, ESG norms have emerged as an important framework for sustainable and responsible business conduct in India. The role of ESG in India is going beyond being merely regulatory compliance or investor preference to becoming a transformational principle shaping the strategic, operational, and financial dimensions of Indian enterprises across sectors (Maji and Lohia, 2023). India's unique socio-economic landscape (Yadav and Prashar, 2023), development priorities, environmental vulnerabilities, and governance structures call for a customized ESG approach that can balance the imperatives of rapid growth with long-term sustainability objectives.

India faces some of the world's most severe environmental challenges, such as floods, droughts, etc. The environmental reality compels Indian businesses to actively adopt ESG frameworks to build resilience to the impacts of climate change and align with national goals such as achieving net-zero emissions by 2070 and a commitment to substantially expand renewable energy capacity. Implementing ESG principles enables firms or companies to achieve energy efficiency, reduce carbon emissions, abate pollution, and adopt sustainable resource management, which are also important and necessary for regulatory compliance and long-term viability and risk mitigation (Chaklader *et al*., 2024).

The social dimensions of ESG are particularly important in India, given its huge population, pronounced socio-economic disparities, and a significant underserved labour market. 90 percent of India's workforce is employed in the unorganised sector and faces disabilities related to wages, health, and safety (Mukhtar and Shams, 2021). This social pillar presents a challenge for Indian firms or societies to engage the entire workforce. Well-executed social ESG first enhances workforce loyalty as well as improves talent acquisition and retention, while also strengthening social value, thereby establishing equitable growth (Rawat and Gupta, 2025). Moreover, society becomes an enabler of socio-economic growth, which aligns business growth with the approval of society. Governance plays a vital role in the Indian ESG context, which includes the base of stakeholders, stakeholders, and ethical leadership of businessmen and participants.

Historically, Indian corporate governance has faced proven flaws, resulting in a lack of board independence and stakeholders like shareholders. Governance through ESG principles includes diversifying boards, aligning executive remuneration with established performance standards, increasing commitments and positions, and establishing a framework for ethical business conduct. These reduce the risks of primary governance failures and scandals, ease the integration of emerging Indian institutions with the forces of global organizations, and create alliances that attract sustainable critical flows.

ESG adoption by firms in India is rapidly evolving. Materiality assessments enable organizations to prioritize ESG issues relevant to their operations, sectors, and geographies. Energy-intensive industries such as steel, cement, and textiles tend to focus more on environmental aspects such as emissions and resource efficiency, while service sector companies tend to focus on data privacy and social inclusiveness. Strong ESG reporting not only meets regulatory mandates but also enhances transparency for investors, consumers, and communities, thereby building trust and competitive advantage.

India currently lacks ESG integration across industries, a regulatory authority, and enforcement mechanisms for ESG disclosures are nascent. Small enterprises, which form the backbone of Indian industry, face difficulties due to unclear sector-specific guidelines, high compliance costs, and limited access to ESG expertise. This fragmentation hinders consistent and widespread ESG adoption, but also highlights critical areas for policy intervention (Sharma, Panday, and Dangwal, 2020; Kumar *et al.,* 2023).

Financially, ESG adoption in Indian businesses has made sustainable financial instruments, including green bonds, sustainability-linked loans, and climate funds, increasingly accessible amid growing global and domestic investor interest in ESG-compliant firms. Indian firms with strong ESG performance demonstrate operational efficiency, innovative capabilities, and better stakeholder relationships, which translate into sustainable profitability and lower cost of capital. Conversely, firms with non-compliance or poor ESG performance risk exclusion from international markets,

Moreover, India's developmental imperatives sometimes clash with ESG practices. India's continued dependence on coal and approvals for new thermal power plants

underscore the tension between energy security and climate commitments. Industries fundamental to the Indian economy, such as cement and steel, face competitive pressures that slow the adoption of green practices due to high costs and technological barriers. Social inequalities and the complexities of the informal labour market impede the equitable adoption of labour standards and welfare initiatives. There is a need for an ESG framework that accelerates change in a gradual manner while accommodating socio-economic realities.

An approach to India's ESG future includes a strong, integrated regulatory framework that covers all sectors, including MSMEs, supported by enforcement mechanisms and a central ESG oversight body. Policies that encourage green finance, technical training and capacity building, standardized ESG metrics, and a circular economy model are currently needed in Indian industries. Public and private partnerships, government subsidies, and incentives will play a key role in facilitating the transition among resource-constrained enterprises. Adoption of digital technologies (DT) such as Artificial Intelligence (AI) and Big Data (BD) Analytics to improve data collection, monitoring, and reporting of businesses through ESG integration can address information and transparency gaps and help businesses grow.

In short, ESG in the Indian context is a mechanism to keep pace with international sustainability trends, which is also an important tool to address the unique environmental vulnerabilities, socio-economic challenges, governance reforms, and growth opportunities of Indian businesses. It would not be wrong to say that Indian companies can achieve resilience, brand reputation, sustainable investment, and long-term competitiveness by incorporating ESG implementation strategies at the core. The path to mature adoption of ESG involves overcoming significant barriers – regulatory, financial, and knowledge-based – but it promises transformational benefits for businesses, society, and the environment.

The next decade will see ESG becoming a fundamental driver of India's sustainable development aspirations and economic modernisation, positioning the country favorably

in global value chains and climate action leadership, while also promoting equitable and inclusive growth domestically.

If desired, a modular extension can provide in-depth information on specific sectors such as energy, manufacturing, IT, etc., detailed regulatory overviews, case studies of successful ESG integration in Indian firms, or micro analyses of social and governance challenges and best practices. This baseline presentation forms a strong foundation for broader understanding and further research.

2.2 Sustainability

Sustainability has become one of the most important paradigms of the 21st century (Gore, 2015), guiding global development agendas, business strategies, and policy frameworks (Doyle, 1998). Most famously defined by the Brundtland (1987) as "meeting the needs of the present without compromising the ability of future generations to meet their own needs", sustainability emphasizes intergenerational equity and a balance between environmental integrity, social well-being, and economic growth (Heinberg and Lerch, 2010). This "triple bottom line" framework, popularized by Elkington (1997), has shaped discourse in academia, governance, and industry. As climate change, biodiversity loss, social inequality, and economic instability increase, sustainability offers a key path towards resilience and human flourishing.

While sustainability is multidimensional, the three dimensions of development, environment, and governance have emerged as central concepts (Salas-Zapata, Ríos-Osorio, and Cardona-Arias, 2017). Sustainability broadly refers to the ecological, social, and economic capacity to continue over time without compromising the ability of future generations to meet their needs (Brundtland, 1987). This concept of sustainability emphasizes the need for a balance between growth, equity, and environmental protection, intergenerational justice, and responsibility.

The foundation of sustainability is often defined through its three pillars of environmental, social, and economic dimensions (Purvis, Mao, and Robinson, 2019). The

environmental dimension of sustainability focuses on the conservation of natural resources, biodiversity, and ecosystem services that are critical to human survival (Opp and Saunders, 2013; Rockström *et al*., 2022; Obaideen *et al*., 2022). The social dimension emphasizes human well-being, equality, cultural diversity, and social justice (Bebbington and Unerman, 2018). The economic dimension emphasizes long-term prosperity by promoting resource efficiency, innovation, and equal economic opportunities (Li and Huang, 2023).

Sustainability is closely linked to the United Nations Sustainable Development Goals (SDGs), which provide a comprehensive framework for tackling global challenges such as poverty, climate change, inequality, and environmental degradation. Sustainability demands the adoption of strong strategies that minimize environmental impact, such as the adoption of renewable energy, circular economy models, and sustainable agriculture (Geissdoerfer *et al*., 2017).

In the business context, sustainability has been integrated into corporate social responsibility (CSR) and environmental, social, and governance (ESG) frameworks. Companies are increasingly adopting sustainable practices not only as a moral imperative but also as a strategic necessity for competitiveness, risk management, and stakeholder trust (Geissdoerfer *et al*., 2017; Hariram *et al*., 2023). Despite the widespread acceptance of sustainability, many challenges remain, such as tensions between short-term economic gain and long-term ecological health, uneven global responsibilities, and access to resources. According to critics, sustainability risks becoming a vague or "hollow" concept unless there are clear frameworks for measurement and accountability.

2.2.1 Environmental Sustainability

Environmental sustainability refers to the responsible use and conservation of natural resources to maintain ecological balance (Goodland and Daly, 1996). This dimension of sustainability emphasizes biodiversity conservation, climate mitigation, renewable energy, waste minimization, and pollution control (Rockström *et al*., 2022). Environmental sustainability refers to the management of natural resources and ecosystems

so that they remain healthy, productive, and resilient over time, able to meet current needs without compromising the ability of future generations to meet their own needs. In practical terms, it means keeping human activity within the planet's ecological limits while ensuring the benefits of nature for the future and building resilience to shocks such as climate change, biodiversity loss, and pollution (Steffen *et al*., 2015).

2.2.2 Social Sustainability

Social sustainability includes human well-being, equity and justice, education, healthcare, safe working conditions, cultural preservation, and community participation (Eizenberg and Jabareen, 2017). Stakeholder engagement and social dialogue are essential for inclusive governance. Issues such as gender equality, labor rights, and equitable access to technology under the social sustainability dimension are critical in advancing social sustainability (Islam and Alalouch, 2019). Social sustainability has emerged as an important pillar of sustainable development, complementing its economic and environmental dimensions (Miceli *et al*., 2021). While environmental and economic sustainability often feature more prominently in policy frameworks, social sustainability provides the basis for long-term resilience, equity, and well-being in human societies (Vallance *et al*., 2011; Islam and Alalouch, 2019). Social sustainability broadly refers to the processes, structures, and relationships that provide current and future generations with the ability to build healthy, equitable, and cohesive communities. Poverty, inequality, exclusion, and discrimination are critical challenges that need to be addressed to achieve sustainable development.

2.2.3 Economic Sustainability

The third dimension of sustainability, economic sustainability, focuses on promoting growth and development without exploiting natural resources (Zhang *et al*., 2023). This dimension advocates responsible consumption, fair trade, innovation, and an inclusive economic model (WCED, 1987). The concept of "green economy" highlights the potential of industries such as renewable energy, sustainable agriculture, and eco-tourism

to create jobs while reducing ecological footprints (Pierce, 1993). Economic sustainability is an important dimension of sustainable development, emphasizing the need to maintain economic growth and stability without compromising the ability of future generations to meet their own needs. Economic sustainability involves balancing financial viability, efficient resource allocation, and long-term resilience while minimizing environmental degradation and promoting social equity, as well as prioritizing lasting prosperity by integrating responsible business practices, sustainable consumption, and innovation. A key aspect of economic sustainability is the efficient use of resources to ensure productivity without exploiting natural capital. This approach is similar to the concept of the "triple bottom line" that emphasizes economic, environmental, and social performance as interconnected dimensions of sustainability (Elkington, 1997). Businesses and governments that adopt sustainable economic strategies focus on inclusive growth, job creation, poverty alleviation, and equitable distribution of wealth, while also considering ecological limits. For example, the COVID-19 pandemic highlighted the importance of robust economic systems that can withstand disruptions while supporting vulnerable populations. Investments in renewable energy, green infrastructure, and circular economy models can be seen as a route to achieving sustainable economic progress.

2.2.4 Evolution of Sustainability in Business

Environmental, social, and economic (ESG) are three dimensions of sustainability that are studied from various perspectives across many business disciplines, including marketing, management, and operations (Kumar *et al*., 2012). Sustainability in business has evolved from a peripheral concern to a central tenet of modern corporate strategy and governance. In the past era, the concept of sustainable development (SD) has expanded to include environmental protection, business planning, economic development, and social equity in decision-making (Rondinelli and Berry, 2000).

The concept of sustainability is vague and multidimensional, making it difficult for researchers to define it. Many research works may commit methodological errors by failing to define sustainability. As a result, many researchers avoid defining sustainability or studying it indirectly through social and ecological variables (Salas-Zapata, Ríos-Osorio,

and Cardona-Arias, 2017). However, some researchers have analyzed the meanings conveyed by sustainability and identified its four uses (criteria, vision or goal, objective, and approach) (Salas-Zapata and Ortiz-Muñoz, 2019). It is concluded that this classification of the uses and meanings of sustainability can help avoid frequent mistakes made by researchers (Rosário and Dias, 2022). The concept of sustainability has evolved from an environmental ideal to a key strategic imperative in modern business structures (Giovannoni and Fabietti, 2013). Originating from ecological consciousness, the term "sustainability" was popularized in the Brundtland Report (1987) issued by the World Commission on Environment and Development.

Since then, businesses around the world have incorporated sustainability into their core functions due to changing expectations of stakeholders, regulatory frameworks, and evidence linking sustainability with long-term and stable profitability and competitive advantage (Mondini, 2019).

2.3 Historical Context and Conceptual Foundations

The evolution of sustainability in businesses is driven by demands from external stakeholders on environmental, social, and economic dynamics (Geels, Hekkert, and Jacobsson, 2008), marked by changing paradigms over time from initial environmental concerns to a comprehensive strategy integrating environmental, social, and economic dimensions. The historical origins of sustainability can be traced back to environmental accounting (Haffar and Searcy, 2017), which is based on the ideals of corporate social responsibility (CSR) and corporate management practices.

The roots of sustainability emerged in the 1960s and early 1970s when ecological degradation and resource limitations attracted attention. When Carson's (1962) Silent Spring and Meadows *et al*.'s (1972) Club of Rome's Limits to Growth played a significant role in raising public awareness and promoting policy reforms. When it was used to compile non-financial reports targeting external stakeholders (ES) and exclusive parties (Kuhlman and Farrington, 2010; Boeske, 2023). The concept of sustainability on social responsibility, social sphere, and social responsibility was published in 1975 as a three-tier community social performance model (Sethi, 1975). The proliferation of sustainability

electronics came as enterprises were under increasing pressure to pay attention to their social and environmental (S and E) impacts. The triple bottom line (TBL) approach examines a company's social, financial, and economic impacts.

A major milestone in sustainability was the “Our Common Future” report produced by the WCED (World Commission on Environment and Development) in 1987, which defined SD (Sustainable Development) as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987; Keeble, 1988). Elkington (1997) invented the triple bottom line (TBL) approach, which focused on highlighting the social, economic, and environmental (ESG) impacts of a particular company. The triple bottom line (TBL) accounting elements formed the basis of the GRI guidelines and redefined business success, encouraging the inclusion of social equity and environmental management alongside financial performance (Slaper and Hall, 2011). Freeman's (1984) stakeholder theory challenged the traditional shareholder-focused model by requiring businesses to consider the needs of all stakeholders, including employees, customers, communities, and the environment (Freeman, 2010). Institutional theory (Meyer and Rowan, 1977; Amenta and Ramsey, 2010) added emphasis to understanding corporate sustainability practices. Businesses often adopt sustainability measures due to normative and regulatory pressures or to imitate industry leaders (DiMaggio and Powell, 1983). Companies also pursue sustainability practices to gain a competitive advantage, legitimacy, and a social license to operate (Bansal, 2005; Coelho, Jayantilal, and Ferreira, 2023).

A firm's sustained and long-term competitive advantage derives from resources and capabilities that are valuable, imperfectly imitable, rare, unique, and non-substitutable. These assets include management skills, organizational processes, and information and knowledge (Hart, 1995; Russo and Fouts, 1997; Barney, Wright, and Ketchen, 2001; Shaker, 2021; Kaliannan *et al*., 2023; Zahra, 2021).

Barney's (1991) resource-based view (RBV) suggested that sustainability-related resources in a firm can provide environmental practices and social capital and has been

widely adopted in strategic management (SM) and related fields, such as theory development and empirical testing.

Teece, Pisano, and Shuen (1997) further extended the term dynamic capabilities and emphasized the ability of firms to adapt and innovate in response to environmental changes. Aragón-Correa and Sharma (2003) highlighted that companies with such capabilities are better positioned to integrate sustainability into operations.

In 1971, the Committee for Economic Development (ED) used a "three concentric circles" approach to represent corporate social responsibility (CSR) (Geva, 2008). The central circle included the basic economic functions of growth, production, and employment. The middle circle suggests that economic actions should be performed with a sensitive awareness of changing social values and priorities. The outer circle highlights the newly emerging and inherent responsibilities that businesses must assume to become more actively involved in improving the social environment. Several other writers shifted the focus from social responsibility to social accountability, as action or performance was being overlooked. The emphasis on accountability was focused only on the notion of business obligation and motivation, and hence, the social accountability movement emphasized corporate action, activism, and implementation of social responsibility. Corporate social responsibility (CSR) rose to prominence in the 1990s when businesses focused on philanthropy, ethical labor, and community welfare (Carroll, 1991). Carroll's CSR pyramid identified four levels of responsibility: economic, legal, ethical, and philanthropic that guided firms toward more socially responsible behavior (Carroll, 2016; Kusyk, 2021; Martens and Kleinfeld, 2023).

Over time, corporate social responsibility evolved from a peripheral activity to a core component of business strategy (Aguinis and Glavas, 2013). The adoption of ESG standards further institutionalized sustainability by providing investors with measurable criteria for evaluating corporate performance. The introduction of the United Nations Principles for Responsible Investment (Eccles, 2010), the Global Reporting Initiative, the Sustainability Accounting Standards Board, and the Integrated Reporting Framework (Zhu and Sarkis, 2004; Sarkis *et al*., 2011) standardized sustainability disclosures and improved

corporate transparency. Industries such as manufacturing adopted lean production, green supply chains, and circular economy models to reduce environmental impact (Zhu and Sarkis, 2004; Geissdoerfer *et al*., 2017).

In the energy sector, companies such as Tesla, Vestas, and Siemens have incorporated sustainability into innovation and growth by adopting renewable energy and carbon offsetting, although they emit less carbon (Popp *et al*., 2024). Studies emphasize the effect of foreign direct investment on renewable technology and innovation (Flammer, Hong, and Minor, 2019; Bhattacharya and Bose, 2023). Environmentally friendly technology reduces regulatory, market, and physical risks, benefiting both investor value and long-term financial success. ESG-compliant companies often outperform their competitors in risk management and long-term resilience (Clark *et al*., 2014; Khan, Serafeim, and Yoon, 2016; Flammer, Hong, and Minor, 2019; Ting-Ting *et al*., 2021).

Technology significantly enhances sustainability by enabling real-time monitoring, resource efficiency, and transparency. During the rapid advancement of digital technologies, there have been significant changes, such as new opportunities for data-driven decision-making and deriving strategic insights in Business Intelligence (BI). The merger of Big Data (BD), Artificial Intelligence (AI), and the Internet of Things (IoT) has occurred as a key factor boosting operational effectiveness and competitive edge (Gad-Elrab, 2021; Bharadiya, 2023; Paramesha, Rane and Rane, 2024), whereby digital innovation is now seen as a strategic advantage in sustainability (Boons and Lüdeke-Freund, 2013; Chauhan and Sahoo, 2024). Tools such as AI, IoT, and blockchain support environmental data collection, predictive analytics, and ethical sourcing (Upadhyay *et al*., 2021). Global frameworks play an important and pivotal role in institutionalizing sustainability. Major treaties such as the Kyoto Protocol (1997), the Paris Agreement (2015), and the United Nations Sustainable Development Goals emphasize carbon reduction, social inclusion, and sustainable development (Kim, 2016; Papas, 2017; Dzebo *et al*., 2019).

National regulations, carbon pricing, and mandatory sustainability disclosures further reinforce compliance with voluntary disclosures. Evolving consumer preferences,

with growing demand for environmentally friendly products that are ethically produced, have led companies to adopt sustainable branding, product transparency, and responsible sourcing (Kumar *et al*., 2012). Despite progress, poor adoption or inconsistencies in ESG metrics and rating systems continue to hinder comparability and reliability (Berg *et al*., 2024). Circular economy models are gaining popularity as a viable alternative to the linear reduce-make-dispose system. These linear economy models emphasize regenerative design, waste elimination, lifecycle extension, respect for the natural environment, socially, economically, and resource-conscious business conduct (Sariatli, 2017). It ensures that no waste is generated during the production process and the lifetime of the product, and compensates for any losses incurred in resource acquisition (Macarthur, 2013; Rattam *et al*., 2019). Disclosures recommended by the Task Force on Climate-related Financial Disclosures (TCFD, 2017) help companies and investors better assess climate-related risks.

The concept of "just transition" (Wang and Lo, 2021) emerged from labour movements demanding that the transition to low-carbon economies be equitable, with an emphasis on labour rights and community participation (McCauley and Heffron, 2018; Wang and Lo, 2021). However, there is no universally clear definition or framework for just transition (Wang and Lo, 2021). Evaluations of just transition policies show that phased plans to phase out the fossil fuel industry and phase out coal could derail the development of low-carbon economies around the world (McCauley and Heffron, 2018). Although just transition policies are still in their early stages, it is important to discuss their short-, medium-, and long-term impacts. A just transition to a low-carbon economy is a systems change that acknowledges the need for transformation in energy systems and the impacts of the energy sector (ES) on society (Clark and Wei, 2020).

Like other industries, digital transformation has also affected the energy sector, resulting in the emergence of advanced technologies such as blockchain (BC) technology and big data (BD), dedicated to collecting and sharing large amounts of data in this sector (Corallo *et al*., 2022). Technological tools such as BC and BD improve traceability, fraud prevention, and energy management (EM) in sustainability efforts (Upadhyay *et al*., 2021;

Nazari and Musilek, 2023). Initially, sustainability was considered compliance-driven, focused on pollution control and philanthropy (Carroll, 1991). It gradually became a strategic concern through triple bottom line (TBL) and corporate social responsibility (CSR) frameworks (Elkington, 1997). Critics often found that the early CSR and TBL models in their studies lacked enforceability and measurable impact (Norman and MacDonald, 2004; Ajiake, 2015). Global Reporting Initiative (GRI) and SASB have established guidelines for companies to disclose their ESG integration performance in a standardized manner. In the early 2000s, continuing concerns over the global environment (GE) and climate change (CC) prompted the adoption of standardized tools such as the Global Reporting Initiative (GRI) and the International Organization for Standardization (ISO) 14001, which incorporated sustainability into corporate governance. A systematic framework in this standard ensures environmental regulatory compliance by setting measurable environmental goals and regularly reviewing their effectiveness (Zutshi and Sohal, 2004). Environmental, social, and governance can be a means of redirecting consumption and production patterns of industrial activities to protect natural resources and prevent ecological damage (Salim *et al*., 2018).

The integration of ESG into companies' investment decisions has transformed sustainability from a reactive strategy to a proactive and important strategy that enhances the value of firms by reducing their vulnerabilities, as well as playing an important mediating role by mitigating the negative impacts of emerging forces and the positive impacts of plastics (Eccles, Ioannou and Serafeim, 2014; Fatemi, Glaum and Kaiser, 2018). Sustainability has led to various small, large, and medium-sized companies beginning to incorporate ESG metrics to attract investors, reduce risks, and increase long-term value. However, ESG strategies also have the potential to improve or harm companies' financial performance, depending on factors such as their management quality and operations (Esty and Cort, 2016; Glassman, Potoski, and Callery, 2017). Business sustainability has become synonymous with innovation, customer loyalty, and operational efficiency while encouraging business models. By adopting sustainable practices, companies can differentiate themselves in a crowded marketplace (Yi *et al*., 2022; Agu *et al*., 2024).

According to strategy theory (ST), to be successful, a particular company must create a unique value proposition that satisfies the needs of targeted customers (Porter and Kramer, 2018). The shared value concept introduced by Porter and Kramer (2018) emphasized that companies can gain a competitive advantage by addressing social issues through core operations; however, few companies have reaped the full benefits of productivity in areas such as health, safety, environmental performance, and employee retention and efficiency (Moon *et al*., 2011).

Digital technologies (DT) are increasingly supporting sustainability goals and, along with many other digital technologies, have become solutions to many of the world's problems (Hoosain, Paul, and Ramakrishna, 2020). Technically, blockchain (BC) is a decentralized and distributed database in which information can be securely recorded. It ensures traceability across supply chains that can overcome the shortcomings of centralized traceability solutions (Sunny *et al*., 2020; Agrawal *et al*., 2021). While AI is a key tool for mitigating the effects of change by optimising energy use as well as predicting environmental risks (Pimenow, Pimenowa, and Prus, 2024; Nnajiofor *et al*., 2024; Olawumi and Oladapo, 2025). SMEs, supported by government incentives, display resilience and innovation in sustainability practices despite resource constraints. Different government policies in different countries continue to influence the direction of sustainable development (SD). Various countries around the world have implemented various policies targeting energy efficiency (EE), including the European Union's 'Climate and Energy Goals for 2020' (2007) and 'Energy and Climate Goals for 2030' (2014), the UK's 'Green Deal' (2013), the US' Financial Aid Programme for Energy Efficiency (IEA, 2023) and India's 'Perform Achieve Trade (PAT) scheme' which shapes corporate strategies and helps them focus on their policies (Chauhan and Thangavel, 2025).

2.4 Sustainability practices in India

Sustainability practices in India involve multi-faceted efforts based on ancient wisdom, modern policy frameworks, technological innovation, and social participation, aimed at reconciling economic growth with environmental protection and social equity. India's sustainability ethos derives from millennia-old cultural values that emphasize

respect for nature and the interconnectedness of all life. The philosophical foundation rooted in the ancient Sanskrit proverb “Vasudhaiva Kutumbakam”—the world is one family – shapes the Indian approach to resource management and ecological balance. Historically, communities conserved water through traditional rainwater harvesting, protected forests through sacred groves, and practiced mixed cropping and organic farming, which promoted biodiversity and soil fertility without depleting natural resources. These enduring indigenous practices, deeply embedded in social customs and spiritual beliefs, laid the foundation for the responsible management of the environment long before contemporary sustainability discourse. However, colonial rule and rapid industrialization led to ecological degradation and environmental exploitation, disrupting these practices. Their gradual revival and reintegration into a modern sustainability framework symbolize India's commitment to combine heritage with innovation to address today's environmental challenges.

As the world's second most populous country and an emerging economy, India faces both unique sustainability challenges and opportunities, making its approach uniquely complex and instructive. This research explores India's sustainability landscape in depth and offers a comprehensive view of how the nation adapts to contemporary Sustainable Development Goals, government missions, and traditional environmental ethics in a dynamic socio-political context while advancing corporate social responsibility, agricultural innovation, grassroots initiatives, and climate resilience strategies.

Modern India seeks sustainability supported by strong institutional efforts led by government policies aligned with global frameworks such as the UN Sustainable Development Goals (SDGs). The National Action Plan on Climate Change (NAPCC), launched in 2008 in India, reflects a strategic approach to combating climate change while balancing developmental imperatives. Of the eight national missions under the NAPCC, the National Solar Mission stands out as a transformational and important mission aimed at rapidly increasing solar power capacity while reducing dependence on fossil fuels. India’s renewable energy sector, now the third largest in the world, is testimony to this commitment, with ambitious targets of reaching 450 gigawatts (GW) of renewable capacity

and energy efficiency upgrades across various sectors. Through these integrated efforts, India is positioning itself as a leader in the global climate agenda with an attempt to decouple economic growth from environmental degradation.

A priority area of India's sustainability path is renewable energy expansion, which is witnessing unprecedented growth due to supportive policies, technological advancements, and financial incentives. Government mandates such as renewable energy purchase obligations require utilities and industries to obtain a large portion of their electricity from renewable sources, thus boosting investment in solar, wind, biomass, and small hydropower projects. India's competitive solar tariffs and large-scale solar parks, including the Rewa Ultra Mega Solar Park, underscore the country's progress and innovation in expanding clean energy. At the same time, nuclear power development provides a stable base power needed for grid reliability and decarbonization.

Additionally, the national program aims to reduce air pollution and greenhouse gas emissions by promoting sustainable transportation through electric vehicle (EV) subsidies under the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme and infrastructure development. The world's largest rail network, the Indian Railways, adopts full electrification and energy efficiency, and is building a sustainable transportation base by integrating renewable energy sources. Financial instruments such as green bonds, market-based emissions trading systems, and carbon credit schemes further enable capital flows into clean energy projects, reflecting a maturing green finance ecosystem.

India's agriculture sector supports nearly half of the workforce, representing a critical intersection of livelihood security and environmental sustainability. Traditional agricultural systems emphasize biodiversity conservation and water-efficient irrigation, serving as sustainable models suitable for different agro-climatic zones. The Indian government promotes organic farming through the Paramparagat Krishi Vikas Yojana (PKVY) to encourage the adoption of chemical-free methods that regenerate soils and reduce harmful runoff. Agroforestry integrates tree plantings into agricultural landscapes, increasing carbon sequestration, soil health, and farmers' incomes. In water management,

India is reviving indigenous rainwater harvesting and micro-irrigation systems to combat drought. Crop residue management programs address seasonal haze issues from stubble burning by encouraging sustainable disposal and use. Despite these advancements, challenges related to market access, technological diffusion, fragmented land holdings, and climate variability remain, which require continued policy support and innovation to enhance sustainability in agriculture.

Waste management and circular economy initiatives are another important pillar of India's sustainability framework. The Swachh Bharat Mission, launched in 2014, has significantly improved sanitation infrastructure and waste segregation practices in urban and rural India. The government enforces extended producer responsibility (EPR) regulations aimed at reducing plastic waste and promoting biogas production from organic waste through schemes such as Gobardhan, thereby increasing rural energy access and reducing landfill volumes. Circular economy principles are being increasingly adopted in industrial sectors, promoting recycling, resource recovery, and waste minimisation in the textiles, electronics, and chemicals sectors. Business enterprises are integrating innovative eco-design and closed-loop manufacturing processes to reduce environmental impact. Public awareness campaigns and community-driven waste management models empower local participation, which is crucial for sustainable urbanisation amid India's rapid demographic growth.

Corporate sustainability has gained significant momentum in India, driven by both statutory requirements and increased environmental awareness among consumers and investors. The Companies Act mandates corporate social responsibility (CSR) spending for eligible firms, leading to a boom in funding for environmental restoration, renewable energy projects, and community development. Leading Indian groups have implemented sustainability frameworks in line with international environmental, social, and governance (ESG) standards, ensuring transparent reporting and accountability. Efforts to reduce water consumption, achieve zero waste to landfill, and source sustainable raw materials show corporate responsibility evolving beyond philanthropy to an integrated business strategy.

India faces difficult sustainability challenges posed by rapid urbanisation, population pressure, industrial development, and environmental degradation. Air and water pollution have reached dangerous levels in many regions, affecting public health and ecosystems. Deforestation due to agricultural expansion, infrastructure development, and mining threatens biodiversity and carbon sinks. Uneven access to clean water, sanitation, and energy exacerbates socio-economic disparities, complicating the agenda for inclusive growth. Climate risks such as extreme heat, floods, and glacial melt disproportionately affect vulnerable communities. Bridging these gaps requires multi-sectoral coordination, enhanced regulatory enforcement, investments in clean technologies, and broad participation across society. The diversity of India's states and communities creates complexities in designing and implementing locally relevant sustainability interventions.

India's future path towards sustainability is based on a vision of net-zero carbon emissions by 2070 and transformational changes in energy, agriculture, industry, and urban systems. Technological innovations such as green hydrogen production, offshore wind power, energy storage, and precision agriculture promise to increase productivity with reduced environmental impact. Expansion of sustainable finance through green bonds, ESG investing, and climate funds unlocks capital for infrastructure and innovation. Education and awareness foster a culture of environmental responsibility, which is critical for behavioural changes in consumption and waste. India's leadership in global sustainability collaborations, including the International Solar Alliance, reflects its growing diplomatic influence in shaping equitable and visionary climate action. Integrated governance mechanisms that align central and state policies, engage the private sector and civil society, and prioritise social inclusion will be critical to achieving measurable and lasting sustainability outcomes.

In short, India's sustainability practices weave together ancient ecological wisdom, visionary policy landscape, corporate commitment, agricultural resilience, and grassroots innovation to address today's urgent needs and future uncertainties. The multi-faceted and multi-layered nature of these efforts reflects India's role as both a custodian of traditional

environmental ethics and a pioneer in modern sustainable development. Although obstacles remain, the country's holistic approach—which encompasses economic growth, environmental protection, and social empowerment—points to a path to lasting prosperity. This journey underscores the imperative for inclusive, adaptive, and collaborative actions to reconcile India's development aspirations with the global challenges critical to humanity's future.

2.4.1. Green Sustainability practices

In order to ensure that future generations are able to fulfill their own needs, sustainability must be achieved through a triadic balance between environmental protection, social equity, and economic development. This definition was put forth by the influential Brundtland Commission report (1987). Thus, "green sustainability" arises as a sustainability dimension driven by practice, with an emphasis on regenerating ecosystems, conserving resources, reducing pollution, and using resources responsibly to minimize environmental deterioration. An essential part of the sustainability idea as a whole, green sustainability practices zero down on the ecological component of sustainable development, the preservation of healthy ecosystems over the long term, while also taking into account human and monetary demands.

Environmental sustainability, according to the commonly acknowledged "three pillars of sustainability" model, is the first pillar, preceding social and economic sustainability, and encompassing the preservation of air, water, soil, and biodiversity. Transformative approaches are urgently needed to move economies and societies away from linear consumption models and toward circular, regenerative systems that prioritize reuse, reduced waste, and sustainable production techniques. This is in response to the increasing anthropogenic impacts such as deforestation, climate change, pollution, and biodiversity loss. Green sustainability practices are evolving to meet this global imperative. Climate action (SDG 13), affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), and responsible consumption and production (SDG 12) are enshrined in the United Nations' Sustainable Development Goals (SDGs), which are a set

of worldwide environmental governance frameworks that incorporate green sustainability practices. The need to incorporate environmentally friendly practices into national policy and corporate strategy on a global scale is highlighted by these goals. In addition, to limit increases in global temperatures, the nations that signed the Paris Agreement in 2015 are obligated to reduce their carbon emissions, strengthen their resilience, and implement sustainable energy transitions. Scientific studies and policy analyses on a global scale highlight the significance of cutting-edge green technology, such as smart grids, environmental monitoring via remote sensing and GIS, and renewable energy sources (solar, wind, and bioenergy). According to several sources (Elpisah, 2023), these technologies make it possible to manage resources efficiently and intervene in the environment rapidly. The "green growth" movement is a step in the right direction because it offers scalable models for both developing and developed economies, argues for a future where economic growth and environmental sustainability go hand in hand via investments in green infrastructure and clean technology, and so on (Khan, 2023). Life Cycle Assessment (LCA), environmental impact assessments, carbon footprint metrics, and globally recognized frameworks like the Global Reporting Initiative (GRI) standards show how well companies are doing environmentally and whether they are keeping their sustainability promises (Efthymiou *et al*., 2023). With the use of these methodological tools, organizations, governments, and civil society players may monitor the environment's progress and pinpoint problem areas.

As a whole, nations like India show how difficult and rewarding it can be to integrate green sustainability techniques into complex social, economic, and ecological systems. The green sustainability initiatives in India are part of a larger set of policies that promote the use of renewable energy, sustainable farming practices, efficient use of water resources, and the construction of environmentally friendly buildings and roads (MoSPI, 2013; New Climate Economy, 2023). National programs like the Perform, Achieve, and Trade (PAT) scheme, the National Solar Mission, and regional initiatives like watershed management and rainwater harvesting all work together to make energy efficiency a priority. Improved air quality, green construction standards, and solid waste recycling

programs are some of the sustainable urbanization and waste management initiatives that the Indian government is working to advance in line with Sustainable Development Goal 11 (Sustainable Cities and Communities). Technological accessibility gaps, budgetary limits, infrastructure shortfalls, and societal issues relating to knowledge and behavior change are some of the systemic hurdles that green sustainability advancement in India faces. Resolving these complex obstacles calls for strong public-private partnerships, training, and community involvement, with an emphasis on indigenous ecological wisdom and participatory forms of government (Green City Times). By researching ways to combine ancient wisdom with contemporary sustainability science and by incorporating sustainability ideas into educational curricula, Indian academics help to improve measurement and evaluation. Green national accounting is an evolving method of measuring green sustainability in India. It integrates valuations of ecosystem services and assessments of environmental assets into the economic measures used to track sustainable development in the country. By including actual environmental costs with traditional economic data, this method allows for more effective policymaking and greater accountability.

Various qualitative and quantitative methods are utilized in methodological approaches to measure green sustainability practices on a global and national scale. Greenhouse gas emissions, water and energy efficiency, trash reduction rates, soil quality, and biodiversity indices are the most used environmental performance metrics. Organizations can identify crucial stages for impact reduction by using quantitative assessment methodologies like Life Cycle Assessment (LCA) to gain extensive insights into the environmental implications of products, processes, or services throughout their life cycle (Efthymiou *et al.,* 2023). Sustainability activities can be methodically planned, implemented, and monitored at the organizational level with the help of Environmental Management Systems (EMS) such as ISO 14001. Transparency and stakeholder participation are made possible when many firms connect their sustainability reporting with globally recognized standards such as GRI and the Sustainability Accounting Standards Board (SASB). Green National Accounts and the Environmental-Economic Accounting

(SEEA) framework are macro-level instruments that help with sustainable economic policymaking and resource management by including environmental indicators in national statistics. Adopting adaptive management methods is made easier with the help of these technologies. In these practices, data-driven feedback loops guide efforts to improve continuously and increase resilience in the face of environmental problems.

To sum up, green sustainability techniques are an integral part of sustainability as a whole, and they aim to improve and maintain the environment while simultaneously bolstering social justice and economic growth. The larger sustainability framework, which includes a triadic balance of ecological integrity, economic viability, and societal well-being, is where their conceptual foundations are. To combat climate change and environmental degradation, the international community has increasingly integrated these practices into global policy frameworks, new technologies, and stringent monitoring systems. Localized implementations of green sustainability must take into account individual obstacles and adjust tactics. National settings like India's provide light on these issues. For the sake of transparency, policymaking, and long-term sustainability, it is essential to measure and evaluate these practices. It will be crucial for governments, commercial sectors, academia, and civil society to work together, develop new frameworks, and innovate if we want green sustainability to become the norm everywhere.

2.5 ESG and Sustainability

Given their strategic relevance for building long-term value and solving global sustainability concerns, Sustainability practices and Environmental, Social, and Governance (ESG) frameworks have recently come to the forefront of academic and corporate discussions. Globally, ESG has become an investment metric that takes into account a company's social, environmental, and ethical performance in addition to its financial performance (Friede, Busch, and Bassen, 2015). Sustainable development goals (SDGs) and the UNPRI (Principles for Responsible Investment) place additional emphasis on incorporating sustainability into company strategy and decision-making. Reducing carbon footprints, adopting renewable energy, improving labor diversity, implementing ethical supply chain procedures, and establishing transparent governance structures are

some of the ESG indicators that global firms are incorporating into their business strategies. Regulators in North America and Europe have stepped up their efforts to mandate ESG disclosure, with the EU placing an emphasis on taxonomy-aligned reporting and the SEC in the US broadening climate disclosure rules. Following the SEBI mandate (2021) that demanded the filing of Business Responsibility and Sustainability Reports (BRSR) by the top 1,000 listed businesses, ESG and sustainability are quickly becoming important factors in corporate social responsibility on a national level in India. According to Kansal, Joshi, and Batra (2014), there has been a significant change in the way Indian firms approach sustainability and environmental responsibility, particularly in the energy, information technology, automotive, and banking industries. Access to electricity, waste management, water conservation, and equitable growth are all developmental concerns in India's setting that connect with financial growth when thinking about sustainability. Companies like Mahindra and Mahindra, Tata Group, Infosys, and Wipro have taken the lead in embracing renewable energy, cutting down on carbon emissions, and establishing ethical human resource management policies and procedures. As part of its strategy for sustainable development, the Indian government has pledged to reach net-zero carbon emissions by 2070 and has advanced its green agenda through programs like the National Action Plan on Climate Change (NAPCC). Green sustainability methods, which work to reduce environmental damage and increase organizational and social resilience, are an important part of national and worldwide contexts. Sustainable procurement rules, green financing tools, circular economy models, and renewable energy sources are being used by organizations worldwide (OECD, 2021). Many Indian businesses have started using green buildings certified by international organizations like GRIHA and LEED, as well as ESG-linked finance and renewable power plants. Green bonds and sustainability-linked loans are on the increase in India, which shows that investors are becoming more conscious of the importance of supporting businesses that are ethical and responsible. Additionally, the Indian business ecosystem has seen a rise in social sustainability initiatives such as corporate philanthropy, employee well-being programs, and gender diversity in leadership.

The literature suggests that the Indian ESG environment is characterized by a combination of regulatory compliance, green innovation, and developmental imperatives, as opposed to the global ESG frameworks' emphasis on standardization, disclosure, and alignment with SDGs. Firms are able to gain a competitive edge, build resilience over time, and earn the trust of stakeholders when they adhere to ESG principles, which are converging with sustainability and green practices on a national and international scale. As a result, in today's changing global economy, a strong focus on sustainability is essential for navigating social changes, environmental risks, and expectations for governance.

2.6 ESG and Sustainability in the Indian Context

Companies that are listed on stock exchanges throughout the world are now focusing on long-term (longstanding) sustainable ESG goals instead of short-term (temporary) goals of maximizing profits. Environment, Social, and Governance (ESG) has emerged as a significant source of corporate risk, capable of impacting a company's profitability and financial performance (Zhao *et al*., 2018). As a way for businesses to engage in a more environmentally friendly way, ESG practices have become quite popular around the world (Sharma, Panday, and Dangwal, 2020). In India, conversations on ecological, social, and governance (ESG) are influenced by changes in the law, more investors becoming aware of ESG issues, and the incorporation of traditional cultural values. ESG is a type of corporate social responsibility (CSR) that gives stakeholders a way to judge how well a corporation does in the areas of governance, society, and the environment. Environmental factors encompass the organization's strategies for environmental protection, adherence to environmental policies, performance optimization, cost reduction, waste generation and management (including water, solid, and hazardous waste), innovation in eco-friendly products and services, and transparency in information disclosure (Zhao *et al*., 2020; Isabel-María and Raimo, 2021; Ting-Ting *et al*., 2021; Efthymiou *et al*., 2023).

Social factors include the management of relationships between the organization, employees (child labor, Workforce freedom of association, workplace health and safety, forced and compulsory labor), suppliers, customers and communities (diversity and equality, discrimination poverty and community impact) and corporate social

responsibility (CSR) programs that contribute to the firm's brand image (Ting-Ting *et al*., 2021; Araújo, Pereira, and Santos *et al*., 2023; Efthymiou *et al*., 2023). Governance includes leadership, accountability, transparency and disclosure, codes of conduct and business principles, executive pay, inside controls, stakeholder engagement, auditing, and shareholder rights (Ting-Ting *et al*., 2021; Camilleri, 2021; Efthymiou *et al*., 2023).

While studies abroad strongly emphasize the relationship between environment, social and governance initiatives and economic outcomes, there is still a lack of adequate investigation of the specific barriers and opportunities in developing countries like India, research on environmental, social and governance in India is still in its infancy, highlighting significant gaps in understanding its implementation, measurement and investor perceptions (Kumar *et al*., 2016; Kumar, 2024). These criteria are a means for investors and stakeholders to evaluate how a company manages environmental risks, contributes to society, and maintains governance standards.

Sustainability means conducting business by meeting the needs of the current without compromising the ability of future generations to meet their own requirements (Brundtland, 1987). Over the past decade, ESG and sustainability have transformed from concerns to central strategic priorities for businesses and policymakers in emerging economies like India.

Despite the existence of an ESG framework in the Indian corporate sector, there appears to be a notable lack of empirical studies focusing on the socio-economic and regulatory landscape. ESG disclosure practices among Indian corporations and firms remain inconsistent and underdeveloped (Arora and Sharma, 2022). Indian investors, even when aware of ESG factors, prefer traditional financial parameters of return and risk over sustainability considerations. Banerjee and David (2025) say that the lack of consistency in data and ratings makes it hard to measure and compare environmental, social, and governance variables. ESG is a strategic tool that may help businesses come up with new ideas, improve their reputation, and make them more resilient to problems that may come up in the future. The idea first came about in 2004 when the United Nations Global Compact and banks produced the "Who Cares Wins" report, which talked about how

important ESG is for business. The Principles for Responsible Investment (PRI) were introduced in 2006, which made ESG even more important in making investment decisions (Vigolo *et al*., 2025). In India, ESG has gradually been more institutionalized because of global trends, government efforts, and stakeholders becoming more aware of the issue.

The GRI (Global Reporting Initiative), the Sustainability ASB (Accounting Standards Board), and the Task Force on Climate-related Financial Disclosures (TCFD) are all examples of how environmental, social, and governance issues have become institutionalized around the world. The creation of these ESG reporting frameworks has had a big impact on how businesses do things. The Global Reporting Initiative has been a leader in sustainability reporting, and many companies around the world use it. The Global Reporting Initiative, the Sustainability Accounting Standards Board, and the Task Force on Climate-related Financial Disclosures have made these frameworks even better by focusing on the financial importance of sustainability information (Bose, 2020; Wielechowski and Krasuski, 2024). Research (Eccles and Serafeim, 2013; Friede, Busch, and Bassen, 2015; Bose, 2020; Wielechowski and Krasuski, 2024) indicates that organizations that incorporate ESG policies attain superior financial performance, reduced capital expenditures, and enhanced long-term resilience. Investments also encourage businesses to act responsibly, lower their risks, and work toward the Sustainable Development Goals (SDGs).

Latest studies have focused on ESG performance and sustainability practices in specific sectors. The services sector faces specific challenges in balancing environmental compliance with customer expectations and stakeholder management (Efthymiou *et al*., 2023). Corporate case studies such as Reliance Industries highlight efforts to institutionalise ESG through ranking systems and internal governance mechanisms (Singhania and Saini, 2022). Infosys is also aligning its initiatives with regulations on ESG, and such investments made by the company attract socially conscious investors and create value in their portfolios. Comparing Infosys' performance with the top ten companies, it is clear that Infosys still has a long way to go in terms of social performance.

Interestingly, ESG considerations are also based on the cultural, spiritual heritage, and value system prevalent in India that has become an integral part of the daily operations of business at both domestic and international levels, which has historically emphasized environmental management and ethical governance (Arjun *et al*., 2025). Many ESG strategies remain reactive, often influenced by global mandates rather than domestic practices. Gond *et al.* (2018) in their study point out that while ESG-focused indices such as the ESG SandP India Index provide new tools for evaluating performance, there is still a lack of in-depth evaluation of their actual impact on corporate governance or sustainability strategies. Improved sustainability performance is also important for regulatory authorities, governments, and various bodies around the world who are trying to create awareness about sustainability, especially in emerging economies. ESG investments are growing globally, but systematic research on policy drivers and institutional mechanisms in India is still limited (Sarangi, 2021). Efthymiou *et al*. (2023) in their research examined ESG implementation in India's services sector, highlighting its potential for sustainable development while acknowledging challenges such as data transparency and regulatory alignment. ESG integration in the sector is a key contributor due to its growing share in India's GDP and employment. The environmental dimension of ESG in India has been dominated by the challenges of industrial pollution, resource depletion, and climate change, which have led some companies to rapidly adopt green technologies, carbon accounting, and energy efficiency measures, and contribute to environmental hit. For example, Tata Group, ONGC, Indian Oil Corporation (IOC), and Infosys have received international recognition for their sustainability strategies (Sharma, 2009). Nevertheless, environmental disclosures in India's medium and small-cap firms still lack consistency and depth.

Bansal and Singh (2022) in their study find that companies with strong environmental strategies have better long-term financial sustainability and draw the attention of policymakers and shareholders to the importance of board structure in enhancing firm performance. However, environmental compliance is often reactive, driven by regulation

rather than voluntary commitment. Enforcement, along with capacity building in environmental management systems, remains a need.

According to Chelawat and Trivedi (2016), better ESG scores are related to improved corporate value and stakeholder trust. Similarly, Gond *et al.* (2013) link corporate sustainability to improved financial performance, as well as underline the financial relevance of non-financial disclosures. Corporate reporting frameworks need to include non-financial disclosures related to sustainability, risk, etc.

Sharma, Panday, and Dangwal (2020) analyze the determinants of environment, social, and governance disclosure in Indian firms and find that large companies with foreign ownership and board independence are more transparent than Indian firms. In justification of this, Agrawal *et al*. (2023) highlight the emerging role of ESG reporting as an integral part of corporate governance in India by showing that assessors with strong index licensing incentives issue higher environment, social and governance ratings for firms with better stock yield performance and those added to their environment, social and governance indices than assessors with weaker licensing incentives and controlling for ESG performance.

Investor behaviour remains a limiting and important factor in ESG adoption across industries. Banerjee and David (2025) point out that while awareness has grown, Indian investors often prioritise financial returns over ESG standards. Foreign investment decisions are also increasingly considering ESG standards, as shown by Chaklader *et al*. (2024) using a machine learning technique called "topic modelling" to explore the impact of ESG on foreign institutional investment patterns. India has witnessed notable governance failures such as Satyam, IL&FS, and DHFL, which catalysed reforms in corporate governance (Singh, 2021). SEBI's efforts towards board independence, strengthening audit committees, and whistleblower protection have improved the governance landscape.

The 'S' in ESG, though perhaps the least defined, is considered important in the Indian socio-economic context. Social sustainability includes employee welfare, community development, human rights, diversity and inclusion, and ethical labour practices (Joshi,

2025). India's demographic diversity and social inequalities create a need for context-specific strategies to address social risks and opportunities. Firms that had initially spent less than 2 percent increased their CSR activities, while large firms that had initially spent more than 2 percent reduced their CSR expenditures after the implementation of Section 135.

The mandatory CSR expenditure under Section 135 of the Companies Act has led to billions of rupees of investment in social development sectors including education, health and rural development (Chatterjee and Mitra, 2017). While firms or organisations that had initially spent less than 2 percent increased their Corporate Social Responsibility activities, larger firms that had initially spent more than 2 percent reduced their Corporate Social Responsibility expenditures after Section 135 came into force (Dharmapal and Khanna, 2018), however, the measurement of the impact and long-term sustainability of these projects still remains controversial. Bhatia and Tuli's (2014) research indicated that numerous corporations adhere to Corporate Social Responsibility (CSR) standards in principle, yet frequently fall short in practice, perceiving CSR as a mere formality.

The COVID-19 pandemic highlighted the vulnerabilities of supply chains and the importance of social risk management (SRM) within an ESG framework (Singh, 2021). From a policy and macroeconomic perspective, Sarangi explains how environment, social and governance-focused policies are reshaping capital allocation in India (2025), proposing a culturally embedded model for adopting ESG principles by linking them to ancient Indian scriptures. Environment, social and governance (ESG) is a strategic tool capable of promoting innovation, strengthening reputation and enhancing business resilience in the face of current and future challenges.

Morgan Stanley Capital International (MSCI) published a study in 2022 that found that companies with high environmental, social, and governance (ESG) scores maintained consistent and growing long-term profits. Companies that do well on ESG also have stock prices that stay the same over time. The NSE and BSE, two Indian stock exchanges, have developed ESG indices to keep track of how well companies that focus on sustainability are doing (Zhou and Zhou, 2021). But ESG ratings in India are still not very reliable

because there are no clear criteria or third-party checks (Bhattacharya and Bose, 2023). The ESG landscape in India is still changing. There are a lot of different reporting regulations, not enough pressure from rating agencies, and not enough investor activism.

2.7 SMEs in India

Governments throughout the world are working hard to develop policies that will assist small and medium-sized firms (SMEs) expand and last because they know how vital they are to the economy, job creation, and the application of new ideas. Small and medium-sized firms (SMEs) are crucial to today's economies, and their role in economic growth is recognized. But it's still hard to put policies into action.

Some people call Indian MSMEs the backbone of the Indian economy since they are thought to help it grow (Mukherjee, 2018; Kumar, 2024). Small and medium-sized businesses (SMEs) are known all over the world as engines of economic growth and innovation. Micro, small, and medium enterprises (MSMEs) are what they are termed in India.

It nurtures India's budding entrepreneurs as well as develops innovation at the early stage (Banerjee and Lahiri, 2018). The importance of small and medium enterprises (SMEs) in the global economy cannot be overlooked. SMEs contribute up to 40 percent of the national income of emerging economies and over 50 percent of employment worldwide, representing approximately 90 percent of businesses (Kannan and Gambetta, 2025). Micro, Small and Medium Enterprises (MSMEs) are the backbone of both the Indian and global economy. They are a key pillar of Indian growth contributing nearly 30 percent of GDP and over 45 percent of the country’s exports (Ministry of MSMEs, 2023). By fostering entrepreneurship, generating employment and promoting inclusive growth, MSMEs are driving economic transformation at the grassroots level. As India aims to become a developed economy by 2047 under the vision of “Developed India@2047”, it is increasingly recognized that robust supply chain infrastructure is essential for the growth of MSMEs as well as for harnessing their full potential (D. Kumar *et al*., 2025).

Globally, MSMEs (Micro, Small and Medium Enterprises) represent the most prominent segment of the business ecosystem, contributing to nearly 90 percent of enterprises and

over 50 percent of total employment. In India too, their importance is similar, and they are emerging as the second largest employer after agriculture. To meet global goals such as the Paris Agreement and India's commitment to net-zero emissions by 2070 (Elavarasan *et al*., 2022), moving MSMEs towards sustainable and low carbon emission practices has become a national priority. However, this transformation is slow due to systemic barriers in financial, technological, human resource and regulatory dimensions (Kumar *et al*., 2023; Anjanappa, 2025).

Small and medium-sized businesses are important for India's economic growth since they help numerous industries flourish, including manufacturing, services, and exports. Small and medium companies (SMEs), which make up more than 90% of India's industrial units, are important for creating jobs, boosting industrial output, encouraging innovation, and driving regional growth (Kalaiselvi and Maithily, 2024). The Small and Medium Enterprises (SME) sector is very important for India to reach its development goals in rural and semi-urban areas. It employs more than 11 crore people, making it the second largest employer in the country after the agriculture sector (Joshi, Panigrahi and Pitke, 2020; Mahesh, Aithal and Sharma, 2022).

The job market in India has changed a lot in the last few years, especially in cities and towns. The unemployment rate has gone down a lot, which is a good sign that job prospects are on the rise. These numbers show that India's job market is getting better, with more people from all backgrounds getting jobs and fewer people being unemployed in different parts of the country and for men and women (Kumar, 2024).

Micro, small and medium enterprises are commonly referred to as the 'growth engine of the economy'. The growth achieved after the implementation of the MSMED Act 2006, which is a policy aimed at promoting micro, small and medium enterprises in India (Nandeeswariah and Ramana, 2021). SMEs in India are governed by the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006. As per the revised definition (2020), enterprises are classified on the basis of investment in plant and machinery and annual turnover.

SMEs in India can be broadly classified into manufacturing and service enterprises (Ministry of MSME, April 2025). As per the MSMED (Micro, Small and Medium Enterprises Development) Act, 2006 and its recent amendment in 2020 (Table 1), enterprises are classified as follows:

Table 2. 1
SMEs in India

	Investment not exceeding	annual turnover not exceeding
Micro Enterprises	₹ 2.5 crore	₹ 10 crore
Small Enterprises	₹ 25 crore	₹ 100 crore
Medium Enterprises	₹ 125 crore	₹ 500 crore

These classifications are aimed at simplifying the regulatory framework and promoting ease of doing business while ensuring targeted support.

2.8 ESG Implementation in SMEs: Indian Perspective

In the 21st century global economic landscape, aligning business development with environmental and social responsibility has become imperative. Environmental, social and governance principles represent a comprehensive framework and companies that integrate ESG auditing into their governance structures benefit from improved investor confidence, reduced risk and more sustainable financial outcomes (Eccles and Klimenko, 2019; Moraru and Boghean, 2025). ESG dimensions environment, social and governance serve as essential indicators of a company's long-term sustainability, including how it manages environmental responsibilities such as carbon emissions, energy use and waste, social aspects such as labour practices, community engagement and diversity, and governance structures including transparency, ethics and leadership accountability (Friede, Busch and Bassen, 2015).

Popular among large multinationals companies such as Microsoft, Unilever, and Tesla and institutional investors, environment, social and governance has gradually gained relevance

for organizations of all sizes, including small and medium enterprises. Companies or firms have become leaders in ESG performance by setting ambitious targets related to carbon neutrality, responsible sourcing, and governance practices. The importance of environment, social and governance is evident in its ability to mitigate risks, facilitate access to capital, enhance corporate reputation, and keep pace with the growing demands of environmentally and socially conscious stakeholders (Kotsantonis, Pinney and Serafeim, 2016). With the global climate crisis, rising inequality, and increased corporate scrutiny, adopting ESG has become central to fostering responsible and resilient business ecosystems. In India, ESG considerations have gained prominence amid the changing regulatory landscape, investor pressure, and social expectations. Technologies that are considered commonplace in some parts of the world may be unusual in India. As a result, sustainability frameworks in Indian technologies are selectively implemented rather than implemented holistically. Adoption of ESG frameworks has a positive impact on investors. Although companies do not place much emphasis on employee welfare and 'human rights,' they do link ESG to 'supply chain sustainability' (Efthymiou *et al*., 2023). For example, the Securities and Exchange Board of India (SEBI) introduced Business Responsibility and Sustainability Reporting (BRSR) for top listed companies, indicating an expanding culture of ESG awareness (SEBI, 2021). However, for ESG to be transformative in the Indian economy, it must go beyond large enterprises and reach the vast majority of Indian businesses—SMEs.

2.8.1 Importance of ESG Practices in SMEs

The importance of environment, social and governance (ESG) practices is becoming increasingly recognized across the business sector, although large corporations have traditionally been the focus of ESG discussions, SMEs play a vital role in the global economy with responsibility for nearly 90 percent of businesses and over 50 percent of employment worldwide (Bui, 2024). SMEs contribute nearly 30 percent of GDP to the Indian economy and employ over 110 million people across various sectors (Ministry of MSME, n.d.). SMEs are often challenged in Indian industries with limited resources, limited regulatory scope and less formal processes. Using ESG practices in SMEs can

significantly enhance their sustainability, resilience and competitiveness. Environmentally, SMEs with strong environmental strategies can reduce or save operating costs by adopting energy-efficient technologies, reducing waste and energy consumption, and ensuring compliance with environmental standards (Clark *et al*., 2014; OECD, 2021; Carroll and Kellow, 2021).

Socially, SMEs can improve employee well-being and strengthen relationships with suppliers, customers, and local communities by promoting inclusive workplaces (Elpisah, 2023), actions that also improve employee productivity and retention by promoting reputation (Araújo, Pereira, and Santos *et al*., 2023; Efthymiou *et al*., 2023). Institutional support, including access to SME resources, networks, and partnerships, enables SMEs to overcome barriers and implement effective community-focused strategies (Dacin *et al*., 2010). From a governance perspective, company leadership, transparent reporting, ethical behavior, executive pay, auditing, and effective management structures build trust among investors, internal controls, customers, and regulatory bodies. Company leadership, executive pay, internal controls, auditing, and shareholder rights fall under the governance category (Camilleri, 2021).

ESG Moreover integration enhances market access. However, Indian SMEs face several barriers towards ESG implementation, such as lack of financial resources (Revell and Blackburn, 2007), lack of adequate support systems and infrastructure, lack of awareness, etc. (Dixit and Priya, 2023; Hassan *et al*., 2023). These challenges necessitate a focused investigation on the state of ESG implementation in Indian SMEs, with the aim of identifying gaps, enablers, and pathways for effective integration.

2.9. ESG and Sustainability in the SME in Indian context

Due to the growing demand for responsible business conduct and sustainable development, the relationship between environmental, social, and governance factors and sustainability in Indian SMEs is attracting scholarly attention. Indian SMEs, which contribute about 30 percent of the country's gross value added and 45.7 percen of exports, are gradually recognizing the dual role of ESG as a driver of competitiveness and a framework for sustainable development (Chatterjee and Mitra, 2017). The integration of

ESG principles in SMEs is also being viewed as a matter of compliance and a strategic imperative that promotes stakeholder trust by mitigating risks while enhancing long-term value (Hakam and Firmansyah, 2024).

ESG adoption in Indian SMEs is associated with improved sustainability performance as well as economic outcomes. Empirical research demonstrates that governmental interventions, industry alliances, and integration with global supply chains enhance SMEs' ESG orientation, therefore improving their sustainability outcomes (Das, 2019). Chatterjee and Mitra 2017) asserts that environmental, social, and governance (ESG) frameworks empower Indian small and medium enterprises (SMEs) to convert intricate social and environmental responsibilities into actionable business strategies, potentially enhancing operational efficiency, resource utilization, and social impact (Garg, 2025).

Sustainability, as defined for Indian small and medium enterprises (SMEs), primarily emphasizes ESG environmental management, equitable stakeholder engagement, and transparent governance structures. Recent studies indicate that the incorporation of ESG measures has emerged as a significant issue in light of global value chain pressures and regulatory changes. Hakam and Firmansyah (2024) observed that as environmental, social, and governance issues gain prominence in the global collaborative research agenda, Indian SMEs are increasingly driven to adopt sustainability measures, not merely for compliance but also as a competitive imperative. Research indicates that Indian small and medium enterprises implementing ESG practices are more effectively positioned to attract investments, access global markets, and mitigate business risks. Indian SMEs encounter distinct challenges, including constrained resources, insufficient information, and the financial implications associated with ESG implementation (Chatterjee and Mitra, 2017). Despite these challenges, SMEs that actively implement ESG-driven sustainability strategies improve their reputation, stakeholder loyalty, and resilience to environmental and social disruptions (Das, 2019). The convergence of environmental, social, and governance factors with sustainability in Indian SMEs signifies a transition from reactive compliance to proactive value creation. Research indicates that the future of small and

medium enterprises (SMEs) depends on integrating environmental, social, and governance factors into their sustainability strategies, which can yield measurable improvements in performance, risk management, and social impact (Chatterjee and Mitra, 2017).

Hassan *et al*. (2025) analyzed the financial performance of ESG investments in an emerging Indian market by assessing the performance of environment, social, and governance indices listed on major Indian exchanges in comparison to market benchmarks, utilizing the capital asset pricing model (CAPM) and a multi-factor model (Gong *et al*., 2024) from 2011 to 2023. The research analyzed investors' muted responses to positive earnings surprises, evaluated the influence of market crises, and investigated the implications of corporate social responsibility (CSR) measures and the Paris Agreement through a difference-in-differences (DiD) approach. The findings indicate that environmental, social, and governance portfolios demonstrate reduced market risk and produce positive, though statistically insignificant, alpha. The findings offer significant insights from an emerging market regarding the increasing focus on sustainable investment practices. The study demonstrated that corporate social responsibility disclosure has a significant impact on financial performance.

Kothari (2025) wrote this study, which looks at how India, the UK, and Switzerland handle environmental, social, and governance (ESG) reporting and how it affects their economies. The report backs India in making its ESI framework stronger and helping the UN reach its global goals through legislative changes, increasing capacity, and training initiatives. It also advocates working with international groups to make ESI policies, be more open, and work together.

The study by Dawes (2008) sought to identify and mitigate obstacles to ESG integration within Indian corporations. Initial findings from the research indicated that Indian enterprises encounter numerous significant hurdles, including insufficient awareness, restricted access to ESG data, inadequate regulatory frameworks, and cultural or institutional obstacles that impede their decision-making processes. Akila's (2024) research looked at how to integrate environmental, social, and governance (ESG) frameworks in micro, small, and medium companies (MSMEs) to promote

sustainable growth, strengthen business resilience, and gain the trust of stakeholders. The study assessed strategies including eco-friendly operations, community engagement, and transparent governance, concluding that financial institutions must cultivate a favorable environment for the adoption of environmental, social, and governance (ESG) strategies to tackle challenges such as insufficient financial resources, restricted expertise, and disjointed regulatory support in ESG implementation. The report recommended tailored support systems and collaborative strategies to integrate ESG into the operations of MSMEs.

Mishra and Sant (2024) examine the comprehensiveness of sustainability reports from Indian banks on environmental, social, and governance (ESG) information. They asked big banks and other financial organizations about the completeness of ESG data. The study showed that India's banking industry has made progress in ESG disclosure, although there is a lot of variance in how various banks disclose. Their research indicates that enhanced regulatory scrutiny and established reporting standards may enhance the consistency of disclosure, perhaps leading to improved long-term financial success through heightened stakeholder engagement and confidence.

Pal (2024) conducted a study analyzing the influence of ESG factors on the corporate financial performance (CFP) of Indian automobile companies. This study aims to examine the relationship between ESG factors and the operations, financial performance, and market value of companies. The study's results indicate that no statistically significant relationship exists between environmental, social, and governance scores and corporate financial performance. This study is likely to provide value to global investors, regulators, policymakers, governments, and other business stakeholders, while also making a substantial contribution to the literature on ESG and the sustainable development of automobile companies globally.

A company with a high and strong ESG score in line with global sustainability trends is less risky and can handle uncertainty in business more efficiently.

Patel and Aditya (2024), in their study, examined the relationship between ESG policies and practices and the financial performance (FP) of the metal industry in India. The

financial success and market position of metal companies or firms were examined in the context of environmental protection, governance structures, and social participation. The study confirms the positive impact of ESG on the financial performance (FP) of many metal enterprises. According to the analysis, companies with strong ESG (environment, social, and governance) performance had lower risk and higher profitability.

Nenavani *et al*. (2024) investigated the relationship between financial performance and ESG compliance in transportation, shipping, warehousing, and freight forwarding activities in the logistics industry. Their study found a positive relationship between ESG disclosure and financial performance (FP). According to the researchers, both global and domestic logistics sector companies are striving to reduce their carbon footprint with the help of innovation, technology, and sustainable development methods. Whether companies that consciously spend on ESG compliance can achieve higher financial performance is still questionable. With the growing challenges of environmental, social, and governance (ESG) risks facing companies, industries, and countries, the efforts of relevant global institutions to focus on sustainable development goals are questionable. According to the report, sustainable practices such as optimizing fuel consumption, reducing carbon emissions, and maintaining good governance standards can help logistics businesses reduce operational risks, increase cost efficiency, and boost stakeholder trust.

Desai and Das (2024). This research examines investor reactions to the announcement of mandatory BRSR filings to disclose ESG practices in the Indian context. The analysis shows that stock market participants reacted positively and significantly to the BRSR announcement. However, companies operating in carbon-sensitive industries received less (more) positive reactions from equity investors. This research makes a significant contribution to sustainability research and has important implications for academics, managers, and policymakers.

Maji and Lohia (2023) conducted a study aimed at examining the impact of environmental, social, and governance performance on the firm performance of Indian companies. The results showed that environmental, social, and governance (ESG) performance and its components are positively related to firm performance. Incorporating

ESG practices into core business activities can not only improve the financial competitiveness and sustainable growth of a particular company, but the adoption of strong ESG practices by a company can also lead to operational efficiency and higher market value.

Kumar and Kapil (2023) examined the relationship between gender diversity, firm performance, and ESG and found that there is a positive relationship between gender diversity in the composition of the constitutional boards of corporations, i.e., the number of women on the board, and ESG. Women's leadership position has a positive and significant impact on firm performance parameters. This study seeks to expand stakeholders' knowledge on gender diversity and firm performance beyond the available literature and add future perspectives to research related to mergers and acquisitions (M&A) and community governance fields.

Efthymiou *et al*. (2023) aimed of the study was to examine the application of environmental, social, and corporate governance (ESG) in the services sector in India, with a focus on the interrelationship of digitalization and sustainability. The study used questionnaires and interviews with managers at different levels of the hierarchy to analyse the impact of technology. The research found that technology can both facilitate and hinder sustainability efforts, with an impact on internal stakeholders such as employees and managers. In India, sustainability frameworks are implemented selectively, which has a positive impact on investors. Research shows that companies link ESG to supply chain sustainability, but do not prioritize employee welfare or human rights.

Adhana's (2023) study examines climate change mitigation through ESG initiatives in the context of small and medium-sized enterprises (SMEs) in Rajasthan, India. Based on a survey of 370 participants, this research shows that ESG initiatives are important in mitigating climate change impacts and that ESG initiatives play a critical role in mitigating climate change impacts in Rajasthan.

Shalhoob and Hussainey (2022) study aim of the study was to assess how ESG disclosure practices influence the sustainable development performance of small and medium enterprises in Saudi Arabia. Adopting qualitative research methods, the

relationship between SMEs' sustainable development performance and their disclosure of ESG practices was explored through interviews, using a sample of 30 interviewees. The results indicate that due to the lack of awareness of ESG practices and disclosures among small and medium enterprises (SMEs) in Saudi Arabia, the extent of their importance to sustainable development performance (SDP) is also low.

Bala (2022) examined the relationship between ESG practices and financial performance (FP) of Indian businesses in 200 companies. According to the research, companies that prioritize environment, social, and governance (ESG) factors, especially environment and society, have higher financial results, higher profits, and better market valuation. Adoption of ESG practices by businesses can help reduce risk, meet regulatory requirements, and foster closer relationships with their stakeholders. Bala said that Indian companies can benefit from strategically complying with ESG practices. Bala said that more detailed and inclusive research efforts can be made with cross-sectional data based on secondary and primary sources on ESG practices and Indian businesses.

Jyoti and Khanna (2021) explored the relationship between ESG and sustainability performance and financial success in firms listed on the National Stock Exchange (NSE) India. The research found that social scores were positively associated with stock performance indicators, environmental scores were negatively associated with market performance of firms, and governance scores were negatively associated with earnings per share and dividends per share of the study sample. The study can also help businesses and policymakers identify which components of sustainability can provide benefits to businesses and stakeholders and which elements require more attention.

Singh *et al*. (2021) studied A sustainability disclosure index that was developed to assess sustainability reporting practices (SRP) among manufacturing SMEs listed on the Bombay Stock Exchange, India. Content analysis revealed a lack of environmental and social SR practices, with environmental and social disclosures being mainly descriptive without quantifiable information. The study aims to address this gap by providing SSDI for evaluating sustainability practices in small and medium enterprises (SMEs). The authors recommend strengthening sustainability practices through robust policies and regulations.

A study by Sarangi (2021) evaluated ESG development and growth in India and concluded that ESG-integrated assets perform better than their counterparts. There has been an increased interest in ESG-integrated assets among mutual fund houses, investors, and corporate entities. Companies perform better in policy disclosure and governance standards than in environmental and social factors. Social factors are given the lowest priority. Policy and legal pronouncements related to ESG investing in India reveal interesting patterns and trajectories.

Chelawat and Trivedi (2016) found a positive relationship between ESG performance and financial outcomes in India but acknowledged several areas for further investigation. They found a lack of empirical studies on the ESG-financial performance relationship in emerging economies, particularly India, where most evidence comes from developed countries. They also found that better ESG performance enhances financial returns, but the relative impact of each ESG pillar, particularly the social dimension, is still underexplored. Their research design also did not include considering mediating variables such as risk mitigation, disclosure quality, and profitability metrics. They also highlighted the need for longitudinal research using dynamic models to address endogeneity and uncover the causal relationship.

Mishra and Mohanty (2014) examined the relationship between corporate governance (CR) and financial performance (FP) in India in this study. Board independence, openness, and accountability are some of the good governance practices studied. The study found that companies or firms with strong governance processes are more likely to achieve long-term financial success.

Mani's (2015) study looks at how the banking industry can help businesses become more environmentally friendly. The study was executed by a comprehensive examination of the literature on sustainable business practices and an analysis of diverse research reports. The research findings reveal that Indian banks have acknowledged the necessity of implementing sustainable business practices; nonetheless, they remain well behind their international competitors. Banks also need to keep an eye on changes in the environment

and the rules that govern it to have a better picture of their borrowers' overall financial health.

2.10. Theoretical Framework

The theoretical framework of this research employs a multi-theory approach, incorporating aspects of stakeholder theory, resource-based view (RBV), legitimacy theory, and institutional theory. These theoretical foundations jointly elucidate the causes, difficulties, and benefits of ESG implementation on the sustainable development performance (SDP) of SMEs in India. The paradigm draws from previous research, empirical insights, and theoretical contributions from various scholars who have analyzed ESG practices, sustainable development, and SME behavior across different contexts, particularly in emerging economies like India.

2.10.1 Stakeholder Theory as the Core Lens

Schaltegger, Hörisch, and Freeman (2019) regard stakeholder theory as a framework for business ethics and organizational management (Mahajan *et al*., 2023). Stakeholder theory (Freeman, 1984) posits that the efficacy of an organization or corporation is contingent upon its management of interactions with diverse stakeholders, including employees, governments, investors, suppliers, customers, civil society regulators, and the community. ESG frameworks align with this theory by promoting responsible business practices in environmental, social, and governance areas to reconcile the interests of many stakeholders. Efthymiou *et al*. (2023) demonstrate the impact of technology-driven ESG implementation on internal stakeholders, including managers and employees, within Indian SMEs. They propose that ESG integration transcends mere compliance, functioning as a stakeholder-centric approach. Furthermore, Akilah (2024) emphasizes how ESG promotes stakeholder trust and business resilience, further reinforcing the stakeholder-centric nature of ESG in SMEs.

2.10.2 Resource-Based View (RBV) and ESG as a Strategic Asset

The (RBV) resource-based view (Barney, 1991) argues that companies derive competitive advantage from valuable, inimitable, and non-substitutable resources only when the resources are valuable, rare, inimitable, and non-durable (in short, VRIN), and mobilized. The resource-based view focuses on the firm's internal strengths and weaknesses, while the external environmental model of competitive advantage focuses on opportunities and threats (Chowdhury *et al*., 2023). ESG practices, when implemented strategically in a firm, can act as assets. Studies conducted by Chelawat and Trivedi (2016), Maji and Lohia (2023), and Bala (2022) suggest that ESG integration promotes improved financial performance and operational efficiency in Indian firms. For SMEs, incorporating ESG into core operations enhances market value and resilience in a resource-limited environment. The RBV perspective matches the suggestion made by Akilah (2024) that, despite constraints such as limited capital and expertise, environmentally friendly operations and transparent governance structures can become strategic differentiators for SMEs.

2.10.3 Legitimacy Theory and Regulatory Pressures

Legitimacy is a generalized perception that an entity or company achieves desirable, appropriate, or proper acceptance within a socially constructed system by adhering to norms, values, and regulations (Suchman, 1995). Institutional legitimacy theory examines how organizational structures such as capitalism and government gain acceptance from society, thereby providing stakeholders with better information in decision-making and giving society more control over resource allocation, making legitimacy and institutionalization almost synonymous (Tilling, 2004). ESG practices serve as a means of achieving legitimacy in the eyes of both institutional and societal stakeholders. In India, ESG adoption is rapidly taking shape in countries such as the Business Responsibility and Sustainability Reports (BRSR). According to Das and Desai (2024), BRSR disclosures positively impact investor perception and demonstrate how regulatory-induced legitimacy leads to greater acceptance in the market. Furthermore, Sarangi (2021) and Mishra and Sant (2024) explain how ESG-integrated disclosures

improve credibility and institutional trust in the Indian financial sector, thereby reinforcing the regulatory legitimacy gained from ESG adoption.

2.10.4 Institutional Theory and Normative Pressures

DiMaggio and Powell (1983) termed isomorphism as the reason why organizations in established fields are more similar: "a coercive process that forces a unit in a population to be similar to other units and also to the environmental conditions they face." Only competitive, coercive, mimetic, and normative institutional pressures in a field can be termed isomorphism (Lammers *et al*., 2014). Institutional theory (Amenta and Poulsen, 1996) posits that organizations adopt certain practices due to coercive, mimetic, and normative pressures. These pressures have widely influenced organizational studies (Davis and Marquis, 2005; Green, Babb, and Alpaslan, 2008; Suddaby, 2010) and remain rich ground for scholars, particularly for understanding the processes by which these practices are adopted. For Indian SMEs, ESG adoption is influenced by several institutional forces. As Kothari (2025) points out in his research, India's alignment with global sustainability frameworks and collaboration with international institutions exerts top-down pressure and normative pressure. Dawes (2008) further highlights the challenges posed by weak regulatory frameworks and the lack of ESG data and underlines the institutional gaps that impact ESG integration. Singh *et al*. (2021) reaffirm this in their research on the sustainability disclosures of SMEs, which are frequently descriptive and inconsistent due to insufficient standards and institutional support.

2.10.5 ESG as an Enabler of Sustainability in SMEs

Research and governmental focus on ESG practices and climate change are increasing (Jinga, 2022). Corporate governance (CG) is the least examined area, followed by social activities that emphasize diversity, labor standards, and opportunities. The environment encompasses critical issues such as pollution, waste management, and climate change. The application of environmental, social, and governance (ESG) principles in small and medium-sized enterprises (SMEs) can enhance long-term sustainability by facilitating climate change mitigation, fostering improved stakeholder relations, and

ensuring operational transparency (Xue *et al*., 2025). Adhana (2023) demonstrates that the implementation of ESG practices by Indian small and medium enterprises (SMEs) in environmentally sensitive areas, such as Rajasthan, plays a significant role in mitigating climate change. Nenavani *et al*. (2024) demonstrate that ESG practices in the logistics sector improve sustainability through the reduction of carbon footprint and operational risks. The findings indicate that ESG (environment, social, and governance) functions not merely as a reporting or compliance mechanism but as a viable strategy for integrating sustainability into SME business models (Tsang, Fan, and Feng, 2023).

2.10.6 Role of Technology and Innovation

Efthymiou *et al*. (2023) highlight the dual role of technology in the adoption of environmental, social, and governance (ESG) practices; its impact on sustainability efforts can be either positive or negative, contingent upon its alignment with stakeholder interests and the capabilities of the firm. In India, technology serves as a dual instrument: digital tools enhance ESG reporting and supply chain transparency, potentially fostering positive change; however, inadequate digital infrastructure in numerous small and medium enterprises (SMEs) obstructs effective ESG implementation. This highlights the necessity of investigating technological readiness as a mediating factor in the adoption of ESG (Taherian *et al*., 2024; Tumpa *et al*., 2025).

2.10.7 Financial Performance and Risk Mitigation

Many studies show that there is a link between a company's environmental, social, and governance (ESG) performance and its profitability. Patel and Aditya (2024) and Pal (2024) discovered that robust ESG standards correlate with increased profitability and shareholder value within the Indian metals and automobile sectors. Hassan *et al*. (2025) discovered that ESG portfolios in India exhibited less market risk, hence substantiating the premise that ESG adoption mitigates risk. These results are especially pertinent for small and medium firms (SMEs), which frequently exhibit increased susceptibility to external shocks owing to constrained financial reserves. So, adding ESG can make finances more

stable and serve as a buffer against market swings and problems, as well as a way to recover and grow in a sustainable way (Yadav and Asongu, 2025).

2.10.8 Social and Governance Dimensions in the SMEs Context

Most study looks at the environmental parts of ESG more than the social and governance parts, which is generally the case in Indian SMEs (Sarangi, 2021; Singh *et al*., 2021). Shalhoub and Hussaini (2022) discovered that small and medium firms (SMEs) are susceptible to inadequate sustainability performance owing to limited awareness of ESG, especially the social aspect. Kumar and Kapil's (2023) study shows how important it is for women to be involved in improving the diversity and quality of governance on SME boards, which is necessary for growth that is fair and long-lasting. Mishra and Mohanty (2014) also say that good governance practices like openness and accountability help businesses operate well in the long run. This shows how important it is for SME boards to use strong governance frameworks.

2.10.9 Barriers to ESG Integration in Indian SMEs

Even though there are possible benefits, there are a lot of strategic problems that make it hard for Indian SMEs to use ESG. These include structural and cultural resistance, governance-related and functional barriers (like compliance management and economic performance), and efficiency-related barriers that slow down the adoption process (Paridhi *et al*., 2024). Some of these are limited financial resources (Akeela, 2024), insufficient institutional support, low knowledge (Shalhoub and Hussaini, 2022), a lack of standardized reporting systems (Singh *et al*., 2021), and fragmented ESG frameworks (Kothari, 2025). These barriers show that SMEs need government policy changes, programs to help them build their skills, and a tailored environment, social, and governance (ESG) tools for their industry.

2.10.10 The Need for Customization and Collaboration

Because the SMEs sector in India is so different, a one-size-fits-all ESG approach doesn't work (Bischoff, Manuel, and Vicente, 2025). For instance, ESG composite ratings do not

enhance the social and financial performance (FP) of India's private sector banks; nevertheless, they do improve efficiency. There is a strong and positive link between environmental scores and return on equity and non-performing assets in public sector banks (Jaiwani and Gopalakrishnan, 2025). Akila (2024) suggests tailored support systems, including sector-specific ESG toolkits and collaborative networks among SMEs, financial institutions, and regulatory authorities. These partnerships can help people share information, grow their skills, and negotiate together, especially for tiny businesses that don't have a lot of power.

2.10.11. Integration of ESG in Corporate Strategy

Bala (2022) and Maji and Lohia (2023) have shown that including environmental, social, and governance (ESG) factors in strategic decision-making makes companies more competitive and enhances their financial performance (FP). Incorporating ESG concepts into company strategy management can boost competitiveness in sustainable development and increase CSR practices (Lee, 2025). For SMEs, this means that ESG shouldn't be a separate CSR project; it should be part of the main business activities. Mishra and Mohanty (2014) stress that this needs a change in the organization's principles and the way leaders think about their roles.

2.11 Summary of Theoretical Framework

The suggested theoretical framework places the implementation of ESG as a result of engaging stakeholders, using resources strategically, following institutional rules, and trying to gain legitimacy. The connection between ESG (Environment, Social, and Governance) programs and economic results is becoming more and more significant in developing economies like India. Indian enterprises are recognizing the importance of environmental, social, and governance in attracting international investments and complying with regulatory frameworks. Companies that care about the environment, society, and governance do better financially, get more people involved, face fewer regulatory problems, and can sell their goods and services in other countries. ESG practices improve sustainability results in small and medium-sized businesses (SMEs), which are influenced by things like how ready they are for new technology, the regulatory

environment, the quality of governance, and the support of stakeholders. But things like reporting standards, lack of understanding, and lack of resources make it hard for everyone to use it. Indian businesses can only use ESG as a catalyst for sustainable transformation to generate growth and competitiveness if they can get past these.

2.12 Research Gaps Identified

There is a lot of study on environmental, social, and governance (ESG) frameworks and how they affect business performance, but a close look at the studies that are already out there shows that there are still big gaps in the data, especially when it comes to small and medium-sized businesses (SMEs) in India. A review of prior studies from India and similar emerging economies reveals several persistent themes: fragmented adoption of ESG strategies, inconsistent disclosure practices, inadequate representation of social dimensions, weak regulatory enforcement, insufficient stakeholder inclusivity, and underutilization of technological advancements for ESG integration. Efthymiou *et al*. (2023) discovered that although digitalization aids in the implementation of ESG, firms and organizations in the Indian service sector adopt sustainability frameworks selectively, frequently prioritizing investor perceptions over the welfare of internal stakeholders, including workers' rights and employee well-being. This makes us wonder how many small and medium-sized businesses are using ESG and how deeply they are using it, as limited resources may make these differences worse.

Akilah (2024) emphasizes the critical role of customized ESG support mechanisms and the involvement of financial institutions in MSME development, but this remains largely theoretical. Little empirical evidence exists regarding how Indian SMEs perceive ESG, the barriers they encounter, or the contextual enablers needed for successful implementation. This constitutes a significant knowledge gap, given that SMEs contribute approximately 30 percent to India's GDP and employ over 110 million people, yet lack the institutional infrastructure and financial backing to integrate comprehensive ESG frameworks. Most ESG literature is concentrated on macro-level outcomes, such as capital market responses and investor behavior, as observed by Das and Desai (2024), or on large

corporate actors in sectors like banking (Mishra and Sant, 2024) and automobiles (Pal, 2024), leaving the granular experiences of SMEs largely unexplored.

Another recurring gap pertains to ESG disclosure quality. As Singh *et al*. (2021) demonstrate through the development of a Sustainability Disclosure Index (SSDI) for Indian manufacturing SMEs, the majority of disclosures remain largely descriptive and fail to offer quantifiable or standardized metrics. This lack of measurable ESG reporting impedes comparative analysis and policy benchmarking, which is essential for institutionalizing ESG standards across industries. Similarly, Mishra and Sant (2024) observed variability in ESG disclosures among Indian banks, pointing to a broader systemic issue of regulatory inconsistency that affects all sectors, including SMEs. This variation suggests a need for standardization and enforcement of ESG reporting, particularly for smaller enterprises that often lack internal compliance capabilities.

Several studies also highlight an uneven focus on the three pillars of ESG. Sarangi (2021) and Chelawat and Trivedi (2016) note that governance receives more attention than environmental or social concerns, while social dimensions—such as labor rights, gender equality, and community engagement—remain significantly underexplored. Even though studies like that of Kumar and Kapil (2023) have begun exploring social factors such as gender diversity, this research is primarily centered around board-level governance in larger firms, not in SMEs, where gender and community-based challenges manifest differently. Furthermore, Chelawat and Trivedi (2016) emphasized the lack of empirical studies on the distinct contributions of each environment, social, and governance (ESG) pillar to financial performance in the Indian context, urging future researchers to delve deeper into the mediating effects of risk, disclosure quality, and organizational performance metrics. These dimensions are especially critical for SMEs, whose operational resilience often depends on social license to operate and localized stakeholder trust.

Although ESG is increasingly linked to financial success, the causal relationships and mechanisms underlying this association in SMEs are poorly understood. Studies such as those by Bala (2022), Maji and Lohia (2023), and Patel and Aditya (2024) confirm a positive correlation between ESG adoption and financial performance in larger firms, yet

the findings are largely generalized and lack sectoral or size-specific granularity. Nenavani *et al*. (2024) do explore ESG in the logistics sector, but again with a primary focus on financial returns, rather than long-term sustainability orientation or stakeholder value creation. There is a compelling need to investigate how ESG practices influence operational sustainability in SMEs, particularly in terms of cost efficiency, employee satisfaction, innovation capability, and resilience to environmental or market disruptions.

In the Indian context, most studies have either focused on ESG investing trends (Sarangi, 2021; Hassan *et al*., 2025) or policy comparisons across countries (Kothari, 2025) but have largely overlooked the implementation-level challenges of ESG in small firms operating in semi-urban or rural areas. Adhana (2023) highlights the role of ESG in climate change mitigation among SMEs in Rajasthan but stops short of evaluating the internal decision-making processes or support structures that facilitate such initiatives. The regional focus of such studies is important, yet limited, and underscores a broader geographic gap—there is limited pan-India, sector-specific empirical research on ESG adoption in SMEs across varied industrial clusters. Moreover, there is insufficient exploration of how socio-economic contexts—such as caste, class, or informal labor practices—intersect with ESG dimensions in Indian SMEs, particularly in the social and governance pillars.

Another critical research void lies in understanding stakeholder engagement in ESG adoption. While Akilah (2024) and Efthymiou *et al*. (2023) recognize the significance of inclusive governance and stakeholder trust; nevertheless, they do not investigate how SMEs involve stakeholders—employees, consumers, suppliers, and local communities—in ESG decision-making. This is especially important for small and medium-sized businesses (SMEs) in India, which are generally part of close-knit local ecosystems. Also, most studies look at ESG as a fixed framework instead of a dynamic, changing process that is affected by things like company culture, digital literacy, or leadership style. The function of technological interventions—such as environment, social, and governance (ESG) analytics, artificial intelligence (AI) based compliance tools, or digital governance platforms—remains inadequately examined, notwithstanding Efthymiou *et al*. (2023) suggesting its dual capacity as both an enabler and an obstacle. This necessitates a more

profound examination of how digitization might be utilized to surmount ESG implementation obstacles in resource-limited SMEs.

The current research is deficient in longitudinal studies examining the enduring effects of ESG integration on the sustainability of small and medium firms. Chelavat and Trivedi (2016) correctly assert the necessity for dynamic models that tackle endogeneity and causality concerns. Most of the current ESG research is cross-sectional, which means it only looks at things at one point in time instead of across a long period of time. Longitudinal insights are especially useful for small and medium-sized enterprises (SMEs) because their survival and growth paths are generally nonlinear and heavily affected by market shocks or changes in regulations. It is important to know how ESG practices change and grow in small and medium-sized businesses over time, especially after the crisis, when policies like obligatory Business Responsibility and Sustainability Reporting (BRSR) were put in place, as Das and Desai (2014) talk about. This is important for making good support systems.

While studies like Kothari (2025) and Mishra and Mohanty (2014) look at policy support and corporate governance on a large scale, there hasn't been much research on how policy changes affect ESG behavior in Indian SMEs on a smaller scale. For example, initiatives such as ZED (Zero Effect Zero Defect), the BRSR mandate, or India's alignment with global SDGs and ESG frameworks are rarely evaluated from the perspective of small and medium enterprises (SMEs). This disconnect between policy intention and implementation outcomes needs to be addressed through focused, micro-level research that involves SMEs as active co-creators of ESG strategy rather than passive recipients of top-down mandates.

In summary, the existing literature on ESG practices and sustainability in India provides valuable insights but is primarily skewed towards large corporations, financial markets, and regional studies outside the SME domain. Key research gaps include (1) lack of relevant, empirical studies on ESG adoption in Indian SMEs; (2) underrepresentation of social and environmental pillars in favor of governance-focused research; (3) lack of standardized ESG disclosure frameworks for SMEs; (4) minimal exploration of

stakeholder engagement and digital enablers in ESG implementation; (5) lack of longitudinal and dynamic models to assess long-term sustainability impact; and (6) weak linkage between policy frameworks and ground-level ESG integration.

2.13 Development of Hypotheses

As ESG principles become more important in global business, researchers are looking more closely at how small and medium-sized businesses, especially in developing nations like India, are using these practices. As sustainability shifts from a voluntary pursuit to a strategic imperative, comprehending the interplay between ESG adoption and sustainability in SMEs is essential. Indian SMEs, despite their substantial contributions to GDP and employment, encounter distinctive obstacles including constrained financial resources, insufficient awareness of ESG principles, and inadequate regulatory enforcement (Kumar and Das, 2022; Sharma, Panday, and Dangwal, 2020). Even with these limitations, new data indicate that companies that adopt ESG practices tend to gain from better environmental compliance, social responsibility, stakeholder trust, and long-term resilience (Clark, Feiner, and Viehs, 2014; Ioannou and Serafeim, 2015). Consequently, this study establishes the following hypotheses to empirically investigate the relationship between ESG adoption, sustainability, and obstacles within the setting of Indian SMEs.

- H1: Environmental practices have a positive impact on the sustainability practices of Indian SMEs.
- H2: Social practices have a positive impact on the sustainability practices of Indian SMEs.
- H3: Governance practices positively influence the sustainability practices of Indian SMEs.
- H4: Overall ESG implementation is positively associated with the sustainability practice of Indian SMEs.

CHAPTER III:
METHODOLOGY

This chapter of the thesis gives a summary of the study methodology, including the methodological framework used to look into the link between environmental, social, and governance (ESG) implementation and sustainability in Indian small and medium companies (SMEs). This chapter sufficiently delineates the research design employed, data collection methodologies, sample strategies, and data analysis instruments utilized to fulfill the research objectives. This study aims to ascertain, via a cross-sectional analysis, the impact of the implementation and sustainability of ESG practices on Indian small and medium companies (SMEs). We use statistical tools like SPSS to complete the analysis. By doing a thorough analysis of the issues, it strives to make sure that the methods used to analyze the patterns of ESG integration/usage and their effects on the Indian SME sector are accurate and reliable.

3.1. Research Design

Quantitative research design delineates a systematic and structured methodology employed for the collection and analysis of numerical data, aimed at addressing research inquiries or evaluating hypotheses, with a focus on discerning patterns, averages, relationships, and statistical trends among variables. The current study employs a quantitative research design as advocated by Bloomfield and Fisher (2019), as this design offers a systematic framework for the objective and replicable analysis of numerical data, making it particularly appropriate for investigations into the empirical relationships between specified constructs. The primary aim of this research is to examine the correlation between environmental, social, and governance (ESG) practices and sustainable performance within Indian small and medium-sized firms (SMEs). Small and medium-sized businesses (SMEs) in India have become an important part of the national economy.

They create jobs, drive innovation, and help both home and export markets. However, their adoption of ESG practices is still changing, unlike big businesses. This makes it very crucial to find out how much ESG adoption in SMEs helps establish sustainable businesses.

To achieve this objective, a quantitative research methodology offers the benefit of obtaining extensive data, assessing many variables, discovering quantifiable trends, and generating conclusions that can be generalized across the population of SMEs in India to a significant degree. Quantitative research is warranted for several reasons: firstly, it facilitates the empirical validation of hypotheses that posit positive correlations between ESG practices and sustainability-oriented outcomes, such as long-term business resilience and profitability; secondly, it permits the quantification of multidimensional constructs like ESG, which would otherwise be subjective, thus transforming them into operational variables, including waste management practices, employee well-being metrics, community engagement initiatives, or transparency indices; thirdly, it enhances generalizability through the utilization of larger representative samples, which is particularly beneficial given the diversity of Indian SMEs across various sectors and regions; and fourthly, it enables comparability, as statistical methods allow for the examination of differences and similarities in ESG adoption across regional clusters, firm sizes, or industry categories. Quantitative research design provides both rigor and organization, enabling the study to identify trends while maintaining objectivity and reproducibility.

The chosen design for this study is both descriptive and correlational. The design's descriptive character helps to give a systematic picture of how ESG is being used by small and medium-sized businesses (SMEs) in India right now. The study uses descriptive statistics like frequencies and mean scores to show what percentage of SMEs are using different ESG practices, how well these practices are integrated into business operations,

and how SMEs feel about the importance of these practices for long-term sustainability. The correlational aspect of the design is to ascertain the existence of statistically meaningful links between ESG adoption and several sustainability measures, including market performance, resilience, stakeholder trust, and environmental responsibility. Utilizing correlational methodologies, the study investigates both the direction and magnitude of these relationships, such as the correlation between increased focus on environmental practices and cost efficiency, or the alignment of enhanced social practices with elevated employee engagement and reduced turnover. It is imperative to underscore that correlational design does not determine causality; rather, it offers robust empirical evidence of relationships that may inform subsequent longitudinal or experimental investigations. So, descriptive characteristics provide us with the basic picture, and correlational analysis helps us answer the main question: Can better ESG practices lead to better sustainable outcomes? The study utilizes a cross-sectional survey methodology to enable effective data collection from a substantial and varied population. A cross-sectional design entails gathering data at a singular point in time from respondents across several organizations, yielding a snapshot of behaviors and outcomes within the present environment. This method is especially suitable due to its exploratory aim of documenting contemporary ESG integration without necessitating longitudinal observation over extended periods. The cross-sectional study includes small and medium-sized businesses (SMEs) from different geographic areas and industries, such as manufacturing and services. The results are collected via standardized questionnaires sent to owners, managers, or other important decision-makers. By concentrating the design on a single moment in time, the study maintains cost-effectiveness and time efficiency, while facilitating comprehensive statistical analysis of a substantial dataset.

There are three main steps in the research process. The first step, planning and design, is to make the research goals clear, turn abstract ideas like ESG practices into measurable variables, create a valid and reliable survey tool, and define the study population, which in this case is Indian SMEs. The second stage, data collecting, is when the survey tool is used in a planned way. Stratified or proportionate sampling techniques can be utilized to guarantee sufficient representation among various SME types and regional clusters. To reduce prejudice and mistakes, care is taken to make sure that questions are clear, answers are anonymous, and data is collected consistently. The third step, data analysis and interpretation, uses a variety of statistical methods. Descriptive statistics provide an overview of the present state of ESG adoption, while inferential methods, like correlation analysis, regression models, or structural equation modeling (contingent on data sufficiency), are employed to evaluate proposed links. Reliability tests, including Cronbach's alpha, and validity assessments via factor analysis, are utilized to validate the robustness of measures. The results are further analyzed in relation to current literature, emphasizing both similarities and differences with previous research.

When you think about the particular traits of small and medium-sized businesses (SMEs) in India, you can see even more how well the design works. SMEs usually have limited resources and are very sensitive to changes in the market, regulations, and finances. To capture their ESG practices, the design must be flexible but strict enough to include a lot of organizations without making the constructions too simple. Quantitative cross-sectional surveys satisfy this criterion by being scalable, organized, and time-sensitive. Also, since ESG is a broad field that includes environmental impact, social responsibility, and governance structures, a numerical approach makes it possible to systematically connect these factors to sustainability. This makes sure that the results are not just stories but are based on measurable outcomes. Additionally, policymakers and practitioners need

evidence-based information to help small and medium-sized businesses (SMEs) promote ESG. Quantitative data that indicate correlations and trends do just that: they help you find the ESG practices that are most likely to lead to sustainability efforts.

This approach offers certain evident advantages, like the ability to analyze big datasets, draw statistically correct conclusions, generalize trends across a population, and save time and money. However, it also has some drawbacks. The primary disadvantage is its cross-sectional design, which inhibits the determination of causality; although correlations can be established, it remains unverified whether ESG practices directly influence sustainability outcomes or if more profound contextual factors are at play. Furthermore, the dependence on self-reported questionnaire data introduces the potential for social desirability bias, wherein SME owners or managers could exaggerate their compliance with ESG principles to cultivate a favorable perception. Also, typical survey methodologies might not be able to fully capture the unique contextual realities of SMEs, like how the local market works or how people feel about sustainability in their culture. Even with these constraints, certain measures are used to lessen their effects. For example, making sure that responses are anonymous to reduce socially desired replies, adjusting validated scales to the SME environment, and using statistical testing to check for reliability and validity.

In conclusion, the quantitative research design employed in this study provides a methodical, structured, and empirically sound framework for examining the relationship between ESG adoption and sustainability in Indian SMEs. The design's descriptive and correlational aspects offer a glimpse into current practices and demonstrate connections between ESG integration and sustainability results. The study effectively gathers data from a broad population through a cross-sectional survey methodology, facilitating the application of statistical methods for hypothesis testing. This design corresponds with the

research aims, the practical circumstances of SMEs in India, and the necessity for evidence-based policy and managerial insights. Although recognizing the limitations of quantitative cross-sectional studies, the advantages significantly surpass the disadvantages, rendering the design suitable and beneficial for addressing the study topic. The results of this design will substantially enhance academic literature, which currently lacks comprehensive empirical studies on SME-level ESG adoption, and will also facilitate practical application, enabling SMEs, regulators, and policymakers to make evidence-based decisions that promote sustainable business practices in India.

3.2 Data Collection Methods

To meet the goals of this study, the researcher gathered primary data from employees of small and medium-sized firms (SMEs) using a structured questionnaire survey. The questionnaire was based on scales that had already been used in other ESG and sustainability studies. This made sure that the questionnaire was valid and reliable. The researcher utilized a five-point Likert scale with answers ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to find out how much ESG was being used and how people thought it was affecting things. In this case, the respondent's answer to a question is to show what they think or feel by agreeing or disagreeing with the five statements: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." The five-point Likert scale is then used to find out how the respondents feel about the answers they gave. We used Google Forms to send out the poll online so that more people would respond. We use well-known Indian and global government papers, SME annual reports, and sustainability information that SMEs choose to make public as secondary data.

3.3. Sampling Technique and Sample Size

This study utilizes a non-probability purposive sampling method to concentrate on small and medium enterprises (SMEs) in India that exhibit either the capacity or the

inclination to adopt Environmental, Social, and Governance (ESG) practices. This methodological selection is both practical and theoretically substantiated, considering the research's nature and the characteristics of the broader SME sector in India. Small and medium-sized enterprises (SMEs) make up a large part of the country's jobs, production, and exports. They are a naturally diverse and heterogeneous group that includes manufacturing, services, agriculture-related industries, textile clusters, information technology services, and many supply chains that often work with large companies. Even though they are important to the national economy, there is no single or complete database that shows which SMEs are explicitly following ESG principles or are in line with sustainability frameworks. This is because most government-maintained registries, like the Ministry of Micro, Small, and Medium Enterprises (MSME), only classify businesses based on their capital investment, turnover, and number of employees, which doesn't give any systematic information about their ESG orientation. In these circumstances, a purely probability-based random sample approach would have been impractical, as the creation of an unbiased representative sampling frame necessitates the enumeration and stratification of all SMEs according to their sustainability adoption, which is now unattainable. In this context, purposive sampling, also known as judgmental sampling, is the most suitable and recognized method, as it enables the researcher to intentionally choose SMEs that are “information-rich” concerning the specific research questions under investigation, as indicated by Palinkas *et al*. (2015). Small and medium-sized enterprises (SMEs) that either actively engage in ESG practices or demonstrate managerial readiness for ESG adoption are anticipated to yield significant insights into the drivers, barriers, and outcomes of sustainability practices within the resource-limited and institutionally pressured environments of emerging economies; hence, they are intentionally selected for data collection. The criteria for including someone in the sample are twofold: first, SMEs

need to be formally registered under the statutory definitions laid down by the Ministry of MSME, which since the 2020 revision stipulates that small enterprises are those with investment up to ₹10 crore and turnover up to ₹50 crore, while medium enterprises are those with investment up to ₹50 crore and turnover up to ₹250 crore, and hence the study ensures structural alignment by targeting these categories rather than including micro enterprises that fall below the threshold and often operate in an informal manner outside regulatory visibility; second, SMEs included in the study must either have some demonstrable evidence of ESG-related activity, such as sustainability certifications, audit reports, environmental compliance documentation, CSR disclosures, or organizational policies that reference ESG principles, or at least exhibit intention and willingness, as indicated by managerial acknowledgement of ESG's strategic significance, participation in industry forums that promote sustainability, or expressed interest in aligning with future ESG standards, as willingness itself is a form of nascent adoption stage that is critical to examine.

Companies that didn't meet any of the ESG orientation criteria were left out since including them would have made the analytical construct less clear and could have skewed the results away from the main question. The study focused on over 150 employees from SMEs involved in or interested in ESG practices. Although this bigger group may have provided strong data, the nature of survey research required a data screening process. After carefully cleaning the data by getting rid of incomplete, inconsistent, or fake responses to make sure they were legitimate and reliable, the final usable dataset included 112 valid responses. This method shows how rigorous the study is in practice, since cleaning the data is an important part of quantitative research that makes sure the analytical conclusions are based on solid inputs and are not skewed by mistakes, missing values, or thoughtless responses. The final sample size of 112 responders remains sufficient.

The study's emphasis on SMEs and ESG adoption is theoretically underpinned by two synergistic frameworks: institutional theory and the resource-based view (RBV). According to DiMaggio and Powell (1983), institutional theory explains how organizational practices are shaped by both internal needs for efficiency and external institutional pressures. These pressures can be coercive, like when regulatory agencies force compliance, normative, like when industry standards or professional norms set the standard, or mimetic, like when companies see their competitors doing something and want to do it too. In India, where there is more emphasis on sustainability reporting from regulators and global supply chains are requiring their partners to follow environmental and social rules, these institutional factors are pushing small and medium-sized businesses (SMEs) to adopt ESG. The resource-based view, first proposed by Wernerfelt (1984) and later expanded by Barney (1991), takes a different approach. It says that companies keep their competitive edge by developing unique resources and skills that are valuable, rare, hard to copy, and not replaceable (the VRIN framework). From this point of view, ESG practices can be thought of as intangible strategic resources. They improve brand image, build trust among stakeholders, boost employee morale, and make businesses more resilient in tough times. This gives SMEs a competitive edge in markets where consumers, investors, and regulators are putting more and more emphasis on compliance with sustainability standards. Importantly, even though small and medium-sized businesses (SMEs) don't have as many resources as big companies, they do have the advantages of being flexible, adaptable, and well-connected to their communities. This can make it easier for them to implement sustainability initiatives in creative ways. Because of this, adopting ESG becomes both a challenge and an opportunity for businesses to stand out from the competition. Institutional theory and RBV work together to give us two different points of view: the first helps us understand why SMEs feel pressure from outside sources to adopt

ESG, and the second helps us understand how SMEs can use ESG practices internally to improve their performance in terms of finances, operations, reputation, and relationships. The methodology of purposive sampling is directly connected to these theories. By intentionally including SMEs that are already dealing with external pressures or trying out ESG as an internal capability, the study makes sure that the data it collects accurately reflects the dynamics that institutional and RBV frameworks are trying to explain. If SMEs that aren't interested are randomly included, it would make theory testing more difficult because of irrelevant variance. SEM and regression are powerful ways to model this interaction because they can find hidden constructs that aren't directly observable, follow causal paths between many independent and dependent variables, take into account mediating or moderating influences, and test the relative importance of institutional versus resource-based drivers in explaining ESG outcomes. The methodological strategy—encompassing sample construction, survey targeting of over 150 SME employees, meticulous data cleaning resulting in 112 valid responses, and the subsequent application of SEM modeling—not only addresses the practical realities of India's SME data landscape but also aligns seamlessly with the study's conceptual framework, ensuring both internal coherence and external validity. In conclusion, the selection of purposive sampling, the specified inclusion criteria for registered SMEs with ESG capability or willingness, the enhanced procedural rigor of retaining only reliable responses through data cleaning, the predetermined minimum sample size based on SEM standards, and the theoretical foundation in institutional theory and resource-based view collectively guarantee that the study design is robust, valid, and capable of yielding significant insights into the engagement of Indian SMEs with ESG practices as both a compliance response to external institutional pressures and as a strategic resource that enhances resilience, legitimacy, and competitiveness in a dynamic economy.

3.3.1. Research Instruments

This study included validated scales for each construct to guarantee reliability and facilitate comparability with prior studies. These scales have been somewhat changed to better show the unique traits of small and medium-sized businesses (SMEs). A 5-point Likert scale (Dawes, 2008) will be used to measure all of the items in the components. The scale goes from 1 (strongly disagree) to 5 (strongly agree), which lets people show how much they agree or disagree with each statement.

ESG Perception Scale: The perceived ESG (Environmental, Social, and Governance) scale was developed to measure public perception regarding organizations' ESG performance. The scale's creation follows a preliminary study led by Oh *et al*. (2024), which aimed to construct a validated instrument for assessing how the public views an organization's or firm's efforts and outcomes in ESG-related areas.

Sustainability Practices Scale: Sustainable green practices were measured using a six-item scale. This scale evaluates an organization's commitment to environmental sustainability in operational and production contexts. Each item prompts respondents to assess the degree to which the organization engages in these specific green and sustainable practices. The scale items were developed and validated in earlier works by Kerr (2006) and Yacob *et al*. (2019).

3.4 Questionnaire Development

The questionnaire is organized into three distinct sections to comprehensively address the research objectives. The first part collects demographic information from respondents, including gender, position, years of experience, educational level, and years of attachment within the organization, among other relevant characteristics. This demographic data provides essential background for analyzing patterns and relationships within the surveyed group.

The second part of the questionnaire investigates the Independent Variable, focusing on ESG factors. The ESG construct is measured using a scale (Oh *et al*., 2024) designed to assess public perceptions toward organizations' ESG performance, as developed in leading studies on ESG scale construction.

The last and third portion of the questionnaire was about measuring sustainability as the dependent variable. Sustainable green practices were evaluated using a six-item questionnaire (Yacob *et al*., 2019), which required respondents to express their thoughts or responses on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." The six-item scale concentrated on essential organizational behaviors, including product design aimed at minimizing environmental impacts, employing life cycle analysis, performing regular environmental audits or reassessments, anticipating suppliers to adhere to environmental standards, formulating a definitive vision for environmental policy, and recognizing activities detrimental to the environment. To make sure these elements were reliable and valid for measuring sustainability in organizations, they were taken from established literature.

3.5 Research Tools and Analytical Techniques

A combination of statistical tools and techniques has been employed by the researcher to ensure a comprehensive and rigorous analysis of the data collected. SPSS will be utilized initially for descriptive statistical analysis, reliability testing using Cronbach's alpha, and preliminary data screening and cleaning to ensure the dataset meets the assumptions for further analysis. Next, Smart PLS will be used for SEM (structural equation modeling) to test the proposed research model, which includes the hypothesized direct. This method is well-suited for complex models and small-to-medium sample sizes, ensuring robustness in parameter estimation. For testing mediation and moderation effects, bootstrapping procedures with 5,000 resamples will be applied within Smart PLS. Overall,

the integration of these tools provides a robust analytical framework that enhances the reliability, validity, and interpretability of the findings.

CHAPTER IV:

RESULTS

4.1 Demographic analysis

With a total sample size of 102 respondents from various (SME) small and medium enterprises received in the research, the demographic profile for this study is given in Table 2 below.

Table 4. 1
Gender

Gender	Frequency	Percentage
Male	64	62.75%
Female	38	37.25%

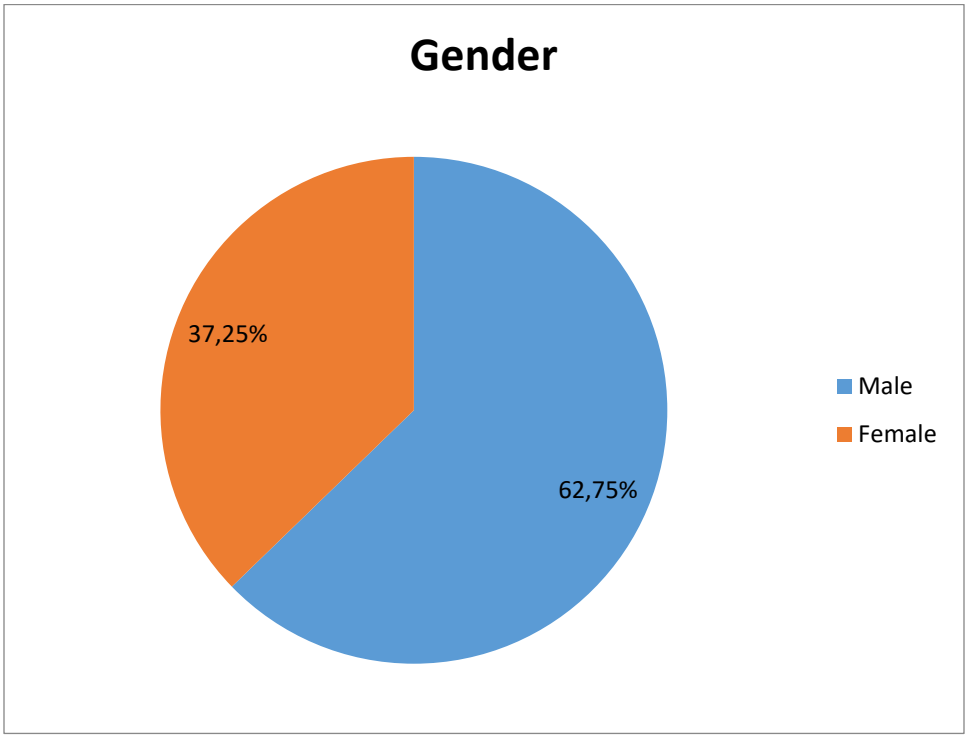

Figure 4. 1
Demographic information of Gender

The obtained dataset comprised responses from a total of 102 respondents, of which approximately 62.75 percent were men and approximately 37.25 percent were women. (insert table 1 and figure 1). This dataset shows a moderately male-dominated representation in the data sample related to ESG and sustainability measures in companies, which is higher than that of women. Understanding the obtained gender distribution is important to contextualize further analyses, especially when demographics influence attitudes or participation in sustainability efforts. The gender balance in the research, although skewed, cannot be termed as highly inconsistent, providing meaningful comparative insights between male and female respondents.

Table 4. 2
Age Group

Age Group	Frequency	Percentage
more than 41	39	38.24%
36-40	35	34.31%
31-35	15	14.71%
20-25	7	6.86%
26-30	6	5.88%

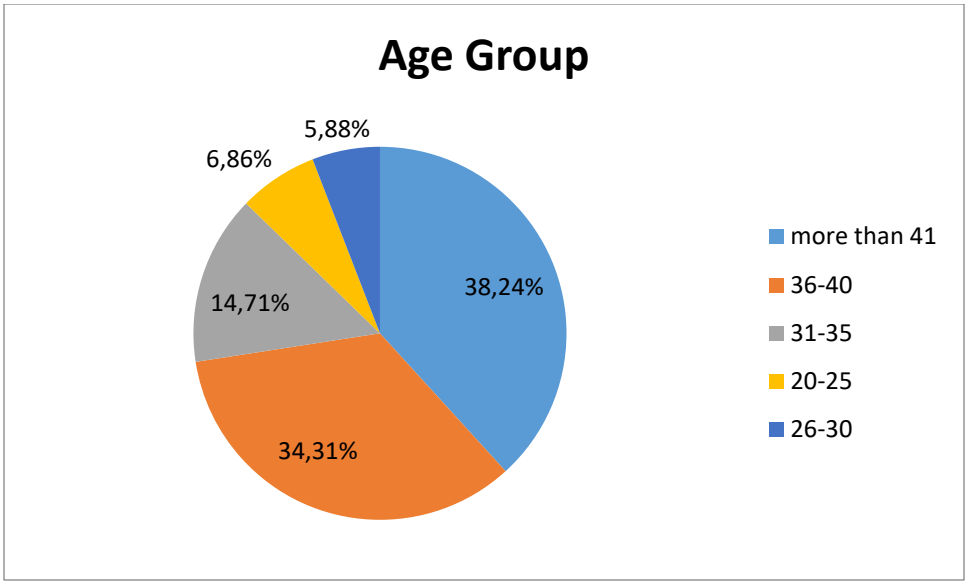

Figure 4. 2
Demographic information of the Age Group

The obtained dataset comprises people from different age groups (Table 3 and Figure 2), with the largest segment being people above 41 years of age, representing 38.24 percent of the total 102 respondents, suggesting a substantial experience base among the participants. This is closely followed by participants in the 36-40 age group with 34.31 percent, which, together with people above 41 years of age, make up more than 70 percent of the dataset, indicating a mature demographic. Additionally, younger groups (31-35, 20-25, and 26-30) represent smaller portions, such as the 31 to 35 age group is approximately 15 percent, while the youngest group of 20 to 25 age group is 6.86 percent, and the 26 to 30 age group is 5.88 percent, both combined to make up approximately 13 percentages. The distribution reflects a predominantly middle to senior age profile in the dataset, which has the potential to influence attitudes on the ESG and sustainability topics surveyed.

Table 4. 3
Types of Sectors

Types of Sectors	Frequency	Percentage
Service	59	57.84%
Manufacturing	43	42.16%

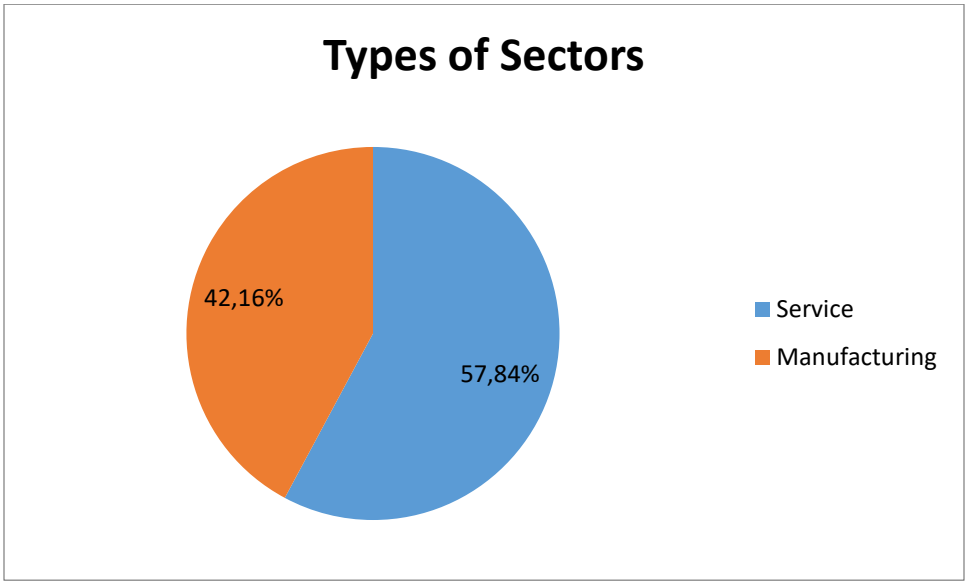

Figure 4. 3
Demographic Information of Types of Sectors

The sectors' representation of the dataset in Table 4 and Figure 3 is divided into two sectors, of which the service sector shows a higher proportion of companies, accounting for about 57.84 percent of the total, while the manufacturing sector accounts for 42.16 percent. The obtained sample shows a predominant presence of service-related companies, which probably reflects the current economic focus of the study or the region.

Table 4. 4
Size of the company

Size of the company	Frequency	Percentage
Small	68	66.67%
Medium	34	33.33%

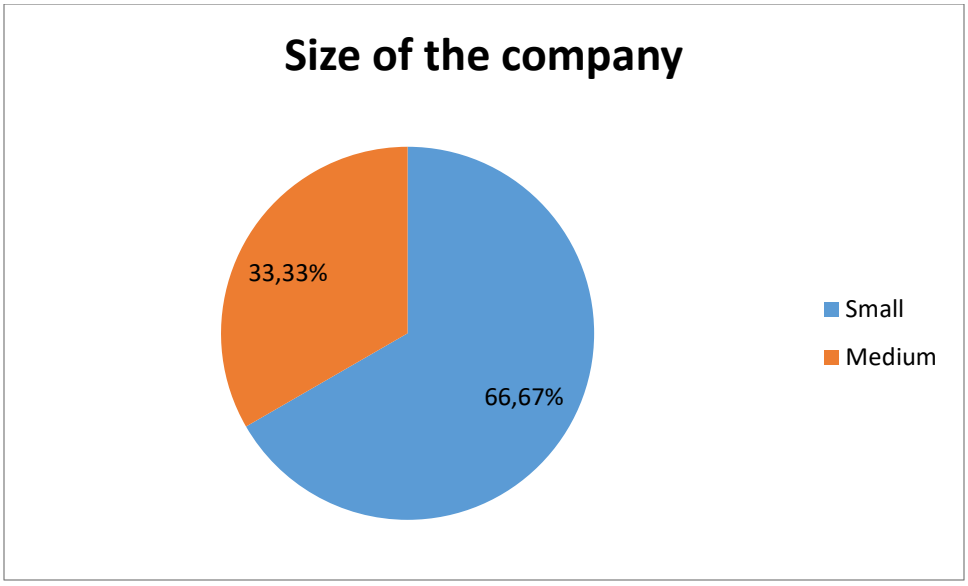

Figure 4. 4
Demographic information of the Size of the company

In terms of company or firm size (Table 5 and Figure 4), small companies or firms represent the majority of the sample size obtained in the survey, with a share of about 66.67 percent, two-thirds of the sample, which is much higher than the 33.33 percent of medium-sized companies or firms. The obtained dataset shows that smaller companies or firms can provide more relevant insights related to the challenges and dynamics they face in implementing ESG integration and sustainability practices.

Table 4. 5
Types of company

Types of company	Frequency	Percentage
Private	52	50.98%
Public	50	49.02%

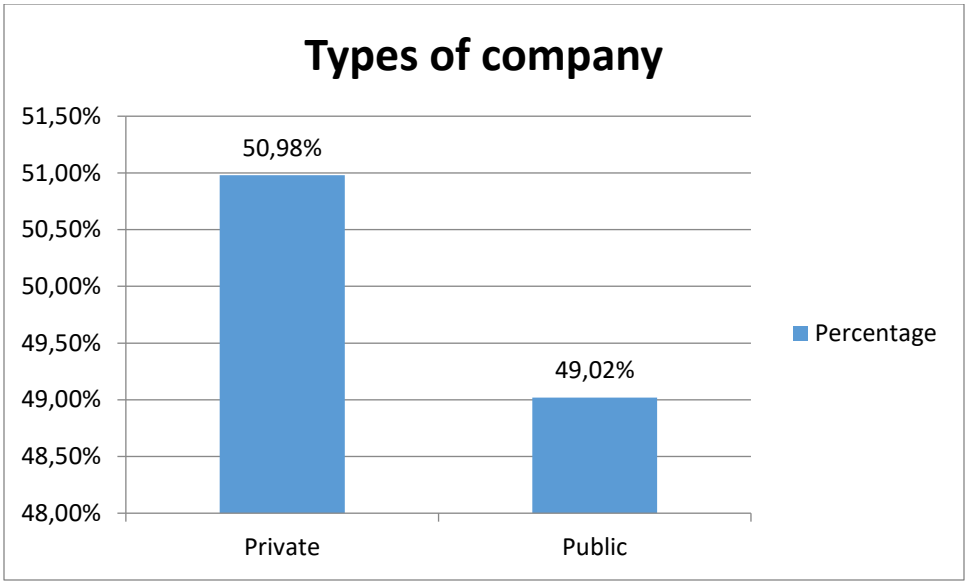

Figure 4. 5
Demographic information of Types of companies

As can be seen from Table 6 and Figure 5, the dataset has an almost balanced representation of company types. Private companies account for exactly 50.98 per cent of the dataset, and public companies account for 49.02 per cent. The dataset in Table 6 shows the attitudes and ESG practices of different ownership structures, thereby providing comparative insights between the public sector and the private sector. The almost equal division in the obtained dataset provides a strong basis for analyzing sustainability trends and governance models in both the public sector and private sector organizations.

4.2. Environmental, Governance, Social (SOC), and Sustainability

4.2.1. Measurement Model Results

Several indicators, such as indicator loadings (IL), CR (construct reliability), AVE (average variance extracted), and DV (discriminant validity), were examined to evaluate the validity and reliability of the measurement model. The strong contribution of each item to its respective construct is confirmed by the high indicator loadings (above 0.70).

4.2.2 Outer Loadings

In the provided data for Environmental, Governance, Social (SOC), and sustainability practices, the threshold for inclusion was set at 0.70. Items with outer loading values below this threshold were removed to ensure only significant data points were retained for analysis.

For Environmental (ENV) variables, the following items were deleted due to their outer loading values being below 0.70: ENV1 (0.625), ENV2 (0.585), ENV3 (0.593), ENV7 (0.582), and ENV5 (0.674). The remaining items that meet the threshold include ENV10 (0.723), ENV11 (0.734), ENV12 (0.723), ENV4 (0.774), ENV6 (0.689), ENV8 (0.729), and ENV9 (0.797).

For Governance (GOV) variables, GOV1 (0.589) was deleted because it was below the threshold. The remaining items include GOV2 (0.776), GOV3 (0.735), GOV4 (0.762), GOV5 (0.683), GOV6 (0.787), and GOV7 (0.689).

For Social (SOC) variables, the following items were deleted due to their values being below 0.70: SOC6 (0.646). The remaining items for SOC include SOC1 (0.686), SOC2 (0.733), SOC3 (0.766), SOC4 (0.711), SOC5 (0.746), and SOC7 (0.688).

For sustainability practices (SP), SP1 (0.610) was deleted for having an outer loading value below the threshold. The remaining items for SP include SP2 (0.676), SP3 (0.699), SP4 (0.750), SP5 (0.829), and SP6 (0.771).

By removing the items with outer loadings below 0.70, the analysis is now based on the most significant variables, ensuring a more focused and accurate evaluation of Environmental, Governance, Social, and sustainability practices factors.

In the provided data for Environmental, Governance, Social (SOC), and sustainability practices (SP), the threshold for inclusion was set at 0.70. Items with outer loading values below this threshold were removed to ensure that only significant data points were retained for the analysis.

For Environmental (ENV) variables, all items meet the threshold, with the values for ENV10 (0.772), ENV11 (0.772), ENV12 (0.785), ENV4 (0.774), ENV8 (0.715), and ENV9 (0.833) being above 0.70, ensuring their inclusion in the analysis.

For Governance (GOV) variables, all items also exceed the threshold, with values for GOV2 (0.743), GOV3 (0.764), GOV4 (0.813), GOV5 (0.728), and GOV6 (0.774) being above 0.70, making them eligible for retention in the dataset.

For Social (SOC) variables, all retained items exceed the threshold as well. SOC2 (0.767), SOC3 (0.840), SOC4 (0.779), and SOC5 (0.720) are all included, as their values are above 0.70.

For sustainability practices (SP), all items meet the threshold, with SP3 (0.740), SP4 (0.842), SP5 (0.854), and SP6 (0.783) being retained for analysis.

By retaining only those items with outer loadings above 0.70, the analysis now focuses on the most significant factors, ensuring a more robust and accurate evaluation of Environmental, Governance, Social, and sustainability practices data (insert figure 6).

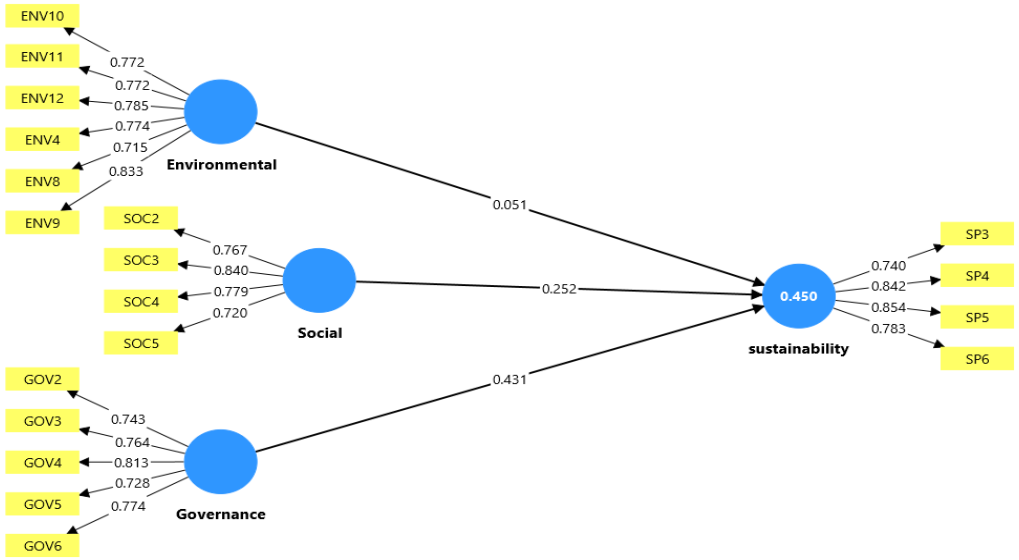

Figure 4. 6
Measurement model (Initial test)

4.2.3 Construct Reliability and Validity

Cronbach's alpha assesses internal consistency reliability, i.e., whether multiple indicators consistently measure the same construct. Values above 0.70 indicate satisfactory reliability, though values above 0.80 are preferable in academic research (Nunnally and Bernstein, 1994). This test is crucial as it ensures that items within a construct are measuring the underlying latent variable in a consistent manner.

Unlike Cronbach's alpha, which assumes equal indicator loadings, composite reliability considers actual loadings, therefore providing a more precise estimate of construct reliability. Values above 0.70 are acceptable, showing that the construct is measured reliably (Hair *et al*., 2017). This test is important because it overcomes the limitations of Cronbach's alpha, particularly in PLS-SEM, where indicators may vary in their contribution.

AVE (average variance extracted) measures the proportion of the variance captured by a latent construct relative to the variance due to measurement error. An AVE above 0.50 indicates that at least 50 percent of the variance of indicators is explained by the construct, confirming convergent validity (Fornell and Larcker, 1981). This measure is essential to verify whether constructs truly represent the theoretical concept.

Table 4. 6
Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Environmental	0.868	0.879	0.901	0.602
Governance	0.823	0.827	0.876	0.585
Social	0.784	0.806	0.859	0.605
sustainability practices	0.819	0.824	0.881	0.650

The Cronbach's alpha (Tavakol and Dennick, 2011) and composite reliability (ρ_a and ρ_c) values for all constructs are above the recommended threshold of 0.70, indicating strong internal consistency reliability (Hair *et al*., 2019). For example, Environmental (α = 0.868; ρ_c = 0.901) and Governance (α = 0.823; ρ_c = 0.876) demonstrate adequate reliability, surpassing the minimum requirement (Nunnally, 1975). Similarly, the AVE (Average Variance Extracted) values for all constructs (ranging from 0.585 to 0.650) exceed the 0.50 threshold, confirming satisfactory convergent validity and ensuring (insert table 7) that each construct explains more than 50 percent of its indicators' variance (Fornell and Larcker, 1981). Thus, the measurement model can be considered robust with valid constructs for subsequent structural analysis.

4.2.3.1 R-square

R^2 indicates the proportion of variance in the dependent variable explained (insert Table 8) by independent constructs. Values of 0.25, 0.50, and 0.75 are considered weak, moderate, and substantial explanatory power, respectively (Chin, 1998). This test is crucial for assessing the predictive power of the model.

Table 4. 7
R-square

	R-square	R-square adjusted
Sustainability practices	0.450	0.433

The R^2 value for Sustainability is 0.450, with an adjusted R^2 of 0.433. This indicates a moderate explanatory power as per Chin (1998), where values of 0.25, 0.50, and 0.75 represent weak, moderate, and substantial explanatory levels, respectively. Hence, Environmental, Governance, and Social collectively explain approximately 45 percent of the variance in Sustainability, which is sufficient for exploratory research in social sciences (Hair *et al*., 2019).

4.2.4 Discriminant validity

Discriminant validity ensures that constructs are distinct from one another, i.e., items of one construct do not highly correlate with another construct. Fornell–Larcker's criterion requires that the square root of Average Variance Extracted for a construct should be greater than its correlation with other constructs (Fornell and Larcker, 1981). This test is vital for ensuring (insert table 9) that constructs are unique and capture different dimensions of a phenomenon.

Table 4. 8
HTMT

	Environmental	Governance	Social	Sustainability practices
Environmental				
Governance	0.874			
Social	0.780	0.853		

Sustainability practices	0.617	0.771	0.705

4.2.4.1 Fornell–Larcker criteria

Table 4. 9
Fornell – larcker criteria

	Environmental	Governance	Social	Sustainability practices
Environmental	0.776			
Governance	0.733	0.765		
Social	0.639	0.686	0.778	
Sustainability	0.528	0.641	0.580	0.806

The Fornell–Larcker (1981) criterion shows that the square root of Average Variance Extracted for each construct (e.g., Environmental = 0.776, Governance = 0.765, Social = 0.778, SP = 0.806) is greater than the correlations with other constructs (insert table 10). This suggests adequate discriminant validity, meaning the constructs capture distinct concepts (Fornell and Larcker, 1981). For instance, the correlation between Governance and Sustainability practices (0.641) is lower than the square root of AVE for both constructs, demonstrating construct distinctiveness. Moreover, cross-loadings also meet recommended thresholds, further reinforcing discriminant validity.

4.2.4.2 Multicollinearity

VIF detects multicollinearity between indicators. Values below 5 (or more conservatively 3.3) indicate the absence of problematic collinearity (Kock, 2015). Testing this is important because high multicollinearity inflates standard errors and weakens statistical inferences in SEM.

Table 4. 10
Multicollinearity

items	VIF
ENV10	1.943
ENV11	1.990
ENV12	1.958
ENV4	1.826
ENV8	1.703

ENV9	2.172
GOV2	1.775
GOV3	1.726
GOV4	1.824
GOV5	1.505
GOV6	1.828
SOC2	1.492
SOC3	1.708
SOC4	1.754
SOC5	1.538
SP3	1.863
SP4	2.409
SP5	2.435
SP6	1.900

All VIF values fall below the conservative cutoff (insert table 11) of 5.0 (e.g., GOV5 = 1.505; SP5 = 2.435), indicating no serious multicollinearity issue among indicators (Hair and Alamer, 2022). This ensures that predictor variables in the model are not redundant and that path coefficient estimates are reliable.

4.2.5 Model Fit

Model fit indices determine how well the proposed measurement model reflects the observed data. For PLS-SEM, SRMR (Standardized Root Mean Square Residual) values below 0.08 are considered a good fit (Hu and Bentler, 1999). Other indices like NFI (>0.70 acceptable) also indicate model adequacy. This is important to ensure the conceptual model aligns with real-world data.

Table 4. 11
Model Fit

	Saturated model	Estimated model
SRMR	0.081	0.081
d_ULS	1.234	1.234
d_G	0.554	0.554
Chi-square	313.134	313.134
NFI	0.719	0.719

The SRMR value of 0.081 is below the acceptable threshold of 0.10 (Hu and Bentler, 1999), suggesting a satisfactory model fit. However, the Normed Fit Index (NFI = 0.719) is below the ideal >0.90 benchmark, indicating that while the model is an acceptable representation, there may still be room for improvement in specification (insert table 12). Nonetheless, in PLS-SEM, model fit is considered secondary to predictive power, and therefore, the results remain valid (Jörg and Ringle, 2015).

4.2.5.1 Path Coefficient

Path coefficients in SEM represent hypothesized relationships between constructs. They are interpreted like regression coefficients, with significance tested via bootstrapping. A t-value > 1.96 and p-value < 0.05 indicate significance at the 5 percent level (Hair *et al*., 2019). This test is essential for validating causal hypotheses between constructs.

The path coefficients reveal that Governance significantly impacts Sustainability (β = 0.431, T=2.888, p=0.004), making Governance a key driver in the model. This aligns with prior findings emphasizing strong governance practices as a central determinant of sustainability outcomes (Eccles, Ioannou, and Serafeim, 2014).

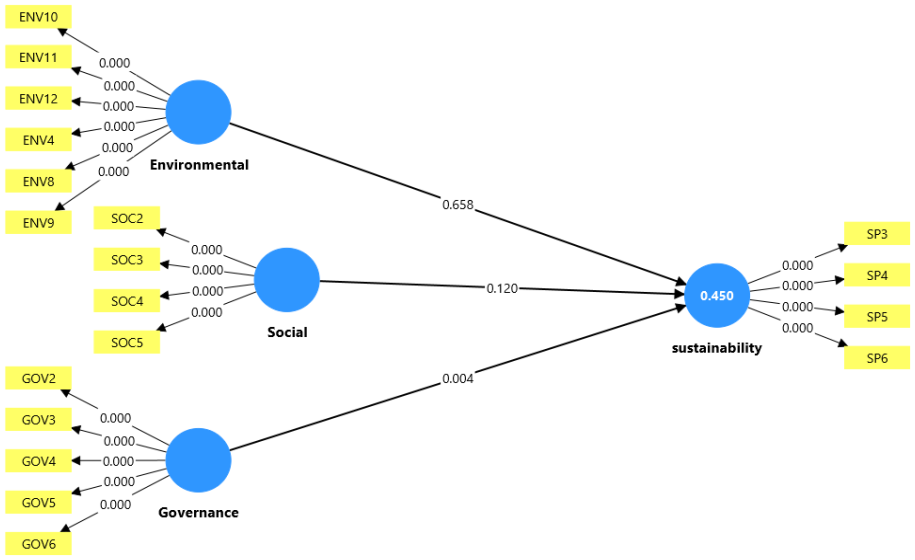

Figure 4. 7
Path coefficient

Table 4. 12
Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Environmental -> Sustainability practices	0.051	0.048	0.115	0.442	0.658
Governance -> Sustainability practices	0.431	0.430	0.149	2.888	0.004
Social -> Sustainability practices	0.252	0.266	0.162	1.553	0.120

On the other hand, Environmental ($\beta = 0.051$, $p = 0.658$) shows no significant influence, suggesting that environmental indicators in this dataset are not strong predictors of sustainability practices in the given context. Similarly, Social ($\beta = 0.252$, $p = 0.120$), though positive, is statistically insignificant. These findings highlight (Table 13) that, while Social and Environmental dimensions may conceptually contribute to sustainability, their impact is not empirically validated in this dataset, likely due to either contextual limitations or measurement focus (Lozano, 2015).

Thus, Governance emerges as the most influential construct, reinforcing the role of leadership, ethical practices, and institutional oversight in shaping sustainability practices outcomes.

The results demonstrate that the model is reliable, valid, and moderately predictive. Governance is the most crucial driver of Sustainability Performance, while Environmental and Social factors did not show significant direct effects. This suggests that in practice, strong governance structures may create the enabling environment necessary for environmental and social initiatives to be effectively implemented, thereby indirectly enhancing sustainability.

4.3. ESG implementation and sustainability practices

4.3.1. Outer loading

In the provided data for Overall ESG Implementation and Sustainability, the threshold for inclusion was set at 0.70. Any item with an outer loading value below this threshold was removed from the analysis.

For Environmental Practices (ENV), the items with outer loadings below 0.70 and therefore deleted were ENV1 (0.580), ENV2 (0.519), ENV3 (0.521), ENV5 (0.638), ENV6 (0.620), and ENV7 (0.493). The remaining items for ENV include ENV10 (0.692), ENV11 (0.721), ENV12 (0.721), ENV4 (0.708), ENV8 (0.684), and ENV9 (0.714).

For Governance Practices (GOV), the items with outer loadings below 0.70 and therefore deleted were GOV1 (0.563), GOV3 (0.592), and GOV7 (0.609). The remaining items for GOV include GOV2 (0.718), GOV4 (0.708), GOV5 (0.678), and GOV6 (0.722).

For Social Practices (SOC), the items with outer loadings below 0.70 and therefore deleted were SOC1 (0.651), SOC2 (0.621), SOC4 (0.592), and SOC5 (0.635). The remaining items for SOC include SOC3 (0.663), SOC6 (0.653), and SOC7 (0.690).

For Sustainability practices (SP), the item SP1 (0.602) was deleted as it was below the threshold. The remaining items for SP include SP2 (0.677), SP3 (0.710), SP4 (0.759), SP5 (0.825), and SP6 (0.764).

The deletions were made to ensure that only items with significant contributions (outer loading values above 0.70) were retained for further analysis, improving the accuracy and relevance of the data.

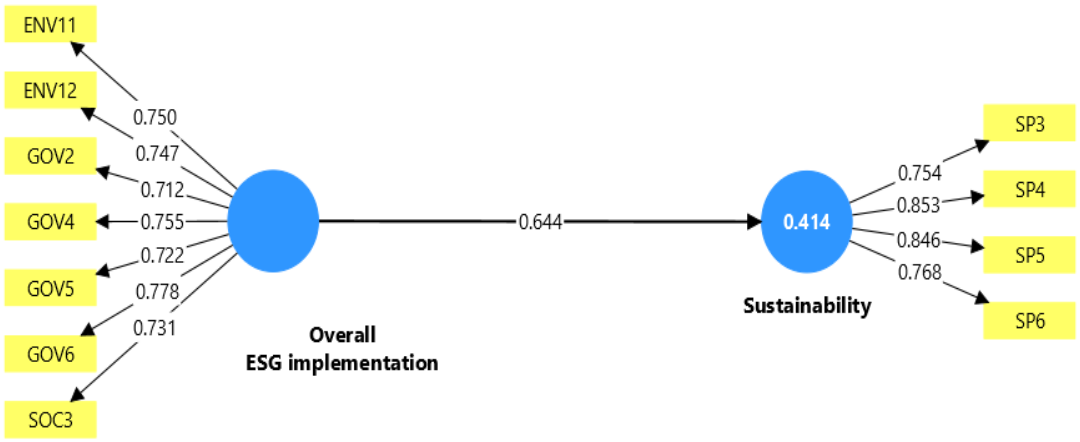

Figure 4. 8
Measurement model (Initial test)

4.3.2 Construct Reliability and Validity

Table 4. 13
Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Overall _ESG implementation	0.865	0.870	0.896	0.552
Sustainability	0.819	0.823	0.881	0.650

Cronbach's alpha and composite reliabilities for Overall ESG Implementation (α = 0.865; ρ_c = 0.896) and Sustainability (α = 0.819; ρ_c = 0.881) exceed the minimum 0.70 benchmark (Nunnally, 1975), confirming internal consistency reliability. AVEs of 0.552 and 0.650 also pass the 0.50 threshold (Fornell and Larcker, 1981), signifying convergent validity. This means that the retained items adequately (Table 14) capture their intended latent constructs of ESG implementation and sustainability.

4.3.1.1 R-square

The R^2 for Sustainability = 0.414 (adjusted = 0.408), indicating that ESG implementation explains 41 percent of the variance in sustainability performance. Based on Chin's (1998) categorization (0.25 = weak, 0.50 = moderate, 0.75 = substantial), this falls into the moderate explanatory power range, making it a meaningful predictor while leaving scope for other external factors (e.g., institutional support, cultural practices) not captured in the model.

4.3.1.2 F-Square

The f^2 effect size of 0.707 for ESG implementation → sustainability indicates a large effect size (Cohen, 1988), suggesting that ESG implementation exerts a strong influence on sustainability. This is consistent with prior empirical findings linking ESG integration with enterprise-wide sustainability outcomes (Friede, Busch, and Bassen, 2015).

4.3.3 Discriminant validity

4.3.3.1 HTMT

The HTMT ratio of 0.743 is below the conservative threshold of 0.85 (Jörg and Ringle, 2015), indicating discriminant validity between Overall ESG implementation and Sustainability.

4.3.3.2 Fornell–Larcker criteria

The Fornell–Larcker criterion also supports this finding, as the square root of AVE for each construct (ESG = 0.743; Sustainability = 0.806) exceeds inter-construct correlations. This means ESG implementation and sustainability are distinct but related constructs.

4.3.4 Multicollinearity

VIF detects multicollinearity between indicators. Values below 5 (or more conservatively 3.3) indicate the absence of problematic collinearity (Kock, 2015). Testing this is important because high multicollinearity inflates standard errors and weakens statistical inferences in SEM.

Table 4. 14
Multicollinearity

Items	VIF
ENV11	2.034
ENV12	1.962
GOV2	1.733
GOV4	1.692
GOV5	1.697
GOV6	2.032
SOC3	1.593
SP3	1.863
SP4	2.409
SP5	2.435
SP6	1.900

All VIF values range between 1.593 and 2.435, which is below the critical cutoff of 5.0 (Joseph F. Hair *et al*., 2019), confirming that multicollinearity is not a concern. This ensures stable coefficient estimates for the path analysis (insert Table 15).

4.3.5 Model Fit

The SRMR = 0.087 is below the cutoff of 0.10, indicating a good model fit (Hu and Bentler, 1999). However, NFI = 0.778 is below the ideal threshold (>0.90). In PLS-SEM, lower NFI values are common and acceptable, as model fit is not the primary evaluation criterion (Jörg and Ringle, 2015). The acceptable SRMR suggests that the model adequately represents the observed data.

4.3.6 Path Coefficient

The structural path from ESG implementation → Sustainability is positive and highly significant ($\beta = 0.644$, $T = 9.568$, $p < 0.001$). This strong standardized coefficient indicates that higher adoption of environmental, governance, and social practices significantly enhances sustainability performance. The effect size is particularly noteworthy, suggesting ESG implementation is not only a predictor but a key driver of sustainability.

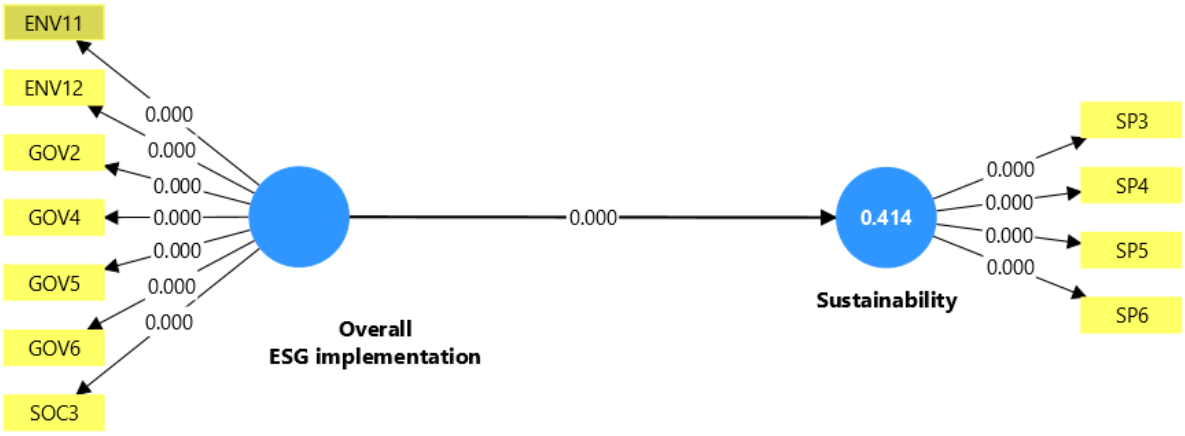

Figure 4. 9
Path coefficient

Table 4. 15
Path coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Overall _ESG implementation -> Sustainability	0.644	0.656	0.067	9.568	0.000

This finding aligns with prior literature, such as Eccles, Ioannou, and Serafeim (2014), who find that firms that integrate ESG principles demonstrate superior sustainability and long-term performance. Similarly, Lozano (2015) emphasizes that systemic ESG adoption across organizational practices leads to stronger sustainability embedding (insert table 16).

The model demonstrates strong reliability, valid discriminant measures, and robust explanatory power. ESG implementation shows a large, significant impact on sustainability, explaining 41 percent of the variance with a strong effect size. The findings empirically validate the critical role of ESG-driven practices in achieving sustainability

outcomes, consolidating the link between corporate responsibility and sustainable performance.

From a theoretical standpoint, the model reinforces stakeholder and institutional theory, which argue that embedding ESG practices enhances legitimacy and long-term competitiveness (Freeman, 1984). Practically, the results highlight to policymakers, managers, and investors that ESG practices are not symbolic but substantive mechanisms for fostering sustainability.

CHAPTER V:
DISCUSSION

5.1 Interpretation of Findings

The objective of the present research was to empirically test the relationship between ESG (environmental, social, and governance) practices and sustainability practices (SP) in Indian SMEs. The four proposed hypotheses were tested using structural equation modelling (SEM) on survey-based data. These hypotheses proposed that ESG practices individually influence sustainability, while overall ESG implementation in enterprises collectively contributes to sustainability performance. The explanation below synthesizes the results of the statistical findings with theoretical perspectives and practical implications, providing a nuanced understanding of the ESG-sustainability relationship in the context of Indian small and medium enterprises SMEs.

5.1.1 Environmental practices and sustainability (H1)

The first hypothesis (H1) proposed in the study predicted that environmental practices (EP) would have a positive impact on the sustainability practices (SP) of Indian small and medium enterprises (SMEs). Though the empirical results reveal a non-significant path coefficient ($\beta = 0.051$; $p = 0.658$). Statistically, this indicates that the environmental practices measured within the dataset do not have a significant impact on sustainability outcomes for SMEs in the current derived sample. This finding initially appears contradictory, as a vast amount of existing literature (Porter and Linde, 1995; Hart and Dowell, 2011) suggests that environmental commitment is the basis of corporate

sustainability (Ramanathan *et al*., 2017). However, this insignificance can be contextualized by examining the operational realities of SMEs in India.

Unlike large corporations, SMEs may prioritize operational survival over long-term ecological investments, thereby reducing the immediate impact of environmental practices (EP) on performance indicators such as competitiveness, efficiency, or stakeholder trust. Furthermore, environmental practices in SMEs may still be in their infancy, often driven by symbolism or regulatory compliance rather than being strategic and deeply integrated into core business models (Clark and Wei, 2020). As a result, even when such ESG practices are implemented, their contribution to broader sustainability may be limited or delayed.

Another explanation may arise from measurement. Environmental goods such as carbon policies, eco-friendly products, and renewable energy adoption are conceptually important. These may not yet hold significant strategic importance in SMEs. For example, recycling policies or eco-packaging practices may deliver environmental benefits but do not immediately translate into financial or operational benefits in the form of SME sustainability performance. Thus, the analysis indicates a gap between intentions and capabilities: SMEs express environmental concern but struggle to implement it in a manner that boosts performance outcomes. This insight aligns with Lozano *et al*. (2015), who, in their study, point out that environmental sustainability (ES) initiatives often require strong governance and a supportive institutional ecosystem to have a tangible impact.

Overall, the proposed H1 is not supported, meaning that environmental practices alone do not drive sustainability practices among Indian SMEs. However, this does not undermine their long-term importance; it points to the current stage of ESG maturity in Indian SMEs, where environmental actions remain symbolic or incremental rather than performance-transformative.

5.1.2 Social practices and sustainability performance (H2)

The second hypothesis (H2) proposed that social practices (SP) have a positive impact on the sustainability of Indian SMEs. Data analysis yielded a positive but statistically insignificant relationship ($\beta = 0.252$; $p = 0.120$). Although the coefficient indicates that social practices contribute towards sustainability, their effect is weak or inconsistent across the obtained SME sample.

The social practices in this study included aspects such as employee welfare, education programs, workplace safety, product quality, and consumer treatment systems, dimensions that are fundamental to building trust with stakeholders and employees. However, like environmental practices, their impact on sustainability appears to be limited in smaller firms compared to larger organizations. Small and medium enterprises (SMEs) may lack formal human resource (HR) systems or structured corporate social responsibility policies. Instead, social initiatives are often informal or relationship-driven, making them less visible in quantitative sustainability outcomes. It is important to contextualize this result within the cultural and institutional environment of Indian SMEs. Many SMEs operate within family-owned or close-knit community structures, where ensuring

employee welfare or maintaining consumer trust are considered implicit rather than explicit value creation. Therefore, although these practices exist in theory, they appear to contribute less to formal analysis than to sustainability parameters such as operational efficiency, reputation, or long-term competitive positioning. Furthermore, social investments in Indian SMEs are often under-reported or lack the systemic measurement needed to demonstrate causal effects on sustainability outcomes (Chatterjee and Mitra, 2017).

This insignificant finding also aligns with prior SME research, which shows that financial constraints (Revell and Blackburn, 2007; Hassan *et al*., 2025) and operational priorities often override social dimensions (Chelawat and Trivedi, 2016). Although employees are considered important and core in the firm, structured investments in workplace ethics, consumer treatment, and employee development are not mature enough to generate measurable sustainability benefits. Another interpretation is that social initiatives may contribute to sustainability indirectly through intermediaries such as governance, which means that unless combined with strong formal governance, social practices may not independently produce substantial performance outcomes.

Hence, while H2 in its direct form is not statistically supported, social practices remain conceptually relevant. The lack of significance emphasizes that if Indian small and medium enterprises (SMEs) are to reap tangible sustainability benefits, they must institutionalize and systematize their emphasis on social practices. It also points to the role of governance structures in translating social responsibility into measurable sustainability outcomes.

5.1.3 Governance practices and sustainability performance (H3)

The third proposed hypothesis (H3) postulated that governance practices positively influence the sustainability performance of Indian SMEs. The research found strong empirical support for this hypothesis, with results indicating a significant path coefficient ($\beta = 0.431$; $T = 2.888$; $p = 0.004$). Thus, governance emerges as the most important driver of sustainability in the sustainability performance of Indian SMEs in this study, surpassing the influence of environmental and social practices. Governance practices (GP) such as transparent ownership, ethical leadership, board independence, shareholder protection, transparent ownership, internal audit, shareholder protection and disclosure of performance information provide small and medium enterprises (SMEs) with formal structures and frameworks to guide sustainable behavior (Isaac *et al*., 2022). In small and medium enterprises (SMEs) where environmental and social practices appear to be underdeveloped or inconsistent, building governance institutional strength effectively designs, implements and monitors these practices. This interpretation is consistent with previous studies that highlight governance as the backbone (Maurya, 2025) of ESG integration in emerging and developing economies, where resource limitations and institutional barriers hinder environmental and social practices.

In Environment, Social and Governance, the governance-sustainability nexus highlights the critical role of leadership in Indian Small and Medium Enterprises (SMEs). Unlike larger organizations with multi-layered management structures, SMEs often rely heavily on owner-managers or top executives. Gizem (2021) describes these as independent owner-managed firms.

Respectful governance in any company or firm—their orientation towards transparency, ethics, and accountability—lays a foundation for organizational behavior (OB) that aligns environmental and social responsibilities with long-term firm goals and converts symbolic compliance into concrete action. In the absence of governance in any company or firm, both environmental and social practices run the risk of remaining peripheral or fragmented.

Seen from this perspective, governance as an enabling mechanism ensures that limited resources are effectively targeted towards value-creating environment, social, and governance (ESG) practices by ensuring accountability. For emerging economy SMEs, governance practices provide the market legitimacy and credibility needed to access financing or partnerships, thereby further strengthening sustainability outcomes. For example, an SME committed to transparent audits and ethical conduct to enhance sustainability practices is more likely to retain reputation-based capital and attract stakeholders.

Thus, H3 strongly supports governance practices positively affecting the sustainability of Indian SMEs. Also, the importance of governance in the Indian SME sector underlines the need for policymakers and stakeholders to encourage transparent leadership and strong institutional frameworks. Unlike environmental and social practices that are sometimes resource-dependent, governance falls under managerial control and can be developed as a low-cost, high-impact tool for sustainability.

5.1.4 Overall ESG implementation and sustainability practices (H4)

The fourth hypothesis of the study (H4) examined whether overall ESG implementation is positively associated with SME sustainability performance. The results strongly confirm this hypothesis and find a positive path coefficient ($\beta = 0.644$; $T = 9.568$; $p < 0.001$). This indicates that when environmental, social, and governance (ESG) practices are considered as a holistic construct, they together have a strong positive impact on sustainability, explaining 41percent of its variance. Furthermore, the effect size ($f^2 = 0.707$) indicates a large effect, indicating that ESG adoption is only a marginal predictor and a central driver of sustainability practices.

This result provides two important insights. First, it suggests that although environmental or social practices alone are unable to significantly drive sustainability in isolation, a comprehensive ESG integration across industries amplifies their collective impact. The synergy among all three ESG dimensions appears to be more powerful than any one particular dimension. Governance (g) gains importance while acting as a structural foundation that anchors environmental and social practices. In short, the composite dimensions prove to be larger.

Second, this strong relationship confirms the theoretical predictions of stakeholder theory (Freeman, 1984) and institutional theory (Amenta and Ramsey, 2010), which argue that holistic ESG engagement enhances organizational legitimacy, stakeholder relationships, and long-term survival. Holistic ESG adoption in SMEs strengthens

sustainability performance through both reputation and operations, along with responsibility to regulators, customers, investors, and communities.

The magnitude of the ESG → sustainability relationship also reflects global empirical findings (Friede et al., 2015) collected from several other studies, which show a consistent positive correlation between ESG and corporate financial/non-financial performance (Feyisetan, Alkaraan, and Le, 2025). This becomes significant for Indian SMEs, as the results highlight ESG adoption as a viable path to sustainable competitiveness. Given the moderate explanatory power ($R^2 = 0.414$), ESG accounts for a large but not insignificant portion of sustainability, which means that other external factors, such as industry regulations, market dynamics, government incentives, etc., also matter. Thus, the study strongly supports H4 that overall ESG implementation is positively associated with the sustainability of Indian SMEs, establishing ESG implementation as an important determinant of SME sustainability.

This interpretation confirms partial support for the following proposed hypotheses: governance (H3) and holistic ESG implementation (H4) positively enhance sustainability, while environmental (H1) and social (H2) practices do not show significant individual effects. Overall, the study findings suggest that governance provides the structural foundation on which environmental and social practices gain significance, and it is only through the implementation of holistic ESG dimensions that SMEs achieve substantial sustainability outcomes. This insight is crucial for Indian SMEs navigating the transition towards sustainable competitiveness in a resource-constrained environment.

By demonstrating the indispensable role of governance and the synergistic power of holistic ESG adoption, the study findings emphasize that sustainability in SMEs is driven not by isolated actions but by the systematic incorporation of ESG principles. Practically, this implies that policies promoting ESG adoption should avoid piecemeal approaches and instead support SMEs in developing integrated ESG strategies. So that Indian Small and Medium Enterprises (SMEs) can survive in the competitive landscape and thrive while contributing sustainably to the stakeholder-driven global economy.

5.2 Comparison with Existing Literature

Comparison with existing literature is based on the contextual specificity of ESG adoption in Indian SMEs, SMEs being a sector that has historically lacked research compared to larger companies in developed economies. While existing global ESG research (Eccles, Ioannou and Serafeim, 2014; Friede, Busch and Bassen, 2015) has primarily emphasised the environmental (e) and financial benefits of ESG implementation, the empirical findings of this study present a nuanced picture where governance practices emerge as the most important driver of sustainability performance in Indian SMEs, while environmental and social practices have a statistically insignificant direct impact. This is contrary to the prevailing belief in the existing broader ESG literature that environmental commitments are consistently associated with better sustainability outcomes (Porter and Linde, 1995; Hart and Dowell, 2011). This divergence arises from the resource and operational constraints that exist for small and medium enterprises (SMEs) in emerging and developing economies such as India, where environmental initiatives may be periodic or regulatory compliance-driven rather than strategic or extremely integrated (Lozano,

2015). This highlights an important contextual gap in existing research, as one-size-fits-all ESG models (Bischoff, Manuel, and Vicente, 2025), often developed with large, resource-rich firms in mind, inadequately capture the complexity and capability limitations of small and medium enterprises (SMEs) in resource-limited environments (Akeela, 2024).

The literature review in the study highlights the knowledge gaps regarding an empirical, clear, data-driven investigation of ESG integration in Indian SMEs and the well-documented conduct of integration studies of ESG practices. Existing research focuses on large Indian corporations or financial institutions, leaving ESG integration in SMEs marginalized in discussions (Sarangi, 2021; Mishra and Sant, 2024). The report's identification of fragmented ESG adoption, inconsistent disclosure practices, and weak regulatory enforcement is in line with criticisms leveled in earlier studies by Chelawat and Trivedi (2016) and Singh *et al*. (2021). However, the report advances this discourse by empirically quantifying the modest explanatory power of ESG practices on sustainability (explaining around 41 percent of variance) and demonstrating the primacy of governance as central to effective ESG engagement. It highlights the role of governance as an institutional enabler as a layer of sector- and size-specific understandings that legitimize and drive environmental and social initiatives within SMEs (Eccles, Ioannou and Serafeim, 2014; Mishra and Mohanty, 2014). The theoretical foundations used in the study are stakeholder theory (Freeman, 1984), resource-based view (Barney, 1991), legitimacy theory (Suchman, 1995), and institutional theory (DiMaggio and Powell, 1983) that resonate in the broader academic community.

Stakeholder theory's emphasis on balancing diverse interests lends legitimacy to ESG's integrated approach to sustainable business conduct, while institutional theory aptly defines the coercive, mimetic, and normative pressures that shape SME behavior in India's evolving regulatory landscape (Mahajan *et al*., 2023). The study emphasises governance as a mechanism, which is in line with institutional theory's assertion that legitimacy and compliance are critical in driving organizational change under normative and regulatory demands (Scott, 2005). Similarly, by applying the resource-based view that argues that ESG can serve as a strategic asset in resource-poor SMEs, existing literature suggests that internal capabilities, such as governance structures, can generate sustainable competitive advantage (Hart, 1995; Teece, Pisano, and Shuen, 1997).

Nonetheless, the findings underscore a research gap in the broader ESG literature: SME-specific dynamics are underrepresented in emerging markets. Most existing studies focus on the positive effects of environmental and social practices on the performance of large firms, ignoring constraints such as limited financial capital, lack of awareness, and inadequate institutional support prevalent in SMEs (Shalhoub and Hosseini, 2022; Akilah, 2024). This aligns with the study's claim that environmental and social practices in Indian SMEs may be just symbolic or fragmented, lacking the systemic rigor or resources necessary to independently achieve significant sustainability benefits. It also supports findings from international studies indicating that SMEs prioritize immediate survival over long-term sustainability (Revell and Blackburn, 2007).

Another important research gap addressed in the study is the role of social and governance dimensions in SME sustainability, which aligns with prior literature but is not fully addressed. Governance is widely regarded as pivotal to environmental, social, and governance (ESG) performance (Mishra and Mohanty, 2014; Jackson *et al*., 2023), although social dimensions frequently attract less academic scrutiny and practical investment (Sarangi, 2021; Singh *et al*., 2021). This study reinforces the imbalance that social practices are positively related to sustainability, but despite this, fail to achieve statistical significance in the Indian SME sample, and suggests that to translate social responsibility into quantifiable sustainability benefits, institutionalized social initiatives and strategies supported by strong governance are required. The focus and funding on ESG frameworks of social sustainability in the current small and medium enterprise (SME) environment are based on criticisms of the low scrutiny and investment, where informal labor practices and community relations make standardized approaches even more complex (Kumar and Kapil, 2023; Joshi, 2025). The research also highlights significant shortcomings related to ESG measurement and disclosure practices in Indian SMEs, which mirror broader criticisms of ESG reporting globally. As existing ESG rating systems and frameworks, such as GRI, SASB, BRSR, are often complex and cost-intensive, SMEs struggle to adapt them to their scale and capacity, resulting in fragmented and non-standardized reporting (Kothari, 2025; Singh *et al*., 2021). This is in line with literature calls for simplified, sector-specific ESG tools and capacity-building initiatives customized for SMEs. Further, the study's indication that governance structures can act as a low-cost, high-impact lever supports the strategic prioritization of governance capacity-building as

a practical entry point for SMEs to meaningfully engage with ESG (Bala, 2022; Mishra and Sant, 2024). Another emerging theme in the ESG literature is technological enablers and barriers, which are seen as having important but dual-faceted impacts in the Indian SME context. While technologies such as AI, IoT, and blockchain offer significant potential to enhance environmental data collection, reporting transparency, and stakeholder engagement (Upadhyay *et al*., 2021; Efthymiou *et al*., 2023), many SMEs lack the digital infrastructure or expertise to fully utilise these benefits. This dual character is consistent with findings elsewhere, where digital readiness or lack thereof mediates ESG adoption outcomes (Tumpa *et al*., 2025; Taherian *et al*., 2024).

This study addresses the significant deficiency of statistically rigorous investigations in environmental, social, and governance (ESG) practices research within Indian small and medium enterprises (SMEs) by employing quantitative survey data and structural equation modeling (SEM). Current research employs qualitative or descriptive methodologies that constrain generalizability (Chelavat and Trivedi, 2016; Das, 2019). This report enhances the literature by providing a proven framework with dependable components and moderators, addressing the prior predominance of anecdotal or case-based findings.

Ultimately, this research incorporates environmental, social, and governance (ESG) factors in small and medium companies (SMEs) as a comprehensive framework that exerts a substantial and beneficial influence on sustainability. It enhances current dialogues regarding the synergies and interdependencies of environmental, social, and governance

(ESG) pillars (Eccles, Ioannou, and Serafeim, 2014; Friede, Busch, and Bassen, 2015). This study enhances resource-based and stakeholder theories (ST) by underscoring the comprehensive integration of all three dimensions of ESG—environmental, social, and governance—rather than fragmented or isolated initiatives. This is especially critical for small and medium-sized businesses (SMEs) in India, where fragmented initiatives may not work if fundamental governance isn't aligned. These results support the literature's advocacy for cohesive ESG strategies that harmonize environmental, social, and governance (ESG) aspects to foster sustainable competitiveness in small and medium companies (SMEs) (Tsang, Fan, and Feng, 2023).

CHAPTER VI:
SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Implications

This study on sustainability and ESG integration in Indian small and medium-sized enterprises (SMEs) has important implications for practice, policy, academia, and society. The findings hold significance not only for practitioners and policymakers in India but also for scholars examining sustainability challenges in other emerging economies. The results highlight the importance of ESG as a crucial framework for promoting the SME sector's progress towards sustainable development and resilience, especially in countries dealing with resource limitations, regulatory changes, and complex socio-economic factors. The study emphasizes the crucial importance of governance in enhancing the effectiveness of environmental and social practices, shedding light on a significant but often overlooked dimension of sustainability in resource-constrained settings where informal processes commonly dominate organizational practices. This indicates that governance is not merely a secondary or compliance-driven matter; it serves as the institutional mechanism that enhances the effectiveness, legitimacy, and sustainability of environmental improvements and social responsibility initiatives.

The study notably contributes to the growing but uneven body of ESG literature by specifically focusing on Indian SMEs, a sector that has been underrepresented compared to larger firms in developed nations. This study emphasizes firms that operate under

considerable financial, institutional, and technological constraints, contrasting with the prevalent focus on multinational corporations that benefit from strong governance frameworks. These firms are crucial to the Indian economy, contributing nearly one-third of GDP and employing millions in rural and semi-urban regions. The empirical findings demonstrate that governance is a crucial factor influencing firm-level sustainability, challenging the common emphasis on environmental or social initiatives in isolation. The study confirms the use of various theoretical frameworks, such as stakeholder theory, the resource-based approach, institutional theory, and legitimacy theory. Each provides a partial explanation that, when combined, reveals the complex relationships between business resources, institutional pressures, stakeholder expectations, and actions aimed at achieving legitimacy in the context of SMEs. This inter-theoretical framework defines governance as the capacity that enables environmental and social projects to generate tangible and credible outcomes. As a result, the findings contribute to academic discourse by positioning governance as central to ESG theorization, thus providing a valuable pathway for future empirical research.

The research highlights the importance of integrated approaches to sustainability rather than fragmented initiatives. The study provides evidence for the combined advantages of thorough ESG implementation, challenging perspectives that separate sustainability elements, and demonstrating that organizational change depends on the mutual improvement of interconnected practices. The argument for dynamic and longitudinal models of ESG adoption holds significant relevance. This represents a deficiency in the existing body of research, which predominantly consists of static, cross-

sectional studies. Small and medium-sized enterprises (SMEs) operate within dynamic environments shaped by technological progress, regulatory changes, and shifting stakeholder expectations. As a result, sustainability trajectories should be articulated in more evolutionary and process-focused terms. Future research should adopt mixed-method techniques that combine surveys, case studies, and longitudinal analyses, drawing on sociological, economic, and psychological theories to clarify the temporal trajectories of ESG in emerging market SMEs more effectively.

The implications for SME owners, executives, and industry stakeholders are both immediate and strategic. The findings indicate that governance significantly influences outcomes and is comparatively inexpensive to implement; therefore, it should be prioritized by all businesses, including those with limited resources. Small and medium-sized enterprises can significantly improve sustainability results while minimizing costs by establishing transparent leadership, adopting ethical corporate practices, implementing accountability frameworks, and standardizing simpler compliance methods. Governance serves as a systematic approach for firms facing challenges in securing adequate funding to enhance their legitimacy and ensure long-term profitability. Managers ought to transition ESG principles from mere regulations to integral components of the organization's strategic framework. Sustainability must be integrated into every operational decision, encompassing aspects such as supplier chains, human resources, and stakeholder engagement. The empirical evidence indicating that comprehensive ESG adoption enhances sustainability performance reinforces the business case for integrated ESG practices. This highlights their ability to provide both legitimacy and competitive

advantage, along with performance enhancements in saturated and low-margin industries. Additionally, emphasizing open governance contributes to building trust among employees, suppliers, consumers, financiers, and communities. This aspect is crucial in an industry where businesses are intricately connected to local social and economic structures. Exhibiting responsible behavior corresponds with stakeholder values, secures lasting social licenses to operate, and fosters reputational advantages essential for survival and growth.

The study reveals important policy implications, highlighting the need for targeted and contextually relevant actions by regulators, business organizations, and governmental bodies. At present, the regulatory frameworks in India, particularly the sustainability disclosure rules set forth by the Securities and Exchange Board of India (SEBI), primarily impact top-listed companies, while the majority of small and medium-sized enterprises (SMEs) remain unaddressed. This study illustrates the potential risks associated with disproportionately focusing on certain aspects while neglecting others. This demonstrates that environmental and social practices have diminished impact without robust governance support, highlighting the necessity for simplified ESG disclosure and reporting standards that accommodate small and medium-sized enterprises. Regulators should develop tiered reporting systems that effectively balance transparency with practicality, ensuring that small and medium-sized businesses (SMEs) are not overwhelmed by compliance costs. Support for ethical leadership development, corporate governance guidelines, and audits of SME capacity is equally essential. These elements can integrate governance practices into the routine operations of business life. Given the persistent challenges associated with money, financial innovation must align with modifications to existing regulations. Green

credit lines, ESG-linked loans, and grants associated with technology adoption represent effective instruments that can assist small and medium-sized enterprises in aligning their operations with sustainability objectives. Collaboration among banks, government agencies, and industry groups can enhance the robustness of institutional ecosystems through the exchange of information, mentorship initiatives, and the establishment of platforms for unified ESG reporting. Implementing programs to enhance capacity, launching initiatives to boost awareness, and providing training for employees can effectively address knowledge gaps that hinder the practical application of ESG principles. The necessity for this has intensified in light of the economy's recovery from the epidemic. The implementation of governance in ESG adoption is crucial for maintaining operational continuity, protecting employees, and instilling confidence among stakeholders amid periods of systemic instability.

The adoption of ESG in Indian SMEs carries substantial societal implications, affecting both the performance of individual firms and broader national development indicators, as well as international commitments. Small and medium-sized enterprises (SMEs) play a significant role in employing a substantial portion of India's disadvantaged rural and semi-urban population. This highlights their significance for social equity, comprehensive development, and sustainable local economies. Incorporating ESG into these businesses may accelerate India's progress toward the United Nations Sustainable Development Goals by fostering inclusive workplaces, promoting diverse leadership, enhancing labor standards, and adopting environmentally sustainable production practices. To achieve the objectives outlined in the Paris Agreement and its own net-zero targets, a

nation must cultivate a robust small and medium-sized business (SME) sector. The integration of environmental and social responsibility with governance transforms small and medium-sized businesses (SMEs) into pivotal agents of social and environmental stewardship. Small businesses play a crucial role in community development by addressing gender disparities and ensuring that equitable labor standards are established. Concurrently, they have the potential to contribute to the mitigation of climate change. SMEs possess the capacity to drive changes at the grassroots level through their adaptability and capability to integrate into various contexts. For instance, they can facilitate the connection between urban and rural regions, encourage the dissemination of green technology, and enhance the economy's resilience to climate change and market fluctuations. Their deep connections to the communities enable them to function as both social and economic stabilizers. Integrating ESG serves not only to enhance business performance but also to foster national development and social empowerment.

Technological change plays a crucial role in the integration of ESG within small and medium-sized enterprises. Digital tools have the potential to enhance transparency in sustainability efforts, increase accountability within the supply chain, and foster greater engagement among stakeholders. Real-time ESG monitoring dashboards, blockchain-based supply-chain traceability, and AI-powered resource efficiency systems have the potential to transform how small and medium-sized businesses report on, discuss, and enhance their ESG strategies. The digital divide presents significant challenges for a larger segment of the population in accessing these opportunities. Many small and medium-sized enterprises (SMEs) continue to face challenges in adopting digital technology due to

inadequate infrastructure, limited literacy, and elevated costs. This paradox indicates that enhancing digital capability is essential for realizing the complete potential of ESG. Technology companies, regulators, and industry groups have the potential to facilitate the development of digital ESG solutions through public-private partnerships. These solutions should be designed to be scalable, user-friendly, and cost-effective for small and medium-sized enterprises. Improving the digital skills of SME employees and management is essential to fulfill regulatory requirements and meet stakeholder expectations. This approach allows for the integration of sustainability and digitization within the framework of SME competitiveness.

The impacts vary significantly across different areas, necessitating the customization of strategies for each specific context. A unified framework for ESG is insufficient to encompass the operational diversity present within India's small and medium-sized enterprises (SMEs). Small and medium-sized enterprises (SMEs) engaged in manufacturing should prioritize pollution management, resource optimization, and the adoption of clean production technologies. These businesses typically consume significant amounts of energy and generate substantial waste. Service sector small and medium-sized enterprises, which depend heavily on their workforce, ought to prioritize workplace diversity, enhance employee satisfaction, and implement transparent governance practices. Retail SMEs that concentrate on customer markets can enhance consumer trust through the implementation of ethical sourcing, fair trade practices, and the use of eco-friendly packaging. The entire sector can ensure that sustainability is both achievable and significant by tailoring ESG parameters to meet the specific requirements of each industry.

Networks that bring together SMEs, regulators, and industry groups can significantly improve the sharing of knowledge, the development of capabilities, and the spread of tailored ESG best practices. Cross-sectoral learning communities have the potential to enhance the consistency of ESG practices while accommodating the differences that exist across various regions and industries.

Small and medium-sized enterprises (SMEs) must implement significant transformations in their organizational culture and leadership to effectively integrate ESG considerations. The commitment of leaders is arguably the most critical element in the process of transformative integration. In the absence of explicit guidance from owners or senior management, ESG may merely become a collection of protocols adhered to without genuine commitment. This research highlights the importance of aligning leadership orientation with sustainability goals and incorporating ethical principles into organizational cultures. It is essential to educate business owners and entrepreneurs on the advantages of ESG, which can provide them with a competitive advantage and enhance their legitimacy. Employee participation is essential and serves as the internal mechanism for sustaining ESG practices. Implementing change management solutions that foster sustainable mindsets and continuous learning will ensure that ESG is embedded in organizational behavior, rather than being perceived as a peripheral activity.

This work presents significant methodological implications. The application of survey-based quantitative analysis and structural equation modeling reveals both the strengths and limitations inherent in rigid empirical frameworks when examining the connections

between ESG and sustainability. The thorough validity achieved through the concurrent assessment of governance, environmental, and social factors demonstrates the inadequacy of fragmented analytical approaches. Future research should prioritize a broader range of methodologies to effectively analyze ESG trends in SMEs. Longitudinal studies have the potential to track the evolution of sustainability commitments over time. Mixed-method research can combine surveys with in-depth interviews to clarify the cultural and institutional nuances that affect adoption. Additionally, comparative studies across emerging economies can place the Indian experience within a broader global framework. A deeper examination of the mediating and moderating roles of institutional support, technical preparedness, and organizational culture may improve the empirical comprehension of how ESG yields varied sustainable outcomes across different contexts. This research outlines a transformative approach for Indian SMEs, highlighting governance as a crucial driver of ESG effectiveness and underscoring the combined advantages of thorough ESG implementation. The implications are evident across academic, practical, policy, and societal domains, highlighting the strategic importance of SMEs in both national and global sustainability efforts. For scholars, it advances theoretical discourse by highlighting governance and promoting multi-theoretical, longitudinal, and dynamic research frameworks. For practitioners, it presents a viable strategy for implementing ESG despite limited resources, while also strongly advocating for its integration within business operations. Policymakers are urged to strike a balance between transparency and feasibility, utilizing financial and technological tools effectively. It enhances the capacity of SMEs to contribute to community resilience, climate action, labor

fairness, and inclusive societal growth. Indian SMEs have the potential to drive significant transformation in the economy, society, and the environment by integrating sustainability into their core strategies. This approach will enable them to achieve national objectives while simultaneously addressing international climate and development targets. As a result, the study offers a structured approach and urges scholars, politicians, practitioners, and communities to recognize and support SMEs as vital players in the sustainable development of emerging economies such as India.

6.2 Limitations and Future Studies

This research offers significant insights into the critical and expanding field that examines the effects of environmental, social, and governance (ESG) implementation and sustainability within the Indian SME sector. The growing significance of ESG frameworks aligns with the pressing necessity for businesses to adjust to sustainability demands. This study situates itself at the convergence of academic importance, managerial application, policy formulation, and societal welfare. In India, small and medium enterprises (SMEs) play a crucial role in the economy, contributing a notable share to GDP, facilitating employment opportunities, and fostering regional development. As a result, their strategy for integrating ESG factors is crucial not only for enhancing their operational resilience and competitiveness but also for fulfilling broader national sustainability objectives. Consequently, analyzing ESG in SMEs is both relevant and enhances comprehension across various dimensions. This work addresses a notable research gap, as prior studies have primarily focused on ESG in large corporations, largely neglecting the role of SMEs. The findings provide insights into the perceptions of SME leaders and employees regarding

ESG priorities, opportunities, and challenges. This analysis highlights the potential of ESG adoption to enhance operational effectiveness and ensure long-term survival. From a policy perspective, recognizing the challenges that SMEs encounter in adopting sustainable practices offers essential insights for crafting focused interventions, frameworks, and capacity-building initiatives. Ultimately, the research illustrates the connection between ESG practices in SMEs and their alignment with community responsibilities, environmental stewardship, inclusive development, and ethical business practices.

The study emphasizes these essential aspects while acknowledging its limitations, which highlights the necessity for a balanced interpretation. No empirical research can assert flawless outcomes; rather, recognizing limitations lays the groundwork for subsequent exploration, enhancement, and methodological advancement. A significant constraint is inherent in the research design itself. The research utilized a cross-sectional survey approach to gather responses from employees and managers of SMEs, employing an online questionnaire disseminated through Google Forms. This method, although effective, presents specific inherent limitations. Cross-sectional designs provide a singular view at a specific moment, which overlooks the dynamic and evolving characteristics of ESG practices within firms. Implementing ESG in SMEs is a dynamic process that evolves, adapting to external challenges and varying across different contexts. Nonetheless, a snapshot survey fails to encapsulate this evolution, along with the changing priorities and cause-and-effect relationships that develop over time. The relationships identified between ESG dimensions and sustainability outcomes are purely observational and should not be construed as indicative of causation. For instance, although governance structures were

observed to have a relationship with enhanced sustainability practices, a temporal analysis could uncover instances where sustainability pressures prompted changes in governance processes. In the absence of longitudinal study designs, the intricacies of these cause-and-effect dynamics are not clearly illuminated. Future longitudinal panel studies, process-tracing approaches, or time-series investigations could effectively tackle this issue and yield more comprehensive temporal insights into the maturation, stagnation, or regression of ESG in SMEs amid rapidly evolving business and policy environments.

A second limitation arises from the significant dependence on self-reported survey data. The process of requesting employees and managers to evaluate the extent of ESG adoption and sustainability accomplishments within their organizations presents various biases. Respondents might intentionally or unintentionally overstate the level of adoption to conform to socially acceptable standards, especially given the increasing societal focus on responsible corporate conduct. Some individuals may offer responses that reflect an idealized view, exaggerating the actual practices of their firms in comparison to their intended goals. Moreover, the comprehension of ESG terminology and practices can differ significantly among respondents. Some individuals may view ESG strictly as adherence to environmental regulations, while others may adopt a more expansive perspective that includes diversity, equal opportunity, fair governance, and community engagement. This variability has the potential to diminish the internal consistency of responses. The identified limitations may exaggerate the relationships between ESG and sustainability, failing to adequately capture the existing implementation gaps. To address this issue, subsequent efforts might incorporate various data sources, including objective metrics like validated

environmental performance data, sustainability assessments, and disclosures from third-party entities. Furthermore, qualitative methods such as interviews, ethnographic studies, and comprehensive case studies can enhance survey data by revealing the intricate contextual realities that may be obscured by statistical correlations. This triangulation would yield findings that are both more precise and comprehensive.

A significant constraint relates to the sampling framework. The research utilized non-probabilistic purposive sampling, concentrating on SMEs that exhibited interest or capability in relation to ESG initiatives. This approach, while practical, skews the results due to the absence of a comprehensive SME database in India for random sampling, favoring firms that are already more engaged with ESG practices and better equipped with resources. The findings may not effectively apply to the wider and more varied spectrum of Indian SMEs that have yet to prioritize ESG, especially those facing resource limitations, insufficient institutional awareness, or operating within informal business frameworks. The sample exhibited a concentration in urban and semi-urban areas. Indian SMEs penetrate rural areas and small towns, where there are significant disparities in infrastructure, regulatory enforcement, and awareness. Rural SMEs are likely to encounter significant financial constraints, restricted access to digital platforms, and cultural norms that influence their perspectives on social responsibility in ways that differ from urban firms. The research notably omitted the extensive informal and micro-enterprise sector, which constitutes a considerable portion of employment and economic activity in India. Informal enterprises frequently adopt sustainability practices in a natural manner—through frugality, resource conservation, or community involvement—yet may not have a

formalized understanding of ESG as defined by global standards. The exclusion of these elements may lead to a lack of understanding regarding sustainability practices that go beyond conventional ESG frameworks. Future research should therefore utilize a more comprehensive sampling approach that encompasses various firm size categories, considers the distinctions between rural and urban settings, and addresses the formal-informal spectrum. Engaging with government MSME offices, trade associations, and industry chambers may enhance the level of representativeness.

Another constraint emerges in the assessment and implementation of ESG practices and sustainability. While refined and validated scales were employed, the task of capturing the multidimensionality of ESG within the Indian SME context presents inherent challenges. The research assessed the environmental dimension through practices such as energy conservation, waste management, and emission reduction; however, it did not identify a significant direct impact on sustainability performance. This outcome could indicate potential measurement inaccuracies instead of a genuine lack of relevance of environmental practices. Numerous SMEs might implement more modest, informal, and less quantifiable environmental practices that standardized measures fail to capture. In India, the social dimension exhibits a significantly higher level of complexity. In Indian SMEs, social responsibility frequently includes informal labor relationships, obligations to the community, considerations of caste and gender, and unconventional welfare mechanisms. Survey scales that are primarily Western-oriented may fail to encompass these nuances, resulting in a partial understanding. Governance, in contrast, is frequently converted into quantifiable practices like internal audits, reporting frameworks, and

compliance, which accounts for its statistical prominence in the findings. In SMEs, governance often diverges from the frameworks seen in large corporations with independent boards. Instead, it typically features family-owned leadership structures, accountability rooted in kinship, and a reliance on community trust. To accurately capture these forms of governance, it is essential to reconsider measurement items to align them with the specific realities of SME governance. In a similar manner, the assessment of sustainability outcomes relied on perceived organizational performance instead of objective metrics like reduced energy intensity, verifiable social impact, or financial robustness. Consequently, the sustainability outcomes identified in the findings may indicate a sense of optimism or employee belief rather than tangible accomplishments. A more thorough framework would combine perceptions with concrete data, including environmental footprints, resource-use efficiency, financial records, and social impact indicators sourced from various stakeholders.

The model applied, based on structural equation modeling, provided strong statistical associations but also revealed certain limitations in scope. The model identified governance as the most influential factor in achieving sustainability outcomes, while the environmental and social pillars exhibited weaker or non-significant direct impacts. This representation, although informative, may lead to an oversimplified understanding. The effects of sustainability frequently arise from the interplay between various ESG dimensions, influenced by industry-specific factors, resource limitations, and cultural contexts. Environmental practices may appear to have no significant impact when considered in isolation; however, their relevance can become pronounced when analyzed

in conjunction with factors such as governance, leadership vision, or financial incentives. In a similar vein, the absence of significance in social dimensions should not be interpreted as irrelevance; instead, the constraints of standardized measurement and sample limitations may have masked context-sensitive expressions of social responsibility. The analysis did not consider factors such as organizational age, size, sector specialization, leadership style, financial conditions, and external pressures as moderators or mediators, despite theoretical frameworks and previous studies indicating their significance. Excluding these contextual factors may lead the model to offer a limited and one-dimensional perspective on ESG–sustainability pathways. Future studies that build on this model may incorporate more intricate designs and investigate causal mechanisms with greater precision.

The matter of sectoral diversity warrants careful examination. Small and medium enterprises in India function within a diverse range of sectors, including traditional manufacturing, agriculture, retail, construction, textiles, and technology-driven services. The expectations and challenges related to ESG vary significantly among these industries. Agriculture-linked SMEs encounter challenges related to the sustainability of natural resources, including the need for effective water conservation, soil management, and the implementation of fair labor practices for seasonal workers. Technology and IT-enabled SMEs may encounter stakeholder expectations related to governance standards, digital data security, employee well-being, and inclusive employment, as opposed to conventional environmental challenges. Manufacturing enterprises face challenges related to pollution control, energy consumption, and adherence to industrial waste regulations, which are notably more rigorous than those encountered by service-based SMEs. The study's focus

on manufacturing and service sectors may have resulted in a limited understanding of the varied ESG dynamics present in retail firms and agribusiness startups. Comparative studies across different sectors would enhance understanding and pinpoint specific strategies tailored to each category of SME.

The research merely skimmed the surface regarding the impact of technological adoption on ESG. Technology in the current landscape presents both advantages and challenges in the context of sustainability transitions. Digital tools enhance the adoption of ESG by providing transparent reporting, real-time data monitoring, and sophisticated decision support. Artificial intelligence (AI) and blockchain facilitate traceable supply chains for SMEs, thereby improving credibility with global buyers. Additionally, the Internet of Things (IoT) supports automated monitoring of energy and waste. Conversely, inadequate digital infrastructure, restricted investment capabilities, and insufficient digital literacy pose significant challenges for numerous Indian SMEs. In rural and semi-urban regions, the challenges of internet connectivity, the absence of affordable smart technologies, and existing skill gaps hinder firms from effectively utilizing digital innovations. The study emphasized technology in ESG adoption; however, it lacked a thorough examination of specific tools, their maturity, and the variations in adoption levels. The transition of global sustainability reporting to digital platforms is accelerating, and SMEs that do not keep pace with digital advancements may find themselves increasingly distanced from their more prepared counterparts. Additional investigation focused on the convergence of ESG and digital transformation, encompassing obstacles to

implementation, facilitators such as government incentives, and the impact of digital literacy training, which would greatly enhance practical understanding.

The socio-cultural and institutional diversity of India significantly shapes the approaches of SMEs towards business practices and sustainability. The study failed to thoroughly analyze these complexities. Indian SMEs function within extensive institutional frameworks influenced by caste dynamics, gender expectations, familial enterprises, community connections, and informal governance structures. In numerous instances, these social mechanisms act as either concealed enablers or limitations for the adoption of ESG practices. Caste-based employment practices, gendered participation in labor, community-based monitoring, and kinship-centered ownership significantly influence the practical implementation of ESG initiatives. The variation in the institutional environment is significant across different states. Certain states implement more proactive policy incentives and stringent regulations, whereas others exhibit weak enforcement and bureaucratic obstacles. As a result, the implementation of ESG practices is likely to be significantly more developed in areas with robust institutional frameworks compared to those that are limited by resources or are falling behind. In the absence of comparative state-level or ethnographic investigations, these complex dynamics remain obscured. Incorporating mixed-method approaches and qualitative socio-institutional investigations can significantly improve the contextual depth and policy significance of ESG research in Indian SMEs.

This study's timing and context introduce particular limitations. The research was carried out during the post-pandemic recovery phase, characterized by significant

uncertainty and restructuring within various industries. The COVID-19 pandemic brought about substantial changes in the priorities of SMEs, compelling them to integrate digital tools, adjust to supply chain disruptions, reassess employee well-being practices, and concentrate on strategies for survival. The study examined perceptions during this phase; however, the cross-sectional design limits the comprehension of how SME perspectives on ESG have transformed throughout the pandemic cycle—from initial denial and inattention, through emergency response, to subsequent strategic recalibration in the post-pandemic period. To effectively capture these evolving transformations, it is essential to employ longitudinal or retrospective designs. Furthermore, the survival of the responding SMEs during the pandemic indicates a potential survival bias. Non-surviving SMEs may have offered valuable perspectives on governance fragility, missed opportunities, and vulnerability, all of which are pertinent to comprehending ESG resilience. This survivor-centric sample presents a notably positive perspective.

A notable constraint observed in the findings is the statistical dominance of governance as a predictor of sustainability outcomes. Although it is empirically accurate that governance plays a crucial role, this prominence warrants careful analysis. This may indicate a measurement bias, suggesting that governance indicators were more accurately defined, whereas environmental and social indicators lacked contextual relevance. Alternatively, governance may serve as a facilitating factor, indirectly enhancing the efficacy of environmental and social practices. Nonetheless, the existing model failed to statistically differentiate indirect pathways. It is crucial, therefore, not to conclude that environmental and social practices are insignificant; instead, within the framework of this

study, they did not prove to be pivotal. Advanced modeling strategies that emphasize indirect effects, interaction terms, and multi-level causal inference have the potential to clarify the genuine relationships among categories.

The study notably placed limited emphasis on the role of external stakeholders in influencing SME ESG practices. Indian SMEs function within complex ecosystems that encompass financiers, regulators, global buyers, supply chain partners, customers, and community organizations. External pressures and collaborative efforts frequently influence the sustainability of SMEs to a greater extent than internal beliefs alone. Global buyers might require green certification, while local communities could oppose polluting industries. At the same time, backing from financial institutions or government initiatives could empower resource-limited SMEs to actively participate in ESG adoption. This study, by concentrating solely on internal survey respondents, may inadvertently present ESG practices as exclusively firm-driven. However, it is essential to recognize that these practices are actually co-created within stakeholder ecosystems. Integrating stakeholder viewpoints in forthcoming research—via interviews with financial institutions, NGOs, regulators, and community representatives—may provide a framework for understanding how external support or pressure influences ESG commitment in SMEs.

The particular contextual emphasis on India restricts the ability to generalize directly to other nations that vary in institutional, cultural, or economic aspects. However, the experiences of Indian SMEs provide valuable insights that can be applied to other emerging economies facing comparable sustainability challenges and institutional gaps. Research that compares SMEs in emerging economies across Asia, Africa, and Latin

America can reveal both the common ESG challenges faced and those that are unique to specific contexts. Comparative studies contribute to the improvement of global best practices and facilitate the development of frameworks that are tailored to local contexts.

The limitations outlined above suggest potential avenues for future research exploration. It is essential to prioritize longitudinal research to explore the cause-and-effect relationships and the developmental path of ESG adoption in SMEs. Adopting mixed-method approaches as standard practice is essential for quantifying patterns while also revealing deeper organizational narratives. It is essential to pursue broader sampling to encompass micro, informal, and rural SMEs, as their contribution to the economy is significant. The creation and assessment of culturally appropriate and sector-specific ESG frameworks designed for the SME context in India would enhance the precision of measurement. Further investigation is necessary to understand how digital transformation functions as either a facilitator or an obstacle to achieving ESG objectives, as well as its potential effects on addressing or worsening disparities among SMEs. Similarly, examining factors such as leadership style, innovation capability, financial mechanisms, and policy environments would provide a comprehensive understanding of the ways in which ESG practices impact sustainability across various contexts. Analyzing intersectional social factors like gender and caste in the context of SME practices can enhance comprehension of the social pillar. Incorporating multi-stakeholder perspectives and conducting comparative international analysis are crucial steps that will enhance the relevance of findings and integrate the realities of Indian SMEs into global discussions on sustainability.

This study significantly contributes to the expanding body of literature on ESG integration in SMEs, establishing a basis for future academic and policy discussions. The limitations it reveals highlight the intricate and dynamic characteristics of this domain. To effectively navigate sustainability challenges, it is essential to address these limitations through methodological innovation, inclusive perspectives, and contextual tailoring in ESG research for SMEs, policymakers, and communities. Indian SMEs, characterized by their extensive diversity and pivotal function in economic development, embody significant challenges as well as substantial opportunities for sustainable transformation. Through the systematic integration of ESG principles into their operations, governance structures, stakeholder interactions, and resource management strategies, SMEs can improve their internal competitiveness and resilience while also playing a significant role in fostering a more inclusive, ethical, and sustainable economy overall. The way ahead necessitates collaboration, adaptation, and thorough ongoing research. However, the momentum created by studies such as this indicates that the SME sector is already transitioning into a phase where sustainability and business imperatives can effectively align.

REFERENCES

Ademi, B., and Klungseth, N. J. (2022). Does it pay to deliver superior ESG performance? Evidence from US S&P 500 companies. *Journal of Global Responsibility, 13*(4), 421–449. https://doi.org/10.1108/jgr-01-2022-0006

Adhana, D. (2023). Addressing climate change through environmental, social, governance (ESG) initiatives: A pragmatic outlook in present era. *International Journal of Research-GRANTHAALAYAH, 11*(11), 10–29121.

Agbakwuru, V., Onyenahazi, O. B., Owusu Antwi, B., and Oyewale, K. (2024). The impact of environmental, social, and governance (ESG) reporting on corporate financial performance. *International Journal of Research Publication and Reviews, 5*(9), 3629–3644.

Agrawal, S., Liu, L. Y., Rajgopal, S., Sridharan, S. A., Yan, Y., and Yohn, T. L. (2023). ESG ratings of ESG index providers. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4468531

Agrawal, T. K., Kumar, V., Pal, R., Wang, L., and Chen, Y. (2021). Blockchain-based framework for supply chain traceability: A case example of textile and clothing industry. *Computers and Industrial Engineering, 154*(107130), 107130. https://doi.org/10.1016/j.cie.2021.107130

Agu, E. E., Iyelolu, T. V., Idemudia, C., and Ijomah, T. I. (2024). Exploring the relationship between sustainable business practices and increased brand loyalty. *International Journal of Management and Entrepreneurship Research, 6*(8), 2463–2475. https://doi.org/10.51594/ijmer.v6i8.1365

Aguinis, H., and Glavas, A. (2013). Embedded versus peripheral corporate social responsibility: Psychological foundations. *Industrial and Organizational Psychology, 6*(4), 314–332. https://doi.org/10.1111/iops.12059

Ahmad, N., Mobarek, A., and Roni, N. N. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business and Management, 8*(1), 1900500. https://doi.org/10.1080/23311975.2021.1900500

Ahmed, H., Shehzad, U., Mushtaq, L., and Salam, A. (2024). Strategic HRM practices: Leveraging SMART goals for talent management in Pakistan. *Insights of Pakistan, Iran and the Caucasus Studies, 3*(2), 12–20.

Ajiake, M. A. (2015). *The triple bottom line and social responsibility framework in public sector management* [Doctoral dissertation].

Akilah, F. (2024). ESG implementation in business: Managing the sustainability goals in micro, small, and medium enterprises (MSMEs). *SUKUK: International Journal of Banking, 3*(I), 55–67.

Alhoussari, H. (2025). Integrating ESG criteria in corporate strategies: Determinants and implications for performance. *Journal of Ecohumanism, 3*(8). https://doi.org/10.62754/joe.v3i8.5791

Amenta, E., and Poulsen, J. D. (1996). Social politics in context: The institutional politics theory and social spending at the end of the New Deal. *Social Forces, 75*(1), 33–60. https://doi.org/10.1093/sf/75.1.33

Amenta, E., and Ramsey, K. M. (2010). Institutional theory. In *Handbooks of Sociology and Social Research* (pp. 15–39). Springer New York.

Amini, M., and Bienstock, C. C. (2014). Corporate sustainability: An integrative definition and framework to evaluate corporate practice and guide academic research. *Journal of Cleaner Production, 76*, 12–19. https://doi.org/10.1016/j.jclepro.2014.02.016

Anjanappa, J. (2025). Decarbonising MSMEs in India: opportunities and challenges. *Available at SSRN 5253780*.

Aragón-Correa, J. A., and Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review, 28*(1), 71–88.

Aras-Beger, G. and Taşkın, F.D. (2021). Corporate social responsibility (CSR) in multinational companies (MNCs), small-to-medium enterprises (SMEs), and small businesses. In: *The Palgrave Handbook of Corporate Social Responsibility*, pp. 791–815. Cham: Springer International Publishing.

Araújo, J., Pereira, I. V., and Santos, J. D. (2023). The effect of corporate social responsibility on brand image and brand equity and its impact on consumer satisfaction. *Administrative Sciences, 13*(5), 118. https://doi.org/10.3390/admsci13050118

Arjun, B. S., Ravinagarajan, J., Pachiyappan, S., and Thomas, B. (2025). Unveiling the roots: Ancient Indian scripts and culture as pillars for contemporary environmental, societal, and governance (ESG) practices in corporate sustainability. In *Business Management and Ethics* (pp. 47–68). Emerald Publishing Limited.

Arora, A., and Sharma, D. (2022). Do environmental, social and governance (ESG) performance scores reduce the cost of debt? Evidence from Indian firms. *Australasian Accounting Business and Finance Journal, 16*(5), 4–18. https://doi.org/10.14453/aabfj.v16i5.02

Aydoğmuş, M., Gülay, G., and Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*. https://doi.org/10.1016/j.bir.2022.11.006

Ayyagari, M., Beck, T., and Demirguc-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics, 29*(4), 415–434. https://doi.org/10.1007/s11187-006-9002-5

Bala, M. (2022). ESG practices and financial performance-empirical evidences from Indian companies. *J Res Bu and Manag, 10*(3), 1–11.

Banerjee, M., and Lahiri, I. (2018). Brand sustainability and brand development: Critical issues for micro, small and medium enterprises in India. *International Journal of Entrepreneurship and Innovation Management, 22*(3), 298. https://doi.org/10.1504/ijeim.2018.10012596

Banerjee, S., and David, R. (2025). Does ESG really matter? Accessing the relevance of ESG in Indian investors' decision-making dynamics. *Qualitative Research in Financial Markets, 17*(4), 805–829. https://doi.org/10.1108/qrfm-10-2023-0241

Bansal, D., and Singh, S. (2022). Does board structure impact a firm's financial performance? Evidence from the Indian software sector. *American Journal of Business, 37*(1), 34–49. https://doi.org/10.1108/ajb-08-2020-0125

Bansal, P. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal, 26*(3), 197–218. https://doi.org/10.1002/smj.441

Bapuji, H., Patel, C., Ertug, G., and Allen, D. G. (2020). Corona crisis and inequality: Why management research needs a societal turn. *Journal of Management, 46*(7), 1205–1222. https://doi.org/10.1177/0149206320925881

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J., Wright, M., and Ketchen, D. J., Jr. (2001). The resource-based view of the firm: Ten years after 1991. *Journal of Management, 27*(6), 625–641. https://doi.org/10.1177/014920630102700601

Bayraktar, M., and Algan, N. (2019). The importance of SMEs on world economies. *International Conference on Eurasian Economies 2019*.

Bebbington, J., and Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. *Accounting, Auditing and Accountability Journal, 31*(1), 2–24.

Berg, F., Lo, A. W., Rigobon, R., Singh, M., and Zhang, R. (2024). Quantifying the returns of ESG investing: An empirical analysis with six ESG metrics. *The Journal of Portfolio Management, 50*(8), 216–238. https://doi.org/10.3905/jpm.2024.50.8.216

Bhandari, D., and Shrimali, G. (2018). The perform, achieve and trade scheme in India: An effectiveness analysis. *Renewable and Sustainable Energy Reviews, 81*, 1286–1295. https://doi.org/10.1016/j.rser.2017.05.074

Bharadiya, J. P. (2023). A comparative study of business intelligence and artificial intelligence with big data analytics. *American Journal of Artificial Intelligence, 7*(1).

Bhatia, A., and Tuli, S. (2014). An empirical analysis of sustainability disclosure practices: Evidence from India and China. *IIM Kozhikode Society and Management Review, 3*(2), 135–148. https://doi.org/10.1177/2277975214542057

Bhattacharya, R., and Bose, D. (2023). Energy and water: COVID-19 impacts and implications for interconnected sustainable development goals. *Environmental Progress and Sustainable Energy, 42*(1), e14018. https://doi.org/10.1002/ep.14018

Bischoff, L., Manuel, L. L., and Vicente, X. H. V. (2025). Beyond one-size-fits-all: Understanding the impacts of heterogeneous stakeholders on firm performance. *Strategic Change, 34*(1), 23–41.

Bloomfield, J., and Fisher, M. (2019). Quantitative research design. *JARNA, 22*(2), 27–30. https://doi.org/10.33235/jarna.22.2.27-30

Boeske, J. (2023). Leadership towards sustainability: A review of sustainable, sustainability, and environmental leadership. *Sustainability, 15*(16).

Boffo, R., Marshall, C., and Patalano, R. (2020). ESG investing: Environmental pillar scoring and reporting. *Retrived, 14*.

Boons, F., and Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production, 45*, 9–19. https://doi.org/10.1016/j.jclepro.2012.07.007

Bose, S. (2020). Evolution of ESG reporting frameworks. In *Values at Work* (pp. 13–33). Springer International Publishing.

Brundtland, G. H. (1987). Our common future—call for action. *Environmental Conservation, 14*(4), 291–294. https://doi.org/10.1017/s0376892900016805

Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality, 30*(1), 98–115. https://doi.org/10.1108/meq-12-2017-0149

Buckley, P. J. (1989). Foreign direct investment by small and medium sized enterprises: The theoretical background. *Small Business Economics, 1*(2), 89–100. https://doi.org/10.1007/bf00398627

Camilleri, M. A. (2021). The market for socially responsible investing: A review of the developments. *Social Responsibility Journal, 17*(3), 412–428. https://doi.org/10.1108/srj-06-2019-0194

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons, 34*(4), 39–48. https://doi.org/10.1016/0007-6813(91)90005-g

Carroll, A. B. (2016). Carroll's pyramid of CSR: Taking another look. *International Journal of Corporate Social Responsibility, 1*(1). https://doi.org/10.1186/s40991-016-0004-6

Carroll, P., and Kellow, A. (2021). *The OECD: A decade of transformation: 2011–2021*. Walter de Gruyter GmbH and Co KG.

Carson, R. (1962). *Silent Spring of the Sea*.

Celestin, M., and Sujatha, S. (2024). Integrating ESG factors into core operations: Long term benefits for business growth and reputation. *International Journal of Advanced Trends in Engineering and Technology, 9*(2), 33–43.

Chaklader, B., Chaklader, G., and Shrivastav, S. K. (2024). Impact of environmental, social, and governance (ESG) on foreign institutional investments in India: A machine learning perspective. *Benchmarking An International Journal*. https://doi.org/10.1108/bij-12-2023-0910

Chalermpong, S., Kato, H., Thaithatkul, P., Ratanawaraha, A., Fillone, A., Hoang-Tung, N., and Jittrapirom, P. (2023). Ride-hailing applications in Southeast Asia: A literature review. *International Journal of Sustainable Transportation, 17*(3), 298–318. https://doi.org/10.1080/15568318.2022.2032885

Chatterjee, B., and Mitra, N. (2017). CSR should contribute to the national agenda in emerging economies-the 'Chatterjee Model. *International Journal of Corporate Social Responsibility, 2*(1).

Chatterjee, R., Shiwaku, K., Das Gupta, R., Nakano, G., and Shaw, R. (2015). Bangkok to Sendai and beyond: Implications for disaster risk reduction in Asia. *International Journal of Disaster Risk Science, 6*(2), 177–188. https://doi.org/10.1007/s13753-015-0055-4

Chatterjee, S., Chaudhuri, R., Sakka, G., Grandhi, B., Galati, A., Siachou, E., and Vrontis, D. (2021). Adoption of social media marketing for sustainable business growth of SMEs in emerging economies: The moderating role of leadership support. *Sustainability, 13*(21), 12134. https://doi.org/10.3390/su132112134

Chauhan, A., and Thangavel, M. (2025). Assessing the impact of the Perform, Achieve, and Trade scheme on energy efficiency in India's iron and steel sector. *Energy Policy, 198*(114480), 114480. https://doi.org/10.1016/j.enpol.2024.114480

Chauhan, M., and Sahoo, D. R. (2024). Towards a greener tomorrow: Exploring the potential of AI, blockchain, and IoT in sustainable development. *Nature, Environment and Pollution Technology, 23*(2), 1105–1113. https://doi.org/10.46488/nept.2024.v23i02.044

Chelawat, H., and Trivedi, I. V. (2016). The business value of ESG performance: The Indian context. *Asian Journal of Business Ethics, 5*(1–2), 195–210. https://doi.org/10.1007/s13520-016-0064-4

Chen, Z., and Xie, G. (2022). ESG disclosure and financial performance: Moderating role of ESG investors. *International Review of Financial Analysis, 83*(102291), 102291. https://doi.org/10.1016/j.irfa.2022.102291

Chichilnisky, G. (1997). What is sustainable development? *Land Economics, 73*(4), 467. https://doi.org/10.2307/3147240

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In *Modern Methods for business research* (pp. 295–336). Psychology Press.

Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., and Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human Resource Management Review, 33*(1), 100899. https://doi.org/10.1016/j.hrmr.2022.100899

Christensen, H. B., Hail, L., and Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies, 26*(3), 1176–1248. https://doi.org/10.1007/s11142-021-09609-5

Clark, G. L., Feiner, A., and Viehs, M. (2014). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2508281

Clarke, L., and Wei, Y.-M. (2020). Identifying real energy system solutions to respond to the challenge of climate change. *Energy and Climate Change, 1*(100018), 100018. https://doi.org/10.1016/j.egycc.2020.100018

Coelho, R., Jayantilal, S. and Ferreira, J.J. (2023). The impact of social responsibility on corporate financial performance: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, *30*(4), 1535–1560. https://doi.org/10.1002/csr.2446

Colvin, V.L. (2003). The potential environmental impact of engineered nanomaterials. *Nature Biotechnology*, *21*(10), 1166–1170. https://doi.org/10.1038/nbt875

Corallo, A., Del Vecchio, V. and Lazoi, M. (2022). Technologies and trends leading the digital transformation: An aerospace case study. In *Proceedings of the 17th IFKAD International Forum on Knowledge Asset Dynamics*, Lugano, Switzerland, 20–22 June, pp. 20–22

Creswell, J.W. and Creswell, J.D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. 5th ed. Thousand Oaks, CA: Sage Publications.

Dacin, P.A., Dacin, M.T. and Matear, M. (2010). Social entrepreneurship: Why we don't need a new theory and how we move forward from here. *Academy of Management Perspectives*, *24*(3), 37–57. https://doi.org/10.5465/amp.24.3.37

Dai, T. and Tang, C. (2022). Frontiers in service science: Integrating ESG measures and supply chain management: Research opportunities in the postpandemic era. *Service Science*, *14*(1), 1–12. https://doi.org/10.1287/serv.2021.0295

Dalal, K.K. and Thaker, N. (2019). ESG and corporate financial performance: A panel study of Indian companies. *IUP Journal of Corporate Governance*, *18*(1), 44–59.

Das, K. (2007). SMEs in India: Issues and possibilities in times of globalisation. *Asian SMEs and Globalization, ERIA Research Project Report*, 5, 69–97.

Das, M. and Rangarajan, K. (2020). Impact of policy initiatives and collaborative synergy on sustainability and business growth of Indian SMEs. *Indian Growth and Development Review*, *13*(3), 607–627. https://doi.org/10.1108/IGDR-09-2019-0095

Davis, G.F. and Marquis, C. (2005). Prospects for organization theory in the early twenty-first century: Institutional fields and mechanisms. *Organization Science*, *16*(4), 332–343. https://doi.org/10.1287/orsc.1050.0137

Dawes, J. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. *International Journal of Market Research*, *50*(1), 61–104.

Desai, R. and Das, L. (2024). Investor reaction to the mandatory reporting of corporate ESG practices in the Indian stock market: An event study approach (2020–2021). *International Journal of Green Economics*, *18*(1), 45–60. https://doi.org/10.1504/IJGE.2024.138511

Dharmapala, D. and Khanna, V. (2018). The impact of mandated corporate social responsibility: Evidence from India's Companies Act of 2013. *International Review of Law and Economics*, *56*, 92–104. https://doi.org/10.1016/j.irle.2018.09.001

Dholakia, R.R., Dholakia, N. and Chattopadhyay, A. (2018). Indigenous marketing practices and theories in emerging economies: Consumer behavior and retail transformations in India. *Journal of Business Research*, *86*, 406–415. https://doi.org/10.1016/j.jbusres.2017.09.030

Dietz, S., Bowen, A., Dixon, C. and Gradwell, P. (2016). 'Climate value at risk' of global financial assets. *Nature Climate Change*, *6*, 676–679. https://doi.org/10.1038/nclimate2972

Diez-Cañamero, B., Bishara, T., Otegi-Olaso, J.R., Minguez, R. and Fernández, J.M. (2020). Measurement of corporate social responsibility: A review of corporate sustainability indexes, rankings and ratings. *Sustainability*, *12*(5), 2153. https://doi.org/10.3390/su12052153

DiMaggio, P.J. and Powell, W.W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147–160.

Dixit, S.K. and Priya, S.S. (2023). Barriers to corporate social responsibility: An Indian SME perspective. *International Journal of Emerging Markets*, *18*(9), 2438–2454. https://doi.org/10.1108/IJOEM-02-2021-0294

Donaldson, T. and Preston, L.E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, *20*(1), 65–91. https://doi.org/10.5465/amr.1995.9503271992

Doyle, T. (1998). Sustainable development and Agenda 21: The secular bible of global free markets and pluralist democracy. *Third World Quarterly*, *19*(4), 771–786. https://doi.org/10.1080/01436599814235

Dragomir, V.D. (2020). Theoretical aspects of environmental strategy. In: *Corporate Environmental Strategy*. SpringerBriefs in Applied Sciences and Technology. Cham: Springer. https://doi.org/10.1007/978-3-030-29548-6_1

Duque-Grisales, E. and Aguilera-Caracuel, J. (2021). Environmental, social and governance (ESG) scores and financial performance of Multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, *168*, 315–334. https://doi.org/10.1007/s10551-019-04177-w

Dzebo, A., Janetschek, H., Brandi, C. and Iacobuta, G. (2019). Connections between the Paris Agreement and the 2030 Agenda: The case for policy coherence. *Stockholm Environment Institute*, 38.

Eccles, N.S. (2010) UN principles for responsible investment signatories and the anti-apartheid SRI movement: A thought experiment. *Journal of Business Ethics, 95*(3), 415-424.

Eccles, R.G. and Klimenko, S. (2019). The investor revolution. *Harvard Business Review*, 97(3), 106–116.

Eccles, R.G. and Serafeim, G. (2013). The performance frontier. *Harvard Business Review*, *91*(5), 50–60.

Eccles, R.G., Ioannou, I. and Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, *60*(11), 2835–2857. https://doi.org/10.1287/mnsc.2014.1984

Efthymiou, E. (2023). Examining teachers' perspectives on equitable digital education: A case study on delivering high-quality and inclusive learning experiences in special education. In: *Inclusive Phygital Learning Approaches and Strategies for Students With Special Needs*, pp. 97–130. Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-6684-8504-0.ch005

Efthymiou, L., Kulshrestha, A. and Kulshrestha, S. (2023). A study on sustainability and ESG in the service sector in India: Benefits, challenges, and future implications. *Administrative Sciences*, *13*(7), 165. https://doi.org/10.3390/admsci13070165

Eizenberg, E. and Jabareen, Y. (2017). Social sustainability: A new conceptual framework. *Sustainability*, *9*(1), 68. https://doi.org/10.3390/su9010068

Elavarasan, R.M., Pugazhendhi, R., Irfan, M., Mihet-Popa, L., Khan, I.A. and Campana, P.E. (2022). State-of-the-art sustainable approaches for deeper decarbonization in

Europe – An endowment to climate neutral vision. *Renewable and Sustainable Energy Reviews*, *159,* 112204. https://doi.org/10.1016/j.rser.2022.112204

Elkington, J. (1997). The triple bottom line. In: *Environmental Management: Readings and Cases*, *2*, pp. 49–66.

Elpisah, E. (2023). Towards inclusive growth: Community-centered management strategies for SMEs. *GRCSD*, *3*(1). https://doi.org/10.52970/grcsd.v3i1.606

Esty, D. and Cort, T. (2016). The data challenges which remain. In: *Sustainable Investing*, pp. 113–122. London: Routledge

Fassin, Y. (2009). The stakeholder model refined. *Journal of Business Ethics*, *84*, 113–135. https://doi.org/10.1007/s10551-008-9677-4

Fatai, A. (2011). Small and medium scale enterprises in Nigeria: The problems and prospects. *The Collegiate Journal of Economics*, *5*(6), 1–22.

Fatemi, A., Glaum, M. and Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, *38*, 45–64. https://doi.org/10.1016/j.gfj.2017.03.001

Ferri, G., and Acosta, B. A. (2019). Sustainable finance for sustainable development. *Center for Relationship Banking and Economics Working Paper Series*, *30*.

Feyisetan, O.O., Alkaraan, F. and Le, C. (2025). The influence of ESG on mergers and acquisitions decisions and organisational performance in UK firms: Comparison between financial and non-financial sectors. *Journal of Applied Accounting Research*, *26*(3), 679–707. https://doi.org/10.1108/JAAR-09-2024-0340

Flammer, C., Hong, B. and Minor, D. (2019). Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes. *Strategic Management Journal*, *40*(7), 1097–1122. https://doi.org/10.1002/smj.3018

Fornell, C. and Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Freeman, R.E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.

Freeman, R.E. (2010). *Strategic management: A stakeholder approach*. Cambridge: Cambridge University Press.

Friede, G., Busch, T. and Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance and Investment*, *5*(4), 210–233. https://doi.org/10.1080/20430795.2015.1118917

Friedman, A.L. and Miles, S. (2002). Developing stakeholder theory. *Journal of Management Studies*, *39*(1), 1–21. https://doi.org/10.1111/1467-6486.00280

Friedman, A.L. and Miles, S. (2006). *Stakeholders: Theory and practice*. London: Academic.

Gad-Elrab, A.A. (2021). Modern business intelligence: Big data analytics and artificial intelligence for creating the data-driven value. In: *E-Business-Higher Education and Intelligence Applications*. IntechOpen. https://doi.org/10.5772/intechopen.97374

Gallopin, G.C. (1981). The abstract concept of environment. *International Journal of General Systems*, *7*(2), 139–149. https://doi.org/10.1080/03081078108934812

Gao, M. and Geng, X. (2024). The role of ESG performance during times of COVID-19 pandemic. *Scientific Reports*, *14*, 2553. https://doi.org/10.1038/s41598-024-52245-7

Gao, W. and Liu, Z. (2023). Green credit and corporate ESG performance: Evidence from China. *Finance Research Letters*, *55*, 103940. https://doi.org/10.1016/j.frl.2023.103940

Garcia, A.S., Mendes-Da-Silva, W. and Orsato, R.J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production*, *150*, 135–147. https://doi.org/10.1016/j.jclepro.2017.02.180

Garg, K. and Vidyapith, B. (2025). Aligning India's development trajectory with the UN SDGs: A multisectoral analysis of ESG, policy, and responsible management.

Garvey, G.T., Kazdin, J., Nash, J., LaFond, R. and Safa, H. (2016). A pitfall in ethical investing: ESG disclosures reveal vulnerabilities, not virtues. *Not Virtues*.

Geels, F.W., Hekkert, M.P. and Jacobsson, S. (2013). The dynamics of sustainable innovation journeys. In: *The Dynamics of Sustainable Innovation Journeys*, pp. 1–16. London: Routledge.

Geissdoerfer, M., Savaget, P., Bocken, N.M.P. and Hultink, E.J. (2017). The circular economy – A new sustainability paradigm? *Journal of Cleaner Production*, *143*, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Geva, A. (2008). Three models of corporate social responsibility: Interrelationships between theory, research, and practice. *Business and Society Review*, *113*(1). https://doi.org/10.1111/j.1467-8594.2008.00311.x

Giovannoni, E. and Fabietti, G. (2013). What is sustainability? A review of the concept and its applications. In: Busco, C., Frigo, M., Riccaboni, A. and Quattrone, P. (eds.) *Integrated Reporting*, pp. 13–28. Cham: Springer. https://doi.org/10.1007/978-3-319-02168-3_2

Gizem, F. (2021). Corporate social responsibility (CSR) in multinational companies (MNCs), small-to-medium enterprises (SMEs), and small businesses. In The Palgrave handbook of corporate social responsibility (pp. 791–815). Springer International Publishing.

Glassman, D., Potoski, M. and Callery, P.J. (2017). Missing metrics that matter to investors: How companies can develop ESG financial value creation metrics. *SSRN*. https://doi.org/10.2139/ssrn.3520685

Gond, J.P., O'Sullivan, N., Slager, R., Homanen, M., Viehs, M. and Mosony, S. (2018). How ESG engagement creates value for investors and companies.

Gong, X., Xie, F., Zhou, Z. and Zhang, C. (2024). The enhanced benefits of ESG in portfolios: A multi-factor model perspective based on LightGBM. *Pacific-Basin Finance Journal*, 85, 102365. https://doi.org/10.1016/j.pacfin.2024.102365

Goodland, R. and Daly, H. (1996). Environmental sustainability: Universal and non-negotiable. *Ecological Applications*, *6*(4), 1002–1017. https://doi.org/10.2307/2269583

Gore, C. (2015). The post-2015 moment: Towards sustainable development goals and a new global development paradigm. *Journal of International Development*, *27*(6), 717–732. https://doi.org/10.1002/jid.3109

Goswami, K., Islam, M.K. and Evers, W. (2023). A case study on the blended reporting phenomenon: A comparative analysis of voluntary reporting frameworks and standards—GRI, IR, SASB, and CDP. *The International Journal of Sustainability Policy and Practice*, *19*(2), 35–64. https://doi.org/10.18848/2325-1166/CGP/v19i02/35-64

Gradillas, M., Castro, A. and Salandra, R. (2021). Understanding the adoption of voluntary environmental, social and governance (ESG) standards in the real estate sector.

Green, S.E. Jr., Babb, M. and Alpaslan, C.M. (2008). Institutional field dynamics and the competition between institutional logics: The role of rhetoric in the evolving control of the modern corporation. *Management Communication Quarterly*, *22*(1). https://doi.org/10.1177/0893318908318430

Grondys, K., Ślusarczyk, O., Hussain, H.I. and Androniceanu, A. (2021). Risk assessment of the SME sector operations during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *18*(8), 4183. https://doi.org/10.3390/ijerph18084183

Gürlevük, E. (2024). Role of ESG reporting in small and medium-sized enterprises: benefits, challenges and the EU's regulatory push. *Energy Policy Studies.*

Haffar, M. and Searcy, C. (2017). Classification of trade-offs encountered in the practice of corporate sustainability. *Journal of Business Ethics, 140*, 495–522. https://doi.org/10.1007/s10551-015-2678-1

Haidar, H.M. (2021). Historical perspectives and the emergence of the sustainability concept in organizations. *Open Journal of Business and Management, 9*(5), 2277–2298. https://doi.org/10.4236/ojbm.2021.95123

Hair, J. and Alamer, A. (2022). Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics, 1*(3), 100027. https://doi.org/10.1016/j.rmal.2022.100027

Hair, J.F., Matthews, L.M., Matthews, R.L. and Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. *International Journal of Multivariate Data Analysis, 1*(2), 107–123. https://doi.org/10.1504/IJMDA.2017.087624

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hakam, D.F. and Hakam, L.I. (2024). Sustainability in small and medium sized enterprises (SME) financing. *Development and Sustainability in Economics and Finance,* 2–4, 100031. https://doi.org/10.1016/j.dsef.2024.100031

Hariram, N.P., Mekha, K.B., Suganthan, V. and Sudhakar, K. (2023). Sustainalism: An integrated socio-economic-environmental model to address sustainable

development and sustainability. *Sustainability, 15*(13), 10682. https://doi.org/10.3390/su151310682

Hart, S.L. (1995). A natural-resource-based view of the firm. *Academy of Management Review, 20*(4), 986–1014. https://doi.org/10.5465/amr.1995.9512280033

Hart, S.L. and Dowell, G. (2011) Invited editorial: A natural-resource-based view of the firm: Fifteen years after. *J. Manage.*, *37*(5), 1464–1479. https://doi.org/10.1177/0149206310390219

Hassan, B., Aslam, H., Mashkoor, B. and Raza, A. (2025) Digital innovation and revolution in financial sector: The role of financial products on sustainable performance under the lens of resource-based view. *Crit. Rev. Soc. Sci. Stud.*, *3*(1), 59–76.

Hassan, M.H., Abu, W., Norazlina, A., Wahab, A. and Asmaa'mohd Ezanee, N.M.A. (2023) Towards sustainable small and medium enterprises (SMEs): Awareness and overcoming challenges. *Asia-Pac. Manage. Account. J.*, *18*(3). https://doi.org/10.24191/apmaj.v18i3-06

Heinberg, R. and Lerch, D. (2010) What is sustainability. *Post Carbon Reader*, *11*, 19.

Henisz, W., Koller, T. and Nuttall, R. (2019) Five ways that ESG creates value. *McKinsey Q.*, *4*, 1–12.

Hironaka, A. (2002) The globalization of environmental protection: The case of environmental impact assessment. *Int. J. Comp. Sociol.*, *43*(1), 65–78. https://doi.org/10.1177/002071520204300104

Hoosain, M.S., Paul, B.S. and Ramakrishna, S. (2020) The impact of 4IR digital technologies and circular thinking on the United Nations Sustainable Development Goals. *Sustainability*, *12*(23), 10143. https://doi.org/10.3390/su122310143

Hu, L.-T. and Bentler, P.M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model.*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Ilori, O., Iyabode Lawal, C., Friday, S.C., Isibor, N.J. and Chukwuma-Eke, E.C. (2023) A framework for environmental, social, and governance (ESG) auditing: Bridging gaps in global reporting standards. *Int. J. Soc. Sci. Except. Res.*, *2*(1), 231–248.

Ioannou, I. and Serafeim, G. (2015) The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics: CSR and investment recommendations. *Strateg. Manage. J.*, *36*(7), 1053–1081. https://doi.org/10.1002/smj.2268

Isaac, D., Adeabah, D. and Ofosu, E.J. (2022) A review of studies on green finance of banks, research gaps and future directions. *J. Sustain. Finance Invest.*, *12*(4), 1241–1264. https://doi.org/10.1080/20430795.2020.1870202

Islam, C. and Alalouch, N. (2019) Towards smart sustainable cities: A review of the role digital citizen participation could play in advancing social sustainability. *Sustain. Cities Soc.*, *50*. https://doi.org/10.1016/j.scs.2019.101627

Jackson, G., N'Guetta, A., De Rosa, S.P., Scown, M., Dorkenoo, K., Chaffin, B. and Boyd, E. (2023) An emerging governmentality of climate change loss and damage. *Prog. Environ. Geogr.*, *2*(1–2), 33–57. https://doi.org/10.1177/27539687221148748

Jaiwani, M., and Gopalkrishnan, S. (2025). Do private and public sector banks respond to ESG in the same way? Some evidences from India. *Benchmarking An International Journal, 32*(1), 194–221. https://doi.org/10.1108/bij-05-2023-0340

Jianping, L., Minrong, L., Jinnan, W., Jianjian, L., Hongwen, S. and Maoxing, H. (2014) Global environmental issues and human wellbeing. In *Curr. Chin. Econ. Rep. Ser.* (pp. 3–21). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-54678-5_1

Jinga, P. (2022) The increasing importance of environmental, social and governance (ESG) investing in combating climate change. In *Environ. Manage. - Pollut., Habitat, Ecol. Sustain.* IntechOpen.

Johnson, M.P. and Schaltegger, S. (2016) Two decades of sustainability management tools for SMEs: How far have we come? *J. Small Bus. Manage.*, *54*(2), 481–505. https://doi.org/10.1111/jsbm.12154

Jörg, C.M. and Ringle, M. (2015) A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Mark. Sci.*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Joshi, A. (2025) ESG score and its analysis under Indian perspective. *Cuest. Fisioter.*, *54*(1), 744–763. https://doi.org/10.48047/r9gkmb84

Joshi, V., Panigrahi, C.M.A. and Pitke, M. (2020) Vision of 'atma nirbhar bharat' role and significance of MSME. *55*, 44–47.

Jyoti, G. and Khanna, A. (2021) Does sustainability performance impact financial performance? Evidence from Indian service sector firms. *Sustain. Dev.*, *29*(6), 1086–1095. https://doi.org/10.1002/sd.2204

Kalaiselvi, V. and Maithily, M.K. (2024) Small and medium enterprises (SMEs) to promote economic development in India. *Cuest. Fisioter.*, *53*(3), 4320–4347. https://doi.org/10.48047/fn25xc71

Kaliannan, M., Darmalinggam, D., Dorasamy, M. and Abraham, M. (2023) Inclusive talent development as a key talent management approach: A systematic literature review. *Hum. Resour. Manage. Rev.*, *33*(1), 100926. https://doi.org/10.1016/j.hrmr.2022.100926

Kannan, S. and Gambetta, N. (2025) Technology-driven sustainability in small and medium-sized enterprises: A systematic literature review. *J. Small Bus. Strategy*, *35*(1). https://doi.org/10.53703/001c.126636

Kaur, M. (2015) Bank selection process and market segmentation: Evidence from Indian exporting SMEs. *Vision J. Bus. Perspect.*, *19*(2), 79–88. https://doi.org/10.1177/0972262915575650

Keeble, B.R. (1988) The Brundtland report: 'Our common future.' *Med. War*, *4*(1), 17–25. https://doi.org/10.1080/07488008808408783

Khan, M., Serafeim, G. and Yoon, A. (2016) Corporate sustainability: First evidence on materiality. *Account. Rev.*, *91*, 1697–1724. https://doi.org/10.2308/accr-51383

Khan, U. and Liu, W. (2023) The link between green innovations, corporate performance, ESG activities, and sharing economy. *Environ. Sci. Pollut. Res. Int.*, *30*(32), 78763–78775. https://doi.org/10.1007/s11356-023-27722-7

Kharola, M., Goyal, M.S. and Saxena, S. (2025) Mandatory ESG reporting in India: Legal obligations and management strategies. *J. Mark. Soc. Res.*, *2*, 167–177.

Kibert, C.J. (2016) *Sustainable construction: Green building design and delivery*. John Wiley and Sons.

Kim, R.E. (2016) The nexus between international law and the Sustainable Development Goals. *Rev. Eur. Comp. Int. Environ. Law*, *25*(1), 15–26. https://doi.org/10.1111/reel.12148

Kock, N. (2015) Common method bias in PLS-SEM: A full collinearity assessment approach. *Int. J. E-Collab.*, *11*(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Kocmanová, A. and Dočekalová, M. (2013) Construction of the economic indicators of performance in relation to environmental, social and corporate governance (ESG) factors. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, *60*(4), 195–206. https://doi.org/10.11118/actaun201260040195

Kothari, R. (2025) A comparative study of ESG reporting practices: India, the UK, and Switzerland. *SSRN*. http://dx.doi.org/10.2139/ssrn.5310596

Kotsantonis, S., Pinney, C. and Serafeim, G. (2016) ESG integration in investment management: Myths and realities. *J. Appl. Corp. Finance*, *28*(2), 10–16. https://doi.org/10.1111/jacf.12169

Kuhlman, T. and Farrington, J. (2010) What is sustainability? *Sustainability*, *2*(11), 3436–3448. https://doi.org/10.3390/su2113436

Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A. and Laude, D. (2022) Stakeholder engagement: Past, present, and future. *Bus. Soc.*, *61*(5), 1136–1196. https://doi.org/10.1177/00076503211066595

Kumar, A., Luthra, S., Mangla, S.K., Garza-Reyes, J.A. and Kazancoglu, Y. (2023) Analysing the adoption barriers of low-carbon operations: A step forward for achieving net-zero emissions. *Resour. Policy*, *80*(103256), 103256. https://doi.org/10.1016/j.resourpol.2022.103256

Kumar, A., Smith, C., Badis, L., Wang, N., Ambrosy, P. and Tavares, R. (2016) ESG factors and risk-adjusted performance: A new quantitative model. *J. Sustain. Finance Invest.*, *6*(4), 292–300. https://doi.org/10.1080/20430795.2016.1234909

Kumar, K. (2024) Micro, small, and medium enterprises fostering growth and development by generating employment and reducing poverty. *SSRN*. http://dx.doi.org/10.2139/ssrn.5125259

Kumar, R. (2024) Integrating ESG practices for sustainable corporate growth. *Int. J. Exploring Emerg. Trends Eng.*, *11*(3), 197–204.

Kumar, S. and Kapil, S. (2023) Gender diversity, firm performance, and ESG: Evidence from Indian MandA participating firms. *Int. J. Bus. Econ.*, *22*, 257–271. https://orcid.org/0000-0001-8888-4901

Kumar, V., Rahman, Z., Kazmi, A.A. and Goyal, P. (2012) Evolution of sustainability as marketing strategy: Beginning of new era. *Procedia Soc. Behav. Sci.*, *37*, 482–489. https://doi.org/10.1016/j.sbspro.2012.03.313

Kusyk, S. (2021) Carroll's CSR pyramid: An empirical investigation of SME CSR orientation. *J. Leadership Accountability Ethics*, *18*(4), 100–115.

Lammers, J.C., Garcia, M.A., Putnam, L.L. and Mumby, D.K. (2014) Institutional theory. In *SAGE Handbook Organ. Commun.: Adv. Theory, Res. Methods*, 195–216.

Li, T.-T., Wang, K., Sueyoshi, T. and Wang, D.D. (2021) ESG: Research progress and future prospects. *Sustainability*, *13*(21), 11663. https://doi.org/10.3390/su132111663

Li, Y. and Huang, Y. (2023) Enhancing resources efficiency: Studying economic development in resource-rich regions for long-term sustainability of China.

Resour. Policy, *86*(104234), 104234. https://doi.org/10.1016/j.resourpol.2023.104234

Likert, R. (1932) A technique for the measurement of attitudes. *Arch. Psychol.*

López-Pérez, M.E., Melero-Polo, I., Vázquez-Carrasco, R. and Cambra-Fierro, J. (2018) Sustainability and business outcomes in the context of SMEs: Comparing family firms vs. non-family firms. *Sustainability*, *10*(11), 4080. https://doi.org/10.3390/su10114080

Lozano, R. (2015) A holistic perspective on corporate sustainability drivers. *Corp. Soc. Responsib. Environ. Manage.*, *22*(1), 32–44. https://doi.org/10.1002/csr.1325

Lozano, R., Ceulemans, K., Alonso-Almeida, M., Huisingh, D., Lozano, F.J., Waas, T., Lambrechts, W., Lukman, R. and Hugé, J. (2015) A review of commitment and implementation of sustainable development in higher education: Results from a worldwide survey. *J. Clean. Prod.*, *108*, 1–18. https://doi.org/10.1016/j.jclepro.2014.09.048

Lukács, B. and Rickards, R. (2023) How the categorisation of SDG targets into ESG pillars can inform the corporate SDG report. *Chem. Eng. Trans.*, *107*, 193–198. https://doi.org/10.3303/CET23107033

Maas, K., Schaltegger, S. and Crutzen, N. (2016) Integrating corporate sustainability assessment, management accounting, control, and reporting. *J. Clean. Prod.*, *136*, 237–248. https://doi.org/10.1016/j.jclepro.2016.05.008

Macarthur, E. (2013) Towards the circular economy. *J. Ind. Ecol.*, *2*(1), 23–44.

Mahajan, R., Lim, W.M., Sareen, M., Kumar, S. and Panwar, R. (2023) Stakeholder theory. *J. Bus. Res.*, *166*(114104), 114104. https://doi.org/10.1016/j.jbusres.2023.114104

Mahesh, K.M., Aithal, P.S. and Sharma, K.R.S. (2022) Role of MUDRA in promoting SMEs/MSE, MSMEs, and allied agriculture sector in the rural and urban area-to achieve 5 trillion economy. *Soc. Sci. (IJMTS)*, *7*(1), 373–389. https://doi.org/10.5281/zenodo.6556154

Maji, S.G. and Lohia, P. (2023) Environmental, social and governance (ESG) performance and firm performance in India. *Soc. Bus. Rev.*, *18*(1), 175–194. https://doi.org/10.1108/sbr-06-2022-0162

Majumder, R. and Hussain, D.A. (2023) Legal framework for corporate sustainability reporting in India. *Int. J. Eng. Technol. Manage. Sci.*, *7*(1), 28–33. https://doi.org/10.46647/ijetms.2023.v07i01.006

Mani, M. (2015) Sustainable business practices in banking sector. *IITM J. Manage. IT*, *6*(2), 3–7.

Marc, F.L. and Schmidt, S.L. (2003) Corporate social and financial performance: A meta-analysis. *Organ. Stud.*, *24*(3), 403–441. https://doi.org/10.1177/0170840603024003910

Martens, A. and Kleinfeld, A. (2023) CSR pyramid. In *Encycl. Sustain. Manage.* (pp. 1062–1069). Springer International Publishing.

Mason, H.L. and Langenheim, J.H. (1957) Language analysis and the concept "environment". *Ecology*, *38*(2), 325–340. https://doi.org/10.2307/1931693

Maurya, K. (2025) The interplay of corporate governance and ESG compliance: A new paradigm. *SSRN*. http://dx.doi.org/10.2139/ssrn.5346729

McCauley, D. and Heffron, R. (2018) Just transition: Integrating climate, energy and environmental justice. *Energy Policy*, *119*, 1–7. https://doi.org/10.1016/j.enpol.2018.04.014

Meadows, D.H., Meadows, D.L., Randers, J. and Behrens, W.W. (1972) *The limits to growth: A report for the Club of Rome's project on the predicament of mankind*. Universe Books.

Meyer, J. W., and Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340–363. https://doi.org/10.1086/226550

Miceli, A., Hagen, B., Riccardi, M. P., Sotti, F., and Settembre-Blundo, D. (2021). Thriving, not just surviving in changing times: How sustainability, agility and digitalization intertwine with organizational resilience. *Sustainability*, *13*(4), 2052. https://doi.org/10.3390/su13042052

Miles, S. (2017). Stakeholder theory classification: A theoretical and empirical evaluation of definitions. *Journal of Business Ethics*, *142*(3), 437–459. https://doi.org/10.1007/s10551-015-2741-y

Ministry of MSME. (n.d.). Annual report. 2024–25. https://msme.gov.in/sites/default/files/MSME-ANNUAL-REPORT-2024-25-ENGLISH.pdf

Mishra, P., and Sant, T. G. (2024). Examine the level of environmental, social and governance disclosure in sustainability report: A study of the Indian banking sector. *International Journal of Innovation Science*, *16*(2), 420–442.

Mishra, R., Singh, R. K., and Govindan, K. (2022). Barriers to the adoption of circular economy practices in micro, small and medium enterprises: Instrument development, measurement and validation. *Journal of Cleaner Production*, *351*, 131389. https://doi.org/10.1016/j.jclepro.2022.131389

Mishra, S., and Mohanty, P. (2014). Corporate governance as a value driver for firm performance: Evidence from India. *Corporate Governance*, *14*(2), 265–280. https://doi.org/10.1108/cg-12-2012-0089

Mohammad, A. A., and Issa, A. (2023). A roadmap for triggering the convergence of global ESG disclosure standards: Lessons from the IFRS foundation and stakeholder engagement. *Corporate Governance: The International Journal of Business in Society, 23*(7), 1648–1669.

Mondini, G. (2019). Sustainability assessment: From Brundtland report to sustainable development goals. *Valori e valutazioni*, *23*, 129–137.

Moon, H.-C., Parc, J., Yim, S. H., and Park, N. (2011). An extension of Porter and Kramer's creating shared value (CSV): Reorienting strategies and seeking international cooperation. *Journal of International and Area Studies*, 49–64.

Moraru, M., and Boghean, F. (2025). ESG audit and its impact on companies' financial performance. In *Challenges of accounting for young researchers* (pp. 42–45).

Mukherjee, S. (2018). Challenges to Indian micro, small scale and medium enterprises in the era of globalization. *Journal of Global Entrepreneurship Research*, *8*(1). https://doi.org/10.1186/s40497-018-0115-5

Mukhtar, M., and Shams, P. R. (2021). Health hazard and occupational safety challenges for unorganized sector workers in India. *Journal of Contemporary Issues in Business and Government*, *27*(1).

Nandeeswariah, K., and Ramana, A. V. (2021). Status and growth of micro, small and medium enterprises (MSMEs) post MSMED 2006 Act implementation in India. *Turkish Online Journal of Qualitative Inquiry*, *12*(6).

Nazari, Z., and Musilek, P. (2023). Impact of digital transformation on the energy sector: A review. *Algorithms*, *16*(4).

Nekhili, M., Boukadhaba, A., Nagati, H., and Chtioui, T. (2021). ESG performance and market value: The moderating role of employee board representation. *The International Journal of Human Resource Management*, *32*(14), 3061–3087. https://doi.org/10.1080/09585192.2019.1629989

Nenavani, J., Prasuna, A., Siva Kumar, S. N. V., and Kasturi, A. (2024). ESG measures and financial performance of logistics companies. *Letters in Spatial and Resource Sciences*, *17*(1). https://doi.org/10.1007/s12076-023-00358-4

Nnajiofor, C. A., Eyo, D. E., Adegbite, A. O., Odoguje, I. A., Salako, E. W., Folorunsho, F. E., and Adeyeye, A. A. (2024). *World Journal of Advanced Research and Reviews*, *23*(3), 2659–2665. https://doi.org/10.30574/wjarr.2024.23.3.2934

Norman, W., and MacDonald, C. (2004). Getting to the bottom of "triple bottom line." *Business Ethics Quarterly*, *14*(2), 243–262. https://doi.org/10.5840/beq200414211

Nunnally, J. C. (1975). Psychometric theory: 25 years ago and now. *Educational Researcher*, *4*(10), 7–21.

Obaideen, K., Shehata, N., Sayed, E. T., Abdelkareem, M. A., Mahmoud, M. S., and Olabi, A. G. (2022). The role of wastewater treatment in achieving sustainable development goals (SDGs) and sustainability guideline. *Energy Nexus*, *7*, 100112. https://doi.org/10.1016/j.nexus.2022.100112

Oh, H. J., Lee, B., Ma, H. H., Jang, D., and Park, S. (2024). A preliminary study for developing perceived ESG scale to measure public perception toward organizations' ESG performance. *Public Relations Review*, *50*(1), 102398. https://doi.org/10.1016/j.pubrev.2023.102398

Olawumi, M. A., and Oladapo, B. I. (2025). AI-driven predictive models for sustainability. *Journal of Environmental Management*, *373*, 123472. https://doi.org/10.1016/j.jenvman.2024.123472

Opp, S. M., and Saunders, K. L. (2013). Pillar talk: Local sustainability initiatives and policies in the United States—Finding evidence of the "three E's": Economic development, environmental protection, and social equity. *Urban Affairs Review*, *49*(5), 678–717.

Pachouri, A., and Sharma, S. (2016). Barriers to innovation in Indian small and medium-sized enterprises. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2838109

Pal, S. (2024). Impact of ESG on corporate financial performance: Analysis of the Indian automobile sector. In *Social and ethical implications of AI in finance for sustainability* (pp. 118–140). IGI Global.

Papas, M. (2017). The 2030 sustainable development agenda and the Paris Climate Agreement—Taking urgent action to combat climate change: How is Australia likely to fare? *Asia Pacific Journal of Environmental Law*, *20*(1), 94–114.

Paramesha, M., Rane, N., and Rane, J. (2024). Big data analytics, artificial intelligence, machine learning, internet of things, and blockchain for enhanced business intelligence. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4855856

Paridhi, R., Arora, H., Arora, P., and Saini, N. (2024). Unlocking the path to sustainability: A hierarchical model for understanding corporate barriers to ESG reporting adoption. *Journal of Risk and Financial Management*, *17*(12), 527. https://doi.org/10.3390/jrfm17120527

Patel, V., and Aditya, K. (2024). ESG and its impact on performance: A study of metal industry in India. *Business Review*, *3*(1), 1–10.

Peter, F., Adegbuyi, O., Olokundun, M., Peter, A. O., Bosede Amaihian, A., and Stephen Ibidunni, A. (2018). Government financial support and financial performance of SMEs. *Academy of Strategic Management Journal*, *17*, 1–15.

Pierce, J. T. (1993). Agriculture, sustainability and the imperatives of policy reform. *Geoforum*, *24*(4), 381–396. https://doi.org/10.1016/0016-7185(93)90002-y

Pimenow, S., Pimenowa, O., and Prus, P. (2024). Challenges of artificial intelligence development in the context of energy consumption and impact on climate change. *Energies*, *17*(23), 5965. https://doi.org/10.3390/en17235965

Plastun, A., Makarenko, I., Khomutenko, L., Osetrova, O., and Shcherbakov, P. (2020). SDGs and ESG disclosure regulation: Is there an impact? Evidence from Top-50 world economies. *Problems and Perspectives in Management*, *18*(2), 231–245. https://doi.org/10.21511/ppm.18(2).2020.20

Popp, L., Imanbekov, K., Mukhamediyeva, G., Bokizhanova, F., and Kobzareva, O. (2024). Strategic development and implementation of sustainable energy initiatives. In *SpringerBriefs in applied sciences and technology* (pp. 15–35). Springer Nature Switzerland.

Porter, M. E., and Kramer, M. R. (2018). Creating shared value: How to reinvent capitalism—and unleash a wave of innovation and growth. In *Managing sustainable business* (pp. 323–346). Springer Netherlands.

Porter, M. E., and van der Linde, C. (1995). Toward a new conception of the environment–competitiveness relationship. *The Journal of Economic Perspectives*, *9*(4), 97–118. https://doi.org/10.1257/jep.9.4.97

Prakash, B. (2020). Industrial sickness in micro, small and medium enterprises in Bihar, India [Doctoral dissertation]. Department of Economic Studies, School of Social Sciences, Central University of Punjab

Prasuna, A., and Kumar, S. S. (2023). ESG risk assessment tool for Indian small and medium enterprises. In *Workshop on e-business* (pp. 168–181). Springer.

Primadona, I. A. L., Rustiarini, N. W., and Rismawati. (2024). Challenges and benefits of implementing corporate social responsibility in MSMEs. *Jurnal Inovasi Akuntansi*, *2*(1), 47–53. https://doi.org/10.36733/jia.v2i1.9013

Purvis, B., Mao, Y., and Robinson, D. (2019). Three pillars of sustainability: In search of conceptual origins. *Sustainability Science*, *14*(3), 681–695. https://doi.org/10.1007/s11625-018-0627-5

Rahaman, M. T., Pranta, A. D., Repon, M. R., Ahmed, M. S., and Islam, T. (2024). Green production and consumption of textiles and apparel: Importance, fabrication, challenges and future prospects. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(2), 100280. https://doi.org/10.1016/j.joitmc.2024.100280

Rajamani, K., Akbar Jan, N., Subramani, A. K., and Nirmal Raj, A. (2022). Access to finance: Challenges faced by micro, small, and medium enterprises in India. *Engineering Economics*, *33*(1), 73–85. https://doi.org/10.5755/j01.ee.33.1.27998

Ramanathan, R., He, Q., Black, A., Ghobadian, A., and Gallear, D. (2017). Environmental regulations, innovation and firm performance: A revisit of the Porter hypothesis. *Journal of Cleaner Production*, *155,* 79–92. https://doi.org/10.1016/j.jclepro.2016.08.116

Ratum, A., Permana, A., and Sachari, D. (2019). A review on circular design guidelines by Ideo and Ellen Macarthur Foundation. *E-Prosiding Pascasarjana ISBI Bandung*, 1(1), 1–10.

Rau, P. R., and Yu, T. (2024). A survey on ESG: Investors, institutions and firms. *China Finance Review International*, *14*(1), 3–33. https://doi.org/10.1108/cfri-12-2022-0260

Rawat, T., and Gupta, R. (2025). Leveraging internal CSR and employee engagement for advancing sustainable development goals in the post-pandemic era: A case study of IT companies in India. In *Sustainable development goals series* (pp. 135–153). Springer Nature Switzerland.

Raza, A. (2025). Integrating ESG into SME financial decision-making: A practical model for emerging economies. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.5393451

Revell, A., and Blackburn, R. (2007). The business case for sustainability? An examination of small firms in the UK's construction and restaurant sectors. *Business Strategy and the Environment*, *16*(6), 404–420. https://doi.org/10.1002/bse.499

Rigdon, E. E. (1998). Structural equation modelling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 1–36). Lawrence.

Roberson, Q. M. (2006). Disentangling the meanings of diversity and inclusion in organizations. *Group and Organization Management*, *31*(2), 212–236. https://doi.org/10.1177/1059601104273064

Rockström, J., Sachs, J. D., Öhman, M. C., and Schmidt-Traub, G. (2022). *Sustainable development and planetary boundaries*. Sustainable Development Solutions Network..

Rogers, S., Gardner, K., and Carlson, C. (2013). Social capital and walkability as social aspects of sustainability. *Sustainability*, 5(8), 3473–3483. https://doi.org/10.3390/su5083473

Rondinelli, D. A., and Berry, M. A. (2000). Environmental citizenship in multinational corporations: Social responsibility and sustainable development. *European Management Journal*, 18(1), 70–84. https://doi.org/10.1016/s0263-2373(99)00070-5

Rosário, A., and Dias, J. (2022). Sustainability and the digital transition: A literature review. *Sustainability*, 14(7), 4072. https://doi.org/10.3390/su14074072

Rosely, W., Haizan, W. I., and Voulvoulis, N. (2024). System thinking for sustainable water management: The use of system tools in sustainability transitions. *Water Resources Management*, 38(4), 1315–1337.

Roy, A., Sekhar, C., and Vyas, V. (2016). Barriers to internationalization: A study of small and medium enterprises in India. *Journal of International Entrepreneurship, 14*(4), 513–538. https://doi.org/10.1007/s10843-016-0187-7

Russo, M. V., and Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal, 40*(3), 534–559. https://doi.org/10.2307/257052

Salas-Zapata, W. A., and Ortiz-Muñoz, S. M. (2019). Analysis of meanings of the concept of sustainability. *Sustainable Development, 27*(1), 153–161. https://doi.org/10.1002/sd.1885

Salas-Zapata, W. A., Ríos-Osorio, L. A., and Cardona-Arias, J. A. (2017). Methodological characteristics of sustainability science: A systematic review. *Environment, Development and Sustainability, 19*(4), 1127–1140. https://doi.org/10.1007/s10668-016-9801-z

Salim, H. K., Padfield, R., Hansen, S. B., Mohamad, S. E., Yuzir, A., Syayuti, K., Tham, M. H., and Papargyropoulou, E. (2018). Global trends in environmental management system and ISO14001 research. *Journal of Cleaner Production, 170,* 645–653. https://doi.org/10.1016/j.jclepro.2017.09.017

Salin, A., Puteh, S., Shamsudin, N. M., and Omar, S. A. (2023). ESG compliance—Challenges for MSMEs in Malaysia. In *Proceedings of the International Conference on Business and Management* (pp. 114–122).

Sarangi, G. K. (2021). Resurgence of ESG investments in India: Toward a sustainable economy. *Policy Paper Series,* 1–20.

Sarangi, G. K., and Taghizadeh-Hesary, F. (2020). Unleashing market-based approaches to drive energy efficiency interventions in India: An analysis of the Perform, Achieve, Trade (PAT) Scheme. *ADBI Working Paper Series, 1177.*

Sariatli, F. (2017). Linear economy versus circular economy: A comparative and analytical study for optimization of economy for sustainability. *Visegrad Journal on Bioeconomy and Sustainable Development, 6*(1), 31–34. https://doi.org/10.1515/vjbsd-2017-0005

Sarkis, J., Zhu, Q., and Lai, K.-H. (2011). An organizational theoretic review of green supply chain management literature. *International Journal of Production Economics, 130*(1), 1–15. https://doi.org/10.1016/j.ijpe.2010.11.010

Sarstedt, M., Richter, N. F., Hauff, S., and Ringle, C. M. (2024). Combined importance–performance map analysis (cIPMA) in partial least squares structural equation modeling (PLS–SEM): A SmartPLS 4 tutorial. *Journal of Marketing Analytics.* https://doi.org/10.1057/s41270-024-00325-y

Savio, R., D'Andrassi, E., and Ventimiglia, F. (2023). A systematic literature review on ESG during the COVID-19 pandemic. *Sustainability, 15*(3), 2020. https://doi.org/10.3390/su15032020

Schaltegger, S., and Hörisch, J. (2017). In search of the dominant rationale in sustainability management: Legitimacy-or profit-seeking? *Journal of Business Ethics, 145*(2), 259–276.

Schaltegger, S., and Wagner, M. (2017). Managing and measuring the business case for sustainability: Capturing the relationship between sustainability performance, business competitiveness and economic performance. In *Managing the business case for sustainability* (pp. 1–27).

Schaltegger, S., Hörisch, J., and Freeman, R. E. (2019). Business cases for sustainability: A stakeholder theory perspective. *Organization & Environment, 32*(3), 191–212. https://doi.org/10.1177/1086026617722882

Scott, W. R. (2005). Institutional theory: Contributing to a theoretical research program. *The Process of Theory Development, Oxford UK: Oxford University Press, 37*, 460–484.

Senadheera, S. S., Withana, P. A., Dissanayake, P. D., Sarkar, B., Chopra, S. S., Rhee, J. H., and Ok, Y. S. (2021). Scoring environment pillar in environmental, social, and governance (ESG) assessment. *Sustainable Environment, 7*(1), 1960097. https://doi.org/10.1080/27658511.2021.1960097

Sethi, S. P. (1975). Dimensions of corporate social performance: An analytical framework. *California Management Review*, *17*(3), 58–64. https://doi.org/10.2307/41162149

Shaker, A. (2021). The resource-based view, resourcefulness, and resource management in startup firms: A proposed research agenda. *Journal of Management*, *47*(7), 1841–1860.

Shakil, M. H. (2021). Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity. *Resources Policy*, *72*(102144), 102144. https://doi.org/10.1016/j.resourpol.2021.102144

Shalhoob, H., and Hussainey, K. (2022). Environmental, social and governance (ESG) disclosure and the small and medium enterprises (SMEs) sustainability performance. *Sustainability, 15*(1), 200. https://doi.org/10.3390/su15010200

Sharma, G. D., Thomas, A., and Paul, J. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework. *Tourism Management Perspectives, 37*, 100786. https://doi.org/10.1016/j.tmp.2020.100786

Sharma, P., Panday, P., and Dangwal, R. C. (2020). Determinants of environmental, social and corporate governance (ESG) disclosure: a study of Indian companies. *International Journal of Disclosure and Governance, 17*(4), 208–217. https://doi.org/10.1057/s41310-020-00085-y

Sharma, S. G. (2009). *Corporate social responsibility in India: An overview. Int'l Law*, 43.

Shekhar, C., and Rai, P. (2025). Rising strong: *How Indian MSMEs are adapting and thriving in a post-FY2025 landscape study*. https://doi.org/10.2139/ssrn.5338943

Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., and Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management, 37*(4), 1262–1289. https://doi.org/10.1177/0149206310385943

Singh, A. (2023). Essays on ESG Reporting: Identifying the Key Performance Indicators and Measuring its Impact on Firm Performance. *Doctoral dissertation*.

Singh, M. P., Chakraborty, A., Roy, M., and Tripathi, A. (2021). Developing SME sustainability disclosure index for Bombay Stock Exchange (BSE) listed manufacturing SMEs in India. *Environment Development and Sustainability, 23*(1), 399–422. https://doi.org/10.1007/s10668-019-00586-z

Singh, V. (2024). The environment and its components. In *Textbook of Environment and Ecology* (pp. 1–13). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-8846-4_1

Singh, V. K. (2021). Corporate governance failures as a cause of increasing corporate frauds in India—an analysis. In *Accounting, Finance, Sustainability, Governance & Fraud: Theory and Application* (pp. 15–32). Springer Singapore. https://doi.org/10.1007/978-981-33-4076-3_2

Singhania, D. M., and Saini, D. N. (2022). Systems approach to environment, social and governance (ESG): Case of Reliance industries. *Sustainable Operations and Computers, 3*, 103–117. https://doi.org/10.1016/j.susoc.2021.11.003

Singhania, M., and Saini, N. (2023). Institutional framework of ESG disclosures: comparative analysis of developed and developing countries. *Journal of Sustainable Finance & Investment, 13*(1), 516–559. https://doi.org/10.1080/20430795.2021.1964810

Sinha, K. K., Saunders, C., Raby, S., and Dewald, J. (2022). The moderating role of previous venture experience on breadth of learning and innovation and the impacts on SME performance. *International Journal of Entrepreneurial Behaviour & Research, 28*(2), 346–367. https://doi.org/10.1108/ijebr-02-2021-0159

Slaper, T. F., and Hall, T. J. (2011). The triple bottom line: What is it and how does it work. *Indiana Business Review, 86*(1), 4–8.

Smith, A. (2002). An Inquiry into the Nature and Causes of the Wealth of Nations. *Readings in Economic Sociology*, 6–17. https://doi.org/10.1002/9780470755679.ch1

Spomer, G. G. (1973). The concepts of "interaction" and "operational environment" in environmental analyses. *Ecology, 54*(1), 200–204. https://doi.org/10.2307/1934391

Starks, L. T. (2023). Presidential address: Sustainable finance and ESG issues-Value versus values. *The Journal of Finance, 78*(4), 1837–1872. https://doi.org/10.1111/jofi.13255

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., de Vries, W., de Wit, C. A., Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Reyers, B., and Sörlin, S. (2015). Planetary boundaries: guiding human development on a changing planet. *Science, 347*(6223), 1259855. https://doi.org/10.1126/science.1259855

Stein, P., Ardic, O. P., and Hommes, M. (2013). Closing the credit gap for formal and informal micro, small, and medium enterprises. *International Finance Corporation (IFC)*.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review, 20*(3), 571–610. https://doi.org/10.5465/amr.1995.9508080331

Suddaby, R. (2010). Challenges for institutional theory. *Journal of Management Inquiry, 19*(1), 14–20. https://doi.org/10.1177/1056492609347564

Sunny, J., Undralla, N., and Madhusudanan Pillai, V. (2020). Supply chain transparency through blockchain-based traceability: An overview with demonstration. *Computers & Industrial Engineering, 150*, 106895. https://doi.org/10.1016/j.cie.2020.106895

Taherian, G., Hosseini Nourzad, S. H., and Neyestani, M. (2024). Customizing a sustainability evaluation framework for infrastructure projects in developing countries: the case study of Iran. *Sustainable and Resilient Infrastructure, 9*(2), 168–191. https://doi.org/10.1080/23789689.2023.2272462

Tan, Y., and Zhu, Z. (2022). The effect of ESG rating events on corporate green innovation in China: The mediating role of financial constraints and managers' environmental awareness. *Technology in Society, 68*, 101906. https://doi.org/10.1016/j.techsoc.2022.101906

Tang, K. H. D. (2023). A review of environmental, social and governance (ESG) regulatory frameworks: Their implications on Malaysia. *Tropical Aquatic and Soil Pollution, 3*(2), 168–183. https://doi.org/10.53623/tasp.v3i2.282

Teece, D. J., Pisano, G., and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(sici)1097-0266(199708)18:7<509::aid-smj882>3.0.co;2-z

Thangallapally, S. J. A. L. (2022). Decoding government support to women entrepreneurs in India. https://www.niti.gov.in/sites/default/files/2023-03/Decoding-Government-Support-to-Women-Entrepreneurs-in-India.pdf

Thirumalai, N. (2022). A study on the awareness level of investors in ESG investing and the impact of non-financial factors in long term performance of organisations in Indian market. *Master's thesis*, National College of Ireland.

Tilling, M. V. (2004). Some thoughts on legitimacy theory in social and environmental accounting. *Social and Environmental Accountability Journal, 24*(2), 3–7. https://doi.org/10.1080/0969160x.2004.9651716

Tripathi, V., and Bhandari, V. (2014). Socially responsible investing-an emerging concept in investment management. *FIIB Business Review, 3*(4), 16–30. https://doi.org/10.1177/2455265820140402

Tsang, Y. P., Fan, Y., and Feng, Z. P. (2023). Bridging the gap: Building environmental, social and governance capabilities in small and medium logistics companies. *Journal of Environmental Management, 338*, 117758. https://doi.org/10.1016/j.jenvman.2023.117758

Tumpa, R. J., Naeni, L. M., Afzal, F., and Ghanbaripour, A. N. (2025). Leveraging digital technology to improve environmental, social, and governance performance of infrastructure projects. *Management Decision, 63*(13), 455–496. https://doi.org/10.1108/md-04-2024-0818

Udeh, C. A., Oso, O. B., Igwe, A. N., Ofodile, O. C., and Ewim, C. P. M. (2024). Navigating the ethical landscape of corporate governance in the era of climate change: A review. *International Journal of Social Science Exceptional Research, 3*(1), 110–125. https://doi.org/10.54660/ijsser.2024.3.1.110-125

Upadhyay, A., Mukhuty, S., Kumar, V., and Kazancoglu, Y. (2021). Blockchain technology and the circular economy: Implications for sustainability and social responsibility. *Journal of Cleaner Production, 293*, 126130. https://doi.org/10.1016/j.jclepro.2021.126130

Utz, S. (2019). Corporate scandals and the reliability of ESG assessments: evidence from an international sample. *Review of Managerial Science, 13*(2), 483–511. https://doi.org/10.1007/s11846-017-0256-x

Vallance, S., Perkins, H. C., and Dixon, J. E. (2011). What is social sustainability? A clarification of concepts. *Geoforum, 42*(3), 342–348. https://doi.org/10.1016/j.geoforum.2011.01.002

Venturini, A. (2022). Climate change, risk factors and stock returns: A review of the literature. *International Review of Financial Analysis, 79*, 101934. https://doi.org/10.1016/j.irfa.2021.101934

Vigolo, M., Baldasso, C., Silvestre, W. P., Anderson Bortolin, T., and Schneider, V. E. (2025). Evolution of the Environmental, Social, and Governance (ESG) model: a review of its ascending trajectory. *Caderno Pedagógico, 22*(7), e16291. https://doi.org/10.54033/cadpedv22n7-137

Wang, X., and Lo, K. (2021). Just transition: A conceptual review. *Energy Research & Social Science, 82*, 102291. https://doi.org/10.1016/j.erss.2021.102291

White, M. M. (2018). *Freedom farmers: Agricultural resistance and the Black freedom movement*. UNC Press Books.

Wielechowski, M., and Krasuski, P. (2024). ESG concepts in business practice. Characteristics and assessment of common ESG frameworks. *MAZOWSZE Studia Regionalne Special Edition*, 9–26. https://doi.org/10.21858/msr.se.2024.01

Windrum, P., and Berranger, P. D. (2002). The adoption of e-business technology by SMEs. https://doi.org/10.26481/umamer.2002023

Wood, D. J. (1991). Social issues in management: Theory and research in corporate social performance. *Journal of Management, 17*(2), 383–406. https://doi.org/10.1177/014920639101700206

Wood, D. J., Mitchell, R. K., Agle, B. R., and Bryan, L. M. (2021). Stakeholder identification and salience after 20 years: Progress, problems, and prospects. *Business and Society, 60*(1), 196–245. https://doi.org/10.1177/0007650318816522

Wu, S., Shao, C., and Chen, J. (2018). Approaches on the screening methods for materiality in sustainability reporting. *Sustainability, 10*(9), 3233. https://doi.org/10.3390/su10093233

Xue, M., Lu, M., Du, A. M., and Zheng, B. (2025). How do firms respond to climate change? Evidence based on ESG performance. *International Review of Economics & Finance, 98*, 103863. https://doi.org/10.1016/j.iref.2025.103863

Yacob, P., Wong, L. S., and Khor, S. C. (2019). An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs. *Journal of Manufacturing Technology Management, 30*(1), 2–25. https://doi.org/10.1108/jmtm-08-2017-0153

Yadav, A., and Asongu, S. A. (2025). The role of ESG performance in moderating the impact of financial distress on company value: Evidence of wavelet-enhanced quantile regression with Indian companies. *Business Strategy and the Environment, 34*(3), 2782–2798. https://doi.org/10.1002/bse.4118

Yadav, P., and Prashar, A. (2023). Board gender diversity: implications for environment, social, and governance (ESG) performance of Indian firms. *International Journal of Productivity and Performance Management, 72*(9), 2654–2673. https://doi.org/10.1108/ijppm-12-2021-0689

Yi, L., Khan, M. S., and Safeer, A. A. (2022). Firm innovation activities and consumer brand loyalty: A path to business sustainability in Asia. *Frontiers in Psychology, 13*, 942048. https://doi.org/10.3389/fpsyg.2022.942048

Yucel, M., and Yucel, S. (2024). Environmental, social, and governance (ESG) dynamics in the energy sector: strategic approaches for sustainable development. *Energies, 17*(24), 6291. https://doi.org/10.3390/en17246291

Zahra, S. A. (2021). The resource-based view, resourcefulness, and resource management in startup firms: A proposed research agenda. *Journal of Management, 47*(7), 1841–1860. https://doi.org/10.1177/01492063211018505

Zhang, R., Aljumah, A. I., Ghardallou, W., Li, Z., Li, J., and Cifuentes-Faura, J. (2023). How economic development promotes the sustainability targets? Role of natural resources utilization. *Resources Policy, 85*, 103998. https://doi.org/10.1016/j.resourpol.2023.103998

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., and Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability, 10*(8), 2607. https://doi.org/10.3390/su10082607

Zhao, J., Jiang, Q., Dong, X., and Dong, K. (2020). Would environmental regulation improve the greenhouse gas benefits of natural gas use? A Chinese case study. *Energy Economics, 87*, 104712. https://doi.org/10.1016/j.eneco.2020.104712

Zhou, D., and Zhou, R. (2021). ESG performance and stock price volatility in public health crisis: Evidence from COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 19*(1), 202. https://doi.org/10.3390/ijerph19010202

Zhu, Q., and Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of Operations Management, 22*(3), 265–289. https://doi.org/10.1016/j.jom.2004.01.005

Zutshi, A., and Sohal, A. (2004). A study of the environmental management system (EMS) adoption process within Australasian organisations—2. Role of stakeholders. *Technovation, 24*(5), 371–386. https://doi.org/10.1016/s0166-4972(02)00115-3