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A Review on Accelerating Industrial Transformation: Evaluating Global Progress and Corporate Responsibility Under SDG-9

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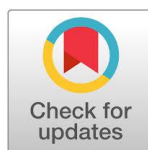
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Abstract: The United Nations 2030 Agenda establishes 17 Sustainable Development Goals (SDGs) to harmonize economic growth, social inclusion, and environmental stewardship. Central to this mission is SDG-9: Industry, Innovation, and Infrastructure, which serves as a catalyst for sustainable industrialization. This research utilizes the SDG-9 Index to assess national progress in industrializing while minimizing ecological footprints. It specifically examines the private sector's role in activating sustainable business models in response to increasing societal demands for transparency. Analysis reveals significant performance gaps and a critical "knowledge deficit" that hinders the effective implementation of SDG-9 targets. Current trajectories suggest that industrial growth is not yet sufficiently decoupled from environmental degradation. The study highlights an urgent need for targeted policy interventions. Governments must foster multi-stakeholder collaborations to bridge performance gaps and implement practices aligned with the 169 SDG targets to ensure long-term resilience.

Keywords: 2030 Agenda for Sustainable Development, SDG-9 Index, Private Sector Engagements, Decoupling, Knowledge Deficit, Multi-stakeholder collaboration, Corporate Transparency

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Introduction:

The 2030 Agenda's Sustainable Development Goal 9 (SDG 9) establishes a global commitment to "build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation." However, due to many systematic hinderances, its implementation is slowed down. This raises a grounded question: can the goals of inclusive industrialization be achieved if the policies meant to drive them are diluted by corporate capture?

Industrialization is not merely a byproduct of market forces; it is a deliberate process involving the steady migration of labour from low-productivity sectors to high-productivity activities. This paper argues that for SDG 9 to move from rhetoric to reality, a paradigm shift is required one that reclaims the state's role in shaping industrial paths that are both inclusive and environmentally sustainable.

Statement of the Problem:

At the global level we experience industrial transformation taking place but at a slow pace. This is because global progress towards achieving SDG 9 remains uneven as there are significant gaps between developed and developing economies. Adding to this disadvantage in implementing SDG 9 is the insufficient and inconsistent responsibility of the corporate firms who prefer short term profits over long term sustainable industrial practices. Green technologies and inclusive innovation remain limited due to weak collaboration of public institutions with private enterprises thus slowing down the transition to resilient low-carbon, robust industrial ecosystems necessary for achieving SDG 9 target. Developing regions and vulnerable populations are deprived as the progress of technology is concentrated mainly in corporate sectors. Regulatory and policy frameworks are often overlooked by corporates resulting in slower practices in sustainable development.

Objectives:

1. To analyse the differential industrial progress between developed and developing economies in industry, innovation and infrastructure development.
2. To ascertain accountability and implementation capacity of the corporate sector in advancing long term sustainability commitments in innovation and infrastructure development.
3. To address the structural gaps of the corporates in achieving the targets of SDG 9 due to the absence of transparency, uniform assessment metrics, policy neglect and weak regulatory disclosures.
4. To study the role of governments, corporations, innovation institutions and SMEs in promoting resilient low carbon industrial ecosystems and green technologies.

Review of Literature:

The concept of the green economy constitutes a new ecological conservation and modernization. This concept has been accepted as a requirement for sustainable development the world over (Lorek and Spangenberg, 2014). The idea of green economic growth is based on the work of Stavrakakis (1997), who developed the idea of the green economy to address environmental deterioration and provided the framework for a new environmental strategy. Accordingly, sustainable growth path can be achieved by promoting technical innovation through patents, innovations, and taxes (Acemoglu et al., 2016). However, fostering technological innovation can cause a negative impact on the environmental quality and on green economic growth (GEG). Improving energy efficiency helps lower carbon emissions; but, when efficiency gains increase level of resource and energy use, the boomerang effect causes CO₂ emissions to rise as a result of technical advancements (Wang and Wei, 2019). As a matter of fact, the connection between research development (RD) and GEG can be explained by different mechanisms. For instance, increased RD investment leads to advancements in technology in the energy sector and promotes the production of green energy, which can significantly contribute to GEG (Lee and Min, 2015) and energy use efficiency (Ma et al., 2022). Furthermore, driving GEG through investment in RD can be considered critically important because it plays a vital role in combating CO₂ emissions. The role of the private sector in implementing the 17 SDGs is of particular importance, especially that of Multinational Enterprises (MNEs) (Munro and Arli, 2020; Van Zanten and Van Tulder, 2018). For the SDGs to be successfully implemented, international businesses need to not only comply with global, regional, national, and local juridical guidelines and expectations, but to better understand the aspirations of the goals and integrate them into their core business strategies.

The role that MNEs play in mitigating climate change has also been addressed by academia. Kolk and Pinkse (2008) explain how climate change offers MNEs an opportunity to develop “green” firm-specific advantages and enables them to reconfigure key firm-specific advantages. Issues related to MNEs’ role in reducing inequality have been extensively addressed in the past according to Figini and Görg (1999). Taylor and Driffield (2005) explore the impact of MNEs on wage inequality among workers in various industry sectors in MNE. Other research that addresses the issue of inequality includes the manner and level of foreign direct investment (Clark et al., 2011; Jensen and Rosas, 2007); the exploitation of natural resources (Asiedu, 2006; Asiedu and Lien, 2011); and the impact on

democracy (Busse, 2003; Kucera and Principi, 2014). The impact of MNEs on human rights and civil liberties in developing countries has also received attention significantly. We are witnessing the advent of a widespread awareness of the holistic and interconnected nature of the SDGs and the resulting conceptualization of corporate strategic frameworks to capture opportunities and rethink business models (Beyne, 2020). Furthermore, to gain visibility and to develop their institutional reputation, many companies have undertaken original initiatives to create standards through the establishment of indices, like a composite SDG index (Diaz-Sarachaga et al., 2018). Companies possess the greatest potential to be the primary catalysts for sustainable development. This belief is grounded in their capacity to: 1) decrease the excessive consumption of natural resources, 2) implement climate-friendly technologies, 3) allocate resources more substantially towards socially responsible projects, and 4) fulfill their mission of generating value for all stakeholders, including, the broader community. It is imperative for companies to contribute to state revenues through taxes, carbon taxes, and other regular payments. These revenues can be utilized, among other purposes, for the implementation of certain SDGs.

Financing the implementation of the SDGs entails developing a suitable methodology for evaluating the viability of individual projects aligned with the green transition, while also discouraging environmentally compromised projects. Despite potentially offering attractive returns to investors, such projects are ultimately unsustainable in the long run. It is evident that the adopted methodology must align with the aim of attaining the SDGs as well as with metrics that clearly promote attractive green investment projects

As we reach the halfway point of the projected period for achieving SDG goals, measurement challenges persist both conceptually and operationally. There is no universally accepted conceptual framework for reporting, which would be logical given the global nature of the issues. Instead, there are numerous efforts to develop different conceptual frameworks that cover various reporting objectives. It is also worth noting that among the numerous indicators that have been identified, a significant number of them are not functional, regardless of whether the issue lies in the lack of clarity on how something should be measured or if the methodology has not yet been developed.

The contributions of SMEs to urban economic development are multi-faceted and essential for sustained urban growth. Their ability to generate employment, foster innovation, promote local production, and drive GDP growth positions them as indispensable to the socio-economic structure of cities. The aggregate contribution of SMEs to GDP growth in urban economies is a reflection of their cumulative impact across employment, innovation, and local production.

Another critical aspect of SMEs' contribution to urban economies is their role in promoting local production and supply chains. In many urban areas, SMEs serve as key drivers of local production by utilizing locally sourced materials, labour, and services. This localized approach not only strengthens the urban supply chain but also reduces reliance on imported goods, thereby enhancing economic resilience (Gibson & Van der Vaart, 2008).

Employment generation stands as one of the primary contributions of SMEs to urban economies, where they play a crucial role in creating jobs and reducing unemployment. Due to their typically lower capital requirement for startup and operational flexibility, SMEs are better positioned to absorb a diverse range of labour, particularly from the lower-skilled labour pool in urban areas (Beck, Demirguc-Kunt & Levine, 2005). This capacity for labour absorption not only provides employment but also leads to skill development and workforce diversification. The versatility of SMEs and their potential for sustainable contributions, therefore, highlight their importance in a broad array of urban development aspects. Municipalities and other stakeholders have competing priorities and limited budgets resulting in conflict of Interests opposing goals (Weitz, N. · Carlsen, H. · Nilsson, M). The 2030 Agenda signals the importance of partnerships in implementing the SDGs thus calling for an understanding of how the SDGs can influence each other to prioritise policies and maximise synergies (Nilsson, M. · Chisholm, E. · Griggs, D.).

Facilitated by science-based national strategies and the involvement of municipalities, the implementations of the SDGs can be viewed as a challenge of shared responsibility between the municipalities and its citizens. This understanding is essential for unlocking the full potential of the SDGs on a national, regional, or global scale, and is also useful both for achieving lasting results on the SDGs and for ensuring that progress made on one SDG does not jeopardise the progress of others (Mantlana, K.B. · Maoela, M.A.).

In order to make the SDGs easier for companies to implement, a set of 169 specific targets have been set to be achieved by 2030. The attainment of these very complex, multidimensional goals depends on the joint efforts of political, economic and social actors.

Conclusion:

The primary challenge with why the SDG progress is slow and why global inequality in all its dimensions persists is because there is no sufficient “context” created for change to truly take root. The environmental crisis and the social crisis are still “hidden”, largely unnoticed by the forces that drive growth, profits and super-capitalism. Therefore, to create sufficient context for change, firstly, humanity’s current existential crisis needs to be brought into the foreground more clearly.

Secondly, people, corporations and governments need to be fully educated on the reality and implications of living in an interdependent world. Clarity is needed as to why this integrative reality must be met with inclusive frameworks for the economy, society and its governance. This study has attempted to bring more clarity in all of these areas to, ultimately, take us further on the road towards genuine economic progress.

Recommendations:

Therefore, in redirecting towards inclusive economic sustainability, the study recommends the following principal determinants for change: Full integration into business: a shift from corporate social responsibility to inclusive business; Enabling society to take initiative: a shift from reactive to proactive community development; Steering a new development path: a shift to inclusive growth through interactive governance. In this way, sustainability becomes a main driver of innovation, ensuring that social equity and ecological parity not only raise the standard of living, but raise the quality of life. While further research is needed regarding the relationship between sustainability and economic inclusivity, this study contributed towards identifying inclusive business, participative community and inclusive public policies as three main requirements for genuine progress.

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