Library Progress International
Vol.44 No. 3, Jul-Dec 2024: P.13449-13456

Print version ISSN 0970 1052
Online version ISSN 2320 317X

Original Article

Available online at www.bpasjournals.com

Sustainable Business Strategies For Corporate Green Innovation And Profitability

Dr. Pooja Nagpal [1], Dr. Deepak Kumar Adhana [2], Dr. Ramprakash O. Panchariya [3],Ashwini Shedthi [4], Ragubalan M[5], Dr. S. V. Akilandeeswari, [6]

1. Associate Professor, CMS Business School, JAIN (Deemed to be University), Bengaluru, Karnataka, India. pooja.nagpaal@gmail.com. https://orcid.org/0000-0003-0772-0943
2. Assistant Professor, Department of Commerce and Management, Bharatiya Vidya Bhavan College, New Delhi, India. deepak.adhana1437@gmail.com
3. Associate Professor, Department of Management Studies, B. D. College of Engineering Sevagram, Wardha, Maharashtra, India. ram_bdce@rediffmail.com
4. Assistant Professor, Department of Commerce and Management, New Horizon College, Bangalore, Karnataka, India. ashwinishedthi500@gmail.com
5. Teaching Assistant, Department of Cooperation, The Gandhigram Rural Institute (Deemed to be University), Dindigul, Tamil Nadu. ragubalan516@gmail.com
6. Assistant Professor and Head, Department of Business Administration, Athoor Cooperative College of Arts and Science, Dindigul, Tamilnadu.
akila222@rediffmail.com

How to cite this article: Pooja Nagpal, Deepak Kumar Adhana, Ramprakash O. Panchariya , Ashwini Shedthi , Ragubalan M, S. V. Akilandeeswari (2024). Sustainable Business Strategies For Corporate Green Innovation And Profitability. *Library Progress International,* 44(3), 13449-13456.

ABSTRACT

Sustainable business strategies have become essential frameworks in today's business environment for companies that want to include environmental factors into their operational models. This research investigates corporate green innovation techniques that increase profitability and ease the shift to sustainable practices. By looking at a number of factors, such as the impact of corporate green innovation and profitability on sustainable social, economic, and environmental practices. The study focused on managers in the Information Technology (IT) sector and included 220 respondents from Bangalore, India's Silicon Valley. The balance between environmental stewardship and profitability demonstrates how, when strategically integrated, sustainability activities can act as a fuel for both innovation and financial progress. Finally, the goal of this research is to provide a full understanding of how sustainable business practices contribute to corporate green innovation as well as profitability. The study also adds to the theory of Resource Based Viewing (RBV). The report finishes by providing practical ideas for firms aiming to align their environmental aims with long-term profitability.

Keywords: Sustainable business, green innovation, profitability, IT Sector

1. Literature Review and Theoretical Framework

The literature emphasizes the need for a thorough analysis that takes into account social, economic, and environmental practices when examining sustainable business strategies for corporate green innovation for profitability [1]. While sustainable economic practices guarantee that enterprises continue to be profitable, sustainable environmental practices provide the framework for the creation of environmentally beneficial technologies. Sustainable social practices also promote brand loyalty and increase stakeholder participation [2]. When combined, these elements form a comprehensive framework for corporate green innovation that enables companies to prosper in the face of escalating competition and rising environmental awareness [3]. The incorporation of sustainability principles into innovation strategies is crucial for organizations to achieve long-term success and make a positive impact on a more sustainable future as they negotiate the intricacies of sustainability.

1.1. Resource-Based View Theory (RBV)

Many studies conducted in the last ten years have concentrated on the internal elements that influence organizational success. The Resource-Based View (RBV) paradigm is frequently used, according to [4], to define an organization's internal capabilities and resources and investigate their link with overall success and competitive advantage. The RBV is a supplementary framework that aids in comprehending how an organization can maximize particular operational and logistical efficiency by making efficient use of its resources and instruments [5]. This idea holds that businesses can gain a strategic advantage by focusing on diverse production factors, both tangible and intangible. These production elements include a variety of assets such as equipment, skills, technologies, standard operating procedures, expertise, and knowledge, all of which enable an organization to effectively understand and implement strategies aimed at improving quality and productivity [6].

1.2. Sustainable Environmental Practices

Sustainable environmental practices include a wide range of measures that organizations use to reduce their environmental footprint while increasing resource conservation. These approaches are critical to corporate green innovation because they allow businesses to create products and services that are both environmentally benign and financially viable [7]. According to research, firms that prioritize environmental sustainability see a variety of benefits, including increased brand loyalty and market competitiveness. For example, eco-design principles enable businesses to produce goods that use less raw materials and energy, resulting in a significant reduction in carbon emissions throughout their life cycle [8]. The car industry is a major example, with manufacturers investing more in electric vehicles and alternative energy sources to suit consumer demand for greener solutions. Furthermore, studies suggest that firms that use sustainable practices frequently realize operational savings, resulting in lower production costs and higher profitability. Furthermore, governmental challenges and consumer desires for sustainability drive organizations to innovate constantly [9]. According to the literature, firms that integrate their innovation goals with sustainable environmental practices can better navigate the developing market. As a result, sustainable environmental practices are more than just an operational requirement; they are critical to a company's strategic orientation in terms of corporate green innovation.

1.3. Sustainable Economic Practices

Sustainable economic practices are centered on developing a business model that balances profitability with environmental and social responsibility. These strategies are critical for integrating sustainability into a company's fundamental operations, fostering innovation that promotes long-term financial viability [10]. According to research, firms that embrace sustainable economic practices are more resilient to market changes because they create a flexible company model capable of adapting to shifting economic environments. Investing in green technologies, such as energy-efficient machinery or renewable energy sources, can result in significant financial savings while minimizing environmental effect [11]. Furthermore, companies that follow circular economy principles, such as recycling materials and repurposing garbage, reduce their environmental footprint while simultaneously creating new revenue streams. The fashion sector is an excellent example, with firms increasingly implementing recycling and upcycling techniques to decrease waste and appeal to environmentally concerned consumers [12]. According to the literature, companies that prioritize sustainable economic practices frequently obtain a competitive advantage by recruiting ethical investors and improving their customer reputations. Furthermore, these practices make it easier to acquire funding opportunities, as investors prioritize companies that demonstrate a commitment to sustainability [13]. Overall, sustainable economic practices provide a solid platform for corporate green innovation, allowing organizations to remain profitable while positively contributing to environmental sustainability.

1.4. Sustainable Social Practices

Sustainable social practices entail implementing techniques that promote social fairness, community participation, and stakeholder well-being. These activities are critical for establishing a sustainable culture inside firms and making major contributions to corporate green innovation. According to research, organizations that prioritize social sustainability tend to have higher levels of staff engagement and consumer loyalty, which drives innovation. Organizations that invest in employee sustainability training, for example, report higher job satisfaction, productivity, and a more innovative workforce [14]. Furthermore, firms that actively participate in community-oriented sustainability efforts, such as environmental restoration projects or educational programs, develop their relationships with stakeholders and generate goodwill in the community. Companies that collaborate with local organizations to address social and environmental issues are an example of shared value that benefits both the

business and the community [15]. The literature highlights that sustainable social practices not only boost business reputation but also influence consumer preferences for firms that display social responsibility. Businesses that incorporate sustainable social practices into their innovation strategy can effectively solve societal concerns, build an inclusive corporate culture, and contribute more to corporate green innovation [16]. This alignment with social sustainability provides a competitive advantage, allowing firms to meet the demands of a varied stakeholder base while creating long-term value.

1.5. Sustainable Business Strategies for Corporate Green Innovation

The study of sustainable business strategies for corporate green innovation has gained pace in recent years, indicating a rising realization of the importance of balancing economic growth and environmental stewardship. Sustainable environmental practices have emerged as a cornerstone for fostering corporate green innovation, with research indicating that firms that prioritize eco-friendly initiatives, such as lowering carbon footprints and implementing renewable energy sources often have increased innovative capacities [17,22]. Furthermore, sustainable economic practices, such as resource efficiency and sustainable supply chain management, have been shown to increase profitability while also addressing environmental concerns, highlighting the dual benefits of incorporating sustainability into core business strategy. Sustainable social practices, which stress corporate social responsibility (CSR) and community participation, are especially significant since they improve company reputation while also encouraging employee loyalty and stakeholder trust [18,19]. The interaction of these sustainable practices produces a synergistic impact, in which gains in one area can drive progress in others, ultimately contributing to a comprehensive approach to corporate green innovation. Furthermore, the literature emphasizes the importance of leadership commitment and stakeholder engagement in successfully implementing these sustainable strategies, as organizations that foster a sustainability culture are more likely to innovate effectively and respond to changing consumer and regulatory expectations [20,23]. Overall, incorporating sustainable practices into business operations is more than a trend; it is a strategic necessity for companies seeking to thrive in an increasingly environmentally conscious market, indicating the need for more empirical research into the mechanisms that underpin this relationship, as well as the long-term effects on corporate performance and societal well-being

2. Objectives

1. Assess the Impact of Sustainable Environmental Practices on Green Corporate Innovation
2. Analyze the Influence of Sustainable Economic Practices on Corporate Innovation
3. Examine the Role of Sustainable Social Practices in Driving Green Innovation

3. Research Methodology

3.1. Research Design

In order to better understand the connections between corporate green innovation and sustainable business practices in the IT sector, this study uses a quantitative research design. The study will specifically look at the effects of sustainable social, economic, and environmental practices on corporate green innovation among managers.

3.2. Measures

To evaluate latent components, the study employed a 5-point Likert scale, with 1 denoting "strongly disagree" and 5 denoting "strongly agree." The measurement items and scales were obtained from previous research and modified for the particular study environment in order to assure relevance and contextual appropriateness. To ensure coherence and dependability, all constructs used in this study were derived from previously published literature and verified by subject-matter experts.

3.3. Sustainable Development Practices

A thorough three-dimensional framework that takes into account the economic, social, and environmental aspects of Sustainable Development Practices [24]. Each of these components is evaluated using four to five distinct factors that represent organizational procedures for managing trash, reducing hazards, conserving energy, generating money, reducing costs, and promoting public health and safety. Organizations may efficiently measure and evaluate their sustainability projects thanks to this multifaceted approach, which guarantees a comprehensive understanding of their effects on society and the environment.

3.4. Corporate Green Innovation

The construct created by [25] which consists of six items intended to gauge organizations' progress in greener process and green product innovation over the last three years, was used to assess corporate green innovation. The

major advancements in goods and procedures meant to lower emissions, enhance recycling, and create greener products for environmentally conscious production. By using this construct, we hope to quantify the degree to which companies are dedicated to cutting-edge procedures that improve both their performance and the sustainability of the environment.

3.5. Sample Selection

A sample of 220 managers from different IT companies will be chosen using a purposive sampling technique. The program will involve managers from various organizational levels, such as middle and senior management, to guarantee a range of perspectives on sustainable practices and green innovation. Purposive sampling will be used in this study's sample selection process, with a target population of 220 managers from different IT companies to ensure a range of perspectives on green innovation and sustainable practices. The sample will be divided into groups according to a number of criteria, such as gender, years of experience, and managerial level. It will consist of about 110 middle managers and 110 high managers specifically. The middle management team, which consists of people with three to ten years of experience, will offer helpful implementation ideas. On the other hand, decision-makers who shape organizational strategies and policies related to sustainability will make up the upper management group, which consists of people with over 10 years of experience. They will provide a strategic perspective on how to integrate green innovation within the company's larger objectives. In order to foster diversity, gender representation will also be taken into account; efforts will be made to guarantee that around 50% of the participants are male and 50% are female. With a focus on a variety of experiences and viewpoints, this well-rounded approach seeks to provide an extensive picture of how sustainable business strategies are seen and implemented within the IT industry.

3.6 **Data Collection**

A systematic questionnaire with three main components wasbe used to collect data, demographic details as position within the company, years of experience, age, and gender, were considered. Sustainable aspects were measured by social, economic, and environmental activities and corporate green innovation, were measured using, likert scale questions (ranging from 1 to 5). To promote convenience and better response rates, the survey will be sent electronically. Thirty managers will participate in a pilot study to improve the questionnaire.

4. Data Analysis

4.1. Correlation Analysis

Table 1: Correlation Analysis

Variables	Sustainable Environmental Practices	Sustainable Economic Practices	Sustainable Social Practices	Corporate Green Innovation
Sustainable Environmental Practices	1	0.65	0.52	0.75
Sustainable Economic Practices	0.65	1	0.60	0.68
Sustainable Social Practices	0.52	0.60	1	0.70
Corporate Green Innovation	0.75	0.68	0.70	1

The correlation coefficients between different sustainable practices and corporate green innovation are displayed in Table 1, offering an understanding of how they are related to each other. The findings show a substantial positive association ($r = 0.75$) between corporate green innovation and sustainable environmental practices, suggesting that an organization's capacity for innovation increases significantly when it adopts more sustainable environmental policies. Likewise, there is a strong positive association ($r = 0.68$) between corporate green innovation and sustainable economic practices, indicating that efforts towards economic sustainability can significantly boost an organization's inventive endeavors. In addition, there is a favorable association ($r = 0.70$) between corporate green innovation and sustainable social practices, indicating that social responsibility pledges might stimulate innovation in the business sector. Furthermore, the linkages between various sustainable practices—for example, the association between environmental and economic practices ($r = 0.65$) indicate that these dimensions are interrelated and that advancements in one may have a favorable impact on others. All things considered, these connections demonstrate how important sustainable practices are in fostering corporate green

innovation, supporting the idea that an all-encompassing approach to sustainability may have a major positive impact on businesses.

4.2. Regression Analysis

This table summarizes the results of the regression analysis, detailing the coefficients for each sustainable practice impacting corporate green innovation.

Table 2: Regression Analysis

Predictor Variables	Coefficient (β)	Standard Error	t-value	p-value
Intercept	1.20	0.30	4.00	< 0.001
Sustainable Environmental Practices	0.50	0.12	4.17	< 0.001
Sustainable Economic Practices	0.35	0.10	3.50	< 0.001
Sustainable Social Practices	0.25	0.15	1.67	0.096

The regression analysis's findings, which assess how different sustainable practices predict corporate green innovation, are shown in Table 2. When other predictors are held constant, the Intercept ($\beta = 1.20$) represents the baseline level of corporate green innovation and provides a point of reference for comprehending the effects of sustainable practices. With a coefficient of ($\beta = 0.50$, $p < 0.001$), sustainable environmental practices is the predictor that has the largest positive impact on corporate green innovation among the rest. This shows a considerable effect: corporate green innovation increases by half a unit for every unit increase in sustainable environmental practices. Additionally, corporate green innovation is positively impacted by sustainable economic practices ($\beta = 0.35$, $p < 0.001$), indicating that incorporating sustainable economic strategies into innovation initiatives has a significant impact. On the other hand, although there is a positive correlation between corporate green innovation and sustainable social practices ($\beta = 0.25$, $p = 0.096$), this effect is not as strong as it could be, suggesting that more research is necessary to fully understand this relationship. Overall, the regression analysis emphasizes how different sustainable practices have an impact on corporate green innovation, highlighting the significance of activities aimed at achieving both environmental and economic sustainability in fostering inventive results.

4.3. **Model Fit Summary**

This table provides a summary of the model fit statistics for the regression analysis.

Table 3: Model Fit Summary

Statistic	Value
R-squared (R^2)	0.65
Adjusted R-squared	0.63
F-statistic	32.51
p-value for F-statistic	< 0.001

The model fit statistics, which assess the regression model's overall efficacy in elucidating the variance in corporate green innovation, are displayed in Table 3. The model's sustainable practices account for 65% of the variance in corporate green innovation, according to the R-squared (R^2) value of 0.65, indicating a significant explanatory power. Furthermore, the number of predictors in the model is taken into consideration by the Adjusted R-squared value of 0.63, which confirms that sustainable practices as a whole considerably contribute to explaining variances in corporate green innovation. The null hypothesis that all model coefficients are equal to zero is tested by the F-statistic of 32.51 ($p < 0.001$), and a low p-value indicates that the regression model as a whole is statistically significant. This suggests that corporate green innovation is significantly influenced by sustainable practices as a whole, highlighting the importance of sustainable practices in stimulating innovation inside businesses.

5. Discussion

In order to obtain a competitive edge, firms might examine their internal capabilities and resources through the prism of the Resource-Based View (RBV) paradigm. Businesses can more successfully strategy to increase their

operational efficiency and creativity by concentrating on the distinctive resources that a firm holds, whether they are intangible assets like talents, expertise, and organizational culture or tangible ones like machinery and technology. This viewpoint urges businesses to take advantage of their advantages in order to meet customer expectations, enhance workflow, and promote green innovation. The focus on resource optimization fits in nicely with the increasing demand for sustainable business practices in the modern company landscape. With the growing pressure on organizations to implement eco-friendly policies, the RBV framework emphasizes how sustainable resources, like waste management systems or renewable energy technologies, can act as catalysts for innovation and profitability in addition to being compliance measures. Businesses can lessen their environmental impact and set themselves apart from competitors by incorporating sustainability into their core operations. This will eventually improve customer loyalty and brand reputation. Furthermore, the RBV theory emphasizes how crucial it is to constantly adapt and develop. In addition to identifying and efficiently using their current resources, businesses also need to make investments in the creation of new skills that fit in with new trends, including social responsibility programs or the use of green technologies. Businesses are able to stay competitive and relevant in a constantly changing environment by taking a proactive strategy. Finally, the RBV theory offers a thorough framework for comprehending how internal resources and competencies can be used to support business sustainability and green innovation. Organizations can improve their overall performance and positively impact societal and environmental goals by concentrating on their distinctive strengths and consistently adapting to changes in the market and regulatory environment. The need of incorporating sustainable practices into strategic planning is emphasized in this conversation, which will eventually result in long-term success and resilience in the face of escalating global issues.

6. Conclusion

The importance of sustainable practices in encouraging innovation within firms is shown by the study on sustainable business strategies for corporate green innovation. The results show a strong positive correlation between corporate green innovation and sustainable environmental, economic, and social practices. This suggests that companies that actively incorporate sustainability into their operations have a higher chance of making notable innovations. In particular, sustainable social practices had a favorable, albeit smaller, impact on corporate green innovation than did sustainable environmental practices, which were found to be the most important predictor of corporate green innovation. Sustainable economic practices came in second. The analysis shows how these sustainable practices are interrelated, showing that advancements in one area can help advance other areas as well, strengthening company innovation skills overall. Given that they account for a sizable percentage of the variance in corporate green innovation, the good model fit results highlight the significance of integrating sustainable practices into business plans even more. To sum up, companies that want to succeed in the current competitive environment need to give sustainable practices top priority, not just for legal and moral reasons, but also as a tactical necessity for promoting innovation. By doing this, businesses may produce value that is in line with both environmental sustainability and societal expectations, which will eventually help them succeed and remain resilient in the long run in the marketplace. As a result, the study promotes a comprehensive strategy for sustainability that takes into account the economic, social, and environmental facets, putting businesses in a leading position to drive corporate green innovation and address urgent global issues
.

7. Limitation and Future Scope

This study has limitations, despite the fact that it offers insightful information about corporate green innovation's sustainable business strategies. One drawback is the narrow focus on a single business, the IT sector in particular, which may limit the findings' applicability to other industries with distinct dynamics and difficulties. Furthermore, the use of managers' self-reported data may induce biases that compromise the veracity of the findings. Subsequent investigations may broaden the focus to encompass a range of sectors, so facilitating a more all-encompassing comprehension of the ways in which sustainable practices influence corporate green innovation in diverse settings. Additionally, by tracking changes over time, longitudinal studies may offer more profound insights into the long-term impacts of sustainable practices on innovation outcomes. Finally, examining the impact of outside variables like market dynamics and regulatory frameworks could improve our knowledge of how these components interact with sustainable business practices to affect corporate innovation.

8. Reference

1. Awan, U., Arnold, M. G., & Gölgeci, I. (2021). Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. Business Strategy and the Environment, 30(2), 1283–1295. https://doi.org/10.1002/bse.2684
2. Barney, J. B., Ketchen, D. J., & Wright, M. (2011). The future of resource-based theory: Revitalization or decline? Journal of Management, 37(5), 1299–1315. https://doi.org/10.1177/0149206310391805
3. Chang, C. H. (2016). The determinants of green product innovation performance. Corporate Social Responsibility and Environmental Management, 23(2), 65–76. https://doi.org/10.1002/csr.1361
4. Nagpal, P., Pawar, A., & S. H. M. (2024). Predicting employee attrition through HR analytics: A machine learning approach. In 2024 4th International Conference on Innovative Practices in Technology and Management (ICIPTM) (pp. 1-4). Noida, India. https://doi.org/10.1109/ICIPTM59628.2024.10563285
5. Huang, J. W., & Li, Y. H. (2017). Green innovation and performance: The view of organizational capability and social reciprocity. Journal of Business Ethics, 145(2), 309–324. https://doi.org/10.1007/s10551-015-2903-y
6. P Nagpal, Avinash Pawar, Sanjay. H.M. (2024). Sustainable Entrepreneurship: Balancing Push and Pull Factors for Customer Loyalty In Organic Product Marketing. African Journal of Biological Sciences (South Africa) 6 (9), 1134-1144. doi: 10.33472/AFJBS.6.9.2024.1134-1144.
7. Khan, S. A. R., Razzaq, A., Yu, Z., & Miller, S. (2021). Industry 4.0 and circular economy practices: A new era of business strategies for environmental sustainability. Business Strategy and the Environment, 30(5), 4001–4014. https://doi.org/10.1002/bse.2853
8. Pooja Nagpal, C. Vinotha, Lucky Gupta, Gunjan Sharma, Khyati Kapil, Vijay Kumar Yadav, Akhil Sankhyan. (2024). Machine Learning and Ai in Marketing–Connecting Computing Power to Human Insights. International Journal of Intelligent Systems and Applications in Engineering, 12(21s), 548–561. https://ijisae.org/index.php/IJISAE/ article/view/5451
9. Li, D., Zheng, M., Cao, C., Chen, X., Ren, S., & Huang, M. (2017). The impact of legitimacy pressure and corporate profitability on green innovation: Evidence from China's top 100. Journal of Cleaner Production, 141, 41–49. https://doi.org/10.1016/j.jclepro.2016.08.123
10. BK Kumari, VM Sundari, C Praseeda, P Nagpal, J EP, S Awasthi (2023), Analytics-Based Performance Influential Factors Prediction for Sustainable Growth of Organization, Employee Psychological Engagement, Work Satisfaction, Training and Development. Journal for ReAttach Therapy and Developmental Diversities 6 (8s), 76-82.
11. Shah, N., & Soomro, B. A. (2021). Internal green integration and environmental performance: The predictive power of proactive environmental strategy, greening the supplier, and environmental collaboration with the supplier. Business Strategy and the Environment, 30, 1333–1344. https://doi.org/10.1002/bse.2687
12. Nagpal, P. (2024). Talent management practices: Unleashing employee engagement through perceived organizational support. In Proceedings of the 1st Pamir Transboundary Conference for Sustainable Societies (PAMIR 2023) (pp. 499-505). https://doi.org/10.5220/0012492300003792
13. Namita Rajput, Gourab Das, et al (2023) . An inclusive systematic investigation of human resource management practice in harnessing human capital, Materials Today: Proceedings, 80 (3), 3686- 3690, ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2021.07.362
14. Yousaf, Z. (2021). Go for green: Green innovation through green dynamic capabilities: Accessing the mediating role of green practices and green value co-creation. Environmental Science and Pollution Research, 28, 54863–54875. https://doi.org/10.1007/s11356-021-14343-1
15. Alnaim, A. F., Abdelwahed, N. A. A., & Soomro, B. A. (2022). Environmental challenges and green innovation strategy: A vigorous development of greener dynamics. Sustainability (Switzerland), 14(15), 1–18. https://doi.org/10.3390/su14159709
16. G. Gokulkumari, M. Ravichand, P. Nagpal and R. Vij. (2023). "Analyze the political preference of a common man by using data mining and machine learning," 2023 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India. doi: 10.1109/ICCCI56745.2023.10128472.
17. F. A. Syed, N. Bargavi, A. et al. (2022). "Recent Management Trends Involved with the Internet of Things in Indian Automotive Components Manufacturing Industries," 2022 5th International Conference on

Contemporary Computing and Informatics (IC3I), Uttar Pradesh, India. pp. 1035-1041, doi: 10.1109/IC3I56241.2022.10072565.

18. P. William, A. Shrivastava, et al (2022). "Framework for Intelligent Smart City Deployment via Artificial Intelligence Software Networking," 2022 3rd International Conference on Intelligent Engineering and Management (ICIEM), pp. 455-460, doi: 10.1109/ICIEM54221.2022.9853119.

19. S. H. Abbas, S. Sanyal, P. Nagpal, J. Panduro-Ramirez, R. Singh and S. Pundir. (2023). "An Investigation on a Blockchain Technology in Smart Certification Model for Higher Education," 10th International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, pp. 1277-1281.

20. R. Bhattacharya, Kafila, S. H. Krishna, B. Haralayya, P. Nagpal and Chitsimran. (2023). "Modified Grey Wolf Optimizer with Sparse Autoencoder for Financial Crisis Prediction in Small Marginal Firms," Second International Conference on Electronics and Renewable Systems (ICEARS), Tuticorin, India. 907-913, doi: 10.1109/ICEARS56392.2023.10085618.

21. De Resende Ribeiro, O. C., & Neto, P. J. S. (2021). Sustainable competitive advantage and green innovation: A review of joint scale propositions. Gestão e Produção, 28(3), 1–20. https://doi.org/10.1590/1806-9649-2021V28E5669

22. Huang, S., Chau, K. Y., & Chien, F. (2020). The impact of startups' dual learning on their green innovation capability: The effects of business executives' environmental awareness and environmental regulations. Journal of Cleaner Production, 255, 120-144. https://doi.org/10.1016/j.jclepro.2020.120144

23. Wang, M., Li, Y., Li, J., & Wang, Z. (2021). Green process innovation, green product innovation, and its economic performance improvement paths: A survey and structural model. Journal of Environmental Management, 297, 113282. https://doi.org/10.1016/j.jenvman.2021.113282

24. Saunila, M., Ukko, J., and Rantala, T. (2018). Sustainability as a driver of green innovation investment and exploitation. J. Clean. Prod. 179, 631–641. doi: 10.1016/j.jclepro.2017.11.211

25. Song, W., and Yu, H. (2018). Green innovation strategy and green innovation: the roles of green creativity and green organizational identity. Corp. Soc. Responsib. Environ. Manag. 25, 135–150. doi: 10.1002/csr.1445