

Corporate social responsibility, technological innovation and corporate performance: Inputs to sustainable development

Wang, Wei ✉

Graduate School, Lyceum of the Philippines University - Batangas, Philippines (522396231@qq.com)



ISSN: 2243-7770
Online ISSN: 2243-7789

Received: 18 June 2023

Revised: 20 July 2023

Accepted: 24 July 2023

OPEN ACCESS

Available Online: 15 August 2023

DOI: 10.5861/ijrsm.2023.1041

Abstract

This study aims to clarify the relationship between corporate environmental responsibility, technological innovation and corporate performance, and explore the impact of corporate environmental responsibility and technological innovation on corporate performance, which will help to provide an effective path for corporate to achieve sustainable development. Determine the corporate social responsibility in terms of environmental, philanthropic, ethical, and economic responsibility. Assess the technological innovations in terms of Designing and making new products, Problem Solving and Data Collection. Evaluate corporate performance in terms of Economic sustainability, Social sustainability and Environmental sustainability. Test the significant relationship between the three major variables. Provide inputs to sustainable development. This article collects data through questionnaire survey method, conducts multivariate statistical analysis based on quantitative analysis method, and uses SPSS software to provide feedback on the data content of the questionnaire. The research results indicate that there is a positive correlation between corporate social responsibility and corporate performance. The better a company fulfills its social responsibility, the better its performance; There is a significant correlation between technological innovation and corporate performance. The higher the level of technological innovation in enterprises, the better their performance. Ultimately, a comprehensive framework for sustainable development of enterprises was formed based on corporate social responsibility, technological innovation, and corporate performance.

Keywords: corporate social responsibility, technological innovation, corporate performance, corporate sustainable development

Corporate social responsibility, technological innovation and corporate performance: Inputs to sustainable development

1. Introduction

After experiencing rapid development, the global economy has faced social problems such as environmental pollution, product quality and safety, and tax evasion. Although it has brought short-term economic benefits to the enterprise, it clearly does not meet the requirements for long-term development of the enterprise. In today's increasingly fierce market competition, pure profit seeking behavior is no longer able to maintain the competitive advantage of enterprises. The outbreak of such scandals has made corporate social responsibility a focus of attention for the government and all sectors of society. With the continuous attention paid to corporate social responsibility in recent years, more and more scholars and business managers have recognized the strategic significance of corporate social responsibility.

In recent years, China has issued a series of environmental protection policies to vigorously promote the harmonious development of economy, society, human and nature, attach importance to the construction of ecological civilization, and vigorously promote the development of green manufacturing. Since 1978, in order to develop the economy rapidly, China's extensive economic development mode of high pollution, high energy consumption and high emissions has damaged the natural environment. Water pollution, forest destruction, land desertification and other problems occur frequently. People's desire to solve the problem of environmental pollution and implement green development is increasingly strong.

Innovation has always been the main source of enterprise development. In October 2015, China put forward the five development concepts of "innovation, coordination, green, openness and sharing" for the first time. Technological innovation is the source of sustainable development of enterprises. It is believed that technological progress is the fundamental path to achieve sustainable development of enterprises, and technological innovation is the key to achieving technological progress. However, the impact of technological innovation on the sustainable development of enterprises has not been determined (Shen et al., 2020).

Improving corporate performance has always been a practical need for enterprises. The business performance, competitiveness, and sustainable development ability of a company are all considered to be the performance of the company. At present, research on enterprise performance focuses more on the selection of enterprise development strategies, core competitiveness, and sustainable development. The evaluation of corporate performance also places greater emphasis on evaluating the operational status, environmental adaptability, and sustainable development of society. When evaluating corporate performance, it is necessary to pay attention to the planning and control of enterprise operations, such as profits and costs, as well as the impact of external factors such as industry development, socio-economic, policy, environment, and technology on corporate performance.

This paper believes that long-term fulfillment of social responsibility will increase the operating costs of enterprises, but it will help establish a social image and increase market share. Although technological innovation itself is a long-term and high-risk process that requires sustained human and capital investment in the early stages to achieve its success, successful technological innovation can also bring huge economic benefits to enterprises. On the one hand, it can improve the production efficiency of enterprises and reduce the production cost of products; On the other hand, it can improve resource utilization efficiency and reduce pollutant emissions. For a long time, it has formed the core competitive advantage of enterprises. What is the relationship between corporate social responsibility, technological innovation, and corporate performance? How do they jointly promote the improvement of enterprise performance? What is the framework structure for sustainable development of enterprises? In order to address these issues, this article conducted a questionnaire survey with

308 enterprises as the research object, selected various indicators to measure corporate social responsibility, technological innovation, and corporate performance, and conducted statistical analysis. The aim is to identify the relationship between corporate social responsibility, technological innovation, and corporate performance, and construct a framework for sustainable development.

Objectives of the Study - This study aimed to clarify the relationship between corporate social responsibility, technological innovation and corporate performance, explore the impact of corporate social responsibility, technological innovation on corporate performance, and based on this, produce a framework for sustainable development of enterprises. Specifically, to determine the corporate social responsibility in terms of environmental, philanthropic, ethical, and economic responsibility. Assess the technological innovations in terms of designing and making new products, problem solving and data collection. Evaluate corporate performance in terms of Economic sustainability, Social sustainability and Environmental sustainability. Test the significant relationship between the three major variables. Provide inputs to sustainable development.

2. Methods

Research Design - This study adopts a survey research method. Research method refers to the use of questionnaires, interviews, and other methods to understand objective situations, obtain relevant information, and then conduct research. This study used questionnaires to collect data, which was collected through the online questionnaire platform "Questionnaire Star". In terms of research content, the first is the theoretical basis and definition of variables, followed by data collection, namely the design and implementation of questionnaires, and finally, descriptive analysis and correlation analysis. On the basis of referencing classic foreign literature, this study combines the social responsibility and environmental protection work of Chinese enterprises, and then invites influential research fields, experts and scholars to evaluate the questionnaire. Based on the opinions of experts and peers, modifications are made to form the final questionnaire. Collect variables and factors related to corporate social responsibility, technological innovation, and corporate performance through questionnaires, and analyze the influencing factors and correlations of each variable based on the collected data. Verify the correlation between corporate social responsibility, technological innovation, and corporate performance, in order to construct a framework for sustainable development of corporate society.

Participants of the Study - In order to ensure the preciseness of the research design and the representativeness of the samples, the collection scope of the samples in this study is mainly concentrated in the Beijing-Tianjin region (Beijing, Tianjin, Hebei Province), the Yangtze River Delta region (Anhui, Shanghai, Jiangsu, and Zhejiang provinces and cities) and central China (Henan, Hubei, and Hunan), where there are many types of enterprises, the economy is relatively developed, and the population is relatively concentrated. There are 1905 enterprise managers, scientific and technological workers and employees in the city and autonomous region. The Raosoft sample size calculator is used to determine the sample size of 308 employees, using 95% confidence and 5% error margin. The researchers used convenient sampling in the questionnaire management. The limitation encountered in the study is that some potential respondents refuse to participate in the study. However, researchers did their best to cover a reasonable range to improve the research.

Data Gathering Instrument - In order to ensure the reliability and validity of the measuring tools used in this study, the scales used in this study are all based on the classical scales in the existing research results of domestic and foreign scholars. The accuracy of the research results will be directly affected by the quality of the measurement scale. In general, the selection and design of the measurement scale should follow the following points. First, on the basis of extensive reading of the relevant variable measurement literature, develop a scale with a high conceptual level, and maintain a high degree of consistency with the measurement variables; Secondly, an effective measurement tool must select representative questions from the general question database, and design and revise the samples according to the test samples; Then, we must follow the measurement principle of multiple items, that is, we need at least two questions to measure the specific concept; Finally, all measured items must have a high level of reliability and validity, and the questionnaire with the above four

principles can be applied to formal research. Therefore, before the formal data research and empirical research, this study first selects the measurement scales of each variable.

The questionnaire includes corporate social responsibility, technological innovation and corporate performance. This study uses empirical research methods to collect the required data through questionnaires. The second part of the questionnaire is corporate social responsibility. Based on reference and in combination with the current research situation and limitations of this study, improvements have been made to relevant projects to improve the scientific, representative, and effective nature of the research results. It mainly includes four dimensions of corporate environmental responsibility, charitable responsibility, moral responsibility and economic responsibility, with a total of 20 items. The third part of the questionnaire is technical innovation. Combined with more mature scales at home and abroad, based on the concept of technological innovation, this study uses the three dimensions of Camison and Lopez (2010) to measure technological innovation, namely product innovation, process innovation and group. Three dimensions of organizational innovation are measured. Zhou, et al., (2016) measure technological innovation with three items in terms of progressive innovation and breakthrough innovation.

The fourth part of the questionnaire is the corporate performance. This study draws on the achievements of the research on corporate performance. This study draws on Sheehy and Farneti, (2021) systematic and comprehensive analysis of the factors that affect the sustainable development of enterprises (finance, customers, internal processes, staff learning and development, ecological environment and social responsibility). Constructed an indicator system of the sustainable development of enterprises from four aspects: industrial power, technical power, institutional power and market power. The questions used have been merged and modified to adapt to the characteristics of the research field. This study considers the sustainable development of enterprises from three dimensions of economic sustainability, social sustainability and environmental sustainability, with a total of 15 items.

The measurement of corporate social responsibility, technological innovation and corporate sustainable development is based on the Likert scale. The number 1-4 indicates the consistency between the respondents and the question items. The larger the number, the higher the consistency between the respondents' opinions and the content of the question. Specific Likert scale: 1 - strongly disagree, 2 - disagree, 3 - agree, 4 - strongly agree. Although this study adopts the scale of predecessors, due to the different specific conditions of the scale, in order to make the respondents understand the main contents and questioning methods of the scale more clearly, the sentence of the scale is slightly modified, which is more suitable for the language expression habits of different places. Reliability results showed that Cronbach's alpha for Corporate Social Responsibility (0.970), Technological innovation of enterprises (0.977), and Enterprise performance (0.983) suggesting that the items have an excellent internal consistency.

Data Gathering Procedure - Firstly, the research object of this study was determined. Since this study is about corporate social responsibility, technological innovation and sustainable development of enterprises, the research object of this study was determined to be managers, technicians and a few front-line employees of enterprises. After determining the research object, this study selected ten provinces and cities with relatively developed economy in China. These ten provinces and cities have many types of enterprises, leading enterprises in technological innovation, and large population, which are representative.

According to the needs of research, we are reading a large number of documents and referring to the research of previous scholars. In order to ensure the effectiveness of the project, we often choose the existing domestic scale as a reference. Combine the results of the pre-test with the suggestions of the relevant departments to form the scale we need. Finally, we find that the difference between these scales and the original scale is not very obvious. The questionnaire is designed. At first, 20 questionnaires were pre-tested, and the reliability of each variable in the pre-test was excellent. On this basis, we also collected 308 questionnaires and tested them. The reliability of the tests is excellent, so we can conduct follow-up research. Based on the

statistical results of 308 questionnaires, this study will design a reasonable model to demonstrate the correlation between corporate social responsibility, technological innovation and corporate sustainable development, and further test the synergy between corporate social responsibility and technological innovation.

Ethical Considerations - The research was based on academic ethics and is transparent to the research process and findings. The questionnaire used was researcher made based on the research of existing scholarly works and studies. In the course of the questionnaire survey, there have been questionnaire reminders to assure the surveyed that the data provided will be kept confidential. If it is shared with others without the respondents' consent, it is an unethical behavior. When designing the questionnaire, the name of the respondents were not involved, and the number 0 was assigned to the missing data or wrong input.

Data Analysis - This study uses SPSS26.0 software to analyze, count and describe the data. The data of various projects in corporate social responsibility, technological innovation and corporate sustainable development are described and statistically analyzed. First, descriptive statistical analysis mainly includes frequency statistics of each sample and descriptive statistics of each variable. The frequency statistics of each sample involves the first part of the questionnaire (basic information), and the descriptive statistics of each variable mainly includes the average value and standard deviation of each variable, involving the second part of the questionnaire (corporate social responsibility), the third part (corporate technological innovation) and the fourth part (corporate sustainable development). Then it analyzes the basic characteristics of variables, explains the impact of corporate social responsibility and technological innovation on the sustainable development of enterprises, and discusses the overall data distribution characteristics. Relevant descriptive statistics include minimum value, average standard deviation, kurtosis, etc.

3. Results and Discussion

Table 1

Corporate Social Responsibility

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Environmental Responsibility	2.98	Agree	4
2. Philanthropic Responsibility	3.05	Agree	3
3. Ethical Responsibility	3.10	Agree	1.5
4. Economic Responsibility	3.10	Agree	1.5
Composite Mean	3.06	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 1 shows a comprehensive average value is 3.06, indicating that the various indicators are positively consistent. From this, it can be seen that environmental responsibility, philanthropic responsibility, ethical responsibility and economic responsibility are important components of corporate social responsibility. Enterprises need to protect the environment, love nature, and achieve harmonious development between humans and nature to fulfill their social responsibilities. Enterprises need to actively participate in social welfare, donate, maintain community safety, provide safe products and services, consider stakeholders, actively obtain government support, and achieve stable economic development. These are important parts of fulfilling corporate social responsibility, thereby improving corporate performance and achieving sustainable development.

All project evaluations are consistent. Among them, the Ethical Responsibility and the Economic Responsibility both ranked first, with an average score of 3.10. Corporate ethical responsibility is a high-level social responsibility, which advocates strong corporate self-discipline and Altruism obligations. The fulfillment of corporate ethical responsibility will help companies establish a good social image, enhance their reputation, promote product sales, and achieve increased profits. At present, the main manifestations of the lack of corporate ethical responsibility are: providing unsafe products and services, damaging the rights and interests of corporate stakeholders, damaging the natural environment, and wasting resources and energy. The lack of ethical responsibility can limit the self-development of enterprises, disrupt social and economic order, and hinder their

sustainable development. Promoting the fulfillment of corporate ethical responsibility requires establishing a good corporate credit system, establishing a clear system of corporate ethical responsibility, and establishing a sound internal and external supervision mechanism (Sheehy & Farneti, 2021).

Corporate economic responsibility is established on the basis of profitability, and only by making profits can enterprises continue to produce and operate. Enterprises create goods and services that society needs or wants. In order to fulfill other responsibilities such as morality, charity, and the environment, enterprises must have financial stability, which means that they must achieve sustainable economic development, pay attention to income and cost-effectiveness. Corporate economic responsibility is the most fundamental responsibility of enterprises and the foundation for achieving sustainable development. Enterprises need to pay taxes regularly, repay debts on schedule, increase employee income year by year, and ensure the protection of shareholder rights to ensure the fulfillment of economic responsibilities (Alsayegh, et al., 2020).

However, the item with the lower score is the Philanthropic Responsibility (3.05), and the item with the lowest score is the Environmental Responsibility (2.98). With the development of economic globalization, the business objectives of enterprises have diversified, shifting from shareholders to stakeholders. As a high-level part of the corporate social responsibility system, the performance of Philanthropic responsibilities has attracted social attention. The performance of Philanthropic responsibilities by enterprises is more easily recognized by society, which is conducive to their sustainable development. By participating in charitable activities and assuming Philanthropic responsibilities, enterprises can enhance their internal cohesion, enhance their image, enhance their competitiveness, and enhance their economic interests. This is an inevitable choice for sustainable development of enterprises. At present, many enterprises have weak awareness of charity, passive charitable behavior, and narrow scope of Philanthropic activities. It is necessary to strengthen the sense of responsibility of corporate charity, improve charitable organizations, and promote enterprises to actively fulfill their Philanthropic responsibilities (Wu, et al., 2019). At the same time, enterprises should strengthen their own management, improve their internal organizational structures, cultivate the drive for charity, incorporate charity into their internal development strategies, and enhance their ability to assume Philanthropic responsibilities.

At present, the problem of environmental pollution is becoming increasingly serious. Global climate change has caused countries around the world to reflect on their own development methods, and the world is actively seeking effective ways to solve environmental problems and take the path of sustainable development. In the process of production and operation, the damage to the environment by enterprises is mainly manifested as follows: the exploitation of resources causes damage to the ecological environment, the discharge of wastewater, exhaust gas, and waste residue, and energy consumption. Actively fulfilling environmental responsibilities by enterprises is one of the key links in solving environmental pollution problems. Corporate environmental responsibility is an inevitable path for enterprises to pursue sustainable development. From the perspective of stakeholders, corporate environmental responsibility is not just a matter for enterprises. Government legal regulations, public supervision, and corporate responsibility awareness all have an impact on the fulfillment of corporate environmental responsibility. The fulfillment of corporate environmental responsibility requires the joint efforts of the government, enterprises, and the public (Shahbaz, et al., 2020).

Table show 2 the comprehensive average value is 3.08, indicating that the various indicators are positively consistent. From this, it can be seen that designing and making products, problem-solving and data collection are closely related to technological innovation. Technological innovation requires designing and making products to meet consumer needs and enhance enterprise competitiveness. Technological innovation needs to address the problems encountered in industry development, product production, and technological development. Technological innovation requires collecting cutting-edge data on industry development, consumer needs, and other data, processing the data to extract the data required for enterprise technological innovation.

Table 2*Technological Innovations*

Indicators	Weighted Mean	Verbal Interpretation	Rank
Designing and Making Products	3.10	Agree	1
Problem Solving	3.09	Agree	2
Data Collection	3.06	Agree	3
Composite Mean	3.08	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

All project evaluations are consistent. Among them, the Designing and Making Products ranked first, with an average score of 3.10. The survival and development of enterprises rely on the continuation of products, and the sustainable development of enterprises depends on product innovation. The success of designing and manufacturing products plays a decisive role in the development of enterprises. The design and manufacturing capabilities of products are also important indicators reflecting the production and operation capabilities of enterprises. With the development of internet information technology and the expansion of global trade, both price wars and advertising wars will lose their power. Only technological innovation is the key factor in product competition. The purpose of technological innovation is also to develop products that meet market demand. Enterprise design and manufacturing of products is a complex innovation activity, which mainly includes the following aspects: (1) generating ideas, searching for new product design ideas based on collected data and market research. (2) Screening ideas. By analyzing the enterprise, itself and the market situation, comprehensively consider whether the design concept of the product is consistent with the enterprise resources and Sustainable Development Goals. (3) Research and testing. Conduct product design research and testing to select product designs that consumers are satisfied with. (4) Product development. Design products based on consumer preferences, conduct technical testing and research. (5) Sales. Promote and market sales (Khan, et al., 2020)

However, the item with the lower score is the Problem Solving (3.09), and the item with the lowest score is the Data Collection (3.06). Technological innovation is guided by market demand. Enterprises face significant market risks in technological innovation. Technological innovation is closely linked to the market, and enterprise technological innovation needs to solve fierce market competition problems and meet market demands. Before conducting innovation, enterprises need to be familiar with the development and changes of industry technology, conduct market research, establish specialized research and development institutions, and combine their own situation to design and manufacture products. Only when a company's new products meet market demand, have a high market share, and have strong competitiveness can it be said that its technological innovation is effective, brings economic benefits to the company, and is conducive to its development. The technological innovation of enterprises also faces significant technological risks. Technological innovation requires a large amount of manpower, material resources, and financial resources. If products cannot be successfully designed and manufactured, technological innovation faces the result of failure. The technical level and work efficiency of employees in the manufacturing department also affect the success or failure and speed of technological innovation. Therefore, it is necessary to improve the technical level of technical personnel and improve their work efficiency, Make technological innovation more efficient, bring benefits to enterprises, and achieve sustainable development (Cheng, et al., 2021).

Technological innovation fails due to inadequate consideration of internal and external environmental factors, or difficulty in controlling the process of technological innovation. The risks of technological innovation include economic losses, time losses, and opportunity losses. The failure of innovation brings losses to enterprises in terms of economy, time, and other production and business opportunities. Therefore, technological innovation requires enterprises to collect and organize data before innovation. The process of innovation includes stages such as data collection, data screening, research and debugging, production applications, marketing, etc. Data collection is a key step to ensure that the collected receipts meet consumer needs and are cutting-edge data in the industry's technological development. To ensure the completeness and effectiveness of data collection, enterprises need to have specialized data collection departments and personnel, and use advanced

information systems to collect the required data (Ensslin et al.,2020).

Table 3

Corporate Performance

Indicators	Weighted Mean	Verbal Interpretation	Rank
Economic Sustainability	3.07	Agree	3
Social Sustainability	3.09	Agree	2
Environmental Sustainability	3.10	Agree	1
Composite Mean	3.09	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Corporate Performance in terms of Economic Sustainability, Social Sustainability and Environmental Sustainability. The composite mean is 3.09, indicating that the investigators agreed with each item. From this, it can be seen that economic sustainability, social sustainability, and environmental sustainability are closely related to corporate performance. The improvement of enterprise performance is not only achieved by improving financial performance, but also by maintaining the stability of profits and achieving sustainable economic development. Enterprises also need to consider the interests and needs of stakeholders, provide safe products and services, gain a good social reputation, and achieve sustainable social development. At the same time, enterprises are a part of nature and need to achieve harmonious coexistence with the environment. Enterprises need to protect the environment, reduce damage to ecosystems, and achieve sustainable environmental development.

Among them, the highest composite average of Environmental Sustainability is 3.10, the composite average of Social Sustainability is 3.09, the composite average of Economic Sustainability is 3.08. The goal of environmental sustainability is to maintain the global ecosystem, including human life, natural environment, utilization of resources and energy, and the environment for generating Renewable resource. The correct way for enterprises to enhance environmental sustainability is to conduct production and operation within the range that the ecosystem can carry. In the 1970s, in order to alleviate environmental pressure and encourage enterprises to fulfill environmental responsibilities, various countries formulated a series of regulations on environmental protection, requiring enterprises to comply with relevant laws and regulations. At present, enterprises have also realized the importance of environmental sustainability, and their awareness of actively fulfilling environmental responsibilities has increased (Pathiranage, et al., 2020). Enterprises can take on environmental responsibilities through actions such as developing green technologies, saving resources and energy, and actively disclosing environmental reports. The development of the environment and the production and operation of enterprises are already inseparable (Tulcanaza-Prieto, et al., 2021).

Social sustainability, as an integral part of sustainable development for enterprises, focuses on social fairness and justice. It requires enterprises to practice by taking broader responsibilities towards stakeholders, the environment, and society. The behavior of enterprises is not limited to legal requirements, but also actively assumes responsibility for employees, communities, and the general public, and maintains the good operation of the social system. To achieve sustainable social development, enterprises mainly start from the following aspects: paying attention to the interests of employees, effectively improving their interests, paying attention to community safety, providing safe products and services to community residents, and meeting the requirements of local residents through donations, providing public services, etc. When making relevant economic decisions, enterprises need to fully consider the interests of stakeholders and actively communicate with them, make decisions that benefit stakeholders, proactively disclose their environmental impacts and risks to society, and increase public trust and support for enterprise development (Chabrak, 2015).

Economic sustainability is crucial for enterprises, as it directly affects their ability to survive. Early scholars generally believed that the main measure of economic sustainability was financial performance (Nguyen, et al., 2020). Current research indicates that the measure of economic sustainability for enterprises is the behavior of achieving economic growth. Enterprises can achieve economic growth through production and sales (Bartolacci, et al., 2020). Enterprises seek government cooperation to protect their interests by reducing operating costs,

paying taxes on time and in full, reducing the cost of environmental burden. At the same time, technological innovation and green technological innovation of enterprises will bring more competitive advantages. Enterprises need to continuously improve their production and operation processes, innovate products and services, meet consumer needs, and obtain more profits. The application of derivative technology can be applied in more fields and bring more economic benefits to enterprises. In short, economic sustainability is the foundation of sustainable development for enterprises. Only by making profits and maintaining good operations can enterprises achieve sustainable development (Boar, et al., 2020).

Table 4*Relationship Among Corporate Social Responsibility, Technological Innovations and Corporate Performance*

Paired Variables	rho-value	p-value	Interpretation
Corporate Social Responsibility and Technological Innovations	0.915**	0.000	Highly Significant
Corporate Social Responsibility and Corporate Performance	0.895**	0.000	Highly Significant
Technological Innovations and Corporate Performance	0.974**	0.000	Highly Significant

** Correlation is significant at the 0.01 level

As seen in the table, the computed rho-value of 0.915 indicates a very strong positive relationship between corporate social responsibility and technological innovations. It also shows a statistically significant relationship since the obtained p-value was less than 0.01. Innovation is an important strategy for enterprises to acquire core technologies and improve their performance. Due to the high investment and risk involved in innovation, it is a long-term process that enterprises hope to improve their competitiveness and achieve long-term sustainable development through innovation. Corporate social responsibility is also an important means for enterprises to form their core competitiveness. Fulfilling social responsibility can help enterprises gain a good social image, gain support from stakeholders, and improve their performance, achieving long-term sustainable development. Through social responsibility activities, enterprises closely revolve around their vision, while considering economic responsibility, social responsibility, and environmental responsibility simultaneously. The fulfillment of corporate social responsibility, providing safe products and services to society, meeting the needs of stakeholders, achieving economic and social benefits, achieving long-term development of enterprises, and providing more financial and organizational support for technological innovation.

The computed rho-value of 0.895 shows a very strong positive relationship between corporate social responsibility and corporate performance. There was statistically significant relationship exists between corporate social responsibility and corporate performance because the obtained p-values were less than 0.01. The fulfilment of corporate social responsibility includes providing safe products and services, protecting the interests of stakeholders, protecting the development of the environment and Balance of nature, etc. The fulfilment of corporate social responsibility can obtain the support of internal and external stakeholders, bring more opportunities for the development of enterprises, and thus promote enterprise performance and innovation ability. Corporate social responsibility behavior involves different entities such as employees, shareholders, creditors, suppliers, and the government. By fulfilling social responsibilities towards employees, providing better wages and benefits, and creating a better work environment, companies can improve their work efficiency and directly improve their performance. Corporate social responsibility towards shareholders can achieve the preservation and appreciation of shareholder capital, thereby improving corporate performance. Corporate responsibility towards consumers can enhance consumer satisfaction and recognition, stabilize customer sources, and thus improve corporate performance. Enterprises fulfilling their social responsibilities to the government can receive government assistance and support, thereby bringing more development opportunities to enterprises. As can be seen from the above, actively fulfilling social responsibilities, establishing a good social image, conveying the sustainable development ability of the enterprise to all stakeholders, enhancing their confidence in the enterprise, and thereby improving the performance of the enterprise (Tulcanaza-Prieto, et al.,2021)

The computed rho-value of 0.974 shows a very strong positive relationship between technological innovations and corporate performance. It also shows a statistically significant relationship between

technological innovations and corporate performance because the obtained p-values were less than 0.01. In modern society, competition among enterprises is fierce, and if enterprises want to occupy a place in the fierce market competition and achieve sustainable development, they must innovate according to market conditions. Only through continuous technological innovation can enterprises keep up with the pace of industry development, develop products and services that meet consumers, obtain profits, and achieve sustainable development. Therefore, technological innovation in enterprises is a prerequisite for their sustainable development. Sustainable development of enterprises is the purpose and foundation of technological innovation. To survive and develop for a long time, enterprises need to continuously carry out technological innovation, produce products that meet consumer needs, and achieve good corporate performance. Sustainable development is the purpose of enterprise technological innovation. On the contrary, only when enterprises have good performance and can sustain development can they continuously innovate. Therefore, sustainable development of enterprises is the foundation of technological innovation. Enterprise technological innovation and sustainable development complement and promote each other. Enterprise technological innovation is a prerequisite for achieving better performance and sustainable development of enterprises. At the same time, the purpose of technological innovation in enterprises is to achieve sustainable development.

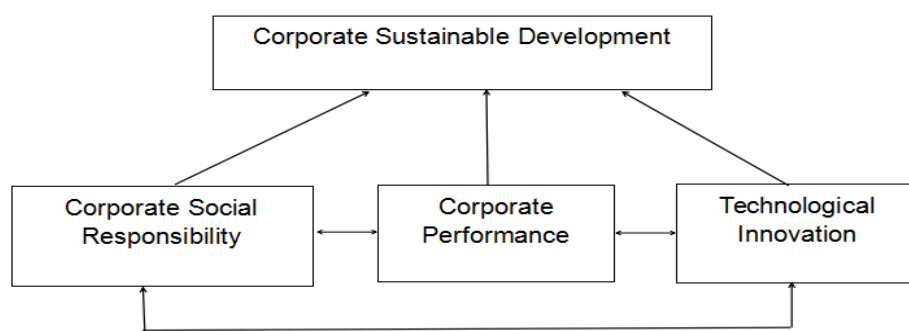


Figure 1. *Proposed Framework for Corporate Sustainable Development*

From Figure 1, it can be seen that the practical integration framework for sustainable development involves fulfilling social responsibility, technological innovation, and corporate performance. Firstly, corporate social responsibility is the foundation of technological innovation, and only by fulfilling good social responsibility can corporates effectively promote technological innovation. Conversely, technological innovation effectively promotes the fulfillment of corporate social responsibility. At the same time, technological innovation effectively promotes corporate performance, achieves good economic and social benefits, and enhances technological innovation. In short, enterprises fulfill their social responsibilities, carry out technological innovation, achieve good corporate performance, and provide a good foundation and implementation path for sustainable development.

4. Conclusions and Recommendations

The respondents unanimously agree on the importance of corporate ethical responsibility, philanthropic responsibility, economic responsibility, and environmental responsibility in corporate social responsibility. The design and making of new products, problem solving in technological innovation, and data collection have been approved by the respondents. The respondents unanimously agree on the importance of economic sustainability, social sustainability, and corporate performance in the sustainable development of enterprises. Research has shown a high positive correlation between corporate social responsibility, technological innovation and corporate performance. Established a framework for sustainable development of enterprises.

Corporates not only pursue "Profit maximization", but also need to consider the needs of employees, shareholders, communities, consumers, the public, the government and other stakeholders. Only by innovating

technology, keeping up with industry development, and maintaining core competitiveness can corporates better fulfill their social responsibilities and promote sustainable development. By fulfilling social responsibility, corporates can generate better corporate performance. The fulfillment of corporate social responsibility and technological innovation effectively promote corporate performance. For future researchers, they can consider variables such as company innovation and employment engagement that have an impact on the Corporate sustainable development.

5. References

- Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9), 3910.
- Bartolacci, F., Caputo, A., & Soverchia, M. (2020). Sustainability and financial performance of small and medium sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, 29(3), 1297-1309.
- Boar, A., Bastida, R., & Marimon, F. (2020). A systematic literature review. Relationships between the sharing economy, sustainability and sustainable development goals. *Sustainability*, 12(17), 6744.
- Camison, C., & Villar Lopez, A. (2010). An examination of the relationship between manufacturing flexibility and firm performance: The mediating role of innovation. *International journal of operations & production management*, 30(8), 853-878.
- Chabrak, N. (2015). Promoting Corporate social responsibility and sustainability: A model of integrity: Evidences from the United Arab Emirates. *Society & Business Review*, 10(3),280-305.
- Cheng, Y., Awan, U., Ahmad, S., & Tan, Z. (2021). How do technological innovation and fiscal decentralization affect the environment? A story of the fourth industrial revolution and sustainable growth. *Technological Forecasting and Social Change*, 162, 120398.
- Ensslin, L., Mussi, C. C., Dutra, A., Ensslin, S. R., & Demetrio, S. N. (2020). Management support model for information technology outsourcing. *Journal of Global Information Management (JGIM)*, 28(3), 123-147.
- Khan, Z., Hussain, M., Shahbaz, M., Yang, S., & Jiao, Z. (2020). Natural resource abundance, technological innovation, and human capital nexus with financial development: a case study of China. *Resources Policy*, 65, 101585.
- Nguyen, T. H. H., Ntim, C. G., & Malagila, J. K. (2020). Women on corporate boards and corporate financial and non-financial performance: A systematic literature review and future research agenda. *International Review of Financial Analysis*, 71, 101554.
- Pathirana, Y. L., Jayatilake, L. V., & Abeysekera, R. (2020). A literature review on organizational culture towards corporate performance. *International journal of management, accounting and economics*, 7(9), 522-544.
- Shahbaz, M., Raghutla, C., Song, M., Zameer, H., & Jiao, Z. (2020). Public-private partnerships investment in energy as new determinant of CO2 emissions: the role of technological innovations in China. *Energy Economics*, 86, 104664.
- Shen, Z., Siraj, A., Jiang, H., Zhu, Y., & Li, J. (2020). Chinese-style innovation and its international repercussions in the new economic times. *Sustainability*, 12(5), 1859.
- Sheehy, B., & Farneti, F. (2021). Corporate social responsibility, sustainability, sustainable development and corporate sustainability: What is the difference, and does it matter? *Sustainability*, 13(11), 5965.
- Tulcanaza-Prieto, A. B., Aguilar-Rodríguez, I. E., & Artieda, C. (2021). Organizational culture and corporate performance in the ecuadorian environment. *Administrative Sciences*, 11(4), 132.
- Wu, C., Guang, H., Xu, J., & Wang, S. (2019). The effects of female executives on corporate philanthropy in China. *Corporate Social Responsibility and Environmental Management*, 26(3), 628-643.
- Zhou, F. L., Wang, X., Lin, Y., He, Y. D., & Wu, N. (2016). Influence research of multi-dimensional tech-innovation behavior on tech-innovation performance. *International Journal of Innovation Science*.

