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# THE MODEL OF GREEN ENTREPRENEURSHIP FACTORS ON THE INTERNATIONALIZATION PERFORMANCE OF SMES IN CHINA: A CONCEPTUAL FRAMEWORK

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SUMMARY

Purpose: The study aims to establish the connection between green entrepreneurship variables, environmental management, green technologies, green commitment of individuals, and the environmentally sustainable workforce, and the performance of internationalization of the SME in China. It further examines the mediating position of eco-innovation and the moderating position of the government support program in this connection. Theoretical Framework: The research hypothesizes the performance of internationalization as the dependent variable, and the variables of green entrepreneurship as the independent variables. The mediator is eco-innovation, whereas the government support programs moderate the connection between eco-innovation and the performance of internationalization. The model is anchored on the Resource-based View (RBV). Methodology: The quantitative research design is applied, and the data is gathered by means of a self-administered questionnaire that will be distributed among manufacturing SMEs engaged in export business in Shanxi province, China. Findings: The research paper identifies the importance of green entrepreneurship factors in promoting the internationalization performance of SMEs. Strong contributors to internationalization are environmental management (coefficient = 0.325, $p < 0.01$) and green technologies (coefficient = 0.418, $p < 0.01$). The individual green commitment (coefficient = 0.267, $p < 0.05$) also has a positive influence on internationalization, and this interaction is mediated by eco-innovation (coefficient = 0.415, $p < 0.001$). The indirect effect of the environmentally sustainable workforce (coefficient = 0.193, $p = 0.053$) on the internationalization performance is also marginal. Research Implication: The results provide a significant implication to the SMEs and the policy makers, since it is clear that green entrepreneurship practices should be integrated to promote internationalization. Eco-innovation is a key factor in enhancing competitiveness, and such initiatives can be enhanced by the government. Originality/Value: The study adds to the discussion of how the factors of green entrepreneurship and eco-innovation can lead to the internationalization performance in SMEs, which present the opportunity to achieve sustainable growth and competitiveness on the global level.

Key words: *green entrepreneurship factors, small and medium enterprises, internationalization performance, eco-innovation, government support programs.*

## INTRODUCTION

Since the 21st century, global economic integration has become an irreversible trend due to the intensification of the internationalization of the world economy. With the implementation of policy, including the "One Belt, One Road" policy and "High-quality development", the globalization of technology, communication, and transportation has lowered the barriers to trade worldwide. Following this trend, more and more Small Medium Enterprises are entering the international market.

A wide variety of environmental issues, such as climate change, air emissions, increased water and air pollution, resource depletion, and the use of hazardous materials, have been reported. It is important for businesses to focus on environmental and nature conservation tasks. Stakeholders have put heavy pressure on SMEs to minimize the environmental impact of their production activities [2] [5]. Focusing on "green" issues has been a major motivation for SME entrepreneurs and academics over the last few decades.

From an academic perspective, researchers have gradually shifted their attention from general discussions to environmental management performance, green technologies, personal commitment of founder teams to the environment, and environmentally sustainable workforce creation. It is not enough to make profits and gain a competitive advantage; one must also be responsible for environmental impacts [14]. Therefore, the promotion of green entrepreneurship is a necessary prerequisite to address global challenges [22].

It is widely acknowledged that SMEs play an essential role in job creation, innovation, and economic recovery. In the realm of export-related research, activities to improve the export performance of SMEs have gained significance. Therefore, exporting is a crucial factor in determining SME internationalization performance for both emerging and established countries, as is commonly acknowledged [17].

Green entrepreneurial activities have become an enabler of sustainable development in modern economies, and emerging SMEs have become a major driver of job growth and environmental improvement [19]. It helps SME entrepreneurs and employees to establish a green entrepreneurial orientation, to make better strategic choices and decisions, and to create better business performance, which in turn contributes to the sustainable development of the economy and society.

Green entrepreneurship is still a relatively new topic in China, and many theoretical and empirical studies are still in the exploratory stage. There are many examples of literature on the relationship between green entrepreneurial orientation and corporate financial performance, but there is very little literature on green entrepreneurial elements and eco-innovation as variables. This study aims to explore the dynamic process of internationalization of SMEs through an in-depth study of the theoretical nature of green entrepreneurial factors, eco-innovation, and government support programs.

### Background of the Study

Green entrepreneurship is a globally demanded concept that not only minimizes global warming, natural resource scarcity, and environmental problems but also provides collective benefits for sustainable economic development [6]. The emergence of green entrepreneurship empowers green innovations, green knowledge diffusion, green products, and green trade to collectively satisfy socio-economic benefits.

Excessive use of non-environmentally friendly products and pollution caused by deforestation and illegal destruction may cause many environmental problems for SMEs. Sustainable development needs to rely on a green mindset and behaviour.

Sustainable development can only be improved through a green mindset. At this juncture, the establishment of many SMEs and marketing of their products implies the nature of green trade, which is seen as a good sign for conserving resources and the environment. Recognizing the importance of thinking about and moving towards a green economy is a crucial fact. In the current social context, many entrepreneurs have transformed their business ventures into green businesses and are valued by society. Recognition of good green entrepreneurs will motivate green entrepreneurs and green consumers.

**Green Entrepreneurship Concept**

Green entrepreneurship is the process of forming and implementing green innovation to consciously address the environmental and social problems that will have a positive impact on nature, society, and enterprises [6]. It aims to foster eco-friendly practices through knowledge transfer and innovative solutions to address environmental challenges, such as deforestation, natural resource exploitation, and fossil fuel consumption. Also, green entrepreneurship is an apprehensive concept comprising two phases of product and production. In fact, it is an integrated activity in providing green and eco-friendly products through the ecology-based technology in which environmental values are not degraded.

Over recent years, the ideology of "green entrepreneurship" had been driven from the features of the entrepreneurs such as inculcation innovation, handing, ecological and social engagement of the business ideas). It is a fundamental element of sustainable growth and an intersection of traditional and industrialized economy. Indeed, the emergence of green entrepreneurship has set of positive impact to the society. Now, eco-innovation combines an entrepreneurial spirit for sustainability and other environmental movements and the prevalence of green entrepreneurship is rising. Accordingly, it can be asserted that environmentally conscious business operations are a brand-new kind of business venture to conserve the environment. Green entrepreneurship has thus transformed from a purely commercial venture to a community effort that serves sustainable development of environment [6].

**Problem Statement**

The SMEs of China have a major problem with internationalization because of the lack of resources: not enough capital, technology, and management skills, and developing countries are grounded in the infrastructure and policy barriers [16][24]. There is also an inadequate domestic policy support and the SMEs continue to rely on resource-based products, and this presents them to market changes. Although the export of the new three products (electric vehicles, lithium batteries, photovoltaic products) has increased significantly, most of the SMEs have not established their own brands and overseas marketing channels, which makes them vulnerable to the international market.

Moreover, SMEs struggle with environmental management as they lack proactive practices, which are commonly caused by government regulations [18]. The green technology innovation is restricted by the long time taken to transform technology into commercial products and most of the innovations are still in theory. The contribution of individual green commitment in SMEs is under-researched especially when it comes to how they are involved in the internationalization process in cooperation. The regional dispersal of labor is also a problem and the lack of labor in the less developed regions in the country hampers international business growth. In addition, an important driver of green strategies-performance connection is eco-innovation, but SMEs have an obstacle in this aspect because of the shortage of funds and the inability to innovate in accordance with the market needs [10]. Although the government support programs do not have no effects, they are more or less effective based on the nature of the support, and the magnitude of the business, the objectives and the implementation of the programmed [25]

**Research Questions**

This research develops several questions;

1. Does Green Entrepreneurship Factors (Environment Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce) have significant relationship with Internationalization Performance of SMEs in China?

2. Does Green Entrepreneurship Factors (Environment Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce) have impact on Eco-innovation?

3. Does Eco-innovation mediate the relationship between Green Entrepreneurs' Factors (Environmental Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce conditions) and Internationalization Performance of SMEs in China?

4. Does Government Support Programs have a moderating effect on the relationship between Eco-innovation and the Internationalization Performance of SMEs in China?

**Research Objectives**

This research embarks on the following objectives;

1. To examine the significant relationship between Green Entrepreneurship Factors (Environment Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce) and Internationalization Performance of SMEs in China.

2. To examine the relationship between Green Entrepreneurship Factors (Environment Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce) and Eco-innovation.

3. To determine whether Eco-innovation mediate the relationship between Green Entrepreneurs' Factors (Environmental Management, Green Technology, Individual Green Commitment, and Environmentally Sustainable Workforce conditions) and Internationalization Performance of SMEs in China.

4. To analyze whether Government Support Programs have a moderating effect on the relationship between Eco-innovation and the Internationalization Performance of SMEs in China.

The paper is organized in the following way: Section 1 presents the research, with emphasis on the connection between the factors of green entrepreneurship and the internationalization performance of SMEs in China with the emphasis on eco-innovation and government support. Section 2 analyzes the literature in the field, with green entrepreneurship and internationalization of SMEs. Section 3 describes the quantitative research design, including data collection based on a self-administered survey on manufacturing SMEs in Shanxi province. One of the most important findings is given in Section 4 and the influence of green management, green technologies, and eco-innovation on internationalization is shown. Section 5 explains the practical implications of the findings to both SMEs and policymakers. Section 6 ends the paper, recapping the contributions of the study, and an indication of future research directions.

## LITERATURE REVIEW

### SMEs in China

Small and medium-sized enterprises (SMEs) are the backbone of China's economy, constituting over 90% of all businesses and serving as a critical engine for growth, innovation, and employment. Often described as nimble and resilient, they span a vast range of sectors from traditional manufacturing and export-oriented workshops to cutting-edge technology startups and e-commerce ventures. While they are pivotal drivers of China's strategy and contribute significantly to tax revenue and urban job creation, they frequently face challenges such as limited access to financing, intense market competition, and navigating complex regulatory environments. Despite these hurdles, their adaptability and entrepreneurial spirit make them indispensable to the country's continued economic development and global competitiveness.

**The Linkage Between Green Entrepreneurship Factor, Eco-Innovation, GSP and SMES Performance**

Green entrepreneurship factors require enterprises to be friendly during the working process by modifying products, processes, systems and procedures to obtain sustainable development. Based on the resource-based view, green entrepreneurship factors not only reduce production and operation costs effectively, protect the objective production and operation environment, and improve the utilization rate of resources [11], but also help business leaders to improve environmental awareness and increase employee participation in the organization, which is conducive to the creation of customer value and competitive advantage, furtherly improve the internationalization performance of SMEs.

Eco-innovation enhances the key capabilities of enterprises and improves the organization's overall green learning capability by encouraging employees to actively learn green knowledge and skills, improve the level of company's pollution prevention, and reduce the cost of environmental and non-compliance expenses. It is also combined with an eco-innovation strategy to enhance a company's innovation and integration capabilities. These key capabilities help companies to develop unique pathway and improve internationalization performance [15].

Finally, government support programs directly or indirectly affect SMEs eco-innovation and green entrepreneurship processes, and there is a moderating role in terms of government support programs and economic development, which in turn affects internationalization performance of SMEs [11].

**Internationalization Performance**

With the current trend of economic globalization, the rapid development of various enterprises, scholars' research mainly focuses on the study of the internationalization of large enterprises and multinational corporations, and there is a lack of sufficient understanding of the internationalization of small enterprises due to the limitations of their scale, resource deployment and profit development. Most of the existing literature on SME research is non-randomized case studies. SMEs not only face the same challenges as large firms, but also suffer from a potential lack of resources including lack of strategic resources, business deficiencies, information and intelligence barriers and process-related constraints or problems.

Regarding internationalization performance, different scholars have different definitions. Some scholars believe that the definition of internationalization performance is closely related to the degree and stage of internationalization [1]. For example, in the export stage, internationalization performance is the export performance of enterprises. Starting from the 1990s, enterprises' outward foreign direct investment (OFDI) has been strengthened, and the connotation of enterprises' internationalization performance has changed, still, the definition of internationalization performance has not been uniformed so far. Moreover, most of the definitions of internationalization performance are based on measurement indicators, ignoring the significance of the definition itself. Prange provides an exhaustive definition of internationalization performance, which is the outputs brought by an enterprise in the process of internationalization operation.

According to Chen and Homin, internationalization performance is the final result of resource inputs in the process of internationalization, and it is the result of cross-national allocation of resources. Jin et al. assessed internationalization performance from an entrepreneurial perspective and from an institutional environment perspective, they argued that internationalization performance is the final output of a firm's continuous development of new products or the creation of new firms to satisfy environmental changes and the needs of foreign customers, and that it embodies a firm's strategic goal of internationalization and the basic path through which that goal is achieved.

**Green Entrepreneurship Factors**

The green entrepreneurship factors refer to various key elements that emphasize environmental protection, sustainable development, and social responsibility in the process of starting a business. These

elements include but are not limited to sustainability, innovation, social responsibility, circular economy, cooperation and partnerships, market opportunities, policy advocacy, education and awareness raising, as well as resilience and adaptability. By integrating these elements into business practices, green entrepreneurs create businesses that are both profitable and beneficial to the environment and society [6].

Green entrepreneurship factors are quite critical to minimize wastage, global warming, air pollution, electricity and conserving energy. Green development is linked with the organizational environmental management agenda and significantly encourages environmental performance . Moreover, green process and product innovation not only minimizes the negative environmental influence of business, but also improves organizational social and financial performance through the minimization of cost and waste. Furthermore, technological innovation can significantly improve export performance [23].

*Environmental Management*

In recent years, as countries and researchers pay more attention to environmental issues, especially with the introduction of the latest targets such as "carbon neutrality" and "peak carbon", companies should not only pay attention to the financial performance of their business management, but also give some attention to the environmental management.

Environmental management can be categorized into macro-level environmental management and micro-level environmental management. The drivers of environmental management can generally be summarized as follows: government drivers, market drivers, social drivers, and corporate drivers. In formulating this concept, they proposed the goal of a "green" organization in terms of inputs - production (processes) - outputs . For inputs, they state that a "green" organization should use as little natural resources and non-renewable energy as possible. In the production process, minimizing emissions wastewater and waste, avoiding environmental accidents and minimizing costs over the life cycle of the organization's products and services are the output objectives.

These scholars have placed special emphasis on systems thinking in companies that require total environmental management. They all point out that companies should strive to achieve these three objectives and apply these concepts throughout the production system (inputs, production, and outputs). All of this makes clear the importance of integrating environmental management.

*Green Technologies*

The conceptual boundaries of green technologies in the entrepreneurial process of SMEs (SMEs) are constantly expanding, and the conceptual boundary of green technologies innovation is defined as a general term for relevant technologies, processes and products that can reduce environmental pollution and resource use [21].

Researchers have combined these two definitions, and green technology is a general term for technological and management activities aimed at environmental protection, which takes into account ecological and environmental sustainability, resource utilization efficiency, and effective cost control throughout the entire process, from the early stages of planning, to technological research and the final project being put into the market.

Green technologies consist of two dimensions: green product innovation and green process innovation. Green product innovation refers to the improvement of the product design process by utilizing environmentally friendly material development and designing pollution reduction to achieve the purpose of reducing negative environmental impacts in any product life cycle. Green process innovation refers to the improvement of the manufacturing process by utilizing ways such as reducing the emission of hazardous substances in the manufacturing process to reach the purpose of reducing the negative environmental impacts at the stage of obtaining, producing and delivering the materials.

*Individual Green Commitment*

Individual green commitment is an employee's attitudinal recognition and behavioral attachment to the organization and environmental management, which is not only reflected in the attitude, but also in the behavior. In attitude, it is manifested in following the enterprise value concept, complying with the rules and regulations of the enterprise, and always thinking about the interests and honor of the enterprise; in behavior, it is expressed as working in a reserved manner and continuously improving their own performance.

The definition of individual green commitment is various, but they are mainly reflected in three aspects, namely attitudinal view, behavioral view, and emotional view. Aruldoss researched that "individual's attitude towards occupation or profession is career commitment, i.e., the desire to stay in the occupation currently practiced and liking of the occupation currently practiced".

Prominent scholars have proposed the importance of individual green commitment as a mediator linking green human resource management to the employee and organizational activities. Therefore, individual green commitment can be viewed as an employee commitment to environmental issues, serving as an intermediary link between human resource management and green behavior [7].

*Environmentally Sustainable Workforce*

With the vigorous development of the market economy and the continuous transfer of surplus rural labor to the cities and towns, the supply of workforce in China has far outstripped the demand, and competition for jobs has become increasingly fierce, with the pressure for employment growing, the number of registered unemployed and laid-off unemployed in the cities and towns has been increasing [4].

To solve the issues, the workforce must be sustainable especially with the development of SMEs. The workforce must possess environmental awareness, understanding the severity of environmental issues and the impact of work activities on the environment. This includes recognizing global environmental challenges such as climate change, resource depletion, and biodiversity loss, as well as comprehending specific environmental issues related to corporate operations. At the same time, it is essential to continuously engage in environmental education and training to update knowledge and skills, thereby adapting to evolving environmental requirements [20].

The workforce should not only practice sustainability in their own work but also actively participate in corporate social responsibility initiatives, promoting the development and implementation of greener policies and strategies within their organizations. Furthermore, they should advocate for sustainable development within their industry and society at large, inspiring more people to pay attention to and participate in environmental protection efforts.

**Eco-innovation (EI)**

Under the strategic environment of accelerating the development of green emerging industries and promoting the comprehensive transformation and upgrading of the economy and society with innovation as the core driving force, eco innovation as an important driving force for the sustainable development of social and economic green development should not be underestimated.

The concept of eco innovation has been developed in the context of sustainable economic and social development similar to technological innovation in Schumpeter's innovation theory, and it can be understood in both a broad and a narrow sense. There are different interpretations of the concept of "eco innovation" in the academic world, including technological innovation, environmental technology innovation, eco-innovation, etc., but all of them aim at protecting the ecological environment and pursuing comprehensive benefits, and cover a broad range of innovative activities. From the application level, eco-innovation is a series of innovative activities around green technology, which plays a crucial role in achieving sustainable performance and minimizing the negative impact of enterprises on the

environment [9]. Existing studies consistently emphasize both "innovation" and "environmental benefits" [8].

In general, academics generally agree with Vence's definition that eco-innovation consists of avoiding or minimizing environmental damage through the introduction of new or improved processes, technologies, systems and products. Currently, the world is actively striving to gain a competitive advantage in sustainable development by accelerating eco-innovation. It can be seen that eco-innovation focuses on sustainable development, environmentally friendly technology, industrial research & development and application at the same time, but also emphasizes the improvement of the green market to promote the transformation and promotion of green technology and product.

**Government Support Programs (GSPs)**

The definition of economic policy became the basis for later research on government support programs . According to them, economic policy arises mainly because the government changes existing policies or prepares to implement new policies, which leads to volatility in the operation of macroeconomic policies.

Government intervention behavior of firms through the introduction of a series of support policies is the main means by which the government changes the external business environment of firms and influences the future implementation of firms. However, for enterprises, since they cannot accurately assess the actual impact of new policies in the process of implementation, and at the same time, they cannot accurately predict the tendency of policy implementation, therefore, as the government continues to make adjustments to economic policies, the decision-making behaviors of enterprises, including innovative decision-making behaviors, will certainly be affected accordingly [12][13].

Government support programs help small businesses develop to some degree, but they do not always work the same way for different types of support, different scales of businesses, different ways of measuring how well they do their job, or different ways of getting information. Depending on the objectives, design, implementation, and evaluation of the programs, as well as the characteristics, behaviors, and environments of SMEs, government support programs can have direct or indirect effects on SMES development and growth. Government programs help small businesses grow and succeed by working like their own resources, competition from outside, laws and rules, ways to innovate, and what people think and believe. Therefore, previous studies have indicated that government support programs as a moderator, demonstrating some relationship with variables.

**The Proposed Theoretical Framework**

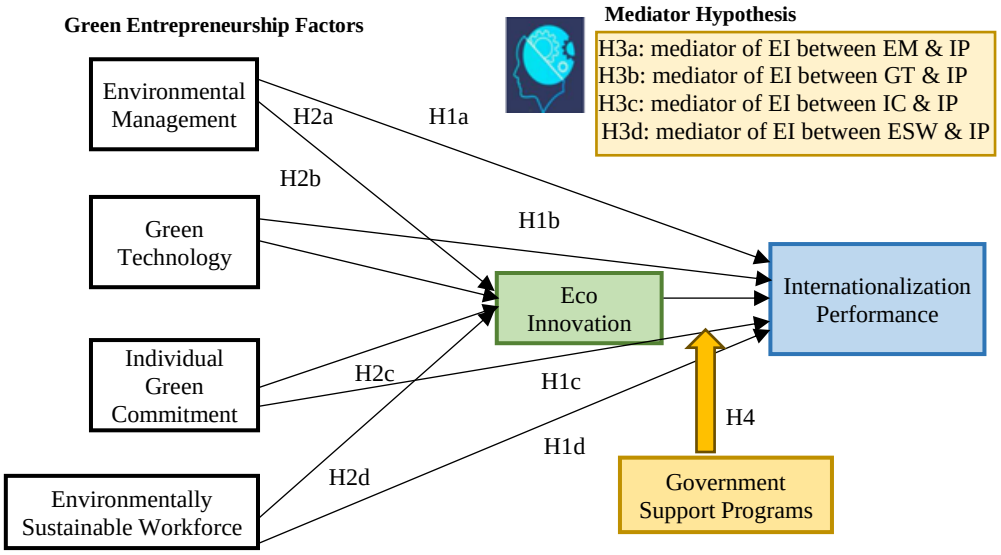


Figure 1. The proposed theoretical framework

In this study, the internationalization performance of SMEs is acting as the dependent variable. Here, both financial and nonfinancial dimensions will be included. Next, the dimensions of green entrepreneurship factors namely, i) environment management, ii) green technology, iii) individual green commitment, iv) environmentally sustainable workforce will be the independent variables in this study. Also, this study will examine the mediator role of eco innovation and the moderator role of government support programs (GSPs) between the relationship of dimensions of green entrepreneurship factors and internationalization performance of SMEs. Figure 1 shows the theoretical framework of this study.

*Theory of Resource-based View (RBV) as the Underpinning Theory*

In this study, Resource-based View (RBV) theory is used to underpin the research framework. The theory of resource-based view serves as a valuable research framework to explain the phenomenon of internationalization of SMEs. According to the theory of resource-based view, physical capital, human capital, and organizational capital are strategic resources for achieving value creation for competitive advantage. With the development of the times, the form of enterprise resources and the focus of scholars have changed, from the past focus on enterprise equipment to the later focus on people as the most important resources in the enterprise, so the theory of resource-based view has also expanded to the explanation of human resources.

The theory of resource-based view believes that the creation of competitive advantage by the enterprise is closely related to the heterogeneity of resources and the flexible allocation of resources. The critical role of a firm's resources and capabilities in achieving a competitive advantage, underscoring the relevance of RBV as a framework for SMEs' internationalization efforts and emphasizing importance in helping firms manage and leverage their resources for global competitiveness.

Based on the Resource Perspective Theory (RBV), green entrepreneurship significantly influences the international performance of small and medium-sized enterprises by integrating unique environmental resources and dynamic capabilities. First of all, ecological innovation, as the core intermediary mechanism, can transform the green resources of enterprises (such as low-carbon technologies and circular economy models) into international competitive advantages. Ecological organization innovation enhances the compliance of export products by optimizing internal processes and stakeholder management, improving resource utilization efficiency, and making it easier for enterprises to meet international environmental protection standards of the EU carbon tariff.

## MATERIALS AND METHODOLOGY

### Quantitative Study Method

A typical research design systematically guides the researcher in choosing the suitable sampling method and measurement of variables with analysis technique for the collected data. The research design for this study is the outcome of literature review that is conducted to successfully find research gaps and deficiencies in the previous SME internationalization performance studies [3]. A quantitative research design has been incorporated in this study. With respect to the definition of a research design, it basically employs an instruction manual and strategic guideline for the researcher about the collection of data and its respective analysis for addressing the specific research questions.

The research design is a crucial tool that enables several procedures and processes that are made by particular researcher toward the effective collection of useful data regarding the investigation of problem. This research is deductive and quantitatively seeking to measure the relationships between green enterprise factors towards well-developed internationalization performance. Studies indicated that survey design is the most widely applied approach for collecting data. A quantitative method is advisable if the research gap and problem require identifying variables that may impact the results of a study. Surveys consist of respondents and firms' information along with items that are able to measure the constructs. This study used a self-administrated questionnaire survey instrument to the study variable (including independent, dependent, mediating and moderating variables which are adopted or adapted from previous researches.

This study used the cross-sectional research setting as the data is gathered from the respondents at one point in time. Dependent upon the nature of the construct, seasonality of the industry, a cross-sectional study is deemed to be more appropriate for this study.

The sampling process during research is originated by identification of target population that constitutes the entire group of individuals or organization being covered by the scope of study. emphasized on the significance of sample size. They stated that sample size directly impacts the power of the multiple regressions. However, there exists no hard and fast rule for determining the observations per independent variable ratio. Regarding the sampling techniques for an appropriate sample size, along with other factors, it is important to take a note of heterogeneity of sample, number of variables used in the study and intended statistical tool to be employed in the data analysis procedure.

**Data Collection Procedure**

In order to achieve the objectives of this study, a quantitative study approach will be conducted. For the collection of data to achieve the objectives of the current study, the data collection is done through a questionnaire that is developed to gain information from respondents about the green enterprise factor (environmental management, green technology, individual commitment and environmentally sustainable workforce), Eco-innovation, government support program and the development of SME internationalization performance. The current study is consistent with previous studies on internationalization performance that used survey questionnaire method for data collection.

The survey is distributed to experienced expert administered by the researcher. Before that, a formal letter request is sent to top management to seek permission to distribute the questionnaires to the respective managers.

Stage 1: Pilot Study

A pilot test is conducted by involving respondents to collect data as the developed questionnaire required to be tested for its validity and reliability. A pilot study is quite important for the improvement of the quality of questionnaire with respect to its content validity, reliability, wording, format, readability and clarity and order of questions. It can also be helpful in identifying any design and instrumentation deficiencies. For this purpose, questionnaires are sent to 40 SMEs in China.

Stage 2: Formal Survey (Quantitative)

The second stage aims to examine the green entrepreneurship elements of SMEs in China. Questionnaires will be designed and distributed to SMEs in the respective target area. Data collected will be analysed using SPSS. This stage is exploratory to understand the green entrepreneurship factors details.

Stage 3: In-depth Exploration (Quantitative)

The final stage aims to explore how the green entrepreneurship elements affect the internationalization performance in SMEs according to the obtained results. Partial Least Squares Structural Equation Modelling (PLS-SEM) is a multivariate statistical analysis method used to study causal relationships between variables and structural models. To test this theoretical model, PLS path modelling has been selected to confirm the corresponding framework.

This Table 1 shows the demographic data of the respondents, indicating the distribution of the firm size, experience in export, and the industry type. The frequency and the percentage of SMEs in each category are indicated in the table, and this gives an idea of the sample population to be used in the study.

Table 1. Summary of demographic characteristics of respondents

| Demographic Characteristic | Category | Frequency | Percentage |
|---|---|---|---|
| **Firm Size** | Small (1-50 employees) | 120 | 40% |
| | Medium (51-250 employees) | 150 | 50% |
| | Large (251+ employees) | 30 | 10% |
| **Export Experience** | 0-2 years | 100 | 33.3% |
| | 3-5 years | 150 | 50% |
| | 6+ years | 50 | 16.7% |
| **Industry Type** | Manufacturing | 80 | 26.7% |
| | Technology | 120 | 40% |
| | Services | 50 | 16.7% |
| | Agriculture | 30 | 10% |
| | Other | 20 | 6.7% |

**Population and Sampling**

In this paper, 327 SMEs of export business are selected and pre-qualified by telephone and email to determine (1) industry category, (2) number of employees, and (3) level of international business involvement. This study uses random sample technique by choosing organizations systematically from a list because it permits a system selection of subjects that guarantees the population will be evenly sampled. As the unit of analysis in this study is the SME related to international business; the most suitable person would be the person who holds the highest-ranking position in the hierarchy, who is the CEO or the owner/manager. In case the person is not available, the next ideal person to complete the questionnaire would be the director or export manager.

**Measurement and Instruments**

In this study, internationalization performance acts as the dependent variable. The measures of internationalization performance of SMEs in China are used in identifying the performance of SMEs. The items are adapted from the works of [26].

This study's four dimensions of green entrepreneurship factors is the independent variables. The dimensions, namely, (i) environment management is adapted from [27], (ii) green technologies is adapted from [7], (iii) individual green commitment is adapted from [28] and environmentally sustainable workforce refers to fostering sustainability through employee engagement in environmental practices and the mediating variable is eco-innovation the moderating variable is government support programs [12].

**Data Analysis**

Green entrepreneurship factors (environmental management, green technology, individual green commitment, and environmentally sustainable workforce) and eco-innovation, government support programs and internationalization performance are the factors measured using the questionnaire survey. To measure the level of agreement of the respondents on each item, the items are anchored on a 5-point attack on Likert scale where point 1 to 5 refers to the range of Strongly disagree to Strongly agree respectively. Both descriptive and inferential analysis methods will be used after achieving the minimum data required in such sample size in order to test and evaluate the hypothesis. The data available in the self-administered questionnaires will be subjected to SPSS (Statistical Package for the Social Sciences) in order to test the relationship between the green entrepreneurship factors, eco-innovation, government support programs and internationalization performance of SMEs. The processing of the data will be as follows:

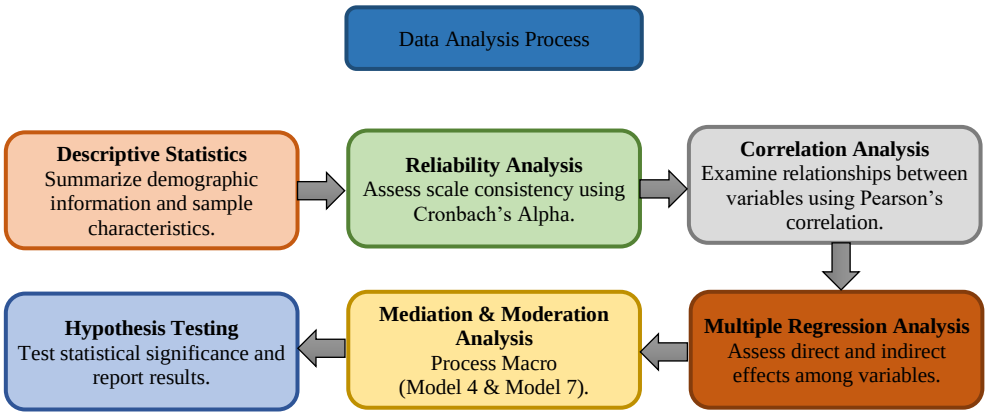


Figure 2. Data analysis process flowchart

This Figure 2 shows the process of data analysis used in the study step-by-step starting with descriptive statistics used to summarize the demographics and leading to the reliability analysis, correlation analysis, multiple regression analysis, mediation and moderation analysis and finally hypothesis testing which is aimed at evaluating the significance of the relationship between green entrepreneurship factors and internationalization performance.

- **Descriptive Statistics:** Provide a summary of demographic variables (firm size, export experience, industry type) so as to know what the sample is like and whether the sample is biased.
- **Reliability Analysis:** Compute Cronbach alpha in order to determine the internal consistency of the measurement scales.
- **Correlation Analysis:** Pearson correlation will be done to identify a relationship among the green entrepreneurship factors, eco-innovation and internationalization performance.
- **Multiple Regression Analysis:** Evaluate the effects of the factors of green entrepreneurship on the performance of internationalization and evaluate whether eco-innovation and government support mediate or moderate the effect.
- **Process Macro Use:** SPSS (Model 4 and Model 7) can be used to test the mediation effect of eco-innovation and moderation effect of government support programs.
- **Hypothesis Testing:** Test the significance of the regression coefficient and indirect effects based on p-values (threshold $p < 0.05$) and report on the variance explained by R-squared.

Descriptive statistics are used to explain the features of the data quantitatively. It provides a summary of the sample and the observation. The descriptive statistics technique provides general information about the respondents, SMEs, and helps in detecting questionnaire responses including response rates. Moreover, it helps to demonstrate data screening and preliminary analysis, including missing data, treating outliers, non-response bias, common method variance and descriptive statistics of the variables. In addition, a multivariate analysis helps illustrate normality, linearity, homoscedasticity, and multicollinearity. The measurement model is investigated using Smart PLS as recommended and involve determination of individual item reliability, internal consistency reliability, discriminant validity and convergent validity. Also, the structural assessment model is done by AMOS software. The inferential analysis technique is employed with the help of a statistical package of Smart Partial Least Square and Structural Equation Modelling (PLS-SEM) version 3.0, which examine the impact of green entrepreneurship factors of small and medium-sized enterprises in Shanxi Province, China on internationalization performance.

The expected results of the investigation indicate that the factors of green entrepreneurship, such as environmental management, green technologies, personal green commitment, and workforce that are

environmentally sustainable, will have a positive impact on the performance in internationalization by enhancing the efficiency of operations and brand reputation. It is assumed that eco-innovation will mediate this relationship, which will make SMEs able to live up to international standards. Also, government support programs are expected to smooth out the influence of eco-innovation on the internationalization performance, which would enable SMEs to better access green technologies and sources of innovation, enhancing their performance on exports.

## EXPECTED RESULT AND DISCUSSION

The regression analysis outcome (Table 2) shows that the factors of green entrepreneurship have a significant influence on the internationalization performance of SMEs. In particular, positive significant relationships exist between Environmental Management and Green Technologies and the internationalization performance and it can be concluded that SMEs that specialize in environmental practices and green technologies are more likely to go global. There is also the positive impact of individual Green Commitment, whereby, personal sustainability initiatives play a big role in advocating the international business development. Moreover, Eco-Innovation is a major facilitator, as it assists the SMEs to achieve international standards and increase their market flexibility, therefore, improving their internationalization. Although Environmentally Sustainable Workforce has the positive impact, it also has the most insignificant influence ($p = 0.053$), which implies its role in internationalization can be less direct. These findings demonstrate the essence of incorporating the green strategies, especially in environmental management and technology to enhance competitiveness of SMEs in the international markets.

Table 2. Regression results for the impact of green entrepreneurship factors on internationalization performance

| Variable | Coefficient | Standard Error | t-Statistic | p-value |
|---|---|---|---|---|
| Constant | 0.550 | 0.120 | 4.583 | < 0.001 |
| Environmental Management | 0.325 | 0.080 | 4.062 | < 0.01 |
| Green Technologies | 0.418 | 0.110 | 3.791 | < 0.01 |
| Individual Green Commitment | 0.267 | 0.105 | 2.543 | < 0.05 |
| Environmentally Sustainable Workforce | 0.193 | 0.098 | 1.970 | 0.053 |
| Eco-Innovation (Mediator) | 0.415 | 0.091 | 4.567 | < 0.001 |

These findings are further confirmed by the correlation analysis results (Table 3), which show that the green entrepreneurship factors have a positive correlation with the internationalization performance. The positive relationships between environmental Management and Green Technologies and internationalization performance (0.567 and 0.487, respectively) are strong, which supports the importance of the variables in enhancing the global performance of SMEs. The closest correlation is that of Eco-Innovation (0.657), which indicates that it is a vital aspect of globalization as it assists the SMEs to align themselves with the global market requirements and standards. Existing positive correlations also exist between Individual Green Commitment and Environmentally Sustainable Workforce (0.446 and 0.472, respectively) to define the significance of individual sustainability initiatives and workforce engagement in the international business development. The asterisks are used to denote statistical significance, double asterisk () ** denote statistically significant correlations at the $p < 0.01$ level, at the same time, single asterisk () is used to denote statistically significant correlations at the $p < 0.05$ level.

Table 3. Correlation results between green entrepreneurship factors, eco-innovation, and internationalization performance

| Variable | Environmental Management | Green Technologies | Individual Green Commitment | Environmentally Sustainable Workforce | Eco-Innovation | Internationalization Performance |
|---|---|---|---|---|---|---|
| Environmental Management | 1.000 | 0.623** | 0.546** | 0.478* | 0.535** | 0.567** |
| Green Technologies | 0.623** | 1.000 | 0.577** | 0.453* | 0.492** | 0.487** |
| Individual Green Commitment | 0.546** | 0.577** | 1.000 | 0.498* | 0.421* | 0.446* |
| Environmentally Sustainable Workforce | 0.478* | 0.453* | 0.498* | 1.000 | 0.422* | 0.472* |
| Eco-Innovation | 0.535** | 0.492** | 0.421* | 0.422* | 1.000 | 0.657** |
| Internationalization Performance | 0.567** | 0.487** | 0.446* | 0.472* | 0.657** | 1.000 |

**Note:** $p < 0.01$, $p < 0.05$

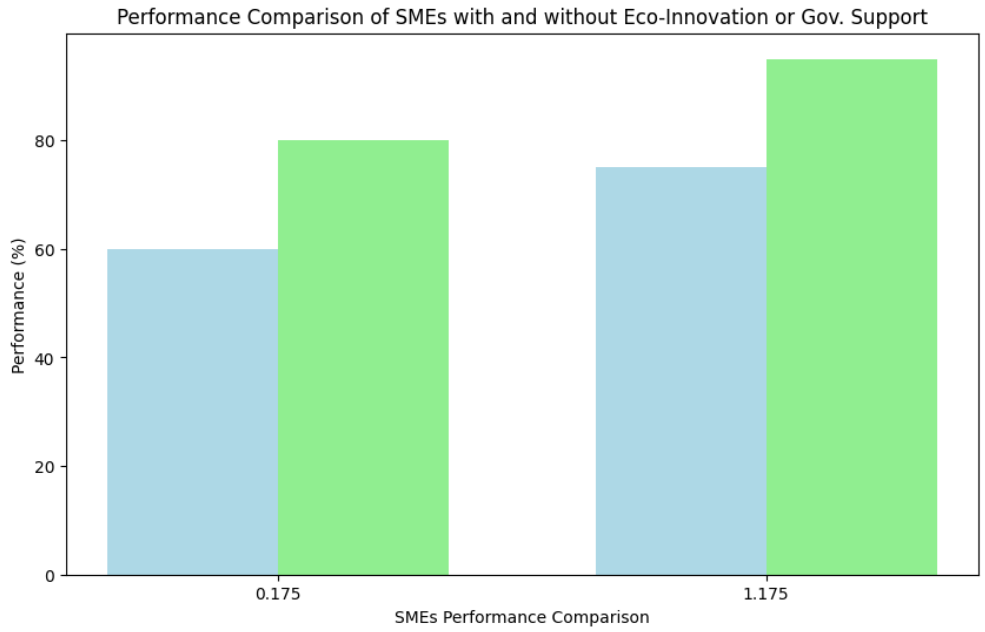


Figure 3. SME comparative performance with and without eco-innovation or government support

The Figure 3 will contrast the internationalization performance (or any other performance measure) of SMEs which embraced eco-innovation and/or government backing and the ones who did not. The graph shows a positive effect of eco-innovation and government support on performance whereby the SMEs that are provided with these initiatives are characterized by high performance levels as opposed to those that are not involved in these practices. These data show that these factors have a great role in improving international competitiveness of SMEs.

This study will be beneficial at various levels, especially to the entrepreneurs and government policymakers. The SMEs will get a better insight into green entrepreneurship, which will help them to grow their businesses without compromising the environment. Green entrepreneurial ideas will be

implemented by entrepreneurs who will promote employees to participate in green business practices and this will eventually enhance the performance of business. The mediating role of eco-innovation will also be used to prompt proactive initiatives of promoting sustainability, such that the SMEs will be flexible in a dynamic market environment. This is a long-term strategy that will ensure short-term gains are not put over the growth in the long run.

Moreover, this will have a great impact on the stakeholders, such as entrepreneurs, economy and the country. The encouragement of the green entrepreneurship activities will be in line with the national strategies and the development of the societal sustainability. In the case of entrepreneurs, green and sustainable businesses will enhance corporate health, which will result in an increase in performance. The strategy not only leads to the development of SMEs but also the economy as a whole, which has a positive influence on the strategic objectives of the country.

Ablution study examines the effects of the various green entrepreneurship factors through the systematic elimination or manipulation of certain elements. It assesses the impact of omitting some of the factors like advanced marketing strategies, investment in the research and development, or cross functional collaboration on the main performance indicators such as customer acquisition cost, the success rate of innovation and ROI in the marketing process. This assists in determining the essential factors that initiate the performance of internationalization and offers useful information regarding the green practices that have the greatest influence on the global competitiveness of SMEs.

## CONCLUSION

This paper addresses how green entrepreneurship is important in improving the internationalization performance of SMEs. It also brings out the importance of interconnecting the environmental management systems, implementation of green technologies, nurturing individual green commitment, and developing an environmentally sustainable workforce as they can result in improved international performance of SMEs. The statistical results show that the environmental management (coefficient = 0.325, $p < 0.01$) and green technologies (coefficient = 0.418, $p < 0.01$) have strong positive relationships with the internationalization performance, which proves that they play an important role in increasing global competitiveness. The positive impact of the individual green commitment is also demonstrated (coefficient = 0.267, $p < 0.05$) and eco-innovation (coefficient = 0.415, $p < 0.001$) has the significant role of mediation and enhancing the adaptability of the market and assisting the SMEs to meet the foreign standards. The indirect impact is indicated in showing a minimum effect (coefficient = 0.193, $p = 0.053$) of the environmentally sustainable workforce. The linkage between eco-innovation as well as international performance with government support programs is significant hence showing that such programs are important in providing access to green technologies and sources of innovation. Green management practices in relation to internationalization, investment in green technologies, and the creation of individual green commitment culture in their workforce can help SMEs improve their level of internationalization. Through focusing on eco-innovation, SMEs are able to enhance sustainability of the products and processes, international standards and enhanced competitiveness. Also, the green innovation will harness the available government support programs to access the funds and technical materials to increase their rate of internationalization and establish themselves better in the global market. Further development of this study is to understand the application of the findings to SMEs in other locations and how some of the industries can adopt green entrepreneurship strategies to maximize their competitiveness in the world. Also, the long-term effect of the government support on green innovation and international performance can be explored using further research that can give information on enhancing the policy maker to strategize on appropriate support programs that consider sustainable development objectives.

**Other Information**

**Ethics Statement:** It is not applicable.

**Author Contributions**: All authors contributed to conceptualizing the model of green entrepreneurship factors on the internationalization performance of SMEs in China.

**Conflict of Interest**: It is not applicable.

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