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THE IMPACT OF GREEN ENTREPRENEURSHIP ON SUSTAINABLE PERFORMANCE. CASE STUDY ON A SAMPLE OF SMALL AND MEDIUM ENTERPRISES IN ALGERIA

Under the supervision of:

Prf: Saous Chikh

Thesis presented by:

Mammeri Zakaria

Board of Examiners:

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University year: 2020/2021

ABSTRACT

As a consequence of the role of entrepreneurship in reaching economic and social development, and under the increasing importance of environmental protection and the emergence of sustainable development, the importance of Green entrepreneurship increased in achieving sustainable development. Therefore, this research aims to highlight the impact of green entrepreneurship on sustainable performance, case study a sample of small and medium enterprises in Algeria.

Comprehensive research model has been developed based on the literature. The research model is then tested using Confirmatory Factor Analysis (CFA) and Partial Least Squares-Structured Equation Modeling (PLS-SEM) were used with SmartPLS to analyze the data and provided clarity and validation for the research model and helped uncover the impact of green entrepreneurship on sustainable performance. data were collected via a survey from a sample of SMEs in Algeria. The statistical results showed that 4 of the 9 hypotheses proposed were supported and helped uncover key findings on how sustainable performance can be impacted, the results also showed that green entrepreneurship is directly correlated to ameliorating sustainable performance. Finally, despite the efforts made by Algeria to promote green entrepreneurship, its contribution remains weak compared to the available possibilities, in addition to that The trend towards a green entrepreneurship in Algeria is recent, and there is interest in the green economy in Algeria, but this interest is not enough, which calls for greater efforts in this field, also Green Entrepreneurship is an emerging and new concept in Algeria.

Key words: green entrepreneurship, green economy, sustainable performance

Résumé

En conséquence du rôle de l'entrepreneuriat dans la réalisation du développement économique et social, et sous l'importance croissante de la protection de l'environnement et de l'émergence du développement durable, l'importance de l'entrepreneuriat vert a augmenté dans la réalisation du développement durable. Par conséquent, cette recherche vise à mettre en évidence l'impact de l'entrepreneuriat vert sur la performance durable, étude de cas d'un échantillon de petites et moyennes entreprises en Algérie.

Un modèle de recherche complet a été développé sur la base de la littérature. Le modèle de recherche est ensuite testé à l'aide de l'analyse factorielle confirmatoire (CFA) et la modélisation par équations structurées des moindres carrés partiels (PLS-SEM) a été utilisée avec SmartPLS pour analyser les données et a fourni clarté et validation pour le modèle de recherche et a aidé à découvrir l'impact du l'entrepreneuriat vert sur la performance durable. Les données ont été collectées via une enquête auprès d'un échantillon de PME en Algérie. Les résultats statistiques ont montré que 4 des 9 hypothèses proposées étaient soutenues et ont permis de découvrir des conclusions clés sur la façon dont la performance durable peut être impactée, les résultats ont également montré que l'entrepreneuriat vert est directement corrélé à l'amélioration de la performance durable. Enfin, malgré les efforts déployés par l'Algérie pour promouvoir l'entrepreneuriat vert, sa contribution reste faible par rapport aux possibilités disponibles, en plus de cela La tendance vers un entrepreneuriat vert en Algérie est récente, et il y a un intérêt pour l'économie verte en Algérie, mais cet intérêt ne suffit pas, ce qui appelle à plus d'efforts dans ce domaine, aussi l'Entrepreneuriat Vert est un concept émergent et nouveau en Algérie.

Mots clés : entrepreneuriat vert, économie verte, performance durable,

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ملخص الدراسة

نتيجة لدور ريادة الأعمال في تحقيق التنمية الاقتصادية والاجتماعية، وفي ظل الأهمية المتزايدة لحماية البيئة وظهور التنمية المستدامة، برزت أهمية ريادة الأعمال الخضراء في تحقيق التنمية المستدامة، ذلك تهدف هذه الأطروحة إلى تسليط الضوء على أثر ريادة الأعمال الخضراء على الأداء المستدام ، لعينة من المؤسسات الصغيرة والمتوسطة بالجزائر، تم تطوير نموذج بحث شامل بناء على الدراسات السابقة، اما اختيار النموذج كان باستخدام تحليل العامل التوكيدي(CFA)، كما تم استخدام النمذجة بالمعادلات الهيكلية الجزئية للمربعات الصغرى الجزئية

ومعرفة اثر ريادة الاعمال الخضراء على الاداء المستدام لتحليل البيانات وتوفير الوضوح والتحقق من صحة النموذج الدراسة، تم جمع البيانات عن طريق مسح لعينة من المؤسسات الصغيرة و المتوسطة في الجزائر ، اظهرت النتائج ان اربع فرضيات من اصل تسع فرضيات تم قبولها وتبيان مدى تأثيرها على الاداء المستدام ، كذلك بينت النتائج ان ريادة الاعمال الخضراء لها اثر مباشر في تحسين الاداء المستدام.

في الاخير ، على الرغم من الجهود التي تبذلها الجزائر لتعزيز ريادة الاعمال الخضراء الا ان مساهمتها تظل ضعيفة مقارنة بما هو متاح.

بالاضافة الى ان التوجه نحو ريادة الاعمال الخضراء في الجزائر لايزال حديثاً، كما ان هناك اهتمام بالاقتصاد الاخضر لكنه لا يكفي، مما يستدعي بذل جهود اكبر في هذا المجال، علاوة على ذلك فان ريادة الاعمال الخضراء كمفهوم و كمصطلح لايزال حديث النشأة في الجزائر.

الكلمات المفتاحية: ريادة الاعمال الخضراء، الاقتصاد الاخضر، الاداء المستدام ، النمذجة بالمربعات الصغرى الجزئية، العامل التوكيدي.

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Acknowledgement

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ACRY/ABRV	MEANING
EPA	Envital Protection Agency
CSD	Commission on Sustainable Development
CSR	Corporate Social Responsibility
DAs	Development Agencies
RIS	Regional Innovation System
SMEs	Small and Medium sized Enterprises
CSP	Corporate Social Performance
GMPs	Green Manufacturing Practices
SP	Sustainable Performance
CFA	Confirmatory factor Analysis
PLS-SEM	Partial Leased Squares-Structural Equation Modeling
CB-SEM	Covariance-Base Structural Equation Modeling
AVE	Average Variance Extracted

GENERAL INTRODUCTION

GENARAL INTRODUCTION

Algeria as one of the emerging countries in Africa thanks to the abundance of human and natural resources, it has great Potentials to be a great actor in the mission of fighting the climate change. To assess the actual performance of the government in developing green markets for SMEs, business activities among the   SMEs entrepreneurs have somehow created impact towards the environmental. This is due to the reduction of environmental impact by the economic activities. Moreover, it has been acknowledged by government and society everywhere throughout the world that entrepreneurship is a significant for a better sustainable society.

Green entrepreneurship is considered as one of the solutions to expand investment in products and services which have a positive impact on environment and to achieve another objective like providing jobs and cope with the climate change, etc.

In the other hand The rapid technological development and the progress of the world's population on the path of modernity has brought about a great change in the interests and priorities of human beings, which has led to the diversification of their activities, which in turn has led to severe disturbances on the planet. This forced humanity to adopt serious behaviors to deal with these disturbances, such as establishing laws to protect the land and its inhabitants, and adopting various policies that would improve this situation, for those reasons sustainable development concept appeared in the year 1980, The research seeks to shed light small and medium enterprises in Algeria, therefore sustainable performance is the suitable variable.

A) PROBLEM STATEMENT

Based on the previous proposition, the following problem can be formulated:

THE MAIN QUESTION

What is the impact of green entrepreneurship on sustainable performance in small and medium enterprises in Algeria?

To investigate the problem under study and answer it, the following sub-questions can be formulated:

Sub-questions

1- What does entrepreneurship and sustainable performance mean?
2- What are the dimensions of green entrepreneurship and sustainable performance?

3- is there an impact of the dimensions of green entrepreneurship on the dimensions of sustainable performance?

B) HYPOTHESIS OF THE STUDY

Based on the previous study, the research hypotheses can be formulated as follows:

H1: An increase in the level of taking risk leads to an amelioration in Economic Performance.

H2: An increase in the level of taking risk leads to an amelioration in Environmental Performance

H3: An increase in the level of taking risk leads to an amelioration in Social Performance

H4: An increase in the level of Proactiveness leads to an amelioration in Economic Performance

H5: An increase in the level of Proactiveness leads to an amelioration in Environmental Performance

H6: An increase in the level of Proactiveness leads to an amelioration in Social Performance

H7: An increase in the level of Autonomy leads to an amelioration in Economic Performance

H8: An increase in the level of Autonomy leads to an amelioration in Environmental Performance

H9: An increase in the level of Autonomy leads to an amelioration in Social Performance.

C) STUDY OBJECTIVES

Through the study, we aim to achieve a number of goals, which are summarized below:

1- Trying to build a systematic theoretical study to the variables of the research (green entrepreneurship and sustainable performance)
2- knowing the main components of green entrepreneurship and sustainable performance
3- Measuring the respondents' opinions concerning the study variables
4- Attempting to build a measurement model for the study based on structure equation modeling, through the use of the SMART-PLS program, as this modeling will enable us to know the various relationships and effects resulting between the variables under study.

D) STUDY IMPORTANCE

1- The lack of research that dealt with a problem of this kind, whether in theory or in practice, which increases the importance of the research.
2- Considering the study as one of the few studies that combined between green entrepreneurship and sustainable performance.

3- Using the Structural Equations Modeling (SEM) methodology as a modern methodology in studying the subject, as each of them has its own partial dimensions;

E) STUDY APPROACH

In order to carry out a scientific and systematic analysis of the problem of measuring the effect of green entrepreneurship on sustainable performance, and in order to test the validity of the proposed hypotheses, we used the descriptive and analytical method in our research. Descriptive based on a diverse list of modern specialized references and periodicals, these sources dealt with important aspects of the study in great detail and continuous renewal, the analytical approach was followed by relying on SMART-PLS program to determine all relations and effects between the dimensions of the variables.

F) LIMITATION OF THE STUDY

The methodology of scientific research, requires the need to control the analysis framework related to the nature of this study, by setting limits for the study, while adjusting the framework that allows testing hypotheses, and to achieve this we have completed this study within the limits and dimensions.

1) **Place dimension**: A sample of Small and medium enterprises in Algeria
2) **Time dimension:** From January to Juan 2021
3) **Topic dimension:** the study contains to variables, independent variable which is Green entrepreneurship, and dependent variable which is Sustainable performance.

G) STUDY STRUCTURE

The problematic has been analyzed to which extent green entrepreneurship has an impact on sustainable performance, and hypotheses has been tested within four chapters as follows:

The thesis is composed of four chapters. After the introduction, in chapter one, the theoretical background has been presented, chapter two literature has been reviewed for green entrepreneurship and sustainable performance. In chapter three the methodology has been discussed specifically data collection sampling issues and questionnaire development steps are covered where278 questionnaire were distributed and 232 were sent back. The results and discussion are then presented in chapter four. Finally, the conclusion of the research has been discussed along with some results, recommendations and suggestions for further research in the same field

H) CONTRIBUTION OF THE STUDY

This study has been empirically validated and identified if green entrepreneurship can make sustainable performance increasing, therefore This research is one the early attempts to uncover the connection between green entrepreneurship and sustainable performance in Algeria.

- The first contribution of this study that it will provide a validated model for green entrepreneurship and sustainable performance. Previous studies have looked at each variable of the study alone and with another variable, hence this research is the first attempt to examine the relationship between green entrepreneurship and sustainable performance.

- Another contribution is that This research model can be used in future studies to further explain green entrepreneurship challenges and how these issues can be mitigated.

- Final contribution that this research will be considered as an introduction and establishment of a new concept and construct in Algeria which is green entrepreneurship, this variable should be strongly considered in future studies, so this study can be a foundation to link between green entrepreneurship and other variables.

Chapter one: theoretical framework of the study

1.1 CHAPTER INTRODUCTION

Due to the constant degradation and misuse of resources leading to calamities and disasters worldwide, saving environment becomes one of the major missions nowadays. Environmental problems are affecting many regions all around the globe, which requires that the international society to take the necessary actions to mitigate the damage to the environment. In the other side and in recent time the concept of green entrepreneurship has appeared as a new type of entrepreneurship to take in account all issues related by environment.

In this chapter, we will focus on the theoretical framework of the variables of the study which are green entrepreneurship and sustainable performance.

1.2 NEED OF GREEN ENTREPRENEURSHIP

The worldwide energy infrastructure depends heavily on nonrenewable energies. The sharp rise in worldwide population, the emergence of many industries has led to the increase of pollution and degraded nature. Ignorance towards sustainable growth and lack of eco-friendly approach. Reduction of forest cover, air pollution, water pollution, ground water depletion, over-utilization of land, slapdash extraction of minerals and metals etc. have all led to serious problems to our planet. The current situation and the possible bad consequences that the globe will have to face in future, demand that immediate and judicious actions to be taken for mitigation of the devastating effects.

As key factor to preserve our future, sustainable development and green entrepreneurship has become very important approaches to adopt. By focusing Solely on the environment, which is uncontrollable factor, green entrepreneurship represents a pillar element for sustainable development. (Rishiraj, 2018)

The impact of green entrepreneurship in facing the environmental challenges is considerable, that is because entrepreneurs if adopting green practices in managing their businesses, it will absolutely give effective results in this respect.

According to **Paul Hawken** (An expert in this field), "Business is the only mechanism powerful enough to produce the changes necessary to reverse global environment and social degradation".

"Green Entrepreneurship has considerable potential to contribute to mastering the pressing environmental problems of our time through the introduction of new, environmentally friendly products" (Schaper, Understanding the Green Entrepreneur, 2005) and "Through catalyzing an overall shift of business strategies towards more sustainable products and processes" (York, 2010) "The business sector is often viewed as one of the largest contributors to environmental degradation" (Cohen B. a., 2007)and therefore it is their responsibility to reverse the negative environmental impact which can be achieved through sustainable entrepreneurship. The above statements clearly indicate about the important role of businesses in dealing with the environmental challenges. It is only the green practices/green entrepreneurship which could provide a remedy in this serious situation.

In the last 20 to 30 years' green entrepreneurship has gained a lot of popularity and momentum with the rising level of environmental concerns. It

has become a separate niche which also builds up the brand value due to its nature and purpose. A separate consumer base has been created which prefers eco-friendly and organic products and services as well as holding high reputation of the enterprises going green in any way. More and more startups have also come up with green business plans and even existing businesses are moving towards greener practices owing to the increase in demand and creation of goodwill. Moreover, State policies also favors green business owing to the welfare and environmental benefits derived from it. It can therefore be rightly said- 'green entrepreneurship is the need of time'

1.3 MEANING OF GREEN ENTREPRENEURSHIP

The term green entrepreneurship is viewed as new one, it was coined in the late nineties and only in the last years that the green entrepreneurship has started to gradually draw attentions of experts in the field. It known as the future orientated entrepreneurial branch, is also a phenomenon without concrete description. (Amal RAHMANE, 2019)

'Green Entrepreneurship' is composed of two words 'Green' and 'Entrepreneurship' where 'Green' refers to any activity which is potentially reducing the negative impact on environment or providing some significant amelioration to the environment. 'Entrepreneurship', on the other hand, refers to the "activity of setting up a business or businesses, taking on financial risks in the hope of profit». (Rishiraj, 2018)

Combining both definitions, 'Green Entrepreneurship' refers to the activity whereby a person (Green Entrepreneur) starts or implements in his business actions to produce or offer a product, service or process that benefits the environment and is economically viable.

Berle (1991) first adopted the notion "Green Entrepreneurship" in his book "The Green Entrepreneur: Business opportunities that can save the earth and make you money". (Amal RAHMANE, 2019)

Isaak (1997, p.80) defines green entrepreneurship as "system transforming, socially-committed environmental business characterized by breakthrough innovation". Hence, he seems to focus on the distinctive organizational characteristics of the venture and emphasizes an environmental purpose of the latter. (CHYGRYN, 2017)

Dean and McMullen (2007, p.53) who define green entrepreneurship as "the process of defining and exploiting economic opportunities that are present in environmentally relevant market failures". Similarly, Kotchen suggests that green entrepreneurship can be defined as "the practice of starting

new businesses in response to an identified opportunity to earn a profit and provide (minimize) a positive (negative) environmental externality". (CHYGRYN, 2017)

Anderson and Leal who define green entrepreneurship as "entrepreneurs using business tools to preserve open space, develop wildlife habitat, save endangered species and generally improve environmental quality". (CHYGRYN, 2017)

Green entrepreneurship concerns individuals and organizations engaged in entrepreneurial activities that create environmental benefits by offering green final products or services (CHYGRYN, 2017)A new type of entrepreneurship with a commitment to being environmentally friendly ,that aims at protecting and preserving the natural environment (maryana, 2018)

Green entrepreneurship is also an economic activity whose products, services, methods of production or organizations have positive effect on the environment (t.gevrenova., 2015)

In other word we can say that green entrepreneurship is a set of policies and practices adopted by businesses owners to eliminate or mitigate the generated negative effects on environment while providing their products or services.

1.4 ADVANTAGES AND DISADVANTAGES OF GREEN ENTREPRENEURSHIP

The advantages and disadvantages of Green Entrepreneurship are:

A) ADVANTAGES OF GREEN ENTREPRENEURSHIP

For several years, it has been stated that what is good for environment is not good for business, however this believe is fading out fast with the emergence of green entrepreneurship as it includes a balanced mix of both 'green practices' and 'financial sustainability' as its core value. The net result is always the positive effect on environment without compromising the economic aspirations of the enterprise. Moving towards greener ways or creation of a green business startup has several advantages apart from having the positive environmental effect. It constitutes both direct and indirect benefits to the environment. On one hand, green businesses provide environmental benefits and on the other it maintains its financial viability while enhancing its market image. It also creates an awareness among the customers about the environmental concerns and acts as guardian and

pioneers for safeguarding of environment. Small and large enterprises contribute towards the benefit of the environment and both have equivalently important role in delivery of such benefits. (Rishiraj, 2018)

Some of the important advantages of Green Entrepreneurship are:

1. Reducing Utility Costs

Both Large and small enterprises reap the utility cost benefit by being more energy efficient and less wasteful. This results in lower utility bills, better management of resources and saving surplus on maintenance expense. Measures reducing utility cost includes:

- Using star-rated energy efficient electronic devices like ACs, lightings, machines and equipment's, computing machines, innovative virtualization
  techniques etc.
- Water conservation and recycling.
- Waste management leading to lesser land pollution and lower cost of garbage dumping.

2. Lower Negative Impact on Environment: As noted by various authors, business sector is considered as the largest contributors to environmental degradation and therefore it is the responsibility of businesses to take initiatives to minimize the negative impacts on the environment. In this respect, by moving towards greener ways a chain of improvements is instigated in the routine business process which ultimately benefits the overall environment. Environment-friendly practices include:

- Energy Conservation and Efficient utilization.
- Water Conservation and Efficient utilization as well as recycling and reuse.
- Efficient Waste management.
- Recycling and reuse of materials.
- Use of Renewable energy.
- Lower emission rates.
- Green/Eco-friendly products, services and process etc.

3. Enhancing Public Image: In the recent time, Green Entrepreneurship has gained lot of fame and popularity with rising awareness of environmental challenges. More and more people are joining the green movement resulting

in a higher demand for green products and services. Moreover the green initiatives taken by the businesses are seen with a lot of respect; building up the brand image of the enterprise. Right marketing and promotion of green entrepreneurship activities directly leads to building up of brand equity. To build up brand image through green entrepreneurship, businesses can:

- Organize Green events to generate positive public opinion.
- Promote Green initiatives of the enterprise through media and press release.
- Packaging, advertising and marketing materials can also be used as a promotion tool to appeal customers preferring green products/services.
- Public disclosure in case of core green business/ green startups, promoting
  the uniqueness and benefit derived to build up reputation and customer base.

4. Tax Benefits and Rebates: Green Businesses also have an additional support from the Government and local bodies in the form of incentives, assistances,
rebates and other tax benefits. These benefits are provided to support the 'GREEN' cause and welfare of the general public. These benefits can be provided in several forms:

- Tax credits and deductions.
- Purchase-price rebates.
- Direct monetary assistance.
- Incentives for fulfillment of certain norms.
- Bill reduction and exemptions.
- Free utilities etc.

5. Increasing Business Opportunities: Green Businesses have increased opportunities of business as some enterprises, government bodies and nonprofit organizations only contract with Green enterprises meeting certain green standards and norms. They purchase and use only green products/services or products/services following certain green standards. The guidelines and standards for companies formally going green to avail these benefits, are provided by Environmental Protection Agency (EPA) and not all standards are government mandated. Businesses following voluntary green standards are preferred over those following government mandated standards.

As such, there are lot of advantages of green entrepreneurship be it a startup business or existing enterprise. However, all these advantages bear

fruit in the long run and most enterprises following green ways find it quite challenging in the initial stages. From sustainability point of view green entrepreneurship provides for a dynamically successful venture in the later stages. (sarkar, 2018)

A) DISADVANTAGES OF GREEN ENTREPRENEURSHIP

Apart from having so many advantages, there are also a few disadvantages present in practicing Green Entrepreneurship:

1.Increasing Capital Expenditure:

Green initiatives require proper investments and this could result in decreased budget for other important expenditures leading to lower performance. Since these investments have a typical risk factor involved, therefore the earnings are also affected in the initial stages. Overall, green entrepreneurship is a burdensome venture in short run.

2. Decreasing Productivity:

The overall productivity of the organization is affected especially in the case where a conventional enterprise moves towards green ways. This is because some extra activities are to be performed apart from routine activities. For example, recycling itself involves a lot of activities which are to be performed at the initial stages of routine production. Similarly, purchasing materials of green standard requires a lot more verification and check time which instead affects the productivity of workers.

3. Greenwashing:

'Greenwashing' is a deception to green entrepreneurship practices. It is actually a form of deceptive green marketing where the perception of enterprise having a green offering is promoted whereas actually the net environmental benefit is minimum. It is being widely practiced by corporations from a long time to evade mandatory norms and standards set up by the government or to falsely build up the brand image in public. This is mostly achieved through:

- False propaganda.
- Manipulative corporate disclosure.
- Corrupt practices.
- Deceptive 'Green PR' etc. (sarkar, 2018)

One thing is very clear by analyzing these advantages and disadvantages that a strong green mindset and environmental consciousness is very necessary to utilize green entrepreneurship as a mean to fulfill environmental goals. Moreover, the green entrepreneurship venture is more successful in the long run and is very beneficial to the environment as well as for the enterprise from sustainability point of view.

1.5 SUSTAINABLE DEVELOPEMENT/SUSTAINIBILITY

Sustainability is a multi-dimensional concept which itself is often contentious and has been the subject of much debate in the management literature (Bebbington, 1997). Over the years, the term" sustainability" entails different perceptions depending on who uses it and in which context. There exist various terms which are used synonymously for sustainability, such as "sustainable development" (SD), "sustainable business", and "Corporate Social Responsibility" (CSR) ((Rahman, 2019).

1.5.1 CONCEPT OF SUSTAINABLE DEVELOPMENT/ SUSTAINIBILITY

Sustainable Development is responsible economic development without Negatively impacting the total available resources for use of future generations. It focuses on responsible use of natural resources by present generation and can be called as a controlled development process whereby the resources are only used to the extent, which does not adversely affect the natural sustaining system and establishes a stable need-supply chain for future generations to come. Sustainable Development emphasizes the role of present generation to preserve, maintain, regenerate and improve the natural resources for the use of future generations. It embodies social, economic and environmental obligations which form the three pillars of the sustainability concept.

"Sustainability can be defined as a practice of maintaining processes of productivity indefinitely- natural or human made- by replacing resources used with resources of equal or greater value without degrading or endangering natural biotic systems". (Lynn R. kahle, 2014) As such sustainability is the aspiration to sustain the resources (especially non-renewable) by responsibly replacing and regenerating without adversely affecting the natural eco-system. Sustainable development is a holistic and long-term approach for attaining the end point of sustainability.

Sustainable Development or sustainability comprises of 3 basic dimensions which totally defines the sphere of its parameters. These

dimensions have been described by various authors as pillars, domains, spheres etc. They are:

- ❖ **Society**- To be equitable
- ❖ **Environment**- To be bearable
- ❖ **Economy**- To be viable

1.5.2 DEFINITION OF SUSTAINABLE DEVELOPEMENT:

There are about hundreds of definition of sustainable development but every definition either fully or partially focuses on the concept stated under the definition given in the World Commission on Environment and Development (WCED) Report- 'Our Common Future'. To clearly understand the concept of sustainable development/ sustainability we need to go through the most widely accepted definition detailing about the nature and meaning of such: "Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

1. The concept of 'needs', in particular, the essential needs of the world's poor, to which overriding priority should be given; and

2. The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs." (Commission, 1987)

The extensive definition explains about the complete nature of sustainability/sustainable development which we have already discussed earlier. The focus is on two key points:

- ❖ The basic needs of the poor to be prioritized which will hamper the vicious cycle of poverty, limiting the ecological imbalance and other crises; and
- ❖ A progressive development of the economy and society as a whole leading to sustainability.
  Thus, the 3 basic pillars of sustainability also get established through this definition i.e. 'Society', 'Environment' and 'Economy'. Through this definition it was recognized that poverty, environmental degradation and population growth are related issues and should be dealt with in a combined manner. A remedy for one dimension can also help in solving related issues in other dimensions. Therefore, a holistic sustainable approach towards development aimed for the greater good of the public especially fulfillment of the basic needs of the poorer ones, is required in the current situation to counter environmental degradation.

1.5.3 INDICATORS OF SUSTAINABLE DEVELOPMENT

The indicators of sustainable development were established by the Commission on Sustainable Development (CSD) as the parameters to quantify and measure the sustainability in the activities undertaken in the process of development of economy.

These indicators are also used in this study to ascertain that green entrepreneurship practices are sustainable in nature and there is a strong linkage between green entrepreneurship and sustainable development. The macro level indicators are modified to perform a micro level analysis (Enterprise level) as the indicators are tools developed, to measure sustainable development processes at national level.

The indicators are:

The CSD Indicators of Sustainable Development	
Poverty **Governance** **Health** **education** **demographics** **natural hazards** **atmosphere**	**Land** - Ocean, Seas and Coasts Freshwater Biodiversity Economic Development Global Economic Partnership Consumption and Production Patterns

Source: From Indicators of Sustainable Development: Guidelines and Methodologies (2007), UN

1.6 SUSTAINABLE PERFORMANCE

Sustainability is an area of growing importance in today's business, more and more companies and organizations around the world are aiming towards a sustainable path for their businesses. Pressure from stakeholders and society pushes companies to report on their sustainability performance; however, companies are also seeing the opportunities which arise with these reports and especially large companies are embracing the sustainable path according to prior studies**. (Schiehlé, 2014)**

"Sustainable development" was initially put forward by the Brundtland Commission in 1987. It was defined as a "kind of development that meets

the needs of the present without compromising the ability of future generations to meet their own needs". (XiaoLi Zhang W. L., 2016)

However, this macroeconomic definition is difficult for organizations to follow. To make this definition more microeconomic, many other concepts are proposed by massive organizations and researchers.

1.6.1 ECONOMIC ASPECT

In the World Summit on Sustainable Development held in Johannesburg in 2002 it has been emphasized that because of the connections of most of the economies worldwide, an "integrated approach" towards economic sustainability was needed in order to enable a "responsible long-term growth" which would include all nations and communities (Moldan, 2011). Furthermore, the economic aspects have been even more under close control since the global economic and financial crisis, as countries facing the recession have to take actions domestically to handle the crisis (Asmussen, 2009) Therefore, (Moldan, 2011) imply that economic growth is both an important and universally accepted objective for the society. Growth is so important that it has been considered, at a world scale, the most essential goal for societies for the last five decades, (Moldan, 2011). The authors also mention the difficulty of achieving a balance between sustainability and economic growth; which (Alam, 2013)indicate the importance of when they explain that increased economic growth has an impact on the environmental sustainability due to increased production and consumption. The global economic and financial crisis could be used as an opportunity for improving the approach between sustainable development and economic growth. The crisis has brought into focus the economic pillar, and as economic growth has an effect on social, economic and environmental issues (Alam, 2013), the economic aspect has become an important part for companies, as well as for the society as a whole, to put focus on when handling sustainability matters. (Schiehlé, 2014)

FIRST DEFINITION:

"Economic performance includes profitability, revenue growth, increase in market share, and increase in productivity" (bulent sezent, 2013)

SECOND DEFINITION:

"A sustainable approach that can lead to internal cost saving, open new markets and find beneficial uses for waste" (bulent sezent, 2013)

Economic performance at a company level refers to "a company's influences on its economic circumstances, as well as on economic systems at local, national, and/or international levels" (bulent sezent, 2013)

Economic performance is measured on the basis of economic growth while protecting the environment and improving the quality of life. In this paper, two elements are considered in the assessment of economic performance: operational outcomes and economic outcomes.

A. ECONOMIC OUTCOMES

Economic outcomes are financial benefits that reflect the whole organization and these outcomes are mostly related to a reduction in industrial costs (Eltayeb, 2011) Companies that focus on improving environmental performance in terms of reducing undesirable outputs (i.e. CO_2 emissions, pollutants and wastes) from manufacturing processes will indeed improve their economic performance (Wagner, 2005). In addition, it has been shown that improved market share is related to economic outcomes (Klassen, 1996). The higher the market share, the higher the economic outcomes and these will enhance the company's image and position in the market (Smith, 2005)

B. OPERATIONAL OUTCOMES

The adoption of sustainable manufacturing can serve as a driver to improve operational efficiency, which will increase the potential long-term profitability (Rothenberg, 2007)

Therefore, operational outcomes are important aspects which need to be considered since they are indicators of sustainability performance. This is also parallel with the findings of Hansen et al. (2009) whose study is centered on improving operational efficiency and implementing initiatives for sustainability in order to inspire new business opportunities. In this regard, the industry can gain a wider market share.

In a related argument, Eltayeb et al. (2011) highlighted that operational outcomes represent the direct impact of green initiatives by cost reduction (Porter and van der Linde, 1995), improved product quality and improved order delivery and flexibility. (Ramayah, 2017)

1.6.2 SOCIAL OUTCOMES

Social sustainability not only ensures that industries are taking profits, but also ensures that industrial activities do not cause social degradation (Tsai, 209)The social field has originally been defined as a pillar because the growing needs of people ("jobs, food, education, energy, health care, water and sanitation") have to be satisfied in a way that ensures that everyone can contribute in the creation of their own future meanwhile "the

rich fabric of cultural and social diversity, and the rights of workers are respected" (Moldan, 2011) For instance, when an environmental issue gets a solution, a central part contributing to that solution is the human behavior and knowledge. Therefore, the social aspect is fundamental for companies to handle, building a social environment where knowledge of sustainability can be created and maintained (Ksenija Denčić-Mihajlov, 2020)

Several definitions of social performance have been brought up to the surface during the years,

FIRST DEFINITION:

"Social performance refers to the organization's actual achievement in improving and maintaining the quality of life without neglecting environmental aspects" (Yusuf, 2013)

SECOND DEFINITION:

"Social performance is the effective translation of an institution's mission into practice in line with accepted social values that relate to improving the lives of poor and excluded clients and their families and widening the range of opportunities for communities". (bulent sezent, 2013)

THIRD DEFINITION:

"a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships'. Wood's (Wood, 2010)

FORTH DEFINITION:

"Social performance is a complex corporate issue that addresses management and enterprises policies, which are compatible with the objectives and the values of society. While initially applied mainly in relation to concerns of shareholders, stakeholders, and state welfare" (Battaglini, 2019).

In other words, "social performance is about making an organization's social mission a reality, whatever that mission is". (Mokoene, 2021)

1.6.3 ENVIRONMENTAL ASPECT

Since Environmental performance is highly dependent on the use of efficient and cleaner sustainable energy resources, firms are facing growing pressure to become "greener" or more environmentally friendly.

Consequently, firms have had to review their production processes as a result of pressures from the community and governments.

In this regard, it is crucial to ensure that the resources used during production are renewable with minimum CO_2 emissions. In addition, it is crucial for manufacturers to prevent overuse of resources (Yusuf, 2013). According to the International Energy Agency (2009), the manufacturing industry contributes 38% of CO_2 emissions worldwide. It is essential to reduce CO_2 emissions since they have a detrimental impact on the environment (e.g. global warming, changes in weather patterns, formation of acid rain and air pollution) which will affect human health and disrupts the natural balance of the ecosystem, according to Jeswit and Kara (2008), the use of materials in manufacturing processes is also one of the environmental indicators. King and Lenox (2001) observed that improved compliance with environmental standards is evidence of a company's environmental performance. (Ramayah, 2017)

The definition of environmental performance still is not agreed in literature and a systemic perception is lacking.

FIRST DEFINITION:

"the outcome based on the firm's ecological goals to generally improve the environmental situation of a company and its system" (Chien, 2007)

SECOND DEFINITION:

"Reduce resource consumption, stop pollution and conserve natural habitats, so that the future generations can live decently" (Moldan, 2011)

THIRD DEFINITION:

"The environmental impact that the corporation's activities have on the natural milieu" (Chien, 2007)

FORTH DEFINITION:

"Environmental Performance means the effects, whether regulated. or unregulated, of a facility on air, water, land, natural resources and human health". (law insider, 2021)

FIFTH DEFINITION:

"Environmental Performance means all or any of the following: "the consumption of energy and associated generation of greenhouse gas emissions; the consumption of water; waste generation and management; and any other environmental impact arising from the use or operation of the Premises or the Estate" (law insider, 2021)

1.7 CHAPTER CONCLUSION

Over the past few years, organizations have faced pressure from stakeholders to adopt environmentally friendly business practices, where it is becoming critical to identify green practices that boost sustainability. Despite green human resource management receiving significant interest from scholars, studies related to green practices remain limited, and are still emerging in a developing countries context.

This chapter was a theoretical and conceptual framework for all study variables, and through this chapter we have presented definitions of variables of the studies and all the dimensions of green entrepreneurship and sustainable performance.

Chapter2: literature review

2.1 CHAPTER INTRODUCTION

'Green Entrepreneurship' is a new notion and the term has appeared only in the 90's and later by the term 'Ecopreneurship', 'Environmental Entrepreneurship', 'Green Entrepreneurship' etc. all these concepts have similar objectives with slight differences. 'Green Entrepreneurship' is composed of two words, 'Green' and 'Entrepreneurship/Entrepreneur'. It refers to a process adopted by a person (The Green Entrepreneur) who implements in his business a practice to make or offer a product, service or process that benefits the environment and that is economically viable. Green entrepreneurship practices are those which compel a person have or seek out the knowledge, initiative and resources and find innovative eco-friendly solutions to the existing problems of the society. Green entrepreneurship can be practiced by both startups as well as existing businesses, the common agenda being achievement of environmental sustainability through eco-friendly initiatives maintaining the economic health as well. (sarkar, 2018) In this section we will examine some major literatures in this regard emphasizing the concepts of 'Green Entrepreneurship' and 'Sustainable performance'.

2.2 Green entrepreneurship

1- **Berle, G. (1991),** "The Green Entrepreneurship: Business Opportunities that Can Save the Earth and Make You Money": Berle was the first who has coined the term 'Green Entrepreneur' and mentioned that the Green Entrepreneurs consider business opportunities as those small operators who work their way through landslide. The author suggested reducing waste, saving materials, and conservation of energy for being a Green Entrepreneur. A combination of popular solutions to problems spread worldwide such as world hunger, world peace, and the world's needs for resource reallocation may trigger some start-up thoughts (Green Businesses). Unfortunately, there is a need to combine environmentally sound concepts with sharp business plans and competent management to achieve sound growth for the world, even the industry giants can also benefit from this. (berle, 1991).

2- **Hunter, L. M., and Starik, M. (1995), "Environmental Entrepreneurship: Nature and Success":** stated that environmental entrepreneurs represent a fast growing segment of world economy yet have not been properly researched. The study they showed cross-sectional information and applied aspects of the 'green' McKinsey 7S framework-shared values, stakeholders, and strategies to discover factors of success of these eco-ventures. The importance of green entrepreneurs and their contribution to sustainable development has also been cited**.** (Hunter, 1995)

3-Taylor, David W. and Walley, Elizabeth E. (2002). "Opportunists, Champions, Mavericks? A Typology of Green Entrepreneurs: stated that the Green Entrepreneurs are characterized by the combination of internal motivations and external (hard and soft) structural influences. The outcome of such provides us with four 'ideal types' of green entrepreneurs: innovative opportunists- driven by hard structural influence and economic orientation, visionary champions- driven by hard structural influence and sustainability orientation, ethical mavericks- driven by soft structural influence and sustainability orientation, and ad hoc enviropreneurs- driven by soft structural change and economic orientation. All types of Green Entrepreneurs are classified in these four categories typically known as 'Typologies'**.** (Taylor, 2002)**.**

4-Isaak, R. (2002), "The Making of the Ecopreneur": the author compared 'Green Businesses' (existing firm moving towards environmental responsibility) and 'Green-Green Businesses' (firm which is green in its design of product and process from the very beginning as a start-up). The ideal type of green entrepreneurs is the 'green-green businesses' which largely contributes to changing the economic system in which it operates. However, green entrepreneurship is practiced by both 'green' as well as 'green- green' businesses. Some practical orientations were provided for those trying in the area of environmental entrepreneurship. (Taylor D. W., 2002)

5- Gibbs, D. (2006), "Sustainability Entrepreneurs, Ecopreneurs and the Development of a Sustainable Economy: researched about the role of sustainable entrepreneurship in the move towards a new form of capitalist development that can help to address concerns over global warming, climate change and their associated negative environmental impacts. Such type of changes is set with ecological modernization, which is based on a relatively optimistic view of having the potential for technological change to lead to solutions for environmental issues.
Gibbs's study is basically concentrated on a subset of sustainable Entrepreneurs termed 'Ecopreneurs' which we also referred as 'Green Entrepreneurs' who provides innovative green solutions for environmental challenges**. (Gibbs, 2006)

6-Dixon, S.E.A and Clifford, A. (2007), "Ecopreneurship- A new approach to managing the triple bottom line": authors found strong bonding in the entrepreneurism and environmentalism. The entrepreneurial instinct instigates the achievement of environmental, social and economic goals of the organization. The 'Green-works business model' has been proposed which succeeds as it is rooted from businesses organic relationship- 1) with large corporate bodies focusing Corporate Social Responsibility (CSR) quantification, 2) with community and social partners, providing for the employment and training of disadvantaged people and a route to risk-free growth, and 3) with Government and social institutions, providing support and incentives. The model provides for environmental and social sustainability though Ecopreneurial Avenue. (Dixon, 2007)

7-Dean, T.J. and McMullen, J.S. (2007), "Towards a theory of SustainableEntrepreneurship: Reducing Environmental degradation throughentrepreneurial action": the study has highlighted how entrepreneurship can contribute in solving environmental problems and challenges of global socio-economic systems. Environmental economics states that environmental degradation is the result of market failure and on the other side entrepreneurship literature argues that market failures give way to opportunities.

After review of these studies, it can be said that environmentally relevant market failure provides for profitability opportunities while simultaneously reducing environmental degradation. Conceptualization of sustainable and environmental entrepreneurship details how ecopreneurs seize the opportunities out of environmentally relevant market failures. (Dean, 2007)

8- Allen J.C. and Malin, S. (2008), "Green entrepreneurship: A method formanaging natural resources?": this study has demonstrated how globalization has changed the mindset of business owners about various aspects like: influencing community behaviors and values, creation of household income and impact on natural resource management etc. Moreover, in-depth interviews with the green entrepreneurs were also conducted which divulged various factors and constructs which affects their mindset such as: small interest in economic success; high degree of awareness about environmental impact of the business; greater concerns for social justice; personal motivation and mission; locality; and forward thinking about sustainability. These findings gave way for the development of models for green businesses focusing on environmental causes and natural resource management. (Allen J.C. and Malin, 2008)

9- Ambec, S. and Lanoie, P. (2008), "Does it Pay to be Green? A Systematic Overview": The study stated that it is conventional belief that environmental protection causes additional expenses cost for the firm reducing its global competitiveness. It is argued that this belief is not true and strong arguments were afforded by various analysts, who favor the improvement in the environmental performance of the firm that lead their companies to better economic/financial performance and does not necessarily increase the cost. This has been proved through several factor studies. (Ambec, Ambec, S. and Lanoie, P.)

10- Schaper, M. (2010), "Making Ecopreneurs: Developing Sustainable Entrepreneurship": has proved that businesses moving towards green and sustainable practices do not only face problems and threats, but also come through several opportunities having better commercial prospects. The author advised that firm needs to be more innovative, adaptive, and risk-taking, adopting different business models to be successful in this area. Entrepreneurship is all about the enthusiasm, passion, initiative and creativity of individual i.e. entrepreneur himself. When this dynamism is put to work developing sustainable business solutions, then the results are truly rewarding and enthralling. (Schaper, 2010)

11- Hockerts, K. and Wustenhagen, R. (2010), "Greening Goliaths versus Emerging Davids- Theorizing about the role of incumbents and entrants inSustainable Entrepreneurship": argued that in the early stages of an industry's transformation for sustainability, new entrants or new businesses termed as 'Emerging Davids' have better chances to pursue sustainability-related opportunities as against incumbents or existing businesses moving towards greener ways termed as 'Greening Goliaths'. 'Greening Goliaths' react to the activities relating to sustainability performed by the 'Emerging Davids' and are less ambitious in the achievement of their social and environmental goals. However, 'Greening Goliaths' have much broader reach due to established market presence. The interaction between the 'Emerging Davids' and 'Greening Goliaths' results in positively compounded impact on sustainable transformation of industries. (Hockerts, 2010)

12- Braun, P. (2010), "Going Green: Women Entrepreneurs and the Environment": explored about the gendered attitudes and behaviors around green entrepreneurship and found that women entrepreneurs are more engaged with green solutions rather than the male counterparts. This study is important as it has implications for policymaking, business innovation, and green marketplace, sustainable post-carbon future and education in context of making the small business sector environmentally sustainable. The study proved that women entrepreneurs have stronger environmental commitments and are more engaged in resolving green issues as compared to their male counterparts. (Braun, 2010)

13- Kirkwood, J. and Walton, S. (2010), "What motivates Ecopreneurs to start Businesses?": the study stated that Ecopreneurs are those entrepreneurs who start business for profit with strong underlying green attitude and values and who sell green products or services. It is an emerging field where there is lot of scope for research on various aspects. Ecopreneurs are said to have been motivated by five factors: their green values; earning a living; passion; being their own boss; and seeing a gap in the market. They have quite similar motivations as entrepreneurs in general, apart from their green aspirations. The Ecopreneurs were typically twisted into entrepreneurship having their own set of environmentally responsible attitude, which provides for their continuing success**. (Kirkwood, 2010)**

14- Farinelli, F., Bottini, M., Akkoyunlu, S. and Aerni, P. (2011), "Green Entrepreneurship: The missing link towards a greener economy": Authors stated that green economy cannot be forced upon by state or governing institutions rather it is driven by entrepreneurs who acknowledge the policy incentives through innovations in management and technology. These private entities do not only generate profits but also provide for social and environmental benefits creating a green niche market and scaling up the sustainability level of whole industry. Therefore, when talking about 'Green Innovation', the focus should be on 'innovation' rather than 'green' as it results in an all-round transformation into green economy. In that regard, authors suggested for the government to promote large-scale innovations contributing to global green transformation. (Farinelli, 2011)

15- Nikolaou, E.I., Lerapetritis, D. and Tsagarakis, K.P. (2011), "An evaluation ofthe prospects of green entrepreneurship development using a SWOT analysis": identified through SWOT analysis, the most important factors and concerns in encouragement of local entrepreneurs by public policy organization, to support and invest in sustainable development. Survey was conducted to examine the strength, weakness, opportunities and threats that the Greek Development Agencies (DAs) consider principal for motivating the local entrepreneurs to exploit new opportunities using domestic natural resources. Results indicated institutional, structural, social and economic factors play a critical role in the decision-making by the entrepreneurs to invest in new business ventures associated with natural resources. (Nikolaou, 2011)

16- Gibbs, D. and O'Neill, K. (2012), "Green Entrepreneurship: Building a Green Economy? - Evidence from the UK": states that the interests have grown towards developing a 'green low-carbon' economy as a way to reunite environmental responsibility and economic development. Moreover, new consumer demands of eco-friendlier products and services and changing national and global economies have paved a path to create new form of entrepreneurship known as 'green entrepreneurship' focusing on ecological sustainability. Examination of divergences of various policy intentions and ground level business experiences were also identified. (Gibbs D. a., 2012).

17- Rao, K.N. and Reddy, G.V.K. (2012), "Green Entrepreneurship- A Paradigm Shift towards Environment Consciousness»: recognizes the growth of green consumerism and states that green products and services have become quite popular nowadays, thanks to the environmental awareness currently present in the market. 'Green' has become a brand fulfilling environmental aspirations for better world. Owing to such background, an entrepreneur will be successful if he or she understands the trends and changes in the social dynamics and adapt to the same. Product design should induce the green aspect keeping in mind the status involved. Such green product design shall include improved performance efficiency; positive examples to be advertised; sponsorship of positive role model; and clear information about responsible material sourcing. This approach to 'status based green products' will result in fascinating social and environmental performance which needs internal change promoting sustainable business practices across all areas of organization and its supply chain**.** (Rao, 2012)

18- Phillips, M. (2013), "On being Green and being Enterprising: narrative and the Ecopreneurial self": offers two 'Ecopreneurial' self-narratives to explain how ecopreneurs get self-motivated and create a coherent sense of self-identity linking inner and outer selves. Ecopreneurs are motivated by creation of social and environmental values over economic value and have to deal with conflicting agendas of environment and enterprise**.** (Phillips, 2013)

19- Ratti, M. and Chhibber, S. (2014), ": the study proves that having a sufficient number of green entrepreneurs and transitioning to sustainable society are strongly correlated. Green entrepreneurship is

seen as the driving force providing for the establishment of holistic and sustainable economic, environmental, and social system which forms the three basic pillars of sustainable development. Overall the importance of green entrepreneurship to sustainable development is propagated**. (Ratti, 2014)

20- Silajdzic, I., Kurtagic, S.M. and Vucijak, B. (2015), "Green Entrepreneurshipin transition economies: a case study of Bosnia and Herzegovina": analyzed the case of Bosnia and Herzegovina which represent transition economies and found that nations with transition economy are under the obligation to increase its entrepreneurial base which will facilitate fast economic growth and lower impact on environmental degradation. It is common in such economies to neglect the scope academic studies on sustainable entrepreneurs. Moreover, is has been stated that entrepreneurs in such economies tend to be less risk-taking and responsive to green practices as well as eco-ventures. In countries with similar economies government and institutional support is also limited resulting in green businesses to rely upon their personal motivation, locality, and forward thinking; oriented towards sustainability. These businesses create economic, environmental and social values for the society without any external support. (Silajdzic, 2015)

21- Sharma N.K., Kushwaha G.S. (2015), "Emerging Green Market as an Opportunity for Green Entrepreneurs and Sustainable Development in India": proposed a theoretical model of green entrepreneurship to adopt in a generalized manner for the opportunities available to the green entrepreneurs and sustainable development in India in context of the market shift and changing scenario**. (Sharma N.K., 2015).**

22- Vaidya, P.N. and Honagannavar, D.V. (2017), "Green Entrepreneurship: defines green entrepreneurship as transforming system which brings in the positive changes in the socially and environmentally engaged businesses through breakthrough eco-innovations. Green entrepreneurship is created with the combination of environment and entrepreneurship and aims to provide socio-environmental benefits balancing the economic returns of the firm. It is viewed as an emerging commerce and is totally adaptive the current scenario. (Vaidya, 2017)

2.3 SUSTAINABLE PERFORMANCE

Sustainability and environmental issues are rapidly emerging as one of the most important topics for strategic business, management, manufacturing, and product development decisions. This heightened awareness of the natural environment has been reflected in the innovative and environmentally conscious products offered to consumers in recent years. Firms develop sustainable programs with the purpose of eliminate the problems of environmental pollution, the concepts of environmental management, such as green management, green marketing, green production and green innovation, etc. are now being pursued.

The researcher has attempted to go through some major literatures in this regard highlighting the concepts of "social performance", "environmental performance" and "economic performance"

1.SZE´KELY, KNIRSCH, (2005): they stated that many companies have initiated a variety of sustainable development initiatives to address the demands and expectations of society. Although most analysts argue that these initiatives contribute to making businesses more profitable, there are many managers who are not yet convinced of the validity of this argument. The reason is that most sustainable development initiatives have been developed in isolation of business activity and are not yet directly linked to business strategy. One way to strengthen the link between the two is to measure the extent to which a company's performance increases as a result of implementing sustainable development initiatives. This article examines the best available metrics used by twenty major German companies to measure sustainability. Many large and medium-sized companies have started to incorporate sustainability into their business strategies. However, they report on their initiatives in ways that are difficult to understand and compare. There is a need to establish clear, user friendly methodologies and tools to measure the progress that companies are making toward sustainability.

Sustainability is about building a society in which a proper balance is created between economic, social and ecological aims. For businesses, this involves sustaining and expanding economic growth, shareholder value, prestige, corporate reputation, customer relationships, and the quality of products and services. It also means adopting and pursuing ethical business practices, creating sustainable jobs, building value for all the company's stakeholders and attending to the needs of the underserved.

A company that embarks on the path of sustainability needs to carefully examine its mission, vision and values. It must be informed about legal constraints and assess all its management structures. Figure 1n illustrates all the areas a company must focus on when developing sustainability strategy. (FRANCISCO SZE´KELY, 2005).

2.Yongrok Choi & Eui Young Lee, (2009): they concluded that like a biological system, all the social or economic phenomena need to maintain harmonious working mechanisms for sustainable growth and development. However, most economists as well as politicians believe the "invisible hand" leads to structural harmony in economic development. Thus, they have long supported. Recently, this kind of supply-led structural development could lead to more dangerous operational risks in the economy. Mentioned that constant performance could be less effective than categorical performance. It implies the loose operation could be a missing link to result in the higher operational risks especially if the government gets involved more in this system, the operational risks rise higher, resulting in very poor system performance. This kind of government-led operational risk assessment resulted in the International Monetary Fund (IMF) crisis in Korea as well as many Asian countries at the end of the 20th century. (Lee, 2009)

In order to alleviate these crises, the IMF always insisted on the structural changes of the economic development system. But this kind of structural paradigm should be replaced with the governance of the system, because the structural provisions of the system does not guarantee a workable mechanism. A structural approach to the economic system may provide a nicely organized infrastructure, but there are always missing links in the system that can cause many operational risks. Unfortunately, most of government-led economic policies could not remove this operational risk. Thus, it strongly requires an intermediary as a risk manager on the governance of the system. The Korean economy could not be an exception. On the way to recover from this IMF crisis in 1998, the Korean economy has experienced severe economic duo-polarization, especially between the metropolitan and rural areas. Excessive dependence of the economic growth on the metropolitan areas could not be sustainable in the long term. The resulting economic jam creates many bottlenecks as well as environmental difficulties. To harmonize economic development nationwide, the Korean government also chose the new paradigm of Regional Innovation System (RIS). During the turnaround of the 21st century, the Korean economy has experienced a rapid development in the field of information and communication technology (ICT). Based on this growth trend, the government has promoted selective concentration to develop regional economies similar to the Silicon Valley in the United States. In 2004, the Korean government pronounced its regional economic development 5-year plan, promoting the development of the selective regions with the total budget of 66.6 billion dollars through 2008. The core project for the policies is based on the Regional Innovation System (RIS). Here, RIS is defined as an industrial complex based on the innovation networking of the regional group of the companies. Like Silicon Valley in the United States or the Oulu techno-park in Finland, regional innovative clusters would result in widespread competence under the concurrent engineering paradigm of value

chain management among all the participating organizations. RIS is crucial for the Korean economy to overcome a transitional status between developing and developed economies, by creating sustainable initiatives to harmonize the regional industry cluster network. It may be a little early to analyze the feasibility or success factors of assessment of RIS in Korea. Nonetheless, the recent development in the Northeast Asian countries requires the clear identification for the success of this RIS, because many Korean companies, especially small and medium sized enterprises (SMEs), are facing survival choice to remain in Korea or go overseas to low-cost countries such as China or Vietnam. The purpose of this research is to assess whether the RIS of Korea is really successful, and what factors are more important for the operational risk management of this system. To answer these questions in the long term of sustainability, we shall focus especially on the role of intermediary or agent of the system for the governance instead of government. (Lee, 2009).

3.Donna J. Wood, (2010): she claimed that corporate social performance (CSP) and its sister concepts – corporate social responsibility, corporate social responsiveness, corporate citizenship have been present in management scholarship for about 45 years. Notwithstanding this longevity, the CSP domain has remained controversial, fluid, ambiguous and difficult to research. To a large extent, CSP has been equated with 'doing good', and the search has been on for a statistical relationship between CSP and financial performance (FP) so as to justify or delegitimize the normative calls for managers to pay attention to CSP. These two phenomena may be largely to blame for the lack of progress in CSP theory and measurement. It is possible, and I believe desirable, to take a different stance on CSP. Corporate social performance, as conceived in the Wood (1991) framework, is a set of descriptive categorizations of business activity, focusing on the impacts and outcomes for society, stakeholders and the firm itself. Types of relevant outcomes are determined by the firm's linkages, both general and specific, as defined by the structural principles of corporate social responsibility (CSR). The production, monitoring, evaluation, compensation and rectification (or not) of these outcomes are defined by the processes of corporate social responsiveness – the boundary-spanning (or bridging) processes by which the firm connects itself to information, stakeholders and issues. All these elements can be measured and evaluated: impacts and outcomes; processes; and the specific guidance offered by structural principles. (Michael Bourlakis, 2010).

4.Guna Ciemleja, Natalja Lace, (2011): According to the authors' opinion, sustainability of an enterprise on a micro level has certain similarity with the conception of sustainable development on a macro level; for this reason, economic development and sustainability of the state and region can

be reached, if their structure elements – industry sectors, enterprises and organizations are viable. Basing on various scholars researches on the issues of sustainable development, the authors conclude, that the main point of a concept of ≪sustainable development≫ is - coordinated and systemic advancement of economic subject towards the aim takes place only when all three dimensions of sustainability: social, economic and ecologic - are incorporated simultaneously into the subject activities. In this respect the following factors of sustainable development, that are common to all enterprises, can be mentioned: 1) income, which is formed by consumers (clients) utilizing products and services, produced by the enterprise; 2) financial stability and positive dynamics of profitability; 3) competences and skills of the personnel; 4) inclusion of ecological issues in the enterprise's management process; 5) positive attitude of the society towards the performance of the enterprise. In conformity with these factors it can be concluded that several sub-systems exist within the enterprise simultaneously, and they can be characterized by variability and dynamism. In its turn, sustainability of the system demands stability and continuity. Principle of the system homeostasis foresees ability and tendency of the system to reach stability, which is the basis of equilibrium state. In order to enable the enterprise to develop sustainability, taking into consideration social responsibility and business ethics as well as stakeholder's interests, all sub-systems of the enterprise have to be transformed under the action of dimensions of the sustainability. In the authors' opinion, the principles of sustainable performance and development of the enterprise can be determined by the following aspects: 1) principle of the system, which foresees self-preservation of the system, interaction among elements of the system, and system's ability to accumulate material, information and energy flows that are utilized in realization, cooperation and coordination of functions; 2) principle of continuity determines system requirements for a correction mechanism, which supports, helps to adjust in changing situations and to react to changes in due time; 3) principle of adequacy determines mutual compliance and compatibility of the system elements with sub-systems of the enterprise and external environment, and in practice it is manifested as a united approach to the realization of probability cases; 4) principle of efficiency determines necessity that economic result from the activities exceeds expenditures.

The authors conclude that the sustainability of the enterprise depends on the management system of the enterprise, which provides effectiveness and efficiency of sub-systems, taking into consideration deviations from the state of equilibrium. It demands concretization of the possibilities of practical application of sustainable development concept in the enterprise, taking into consideration that all the processes supporting sustainability of the enterprise are mutually connected, interact, and functional process of each management level is being implemented through the dimensions of sustainability. Thus, the

quality of the enterprise management influences the total result, taking into consideration innovative potential of the enterprise, which includes: 1) management systems (speed of decision making, delegation of powers, management style); 2) finances (possibilities to attract funds, amount of equity); 3) employees (qualification, motivation); 4) technologies (complexity of processes, flexibility, expansion possibilities); 5) production (market share, sale segments, proportion of quality and price).

In his turn, a human being as a special element and factor of the enterprise system complicates functionality of the system with his social expressions, because only a human being can create an idea in this system and implement it. The authors conclude that viability of the enterprise in a long-term period depends on the innovative potential, which is based upon a creative approach that is being implemented by all the stakeholders of the enterprise – not only employees, but also shareholders and customers.

It is justified by the results of the implemented activities – discussions in the enterprises, obtained during the SOCIALSME project funded by the Leonardo da Vinci Program.

Important factors for the sustainability of the enterprise are being formed in the social environment.

Social capital can be considered as one of the potentials of the enterprise development, which increases return from the use of other capitals. Therefore, to provide a possibility to acknowledge the linkage of the social capital with the enterprise performance in the context of sustainable development, management of social and customers' capital has become of vital importance. It influences productivity, competitiveness and sustainable development of the enterprise (minimizes operative expenditures for obtaining information, accelerates circulation of information, lessens asymmetry of information and enhances development of new knowledge).

In order to improve efficiency of the system, which results from both enterprise management and government efficiency, also small enterprises shall seriously turn to evaluation of its performance. Performance measures characterize the fulfilment of goals, but they can be used also as a strategic tool of the enterprise management.

Completing Stafford Beer's idea about the significance of enterprise indicators (liquidity, profitability and productivity) in providing sustainability of the system, the authors consider that three levels of performance are being formed in the enterprise: actual, target (planned) and standard. (Guna Ciemleja, 2011).

5.Wolfgang Schultze, (2011): he broached the measurement of environmental performance (EP) in quantitative empirical research. Initially, he reviews and classify existing EP measures. Based on that, he analyzed their validity and reliability. To provide a clear conceptualization of EP, the author

claimed that we mainly refer to the framework of Wood (1991) and conceive EP as a multidimensional construct representing the extent to which companies meet the environmental expectations of their stakeholders. Finally, he discussed the operationalization of EP by examining stakeholders' expectations in detail and investigating qualitative characteristics of EP measures used within empirical research. As a conclusion, measures based on inputs and outputs, operational processes and strategic EP provide construct validity. Generic EP measures used in large-scale studies should adequately represent stakeholders' environmental expectations, in particular referring to prospective indicators. (Wolfgang Schultze, 2011).

6. Bulent Sezen, (2013)꞉ argues that environmentally friendly firms have had to review their production processes as a result of pressures from the community and governments. This pilot study investigated the influence of green manufacturing and eco-innovation on corporate sustainability performance (economic, environmental, and social). Data were collected through a questionnaire-based survey across 53 companies from automotive, chemistry and electronic sectors in Turkey. The empirical model was tested using regression analysis, to verify the hypothetical relationships of the study. The results of this study indicate that the green manufacturing applications have a significant positive impact on environmental performance and social performance. Additionally, eco-process innovation has a significant positive impact on corporate sustainability.

However, eco-product innovation was not found to have a significant effect on any of the three types of performance. (bulent sezent, 2013).

7. Tristan Schiehlé & Jonas Wallin (2014)꞉ describe sustainability as "corporate agendas which integrate a mix of financial and extra-financial goals, and these goals include social responsibility, environmental protection, poverty alleviation and stakeholder commitment". Furthermore, they indicate that to strive for full "sustainability", organizations must address financial, social, and environmental impacts of their actions. However, the authors explain that to date, most work in this field has effectively focused on corporate social responsibility or environmental management instead of on sustainability composed of these elements. Thus, studies of sustainability as a broader concept that capture the integrative and interdependent nature of the financial, social, and environmental dimensions of the sustainability definition are rare, and usually the studies focus on single industries or on a single dimension within the sustainability concept. They also state that the initial idea when the environmental pillar was recognized as such was that human beings have to take care of the natural resources they have at their disposal and so "reduce resource consumption, stop pollution and conserve natural habitats", so that the future generations can live decently, also, they

mentioned that the term "environmental responsible development" was used by the World Bank in 1992. Later, "environmentally sustainable development" was introduced before the term was finally transformed in "environmental sustainability", protecting the sources of raw materials for human needs and welfare was a major part of environmental sustainability. An important addition to the environmental sustainability concept was made by the OECD Environmental Strategy for the First Decade of the 21st Century. It defines four criteria for environmental sustainability: regeneration (resources which are renewable shall be used in en efficient way and not exceed their natural regeneration rates), substitutability (non-renewable resources) shall be substituted with renewable resources or other forms of capital when they have been efficiently used to a certain limit), assimilation (releases of pollution or similar substances shall not exceed their given capacity) and avoiding irreversibility. The authors explain that these criteria engender five objectives for improving the outcome of environmental, within sustainable development:

Efficient management of natural resources which will maintain the ecosystems integrity. (Wallin, 2014).

8. Xiao Li, Wen, Steve & Yong, (2014): they argue sustainable development as initially put forward by the Brundtland Commission in 1987. It was defined as a kind of development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". However, this macroeconomic definition is difficult for organizations to follow. To make this definition more microeconomic, many other concepts are proposed by massive organizations and researchers. They referred that the concept of "triple bottom line", firstly brought forward by Elkington in the book Cannibals with forks-The triple bottom line of the 21th century in 1997, was widely acknowledged by academics and practitioners. It proposed a new, responsible approach to organizations that they should simultaneously consider and balance environmental, economic and social dimensions of sustainable development in practice. (XiaoLi Zhang, 2014).

9. Epelbaum, Martinez (2014): they studied sustainability performance threw out food industry where the stated that food traceability systems are record-keeping systems. They record product attributes, such as quality and safety parameters, required for regulatory and/or commercial purposes. ISO defines food traceability systems as the "totality of data and operations that is capable of maintaining desired infor-mation about a product and its components through all or part of its production and utilization chain".
Traceability systems and sub-sequent quality and origin labelling schemes are expected to increase transparency throughout the food chain and restore

consumer confidence in food and food producers, (EU) countries and organizations have made increasing efforts, by means of regulations and private and public standards, to improve food traceability systems. This evolution comes from an increasing need for more effective and efficient control capabilities and organizational designs to respond faster and more accurately to food safety and quality outbreaks or authentication enquiries. Firms may seek to innovate their food traceability systems as their strategic business objectives evolve; these changes will impact firm sustainable performance. In this paper, we develop and empirically test a theoretical framework grounded on the Resource Based View (RBV) of the firm to determine the strategic impacts from the technological evolution of food traceability systems. By viewing food traceability systems as unique resources embedded in firms0 routines, we aim to establish the effects of technological innovations on firm sustainable performance. Findings highlight the impact of physical and human innovations in food traceability systems to achieve business objectives. Particularly, innovation in human resources is a major source of improved sustainable performance. This paper contents that interventions by regulatory agencies do not drive the technological evolution of food traceability systems. Rather, the implementation of technological innovations relates to the idiosyncratic situation of the firm, making firms to compete to obtain the right non-substitutable resources, particularly human, to work with regulators. This paper aims to contribute to the theoretical understanding of food traceability systems in two ways. First, it grounds the discussion within RVB theory as food traceability systems are unique to each firm. These systems can be understood as an orchestration of physical resources that can be found in abundant supply but become unique as they are embedded in internal routines and used by firms0 human resources. (Freddy Moises Brofman Epelbaum, 2014) .

10. Baumann, Genoulaz, (2014). The authors see that the introduction of the concept of sustainable development in supply chain management has been identified not only as a constraint but also as a way to improve performance, impacting the competitiveness of a company and of its supply chain organization. To evaluate and analyze the potential relationships between traditional supply chain management practices and their impact on performance, we propose a framework for sustainable performance characterization and an analytical model for sustainable performance assessment. The framework is used to characterize a company's sustainable performance in the economic, environmental and social fields. The analytical assessment model, based on the relationships between a supply chain management practice and the three fields of sustainable development, serves to produce the sustainable performance profile of a practice, identified by a triad. An application of this profile to two well-known best practices of

supply chain management allows us to identify their performance from a sustainable development point of view. Practitioners can easily use the proposed framework for highlighting SCM practices that impact sustainable performance more positively, depending on their objectives.

Sustainable development is defined in the Brundtland Report of the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This concept plays an important role in businesses and supply chains of the 21st century. Supply Chain Management (SCM) is defined as the management of exchanges of materials and information in the logistics process stretching from the purchasing of raw materials to the delivery of end-products to end customers, so linking several firms. SCM is thus responsible for material flows within human society as well as the exchange of material and energy with the environment. The impacts of SCM should be determined in relation to the three main aspects of sustainability: environmental performance, social responsibility and economic contribution. Yet the focus today is mainly on the economic dimension, through the evaluation of some well-known or best practices. The APQC2defines a best practice as: "Any practice or experience which has proved its value or which is used in an efficient way in an organization, and can be applied in other organizations".

The concept of sustainable performance was introduced subsequent to that of sustainable development. We define the sustainable performance of a practice as the combination of its economic, social and environmental performances (see Figure 1). This corresponds to a holistic conception designed to indicate an integration of the performances in a synthetic approach. Such integration can imply coherence between the three dimensions with causality models connecting various factors stemming from different dimensions. (Emilie CHARDINE-BAUMANN, 2014)

11. Bourlakisa, Maglarasb, EmelAktasc, Gallearc, Fotopoulosd: they defined the sustainable supply chain management (SCM) as "the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systematic coordination of key interorganisational business processes for improving the long term economic performance of the individual company and its supply chains", posit that a deliberate long-term strategy combining environmental and social aspects of sustainability, which extends beyond a firm's boundary with economic objectives, helps firms to mobilize those supply chain activities that directly support sustainability. These can, in turn, create a pervasive and less imitable set of processes and a basis for competitive advantage for these firms and associated chain members, not surprisingly, sustainability has received

increasing attention in the literatureas a potential differentiating competency for supply chains, and has become an inescapable priority for firms worldwide. Also performance measurement systems that include sustainability considerations can be a driver for sustainability performance improvement without sacrificing other aspects of operating performance. While the food industry has many impacts on sustainability, discerning customers are increasingly interested in the origin of food products, what they contain and who made them. In addition, policy makers, legislators, influence groups and financial institutions are progressively placing pressure on firms to report on sustainability performance. It is worth stressing that, in Europe, the food sector has a significant role. It is clear that the food sector, like many other sectors such as automotive, electronics and appliances, textile and apparel, has reached a juncture where customer and other stakeholder concerns about sustainability performance now need to become integrated with other dimensions of value when managing supply chains. Small and medium-sized enterprises (SMEs) are not immune from these competitive.

Sustainability aside, SMEs have been found to be less able to harness the benefits of SCM and face greater obstacles when adopting SCM practices such as vendor managed inventory (VMI), electronic data-interchange (EDI, simulation and scenario analysis and e-purchase solutions than their large firm counterparts, and clear differences in performance between SMEs and large firms have been observed. for example, tested a tool for SME supply chain performance measurement on SMEs in Thailand and found that the SMEs only performed better than a benchmark large firm in one (delivery cycle time) out of the 26 measures. It is therefore not surprising that many SMEs have also not progressed in the adoption and development of sustainable supply chain practices. This, in part, is attributed to the upfront cost of greening and the short-term cost investment to effect changes, such as the cost of implementation and compliance with environmental regulations, the cost of sustainable design and construction, the capital investment cost in low energy, logistics-related alternatives including ventilation, heating and lighting in addition to insufficient time, training and managerial expertise to invest in environmentalism. However, it is also attributed to a lack of sustainability performance evaluation. In addition, it is widely recognized that SME soften do not have the time, resources or information required for performance measurement, or the skills required to collect and meaningfully evaluate such information.

Furthermore, while the literature on various aspects of sustainability strategy creation in SMEs has recently started to develop, a careful examination of the literature indicates only a handful of contributions that have specifically addressed sustainability performance measurement in supply chains in the context of SMEs and none in the context of SMEs in the food supply chain, an eight step environmental performance measurement tool was proposed

identifying broad impact categories such as waste and depletion of resources, but not specific sustainability measures. There was a study that focused on SMEs examining green SCM practices as opposed to performance measures. Furthermore, just as there are differences between SMEs and large firms, so there are differences between micro, small and medium-sized firms. The smaller the firm's size (i.e. the closer the size of a firm is to that of micro firms), the greater the incidence of a result-oriented culture, patronage and owner-managers at the helm, particularly in very small family-run businesses found that the smaller firms often employ individuals based on familial relationships rather than skill set and competence, and that this can affect managerial ethos and outlook. This is important because it has implications both in terms of the implementation of practices, such as those supporting sustainability, and in terms of the performance derived. This important finding led them to call for more research investigating the patterns that differ within the SME category for prevalent management issues, such as sustainability. However, to date, research on firm size differences has almost exclusively focused on SMEs versus large firm experiences accordance with the definition of SMEs from the European Commission (European Commission, 2005), both the number of fulltime employees and annual turnover were taken into account in this work to determine the classification of firms in terms of size. Subsequently, the micro category included firms employing less than 10 persons and with annual turnover or annual balance sheet totaling no more than €2 million. The small category included firms employing less than 50 persons and with annual turnover or annual balance sheet totaling no more than €10 million. In the medium-sized category, we included firms with less than 250 employees and with annual turnover no more than €50million or annual balance sheet totaling no more than €43 million (European Commission, 2005). (M Bourlakis, 2014)

12. Boon, Tze, Nahariah and Sayed Yousef, (2015) they focused on the fact that global pressures are dealing with issues such as global warming, scarcity of raw materials and deterioration of human rights have increased. Manufacturing companies are the main sources of producing natural resources consumption, depletion and degradation, along with making toxic by-products and wastes. Hence, environmental laws and regulations, customer demand for sustainable goods and services, and environmental interest groups have required manufacturers to perform their business in a more accountable and responsible manner toward all stakeholders including the environment.

This triggers the emergence of sustainability as an integral part of companies' business strategies in order to obtain economic, environmental and social benefits. Generally, sustainability is defined as fulfilling the current needs without jeopardizing the ability of future generations to meet their requirements. That is why companies must be responsible for the impacts of

their business activities on society and environment, while being accountable to stakeholders at the same time. In order to respond to the increasing awareness of and demand for sustainability, Global Reporting Initiative (GRI), established in late 1997, provided generally accepted sustainability reporting The companies which adopt GRI standards are mandated to report their economic, environmental, social and governance compliance with the guidelines provided.

Some nations like Australia, China, Denmark and the USA have started to derive their own national sustainability standards from the whole or part of GRI guidelines. The stock exchanges of some Asia Pacific countries such as Singapore and Malaysia are also taking serious steps to require or recommend listed companies to disclose sustainability information (GRI, 2013). This geographical area deserves more consideration since about 25% of the global sustainability reports are originated from the Asia Pacific Region. Although sustainability reporting is a voluntary exercise by each company in Malaysia, research on Bursa Malaysia revealed an increase number of listed companies reported over the environmental and social issues since 1999 to 2003, from 25 to 60 companies, respectively. The manufacturing sector had the greatest portion of environmental reports over this 5-year period, comprising 28% of the reporting companies in 1999 and reaching 32% in 2003.

In addition, the sustainability aspects of physical development of cities are aimed to be met in 10th Malaysia Plan from 2011 to 2015 (Prime Minister's Department, 2010).

It is assumed that observing sustainability guidelines assists manufacturers to gain a competitive advantage by reducing cost, increasing quality, managing risk and enhancing social image. It is believed that sustainable development can be accomplished through technological innovation in conjunction with the measures to improve social and environmental impacts of the company's operations. This innovation comprises of process technology and product technology implementation in manufacturing processes.

To begin with process technology, manufacturing industries are required to be aware of newly available and emerging technologies in the market, while trying to develop technologies that generate more energy and consume less materials (Ball, 2013). For example, in 2012, Adidas introduced a new technology known as "DryDye" that uses no water, 50% less chemicals and 50% less energy than the traditional fabric dyeing process in manufacturing t-shirts. As a result of DryDye implementation, the financial expenses of Adidas decreased by 30%, while the net income attributable to shareholders increased by 6% just within the first half of 2013 (Adidas, 2013). Thus, it can be concluded from Adidas case that new technology provides the company with a competitive advantage. Moreover, social and environmental responsibilities of the company with high technological process are met by

reducing chemicals usage and increasing employees' productivity. However, the fact that competitive advantage is resulted from the new technology does not last for a long time due to the quick imitation and thus, a continuous process innovation is a must for companies to be sustainable.

In addition, manufacturing companies play a vital role in sustainability if their product quality is improved and products with more environmental-friendly features are offered through using new technologies. For instance, UMW Toyota Motor recently launched a new product, Komatsu HB205- 1 hybrid hydraulic excavator, with the function of saving fuel at an average of 25%, which is equivalent to the same reduction in carbon dioxide emission. This new high technology product assisted Toyota to not only contribute to the environment preservation, but also capture a lot of customers' attention. Nowadays, consumers are more interested in companies which produce environment-friendly products. This will motivate companies to invest more on product technologies that improve sustainability as well.

As a conclusion, although process technology and product technology seem to play a key role in sustainable performance measurement of manufacturing companies in developed context, this effect has not been investigated in an emerging market such as Malaysia. Hence, this research aims to find out the relationship between product and process technology and Sustainability Performance Measurements among manufacturing companies listed in Bursa Malaysia. Therefore, the effect of the size of manufacturing company on this possible relationship is also scrutinized in this study. (Boon Heng Teh, 2015).

13. Martina Zimek & Rupert Baumgartner (2017): they claimed that over the last years, sustainability performance has gained in importance and will play an even greater role in future sustainability management activities and strategies. Business activities cause impacts on society and nature given the fact that a company creates value based on environmental, technological and societal inputs. Hence, a company can be seen as embedded in a market, in a society and in nature as a whole. Those parts taken together are defined as a system. From such a system perspective, the impacts resulting from a company's activity can be different in comparison to a narrower or short-term perspective. Numerous corporate sustainability activities already exist. Corporate sustainability activities include methods, tools and instruments of companies to reduce negative and increase positive impacts, leading to greater sustainability performance. But companies mostly do not take systemic impacts into account and focus either on environmental or social impacts only instead of considering a systemic sustainability perspective. To measure these systemic impacts new methods of measurement are needed. In this context, several authors already pointed out the need for more holistic approaches that do not only focus on direct impacts on firm level (first-order sustainability performance) but also on positive impacts on the wider system (second-order

sustainability performance). However, such a systemic consideration of impacts of corporate activities is missing. While the short-term and direct corporate sustainability performance is mostly known or could be quantified, the long-term and system impacts are much more difficult to assess.

Environmental sustainability performance generally shows environmental stewardship and progresses towards environmental sustainability. The authors also said that environmental sustainability performance verifies the impact of initiatives related to the environment. This includes for example the protection of natural resources, pollution prevention and waste reduction. On a company's level it is strongly related to environmental business targets. The definition of environmental performance still is not agreed in literature and a systemic perception is lacking. Thus environmental sustainability performance is the outcome based on the firm's ecological goals to generally improve the environmental situation of a company and its system.

On other hand, from the authors' point of view, corporate sustainability performance includes social issues as well. To increase corporate sustainability performance companies, have to develop strategies to increase social sustainability performance too rather than just focusing on environmental sustainability. Thus social issues have to be treated as equally important as environmental issues and a transformation to social sustainability is needed. Current developments show that, depending on the industry, most companies are still just beginning to think of social issues. In the past the social dimension has often been neglected; as well in theory social sustainability has been least developed. An increase of social sustainability performance is supported by using a new definition for social sustainable development, "in a socially sustainable society, people are not subject to structural obstacles to health, influence, competence, impartiality and meaning-making". Corporate sustainability strategies have to be developed to eliminate these obstacles, for employees on a company level and for society in a systemic view. Systemic effects and impacts on a system have to be considered when developing corporate sustainability strategies. (Martina Zimek, 2017).

14. Salwa, Abdul-Rashid, Novita, Ariffin, Ghazilla, Thurasamy, (2017): the authors declared that Sustainable manufacturing practices are one of the significant environmental initiatives taken by the manufacturing industry to preserve the environment and improve the quality of life while carrying out manufacturing activities. With the emergence of the value creation concept, economic value is no longer the sole factor for measuring manufacturing performance and the impact of manufacturing practices on environmental and social aspects should be taken into consideration in the assessment of manufacturing performance. Here, manufacturing performance is defined as

sustainability performance. Environmental performance is highly dependent on the use of efficient and cleaner sustainable energy resources. In this regard, it is crucial to ensure that the resources used during production are renewable with minimum CO_2 emissions discovered that environmental performance which reflects energy efficiency has a positive impact on financial performance. The objective of this study was to examine the relationship between sustainable manufacturing practices and sustainability performance, whereby the environmental, economic and social aspects are taken into consideration simultaneously. (Thurasamy, 2017).

15. Zaid, Jaaron, Talib Bon, (2018): this study aims at investigating the linkage between green human resource management bundle practices and green supply chain management (i.e. external and internal practices), as well as their impact on the Triple Bottom Lines of sustainability performance (i.e. environmental, social, and economic performance). A quantitative method is applied in which data is collected from a customized survey with 121 firms functioning in the most pollutant manufacturing sectors (i.e. food, chemical, and pharmaceutical sectors) in Palestine. The data analysis was conducted using the partial least squares structural equation modeling. The results from data analysis show that both of green human resource management and green supply chain management practices have a positive effect to sustainable performance in a joint manner. In fact, the results revealed that green human resource management practices have a direct effect on the sustainable performance, with the green supply chain management practices mediating this effect. In particular, internal green supply chain management practices positively mediate between green human resources management practices and sustainable performance, whereas external green supply chain management practices mediate only the relationship between GHRM bundle practices and environmental dimension of, sustainable performance, thus suggesting absence of awareness among manufacturers regarding the effectiveness of this type of GSCM practices for an improved economic and, social dimensions of sustainable performance, and calling for more attention from green training programs. This study is considered as the first empirical study exploring the impact of green human resource management and green supply chain management on components of sustainable performance in Palestine, adding great value to the current green human resource management-green supply chain management literature via responding to recent calls to test the combined impact of both practices on TBL of sustainability performance. (Ahmed A. Zaid, 2018).

16. Thao, Jolán, Doan, (2019): in their point of view; business and researchers have paid increasingly more attention to corporate social responsibility (CSR) disclosure in term of their sustainable reports. These

disclosures supply information for not only managers in strategic decision-making, but also other stakeholders in measuring and evaluating corporate social performance (CSP). Although the development of literature on CSR disclosure, the CSR's measurement is not yet unified because of different perspectives and methodology. The question is how to measure CSP through analyzing CSR disclosure. This paper aims to present the theoretical background of CSR and CSR disclosure. Based on the conceptual framework, the research exposes the drivers of CSR reporting as well as debates prior research on CSR disclosure and its consequences. Furthermore, a measurement method of CSP proposed building on CSR disclosure index in this paper. It devotes to enrich the corporate social responsibility reporting literature, offers implications for practice as well as outlines promising avenues for future research, especially in the differences of CSR disclosure among different countries. (Le Ha Nhu Thaoa, 2019).

17. Sharifa, Mohammed, (2019) states that over the past few years, organizations have faced pressure from stakeholders to adopt environmentally friendly business practices, where it is becoming critical to identify green practices that boost sustainability. Despite green human resource management receiving significant interest from scholars, studies related to green practices remain limited, and are still emerging in a developing countries context. This paper aims to assess the level of implementation of green human resource management practices in Palestinian healthcare organizations, and their impact on sustainable performance in this important service sector.

A mixed research approach was adopted by conducting 14 semi-structured interviews with human resource managers, operational managers, and chief executive officers within a range of areas in the healthcare sector in the West Bank. A survey was used as a quantitative tool for data collection from 69 respondents who have been using green human resource management practices at different managerial levels. Partial least squares structural equation modelling was used for data analyses. The findings revealed that green human resource management practices were implemented at a moderate level, where the overall mean of implementation was 2.42 on a scale of 5. Moreover, sustainable performance was achieved at a high level, 3.42 on a scale of 5. Identification and prioritization of green practices were applied, where the most influential practices were 'green hiring', and 'green training and involvement'; the least influential green practice was 'green performance management and compensation'. In addition, the path coefficients test revealed that green human resource management practices had a positive influence on sustainable performance, where environmental sustainability had the highest path coefficient of $\beta = 0.478$; the lowest impact from social performance measured $\beta = 0.372$. This study provides scholars with a better understanding of green human resource management practices in a

developing countries context, with empirical evidence of the role of green human resource management practices, in a bid to enhance employee behavior towards sustainable performance. A framework was developed to provide policy makers with set guidelines on how to influence and implement green human resource management practices for maximized sustainable performance. (Sharifa K. Mousa, 2019).

18. Ebenezer, Yaw, Joseph, Lawrence, (2020): argues that the issue of sustainability has become a very important subject in the domain of manufacturing industries across the globe. Consequently, manufacturing firms that previously focused on only economic gains are steadily appreciating the need to protect the environment via the implementation of sustainable supply chain management (SSCM) initiatives. One of the significant SSCM initiatives that has been on the agenda of researchers, ethicists, strategists and practitioners is the concept of green manufacturing practices (GMPs).

GMPs can be delineated as the adoption of manufacturing practices that do not have negative consequences on the environment. They involve the conscious integration of environmental management initiatives during a product's life cycle and cover critical manufacturing issues such as the design of green products with reusable and recyclable content, pollution control and environmental protection, environmental regulatory compliance and waste management, just to mention a few. GMPs are rooted in the idea that manufacturing firms in their quest to satisfy customer demands generate hazardous substances; hence, it behooves on them to know their acceptable level of pollution on natural resources, stakeholders and the environment at large. The contribution of small and medium-sized enterprises (SMEs) in the manufacturing sector to national development cannot be understated.

SMEs in the manufacturing sector provide about 85% of manufacturing employment. But in spite of this significant contribution, there is a gloomy picture which clouds Ghana's manufacturing industry in so far as the environmental impact of the sector is concerned From 2008 to 2011, the contribution of the manufacturing sector to gross domestic product However, firms' decision to adopt green initiatives such as GMPs may yield least outcome without the collaboration of critical upstream supply chain partners and downstream supply chain partners (customer integration). For instance, through supplier integration, firms can demand or procure eco-inputs or raw materials to enhance manufacturing efficiencies. Also, via customer integration, manufacturing firms can rely on customer feedback and suggestions to design eco-friendly products.

Environmental management practices have not received the needed attention among Ghanaian manufacturing SMEs, unlike large firms, most manufacturing SMEs in developing countries rarely adopt GMPs due to confusion regarding the concept. As such, most managers of manufacturing

SMEs in developing countries perceive GMPs as vague and relatively difficult to practice.

2.4 CONCLUDING COMMENTS

Research on Green Entrepreneurship has been largely carried out in the western countries. Research relating to Green Entrepreneurship in Algeria has been limited and only few studies has been undertaken that too mostly based on secondary data analysis. Algeria as a country on the path of growth needs to have large numbers of efficient entrepreneurs who can effectively manage the resources. Sustainability is needed more here than in any other country to eradicate environmental degradation. Algeria also has the responsibility of creating a sustainable future and perform as per the present global scenario, for which 'Green Entrepreneurship' is the best solution.

The review of literature reveals that most of the studies on Green Entrepreneurship as a sustainable performance initiative have been confined to the explanation of concepts and relative theories, yet the concept is not very clear. Different authors are of different opinion and most of them focus on theoretical aspects rather than practical implications. Green entrepreneurship should be looked down in a broader sense and different views should be made into a common source of knowledge.

In addition, the review of literature also exposed that the field of green entrepreneurship is gaining lot of popularity nowadays, but still has numerous avenues of exploration. In this respect, there is a need to systematically summarize the concept of Green Entrepreneurship both conceptually and practically in Algeria as a Sustainable performance source and new avenues should be researched.

Thorough analysis of the literatures gave way for the present study about Green Entrepreneurship as a Sustainable performance, the combination of the two variables in the same study did not mention in all previous studies. A mix of conceptual and practical approach has been adopted as according to the need. An extended conceptual model of green entrepreneurship has also been proposed.

2.5 CHAPTER CONCLUCION

Though this chapter we have tried to gather all previous studies which have direct or indirect relation with the topic, in addition to that a summary of the most important results for each study has been built to obtain a strong research model, and also to get the knowledge gap which we are going to fulfil through this thesis.

Based on previous studies and its findings next chapter we will build the research model which can allow as to investigate the impact of green entrepreneurship on sustainable performance.

Chapter three: methodology and tools

3.1 CHAPTER INTRODUCTION

This chapter establishes the study and provides in depth the research methodology, which includes the theoretical basis, research model, hypotheses, the development process for the research instrument, data collection method, and the data analysis techniques. This chapter will conclude with a summary of the research methods.

3.2 THEORETICAL BASES

When we talk about "Green" the first thing which comes to our mind is sustainability as anything which environmental/eco-friendly naturally possesses the quality of being sustainable. Green entrepreneurship is all about being green i.e. being environmental or eco-friendly. It is comprised of the mindset to consciously deliver environmental and social benefits through business venture, while being economically viable. (sarkar, 2018)

Environmental up gradation leads to sustainability and 'Environment' is also considered as one the most important pillar of sustainable performance. Other pillars being 'Society' and 'Economy'. These pillars are interrelated and inter-dependent in nature and benefit of one constitutes to the benefit of other two, directly or indirectly. (sarkar, 2018)

Sustainable performance is the concept of responsible and controlled performance where environmental, social and economic performance is equally emphasized. Environmental performance automatically leads to social performance which in turn results in economic performance and vice-versa is also true. Each aspect is affected by the other and change in the overall sustainability is dependent on this.

Figure 3.1: Green Entrepreneurship and Sustainable performance
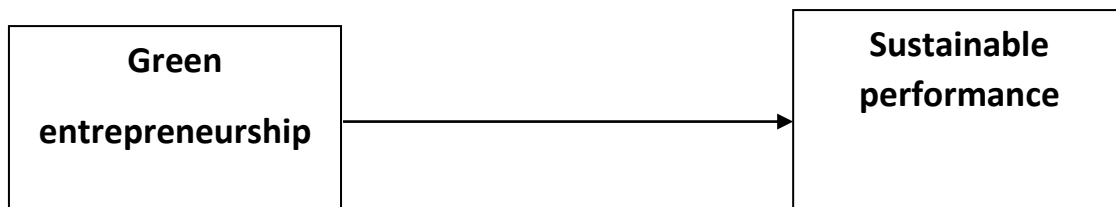
SOURCE: DESIGNED BY THE OUTHOR

3.2.1 Research Model

Through this research, each of the variables was described and the underlying hypotheses associated with those variables. For the purposes of this study, sustainable performance (SP) and its dimension is related to a green entrepreneurship and its dimension.

Figure 3.2: research model
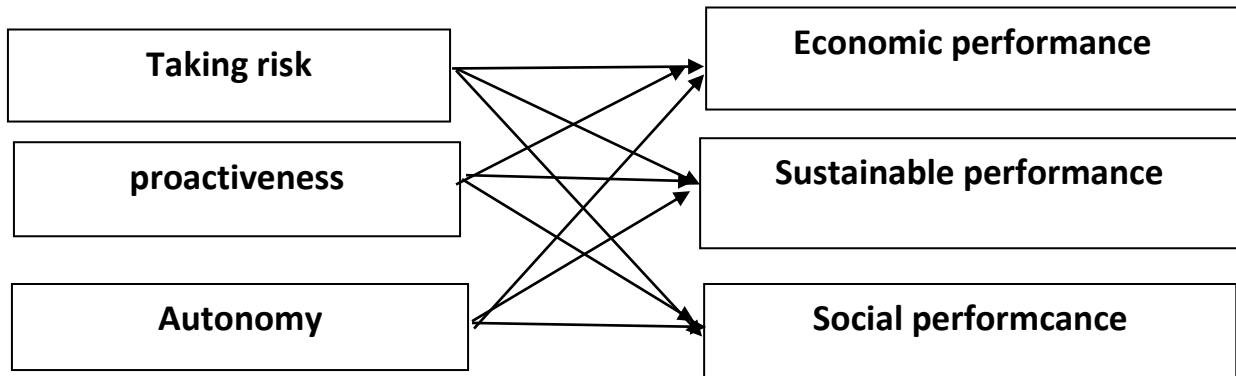
SOURCE: DESIGNED BY THE AUTHOR

3.2.2 HYPOTHEIS DEVELOPEMENT

This section presents and describes the hypothesis identified based on the research model and a brief description of each variable relationship.

1) TAKING RISK AND ECONOMIC PERFARMANCE

The hypothesis representing this relationship is: An increase in the level of Taking Risk leads to an amelioration in Economic Performance (**H1**): According to the definition of entrepreneurship, entrepreneurs are perceived as more risk than other people, therefore through the first hypothesis we will discover if taking risk by the orientation towards green entrepreneurship leads to amelioration in Economic Performance.

2) TAKING RISK AND ENVIRONMENTAL PERFARMANCE

The hypothesis representing this relationship is: An increase in the level of Taking Risk leads to an amelioration in Environmental Performance (**H2**): According to the definition of entrepreneurship, entrepreneurs are perceived as more risk than other people, therefore through the second hypothesis we will discover if taking risk by the orientation towards green entrepreneurship leads to amelioration in Environmental Performance.

3) TAKING RISK AND SOCIAL PERFARMANCE

The hypothesis representing this relationship is: An increase in the level of Taking Risk leads to an amelioration in social Performance (**H3**): According to the definition of entrepreneurship, entrepreneurs are perceived as more risk than other people, therefore through the second hypothesis we will discover if taking risk by the orientation towards green entrepreneurship leads to amelioration in Social Performance.

4) PROACTIVENESS AND ECONOMIC PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of proactiveness leads to an amelioration in Economic Performance (**H4**): Research has suggested that firms in uncertainty-accepting societies will be more willing to engage in competitive behaviors than organizations in uncertainty-avoiding cultures (Hofstede, 1991), hence the research will demonstrate if proactiveness by being the first who adopts green practices, green products, and green activities…etc. will lead to an amelioration in Economic Performance.

5) PROACTIVENESS AND ENVIRNMONTAL PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of proactiveness leads to an amelioration in environmental Performance (**H5**): Research has suggested that firms in uncertainty-accepting societies will be more willing to engage in competitive behaviors than organizations in uncertainty-avoiding cultures (Hofstede, 1991), hence the research will demonstrate if proactiveness by being the first who adopts green practices, green products, and green activities…etc. will lead to an amelioration in Environmental Performance.

6) PROACTIVENESS AND SOCIAL PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of proactiveness leads to an amelioration in social Performance (**H6**): Research has suggested that firms in uncertainty-accepting societies will be more willing to engage in competitive behaviors than organizations in uncertainty-avoiding cultures (Hofstede, 1991), hence the research will demonstrate if proactiveness by being the first who adopts green practices, green products, and green activities…etc. will lead to an amelioration in social Performance.

7) AUTONOMY AND ECONOMIC PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of autonomy leads to an amelioration in Economic Performance (**H7**): Autonomy is the need and ability of a person to make their own decisions, Successful entrepreneurs have a desire to be autonomous. They can act independently of others, make their own decisions, love problem solving, and successfully complete their tasks on their own. (entrepreneur scan, tests, tools and training, 2021), By formulating this hypothesis, we will verify whether the scope of supervision provided by the entrepreneur to his workers in the field of green entrepreneurship has an impact on economic performance.

8) AUTONOMY AND ENVIRNMONTAL PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of autonomy leads to an amelioration in Environmental Performance (**H8**): Autonomy is the need and ability of a person to make their own decisions, Successful entrepreneurs have a desire to be autonomous. They can act independently of others, make their own decisions, love problem solving, and successfully complete their tasks on their own. (entrepreneur scan, tests, tools and training, 2021), By formulating this hypothesis, we will verify whether the scope of supervision provided by the entrepreneur to his workers in the field of green entrepreneurship has an impact on environment performance.

9) AUTONOMY AND SOCIAL PERFORMANCE

The hypothesis representing this relationship is: An increase in the level of autonomy leads to an amelioration in Social Performance (**H9**): Autonomy is the need and ability of a person to make their own decisions, Successful entrepreneurs have a desire to be autonomous. They can act independently of others, make their own decisions, love problem solving, and successfully complete their tasks on their own. (entrepreneur scan, tests, tools and training, 2021), By formulating this hypothesis, we will verify whether the scope of supervision provided by the entrepreneur to his workers in the field of green entrepreneurship has an impact on social performance

3.2.3 CONSTRUCTS AND INDICATORS

The study contained latent constructs that are not directly observable. The review of literature helped uncover specific indicators of each construct that was used to observe each construct. Table 1 lists the constructs, their indicators and brief description of how each was applied in the study.

TABLE 3.1: research constructs and their indicators

Constructs	Indicators	references
Risk Taking	*08*	(Pejman Ebrahimi, 2017)
Proactiveness	*08*	(Pejman Ebrahimi, 2017)
Autonomy	05	(Pejman Ebrahimi, 2017)
Economic performance	09	(Ebenezer Afum, 2020)
Environmental performance	10	(Ebenezer Afum, 2020)
Social performance	11	(Ebenezer Afum, 2020)

SOURCE: DESIGNED BY THE AUTHOR

The identified reflective constructs and their indicators represented in the study serve as a strong foundation for acquiring information about green entrepreneurship and how it is related to sustainable performance, information has been provided variables that will support the study.

3.3 RESEARCH METHOD

The researcher determined that the most appropriate path for addressing the research problem is to conduct a quantitative survey-based study. The researcher sought to uncover the impact of green entrepreneurship on sustainable performance.

3.3.1 SURVEY

The research method was done by using a cross-sectional online survey. (babbie earl, 1990) determined that surveys include cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalizing from a sample to a population. The use of a survey approach has several advantages. One advantage is that survey research provides a cost-effective way to gather information about a larger population and can be applied to almost any type of research (McCormack, 1997). Another advantage of survey research is that with the use of the Internet, web surveys can be sent to email addresses of targeted respondents, which could help reduce the timeline needed to conduct the survey ((Schonlau, 2002). A final advantage of utilizing a survey is that researchers find its popularity provides for versatility, efficiency, and generalizability of research (McCormack, 1997).

According to Creswell (2009), a survey design provides a quantitative description of trends, attitudes or opinions of a population by studying a sample of the population. Creswell (2009) noted that if a problem is identifying factors that influence or help understand predictors of an outcome, then the best approach would be quantitative approach.

3.3.2 INSTRUMENT DEVELOPMENT

In this section, information is provided in the development of an instrument for the research study (see figure 3)

FIGURE 3.3: INSTRUMENT DEVELOPMENT MODEL

Survey instrument development

↓

Develop initial instrument

↓

Instrument reliability

↓

Instrument validity

↓

Instrument revision

↓

PREPARE THE SURVEY

↓

Data collection

↓

DATA ANALYSE
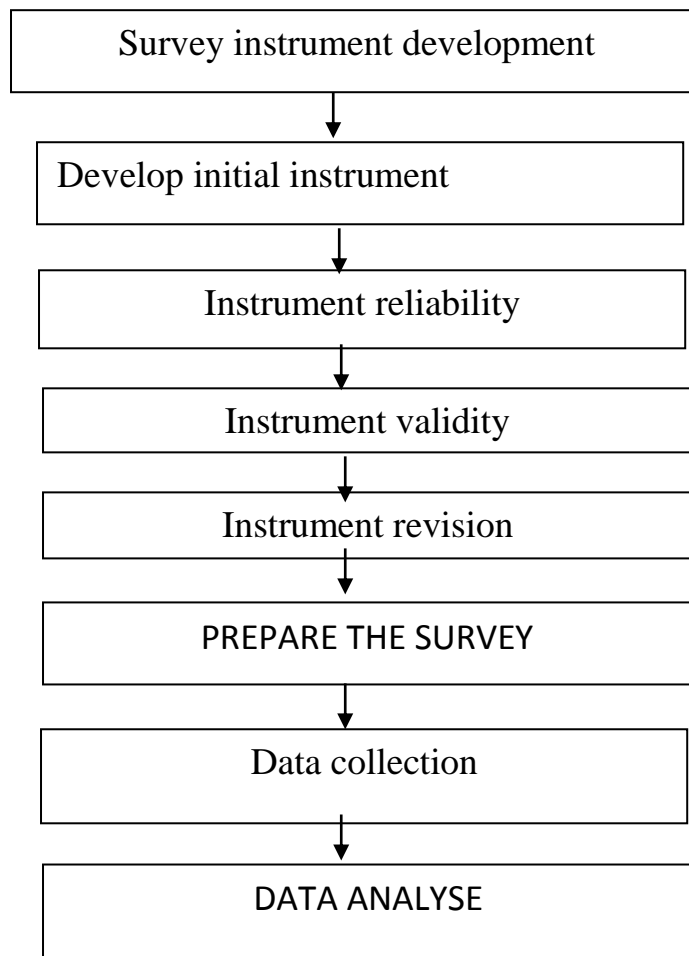
SOURCE: DESINGED BY THE AUTHOR

The development of the research instrument started with identifying the survey question that will be used within the study. These questions have been derived from the latent constructs and their indicators (see appendix). Having reliability in a survey instrument is important in research because reliable measures yield consistent results (Holton, 2005). Reliability is a statistical measure of how reproducible the data is from the survey instrument and can be measured using internal consistency (Litwin, 1995). The reliability of the survey instrument used in this research leveraged Cronbach's Alpha to measure internal consistency (Cronbach's Alpha is a model of internal consistency reliability based on the average inter-item correlation of an instrument" (Rovai, 2013)) and is commonly used to see how closely a set of items are as one group or unit. The alpha coefficient ranges for Cronbach's alpha are from 0 to 1. Gliem (2003) state that a Cronbach's alpha coefficient greater than .70 indicates good internal consistency of the items in a measurement scale and the closer the value is to +1.0, the better the internal consistency of the measurement scale.

3.4 DATA COLLECTION

After the final instrument was validated, data was collected through the use of an online web survey. A proprietary web address and link was created for the web survey and was sent via email requesting that participants click on the link, review the details of the research and voluntarily complete the survey. The link was generated from Survey Monkey and embedded within the email request. Each participant was advised of the survey window and the time frame needed to complete the survey for it to be considered valid.

The survey instrument used a combination of value labels – Strongly Agree to Strongly Disagree to identify the impact of green entrepreneurship on sustainable performance. The measurement section within the survey instrument was based on a 5-point Likert scale. One of the key issues with the analysis of Likert data is the compilation of responses to question items (Masters, 1985).It is critical to utilize the proper scale to ensure that the model is aligned properly for the study. A five-point scale allows the participant to not only agree or disagree with a survey question, but also provides the ability to select a neutral option if the question or portion of the question is not known or verifiable.

3.4.1 POPULATION AND SAMPLE SIZE

Individuals participating in the research study represented a small and medium size enterprise allowed the researcher to gather adequate information from diverse demographics and help operationalize the study and provide a true representation of the population.

The sample size needed to establish statistical validation for the research study is determined based on the guidance of factor analysis. Comrey and Lee (1992) asserted that a minimum of 200 valid responses is needed for a fair assessment and to meet sampling accuracy with a confidence level of 95 percent and a confidence interval of 5 percent, a minimum of 218 initial responses is required (Rhea, 2005).Tests conducted by Costello and Osborne (2005) reported that larger sample sizes using factor analysis produces better accurate solutions to the population. Before any analysis began, the research collected 232 total responses that were subjected to validation with the intention of meeting statistical rigor and accuracy requirements. The outcome of the number of valid responses is discussed in next chapter.

3.4.2 UNIT OF ANALYSIS

Once the data was gathered, prior to beginning any analysis, it must be validated for completeness and accuracy. Unfortunately, in some instances, data collected can be inaccurate, incomplete or missing and must be handled appropriately before analysis can begin. (Hair, 2014) contends that to address these issues:

- If reviewing the dataset and 15% or more of the observation is missing, it should be removed, but if only 5% or less is missing from the dataset, then it should be retained and mean replacement should be used.
- If straight lining [one answer for all] or inconsistent answer patterns are present, the dataset should be removed
- If outliers with extreme responses are present, typical this would be removed, but the researcher should determine if a distinct group exists in the dataset for it to be retained.
- Datasets that exhibit distribution deviation substantial from normal should be reviewed by the researcher to determine if the dataset would potentially distort the results.

3.5 DATA ANALYSIS

After all the data had been collected and validated for completeness, several analysis techniques were used (see Figure 5) to analyze the data for the research study. Confirmatory Factor Analysis (CFA) and Partial Leased Squares-Structural Equation Modeling (PLS-SEM) was used for this research and the details explaining this justification are listed in the next section.

3.5.1 ANALYSIS TECHENIQUE

This section will provide each analysis technique along with background information and relevance to this study. This section will conclude with the detailed steps involved in the analysis process

FIGURE 3.4: LISTE OF ANALYSES TECHNIQUES
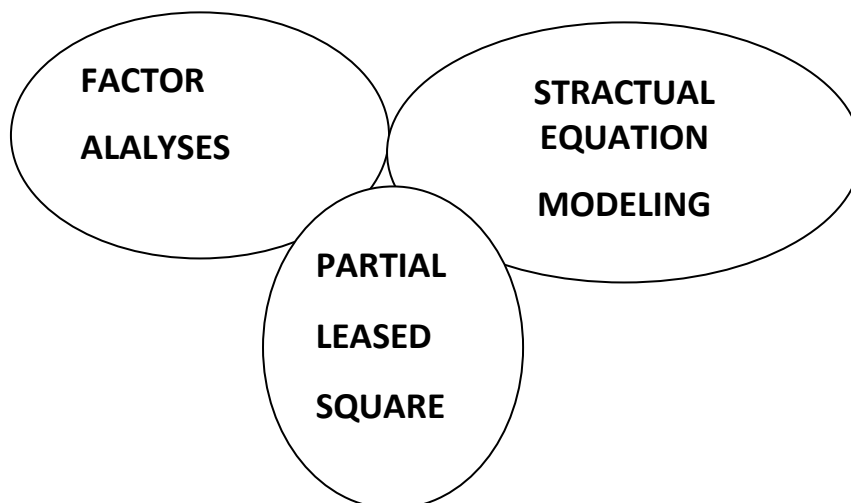
SOURCE: Designed by the author

3.5.2 FACTOR ANALYSIS

The first technique is the use of factor analysis (FA) to confirm construct validity of the research instrument. FA is parametric procedure that analyses interrelationships for a large number of variables while explaining their common dimensions (Rovai A. P., 2013)and is the method of choice for interpreting questionnaires (Bryant, 1995) , analyzing survey data (Yuan, 2002)and scale assessment and development.

Confirmatory Factor Analysis (CFA) is an approach used to test a proposed model. CFA is used to confirm that hypothesized model provides a good fit for the data (Holtzman, 2011).

Based on the literature, the information gathered from factor analysis and the research model, this study used confirmatory factor analysis for construct validity of the research instrument. This approach was selected because an existing theory literature review is used in this research, a pre-determined number of dimensions have been identified and analysis should determine if the correlation pattern can support the data. Finally, CFA is the appropriate technique for this research because it can be used to confirm or disconfirm a hypothesized factor structure (Yang, 2005).

3.5.3 CFA CRITERIA

One of the important aspects of a CFA model is identifying and assessing the appropriate fit. Typically, goodness of fit is conducted with CFA research and covariance-base structural equation modeling (CB-SEM). This research is using Partial Leased Squares-Structural Equation Modeling SEM which looks at the measurement and structural models for analysis of the research data. Mohammed and Afthanorhan (2013) stated that the measurement model is commonly used for CFA and researchers should follow these requirements to obtain the true model of the study. SmartPLS (Ringle, 2021)was used to conduct the CFA analysis, which is not based on goodness of fit indexes, but on factor loading, indicator reliability, internal consistency reliability and validity of the measurement model. For the validity assessment of a reflective measurement model, convergent validity is analyzed along with indicator reliability and discriminatory validity (Asyraf, 2013). The first step of the assessment procedure of a reflective measurement model is factor loading. Factor loading is the correlation between the observed value and the latent of a factor (Vinzi, 2010).Values should be higher than 0.50.

The next step is measuring internal consistency. Internal consistency provides an estimate of reliability based on the different outer loadings of the indicator variables (Hair J. F., 2012). It is measured as Cronbach's alpha or composite reliability and should be 0.70 or greater.

The next step is measuring convergent validity. Convergent validity is the positive correlation between alternative measures of a construct (Hair J. F.,

2011).It is determined based on the average variance extracted (AVE) and should be 0.708 or higher.

The next step is measuring indicator reliability. Indicator reliability is the square of the indicator's outer loadings and represents how much variation in an item is explained by the construct and should have a value of .40 for some exploratory studies, but .70 or higher is preferred (Hair J. F., 2014).

The final step for the CFA process is discriminant validity. Discriminant validity is the distinction between other constructs (Hair et al, 2014b). Discriminant validity examine the cross loading of other constructs and the scale indicates that the outer loading of a construct should be higher than its cross loadings for the other constructs. Table 2 shows the CFA criteria and the required value ranges when evaluating the measurement model.

TABLE3. 2: CFA Analysis Criteria for the Measurement Model

Criteria	Value range	definitions	references
Factor Loading	*>0.5 (acceptable)*	**Correlation between the observed value and the latent value for a given factor**	(Hulland, 1999)**.** (Vinzi, 2010)
Internal Consistency Reliability [Cronbach's alpha (CA) and composite reliability (CR)]	**0.70 and higher for both**	**CA- Based on average inter-item correlation of an instrument CR - Determines reliability based on the outer loadings of the indicator variable**	(Bagozzi, 1988) (Gliem, 2003) (Hair J. F., 2014)
Convergent Validity (based on AVE)	**0.708 is preferred > 0.50 is acceptable**	**Measures correlations with alternative measures of the same construct**	(Bagozzi, 1988) (Gliem, 2003) (Hair J. F., 2014)
Indicator Reliability	**.070 and higher .40 and higher**	**The variation of an item**	(Hair J. F., 2012) (Hulland,

	for exploratory research	explained by the construct	1999)
Discriminant Validity	Outer loadings should be greater than all cross loadings on other constructs	Uniqueness of constructs compared to other constructs	(Fornell, 1981) (Hair J. F., 2014)

3.5.4 STRUCTUAL EQUATION MODELING

PLS-SEM is a causal model approach with a purpose of maximizing the explained variance of the dependent latent variables (Hair J. F., 2012). According to Hensler, Ringle, and Sinkovics (2009), PLS has become a popular data analysis technique in success factor studies, specifically in areas of marketing (Albers, 2009), knowledge management (Lehner, 2010), and enterprise resource planning (ERP) systems (Infinedo, 2008). PLS-SEM may be used if there is a small sample size and it works on reflective and formative models that contain multiple or single item construct indicators. (Hair J. F., 2014)

Based on the information provided in the literature and the intent of the research study, PLS-SEM was used to analyze the data.

3.5.5 EVALUATION OF THE STRUCTUAL MODEL

In any research, it is important to understand not just the analysis technique selected, but also the steps involved in the process. The research model (Figure 3) contains reflective constructs and therefore classified as a reflective measurement model and the steps listed for PLS-SEM data analysis were adopted from Hair (Hair J. F., 2014). PLS-SEM follows a two-step process that involves a separate assessment of both the measurement model and structural model (Hair J. F., 2011). The measure model was covered in the previous section, so the discussion continues with the structural model. Listed below are the steps needed to properly analyze the structural model of the research study using PLS-SEM.

- Collinearity Assessment. This occurs when two indicators are highly correlated with one another. Measurement for the structural model is a tolerance level below .20 and a variance inflation factor (VIF) > than 5 to predict the presence of collinearity. (Hair J. F., 2014)

- Identify the Coefficients of determination (R2) value. R2 value is an inner model assessment that represents the amount of explained variance of each endogenous latent variable (Hair J. F., 2012). R2 values can range from 0 to 1 and the higher the number, the better the predictive accuracy. R2 values of .75, .50, or .25 are described as substantial, moderate, or weak (Hair J. F., 2014).
- Identify the Predictive Relevance (Q2). Q2 is used to determine if an omitted construct from a model had a significant impact on the endogenous constructs. The scale for this measure is .02, .15, and .35, which represent small, medium, and large effects (Hair J. F., 2014).
- Identify the size and significance of the path coefficient. Path coefficients represent the hypothesized relationship linking the constructs and have a value range of -1 to 1, which indicates that a value closer to 1 signifies a strong positive relationship (Hair J. F., 2014)
- Identify the $f2$ effect sizes. This is the effect of change in R2 value when a specific construct is eliminated from the model (Hair J. F., 2014) The effect size of the omitted construct for a particular endogenous construct can be determined with values of .02, .15, and .35, which represent small, medium, and large effects (Cohen, 1988).
- Identify the $q2$ effect sizes. This is the effect of change in Q2 and the relative impact of predictive relevance on the exogenous construct and has a value of .02, .15, .35 for certain endogenous constructs, which represents small, medium, and large predictive relevance (Hair J. F., 2014)

Table 3 shows the PLS-SEM criteria and the required value ranges when evaluating the structural model.

TABLE 3.3: PLS-SEM Analysis Criteria for the Structural Model

Criteria	Value Range	Definition	References
Collinearity Assessment (VIF Value)	*VIF value must be less than 5 and a tolerance level below .20*	**Collinearity issues arises when two indicators are highly correlated with one Another**	(Hair J. F., 2014) (Ringle C. M., 2012)
Coefficient of	**Range is 0 to**	**Represents**	(Hair J. F.,

Determination (R2 value)	**1 for predictive accuracy .25 is considered weak, .50 is moderate, and .75 is substantial**	**the amount of explained variance of each endogenous latent variable and assesses the quality of a PLS model**	2014) (Hair J. F., 2014b)
Cross-validated redundancy (Q2 value)	**Helps determined predictive relevance .02 is considered a small effect, .15 is medium, and .35 is large**	**Used to determine if an omitted construct from a model had a significant impact on the endogenous constructs**	(Hair J. F., 2014) (Hair J. F., 2014b)
Path Coefficient	**Size: Range is -1 to 1 closer to 1 is better Significance: t-value is 1.96 and above for a two tailed test at the 5% level**	**The hypothesized relationship linking the constructs**	(Hair J. F., 2014) (Hair J. F., 2014b)
f2 effect size	**.02 is considered a small effect, .15 is Medium, and .35 is large**	**The effect of change in the R2 value when a specific construct is eliminated from**	(Hair J. F., 2014)

		the model	
q2 effect size	**.02 is considered a small effect, .15 is Medium, and .35 is large**	**The effect of change in Q2 and impact of predictive relevance on the exogenous construct**	(Hair J. F., 2014)

3.6 CHAPTER CONCLUSION

This chapter included a detailed review of the model for this research study. A synopsis was listed discussing the theoretical basis of the research study and a validation of the selected theory. The research model was presented outlining the details of the associated constructs along with the hypotheses used to help validate the original research problem. The research method provided information on the research instrument, the survey questions within the instrument and how the data was collected and analyzed. This chapter served as the cornerstone for the research study by helping to identify the impact of green entrepreneurship on sustainable performance. The analysis results of the study are presented in the next chapter.

Chapter four: Results and discussion

4.1 CHAPTER INTRODUCTION

This chapter provides a detail of the preparation and screening process for the dataset used for this research study. Confirmatory factor analysis (CFA) was used during the first phase of the analysis for the reflective measurement model and the findings will be discussed.

Confirmatory Factor Analysis (CFA) techniques were used to validate the reflective measurement model. Based on the findings, the initial instrument did require modification and will be used for the next step in the research study, which is structural equation modeling. In order to provide a detail of the findings for the structural model. Partial Lease Squares-Structural Equation Modeling (PLS-SEM) was used for the second stage of the analysis and the selected software was SmartPLS (Ringle C. M.-M., 2021)The findings along with the SEM data will be presented and discussed.

4.2 MEASUREMENT MODEL ANALYSIS AND FINDINGS

The analysis technique which will be used in order to treat the measurement model is confirmatory factor analysis (CFA).

4.2.1 PRELIMINARY SCREENING

before conducting the CFA and SEM analyses, preliminary screening was conducted in SPSS 25.0 on all the participants in the study ($N = 232$). Screening was conducted following the approach of Curran, West, and Finch (1996). In reviewing the dataset, there were no missing data points, and all items were sufficiently normally distributed [Skew absolute value < 2; Kurtosis absolute value < 7]. All observed values of Skew < 0.869, and all observed values of Kurtosis < 0.891. Table below shows the results

TABLE 4.1: Normal distribution

constructs	skewness	Kurtosis
Risk Taking	-.468	-.637
Proactiveness	-.703	-.254
Autonomy	-.829	-.283
Economic Performance	-.447	-.283
Environmental Performance	-.869	-.309
Social Performance	-.859	-.891

Source: spss program outcome

According to the above table all observed values of SKEW were between 0.447 and 0.869, and all observed values of KURTOSIS were between 0.891 and 0.254 which means that all variables sufficiently normally distributed. Remaining analyses were conducted in a two-stage sequence, as recommended by Kline (2011). In the first stage the measurement model was evaluated, and then the full structural equation model was analyzed in the second stage. The primary purpose of dividing the analyses into two steps is to isolate and address any issues in each model separately. For the CFA analysis of the measurement model, factor loading, internal consistency, indicator reliability, and convergent and discriminant validity were analyzed. The level of acceptance for each category is .50 and higher for factor loading, .70 and higher for internal consistency, .70 and higher for indicator reliability, .50 and higher for convergent validity based on the average variance extracted (AVE).

For discriminant validity, the outer loadings on a construct should be higher than all cross loadings with other constructs and the square root of the AVE of each construct should be higher than its highest correlation with any other construct (Hair J. F., 2014)

4.2.2 CONFIRMATORY FACTOR ANALYSIS RESULTS

SmartPLS was used to generate the results of Confirmation Factor Analysis. Although other analysis program was available to the researcher, SmartPLS provides a valid and reliable means to carry on a CFA analysis (Asyraf, 2013)The first criterion measured was factor loading for the six constructs. All indicators were greater than the .50 threshold for the initial measurement instrument, so all items were retained within the scope of factor loading. Table 11 provides the factor loading values for each of the indicators for the six constructs.

TABLE 4.2: Factor Loading for Initial Instrument

Construct	Indicator	Factor loding
RISK TAKING	RISK1	0,672
	Risk2	0,802
	Risk3	0,755
	Risk4	0,675
	Risk5	0,748
	Risk6	0,711
	RiSK8	0,687
PROACTIVENESS	PRO2	0,585
	PRO3	0,657
	PRO5	0,748
	PRO6	0,764
	PRO7	0,797
	PRO8	0,856
AUTONOMY	AUT1	0,671
	AUT3	0,648
	AUT4	0,844
	AUT5	0,751
ECONOMIC PERFORMNCE	EPER1	0,784
	EPER2	0,819
	EPER3	0,737
	EPER4	0,647
	EPER5	0,795
	EPER6	0,748
	EPER7	0,706
	EPER8	0,720
	EPER9	0,556
ENVIERONMENTAL PERFORMANCE	IPER1	0,702
	IPER2	0,773
	IPER3	0,701
	IPER4	0,713
	IPER5	0,783

	IPER6	0,733
	IPER7	0,728
	IPER8	0,680
SOCIAL PERFORMANCE	SPER4	0,658
	SPER5	0,736
	SPER6	0,871
	SPER7	0,633
	SPER8	0,674
	SPER9	0,806
	SPER10	0,739

SOURCE: SMARTPLS PROGRAM OUTCOME

The next criterion that was evaluated was internal consistency reliability. Some research indicates that Cronbach's alpha tends to provide a conservative measurement in PLS-SEM (Kwong, 2013)and that composite reliability should be used as a replacement (Hair J. F., 2012) The researcher wanted to ensure rigor and proper data validation, so both methods were included in the study. Cronbach's alpha had a required value of 0.70 and higher to show reliability.

All constructs within the research model met the minimum values needed. Composite reliability also had a required value of 0.70 or higher to be considered reliable. All constructs within the research model met the minimum values needed to show reliability. All values fell within the acceptable range for both internal consistency reliability methods and establishes reliability for each latent variable. Table 12 shows the results of Internal Consistency Reliability measured with Cronbach's alpha and Composite Reliability.

Table 4.3: *Findings of Internal Consistency Reliability*

construct	Cronbach's Alpha	Composite Reliability
Risk Taking	*.850*	.884
Proactiveness	*.836*	.877
Autonomy	.723	.821
Economic Performance	.888	.909
Environmental Performance	.874	.900
Social Performance	.859	.891
Source: SMARTPLS PROGRAM OUTCOME		

The next criterion measured was convergent validity, which looks at the average variance extracted (AVE). For the AVE, the value of the construct

should be above 0.50. The value for the construct Taking Risk is 0.523; the value for the construct Proactiveness is 0.548; the value for the construct Autonomy is .6026; the value for the construct Economic Performance is 0.529; the value for the construct Environmental Performance is 0.529; the value for the construct Social Performance is 0.7259. All of the constructs met the AVE requirements for convergent validity. Table 13 provides the (AVE) values for each construct.

Table 4.4: *Findings of Convergent Validity*

construct	AVE Value
Risk Taking	*.523*
Proactiveness	*.548*
Autonomy	.537
Economic Performance	.529
Environmental Performance	.529
Social Performance	.541
SOURCE: SMARTPLS PROGRAM OUTCOME	

The next criterion measured was indicator reliability. The acceptable value is 0.70 or higher for the outer loading values. All indicators met the requirements for indicator reliability except the indicator RISK2 for the construct Moral Hazard for the initial measurement instrument. Table 14 provides the Indicator Reliability values for each of the indicators for the six constructs.

Table 4.5: *Findings of Indicator Reliability*

	Risk Taking	Proactiveness	Autonomy	Economic performance	Environmental performance	Social performance
ris1	0,672					
ris2	0,802					
ris3	0,755					
ris4	0,675					
ris5	0,748					
ris6	0,711					
Ri8	0,687					
Pro2		0,585				
Pro3		0,657				
Pro5		0,748				
Pro6		0,764				
Pro7		0,797				
Pro8		0,856				
Aut1			0,671			
Aut3			0,648			
Aut4			0,844			

Aut5	0,751		
Epr1		0,784	
Epr2		0,819	
Epr3		0,737	
Epr4		0,647	
Epr5		0,795	
Epr6		0,748	
Epr7		0,706	
Epr8		0,720	
Epr9		0,556	
ipr1			0,702
ipr2			0,773
ipr3			0,701
ipr4			0,713
ipr5			0,783
ipr6			0,733
ipr7			0,728
ipr8			0,680
spr4			0,658
spr5			0,736
spr6			0,871
spr7			0,633
spr8			0,674
spr9			0,806
spr10			0,739

The next criterion that was measured was discriminant validity. This is measured by comparing the outer loadings of a construct with the cross loadings of other constructs (Hair J. F., 2014)to see if they are greater than all other loadings. For each construct, all indicator values exceeded the cross loading values of all other constructs and their indicators. Based on these findings, this indicated that there were no discriminant validity issues and each construct is unique. Table 09 shows the results of the cross loadings.

Table 4.6: *Findings for Discriminant Validity*

	autonomy	Economic performance	Environmental performance	proactiveness	Risk taking	Social performance
aut1	0,671	0,243	0,311	0,504	0,134	0,313
aut3	0,648	0,125	0,071	0,252	0,123	0,173
aut4	0,844	0,238	0,390	0,257	0,193	0,399
aut5	0,751	0,105	0,051	0,407	0,082	0,383
eper1	0,157	0,784	0,323	0,290	0,187	0,294
eper2	0,160	0,819	0,441	0,267	0,089	0,276
eper3	0,285	0,737	0,319	0,348	-0,125	0,256

eper4	0,086	0,647	0,273	0,417	-0,106	0,029
eper5	0,151	0,795	0,483	0,303	-0,021	0,367
eper6	0,116	0,748	0,387	0,169	0,036	0,252
eper7	0,279	0,706	0,696	0,171	0,421	0,528
eper8	0,254	0,720	0,541	0,207	0,366	0,642
eper9	0,109	0,652	0,556	0,048	0,312	0,484
iper1	0,355	0,459	0,702	0,217	0,432	0,418
iper2	0,273	0,584	0,773	0,118	0,295	0,547
iper3	0,157	0,477	0,701	0,243	0,148	0,235
iper4	0,198	0,519	0,713	0,302	0,175	0,353
iper5	0,124	0,448	0,783	0,148	0,152	0,333
iper6	0,240	0,361	0,733	0,173	0,311	0,248
iper7	0,186	0,475	0,728	0,331	0,339	0,218
iper8	0,317	0,384	0,680	-0,041	0,321	0,565
pro2	0,388	0,123	0,192	0,585	0,316	0,125
pro3	0,467	0,227	0,091	0,657	0,421	0,043
pro5	0,381	0,254	0,114	0,748	0,133	0,172
pro6	0,211	0,237	0,159	0,764	0,173	0,183
pro7	0,289	0,319	0,236	0,797	0,139	0,152
pro8	0,472	0,318	0,311	0,856	0,216	0,213
ris1	0,156	0,099	0,276	0,281	0,672	0,162
ris2	0,363	0,104	0,299	0,368	0,802	0,276
ris3	0,208	0,072	0,308	0,386	0,755	0,103
ris4	0,060	0,118	0,235	0,192	0,675	0,040
ris5	0,019	0,251	0,192	0,222	0,748	0,150
ris6	0,052	0,253	0,323	0,057	0,711	0,301
ris8	0,094	0,122	0,366	0,032	0,687	0,222
sper4	0,271	0,387	0,323	0,157	0,136	0,658
sper5	0,224	0,362	0,380	0,058	0,029	0,736
sper6	0,336	0,331	0,429	0,172	0,110	0,871
sper7	0,487	0,476	0,449	0,235	0,260	0,633
sper8	0,375	0,353	0,423	0,166	0,179	0,674
sper9	0,150	0,418	0,331	0,048	0,291	0,806
sper10	0,345	0,300	0,290	0,151	0,311	0,739

SOURCE: SMARTPLS PROGRAM OUTCOME

Figure 4.1: Research constructs and their indicators
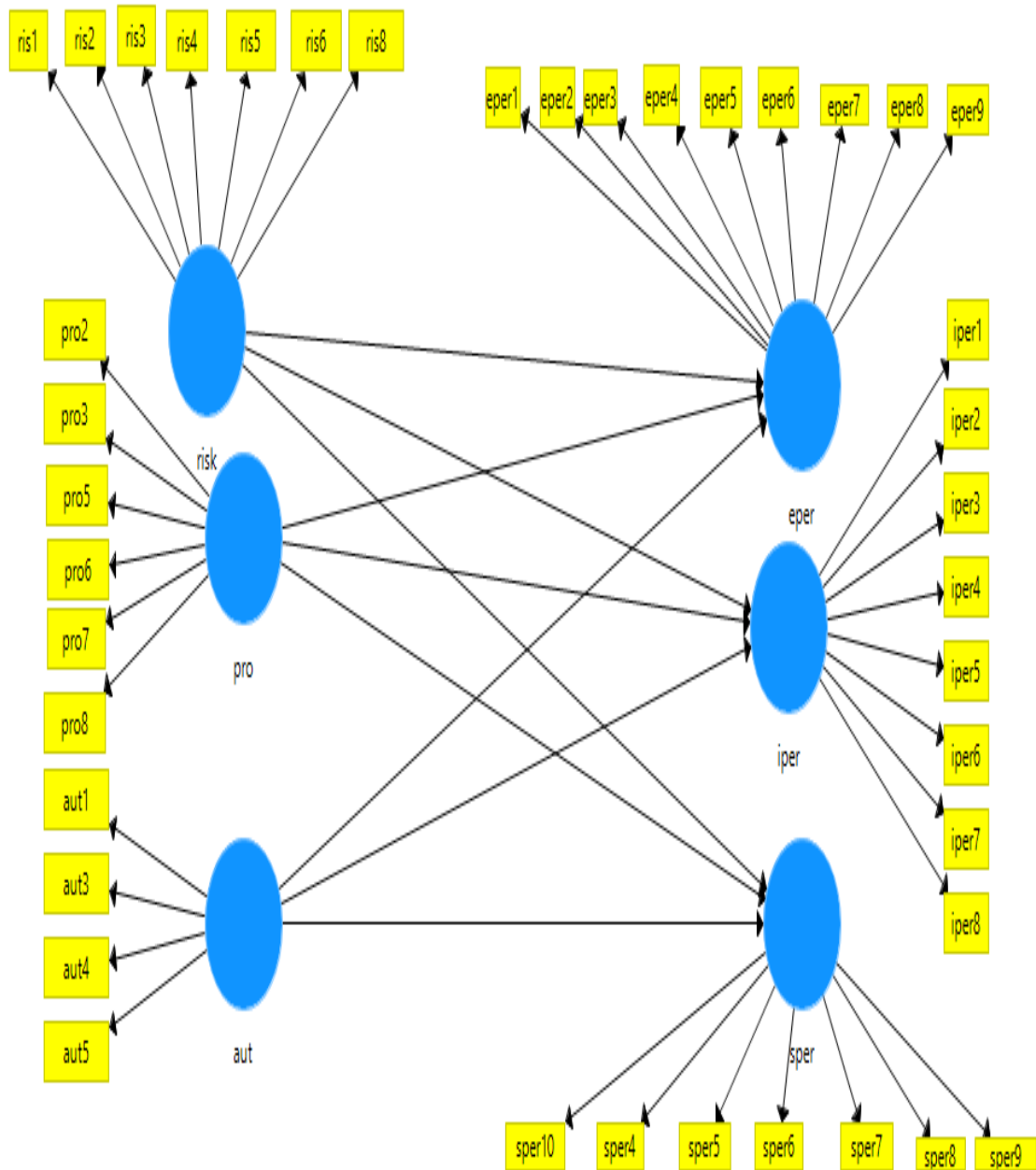
SOURCE: SMARTPLS PROGRAM OUTCOME

4.3 STRUCTUAL MODEL ANALYSIS AND FINDINGS
4.3.1 STRUCTUAL MODEL

As mentioned, the remaining analysis requirement is the evaluation of the structural model. The structural model contains the constructs as well as the relationship between each one (Hair J. F., 2014)For the structural model, the following assessment procedure were considered: assess the model for collinearity issues, access the significance and relevance of the relationships, assess the level of R2 value, assess the $f2$ effect size, and assess the predictive relevance of Q2 and the $q2$ effect sizes. Provided now is the level of acceptance for each category. Collinearity is measured based on tolerance levels and the variance inflation factor (VIF). If the tolerance levels are below 0.20 and (VIF) is above 5.00 for the predictor constructs, then collinearity issues exist and would need to be addressed. For the significance of the hypothesized relationships, path coefficients range from -1 to +1 and closer to +1 indicate strong positive relationships. Also, the empirical t values (which determines the standard error) should be higher than the critical value which are 1.65 for a significance level at 10%, 1.96 for a significant level at 5%, and 2.57 for a significance level at 1. The R2 value ranges from 0 to 1 for endogenous latent variables with the scale of 0.75 for significant, 0.50 for moderate, and 0.25 for weak. $f2$ effect sizes for the exogenous latent variables are 0.02 for small effect, 0.15 for medium effect, and 0.35 for a large effect. Q2 values larger than 0 indicate that the exogenous constructs have some level of predictive significance for the endogenous construct. $Q2$ values for the exogenous constructs are 0.02 for small predictive relevance, 0.15 for medium predictive relevance, and 0.35 for large predictive relevance for a certain endogenous construct.

4.3.2 PLS-SEM FINDINGS

The first criterion evaluated was collinearity. If VIF is > 5.00, then collinearity problem exists. None of the constructs exceeded the 5.00 value which indicated that no collinearity issues existed. Table 16 shows the results of collinearity assessment.

Table 4.7: *Findings of the Collinearity Assessment*

Predictor Constructs	VIF Value	Collinearity Issues
Risk Taking	*.523*	*NO*
Proactiveness	*.548*	*NO*
Autonomy	.537	NO
Economic Performance	.529	NO
Environmental Performance	.529	NO
Social Performance	.541	NO

SOURCE :SMARTPLS PROGRAM OUTCOME

The next criterion evaluated was the significance of the hypothesized relationships, which is conducted through bootstrapping. For an initial instrument, 500 random subsamples may be used, but to ensure stability of the results, a larger subsample such as 5,000 should be used for final results preparation (Hair J. F., 2014)Bootstrapping was completed with 5,000 subsamples and the path coefficients were measured for each relationship and the closer to 1, the stronger the relationship. the relationships were above the 1.96 significance level and significant at the 5% level,

are Autonom ⟶ Environmental Performance, Autonomy ⟶ Social Performance, Risk ⟶ Environmental Performance, an Risk ⟶ Social Performance, the other relationships which were below the 1.96 significance level and were not significant 5% level are, Autonomy ⟶ Economic Performance, Proactive ⟶ Economic Performance, Proactive social Performance, Proactive ⟶ Environmental Performance
, Risk ⟶ Economic Performance.
For the hypothesis to be supported, the P-Value should be less than 0.05. According to the results which have been done via the P-value, 4 hypotheses were supported, and the other 5 hypotheses were not supported. This concludes that 4 out of the 9 hypotheses were supported. Table 11 provides the results of the bootstrapping for the path coefficients.

Table 4.8: *Bootstrapping results on the Path Coefficients*

Relationships Path	Path Coefficients	T -Values	Significance Levels	P-Values
Risk Taking ⟶ economic perf	0.114	0.257	NS	0.798
Risk taking ⟶ environmental perf	0.345	6.744	***	0.000
Risk takin ⟶ social perf	0.206	2.659	***	0.008
Proactiveness ⟶ economic perf	0.255	1.589	NS	0.113
Proactiveness ⟶ environmental perf	0.046	0.020	NS	0.984
Proactiveness ⟶ social perf	0.06	0.787	NS	0.431
Autonomy ⟶ economic perf	0.118	0.437	NS	0.662
Autonomy ⟶ environmental perf	0.251	3.659	***	0.000
Autonomy ⟶ social perf	0.447	9.859	***	0.000

*Note: NS = not significant. *p < .10. **p < .05. ***p <.01.*
SOURCE: SMARTPLS PROGRAM OUTCOME

The next criterion measured was the Coefficient of Determination (R2 value). The R2 value ranges from 0 to 1 with R2 values being substantial at 0.75, moderate at 0.50, and weak at 0.25. The endogenous latent variables show the R2 value of the Economic Performance construct was .143, which indicates a Weak level of predictive accuracy, Also the endogenous latent variables show the R2 value of the Environmental Performance construct was .238, which indicates a Weak level of predictive accuracy, then The endogenous latent variables show the R2 value of the Social Performance construct was .246, which indicates a Weak level of predictive accuracy. Table 18 shows the results of the Coefficient of Determination (R2 value).

Table 4.9: Coefficient of Determination (R2 value).

Constructs	R2	result
Economic Performance	0.143	WEAK
Environmental Performance	0.238	WEAK
Social Performance	0.246	WEAK

SOURCE: SMART PLS PROGRAM OUTCOME

According to table number 12 the constructs relation indicates that there are another factors which are not including in the model, maybe can explain more the dependents variables.

The next criterion measured was Predictive Relevance or the Q2 value. The blindfolding procedure was conducted using the default omission distance of 7 in SmartPLS Q2 values larger than zero for specific endogenous latent

variable indicate the path model's predictive relevance. The Economic, Environmental, and Social Performance Construct had Q2 values of 0.27, 0.35, and 0.36 indicating that all constructs have path model predictive relevance.

The next criterion measured was the *f2* effect size. This is determined when a specified exogenous construct is omitted from the model. *f2* values of 0.02 have small effect, 0.15 has a medium effect, and 0.35 has a large effect. The results show Taking Risk with an *f2* value of 0.014, 0.143, and 0.051 Proactiveness has an *f2* value of 0.055, 0.002, and 0.004 Autonomy has an *f2* value of 0.012, 0.063, and 0.203. Table 13 shows the results of *f2* effect sizes.

TABLE 4.10: Results of the f2 effect sizes

construct	f2 Value	Level of Effect
Taking Risk	*0.014*	**NONE**
	0.143	**SMALL**
	0.051	**SMALL**
Proactiveness	*0.055*	**SMALL**
	0.002	**NONE**
	0.004	**NONE**
Autonomy	*0.012*	**NONE**
	0.063	**SMALL**
	0.203	**MEDIUM**

SOURCE: **SMARTPLS PROGRAM OUTCOME**

This concludes the analysis of the structural model and the hypothesis findings will be discussed. In this research study, there were nine proposed hypotheses and four out of the nine hypotheses were supported. Table 19 provides the results of the proposed hypotheses.

Table 4.11: Findings of the Proposed Hypotheses

Hypotheses	Relationship	Supported
H1	*An increase in the level of taking risk leads to an amelioration in Economic Performance.*	**NO**
H2	An increase in the level of taking risk leads to an amelioration in Environmental Performance.	**YES**
H3	An increase in the level of taking risk leads to an amelioration in Social Performance.	**YES**
H4	An increase in the level of Proactiveness leads to an amelioration in Economic Performance.	**NO**
H5	An increase in the level of Proactiveness leads to an amelioration in Environmental Performance.	**NO**
H6	An increase in the level of Proactiveness leads to an amelioration in Social Performance.	**NO**
H7	An increase in the level of Autonomy leads to an	**NO**

	amelioration in Economic Performance.	
H8	An increase in the level of Autonomy leads to an amelioration in Environmental Performance.	**YES**
H9	An increase in the level of Autonomy leads to an amelioration in Social Performance.	**YES**

SOURCE : **SMARTPLS PROGRAM OUTCOME**

4.4 DISCUSSION OF THE RESULTS
4.4.1 FINDINGS AND COMMENTS

The research model for this study was based on previous studies. Therefore, relying on previous studies, several constructs were selected to address the research problem, which included Taking Risk, Proactiveness, and Autonomy as the independents variables, Economic, Environmental, and Social Performance as dependents variables.

For all constructs, there were a combined total of 51 indicators that were analyzed through CFA and PLS-SEM with SmartPLS. Based on the finding for the measurement model, the CFA analysis revealed issues with factor loading, where 10 indicators were remove. The CFA analysis revealed no issues with composite reliability, convergent validity, and discriminant validity.

The second phase of the study involved the evaluation of the structural model. The findings showed no issues with collinearity and revealed the model's predictive accuracy and overall significance.

There were nine hypotheses proposed for this research and a summary has been provided:

- Hypothesis **H1** was not supported which indicated that when small and medium enterprises increase the level of taking risk, this leads to a decrease in amelioration of Economic performance, and this may could be attributed that there is too much hesitation from small and medium enterprise in taking risk which can lead to probability of loss, and the final result maybe it will be financial crisis, hence the economic performance will be affected and getting down.
- Hypothesis **H2** was supported which indicated that when small and medium enterprise increase the level of taking risk, this leads to an increase in amelioration of the Environmental Performance, so we can say that small and medium enterprises taking a high degree of risk in adopting oriented strategies in producing green products and services, which can help improving the environment (stop pollution and conserve natural), and will contributed in the amelioration of the environment performance.

- Hypothesis **H3** was supported which indicated that when small and medium enterprise increase the level of taking risk, this leads to an increase in amelioration of the Social Performance, which explain that taking risk and moving toward green practices, green products, and green innovation can be a key factor compatible with the objectives and the values of society, and can improve the social performance.

- Hypothesis **H4** was not supported which indicated that when small and medium enterprise increase the level of proactiveness, this leads to an increase in amelioration of the Economic Performance, it shows that small and medium enterprises do not anticipating and pursuing new opportunities in green entrepreneurship field by moving toward green markets as a proactive step, and this could affect the Economic Performance by staying in the same markets, also the number of SME getting up.

- Hypothesis **H5** was not supported which indicated that when small and medium enterprise increase the level of proactiveness, this leads to an increase in amelioration of the Environmental Performance, it clears that small and medium enterprises are not able to anticipate, in addition to that there is no desire of being pioneers in green entrepreneurship domain by producing green products and services, eco-friendly practices are not involved in production of a product, service or process which is beneficial to the environment in one way or other, therefore the Environmental Performance was not be ameliorated.

- Hypothesis **H6** was not supported which indicated that when small and medium enterprise increase the level of proactiveness, this leads to an increase in amelioration of the Social Performance, the initial investment of entrepreneurs when transitioning from the traditional entrepreneurship to green one is relatively costly which lead the entrepreneur to be less incentive to improve social performance by creating new jobs to the society…. etc.

- Hypothesis **H7** was not supported which indicated that when small and medium enterprise increase the level of Autonomy, this leads to an increase in amelioration of the Economic Performance, this could be attributed to The scope of Autonomy granted by the entrepreneur to his workers in the field of green entrepreneurship is very narrow due to perhaps the lack of training and experience, which led to the lack of options and alternatives to go towards green entrepreneurship as a new market to achieve a competitive advantage, which negatively affected the economic performance of the organization by staying in markets witnessing high competition

- Hypothesis **H8** was supported which indicated that when small and medium enterprise increase the level of Autonomy, this leads to an

increase in amelioration of the Environmental Performance, so maybe expanding the scope of Autonomy in green entrepreneurship may lead to an increase in environmental awareness of the workers, and the latter contributed in the improvement of environmental Performance

- Hypothesis **H9** was supported which indicated that when small and medium enterprise increase the level of Autonomy, this leads to an increase in amelioration of the Social Performance, also we can say that the expanding in scope of autonomy in green entrepreneurship concerning the workers, may lead to Motivate workers and reduce turnover, and this may help in the stability and reputation of the enterprise in the society, hence the social performance will be ameliorated.

Based on the results which have been done through smartpls program two hypothesis of the independent variable Proactiveness toward the dependent variable sustainable performance (economic, environmental, and social performance) from three were supported. Two hypothesis of the independent variable Taking risk toward the independent variable sustainable performance (economic, environmental, and social performance) from three were supported. Hence we can conclude that there is an impact of the dimensions of green entrepreneurship (Taking Risk, Proactiveness, and Autonomy) on the dimensions of sustainable Performance (Economic, Environmental, Social Performance). It clears that the main hypothesis of the research which is the impact of green Entrepreneurship on Sustainable performance is supported. To confirm this conclusion an additional analysis was done, and extra model of research was built. Figure bellow shows the extra model.

FIGURE 4.2: EXTRA MODEL RESEARCH
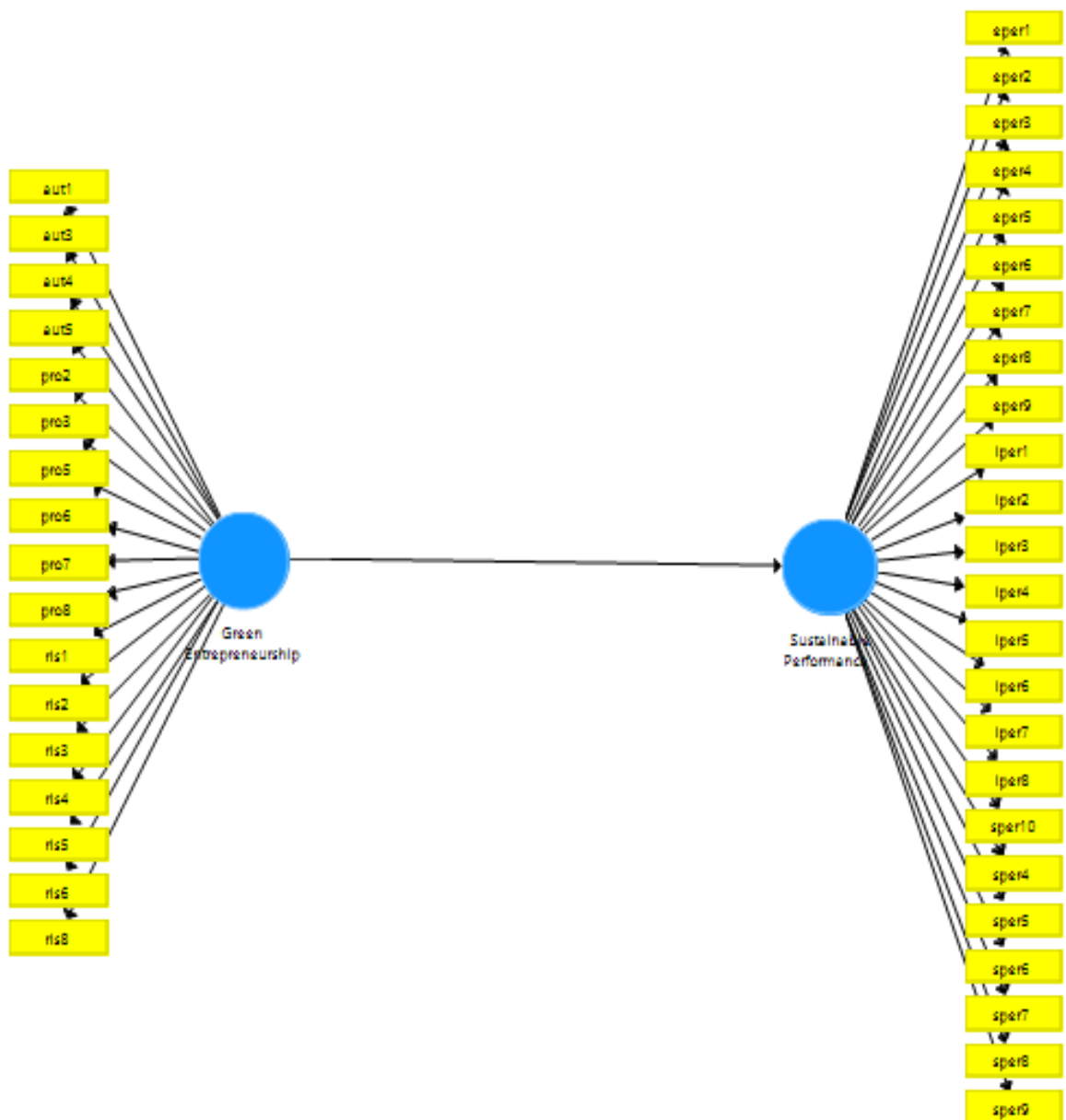
SOURCE: SMARTPLS PROGRAM OUTCOME

To discover the relationship between green entrepreneurship and sustainable performance by demonstrating if there is an impact, Bootstrapping results on the Path Coefficients were done, and the findings are shown in the table below.

TABLE 4.12: Bootstrapping results on the Path Coefficients

Relationships Path	Path Coefficients	T -Values	Significance Levels	P-Values
Green entrepreneurship **→** **sustainable perf**	*0.502*	*14.489*	***	*0.000*

SOURCE: SMARTPLS PROGRAM OUTCOME

According to the above table the path coefficient was 0.502, So the relationship green entrepreneurship → sustainable performance is moderate, based on the findings of the T values, the relationship was above the 1.96 significance level and significant at the 5% level, the result which have been done via the P-value demonstrated that the main hypothesis of the research was supported; we can say that there is an impact of green entrepreneurship on sustainable performance. The results of the Extra model reinforce the conclusion which has been reached through the main research model.

4.5 CHAPTER CONCLUSION

With the findings identified for the measurement model, the CFA analysis revealed that the initial instrument showed favorable results when subjected to factor loading, internal consistency reliability, convergent validity, indicator reliability and discriminant validity. Based on these outcomes, 10 indicators were removed. Additional analyses were needed for this phase and with a valid measurement model in place.

Structural model was measured relying on the outcome of SMARTPLS program and with the use of bootstrapping test all hypothesis of the study was investigated.

CONCLUSION

5. CONCLUSION

The purpose of this research study was to identify the impact of green entrepreneurship on sustainable performance in a sample of small and medium enterprises in Algeria. The results of this research present empirical facts that supported several of the proposed hypothesis and contributes to a better understanding of green entrepreneurship and sustainable performance. This foundational research will help to understand green entrepreneurship and to illustrate its relationship with sustainable performance.

1. RESULTS

Through this path of research, we reached a set of findings which can be summarized as follows:

- Green entrepreneurship has a positive effect on sustainable performance.
- Green Entrepreneurship is an emerging and new concept in Algeria and most of the respondents are not fully aware of it.
- Government support and financial assistance is only limitedly available for enterprises practicing or adopting Green Entrepreneurship practices. Such support and assistance needs to be more flexible and accessible respectively.
- The trend towards a green entrepreneurship in Algeria is recent, and there is interest in the green economy in Algeria, but this interest is not enough, which calls for greater efforts in this field.
- The absence of special guide or clear information on the areas of green entrepreneurship, as we find it unknown to all.
- There are green Algerian enterprises, and others who have environmental concerns, but they are few and unknown to the public as well.
- Algeria has been interested in the field of renewable energies as a part of green entrepreneurship, but what has been achieved is very weak, which means that there is a specific defect, therefore it is necessary to determine the location of the weakness in order to avoid them.
- Algeria attempts to escape its oil and gas dependent economy; thus, it is striving to expand its SMEs, hence there are efforts made by Algeria to promote green entrepreneurship especially in energy sector, but it remains very modest.
- Government support and financial assistance is only limitedly available for enterprises practicing or adopting Green Entrepreneurship practices. Such support and assistance needs to be more flexible and accessible respectively.

2. SUGGESTIONS

- Green Entrepreneurship should be considered and understood in a broader sense so as to reap complete benefits delivered by it. It should not be confused as only small and medium enterprise environmental approach; it's also economic and social approach.
- Small and medium enterprises should be considered for Green Entrepreneurship practices as a source of benefits and innovation. More effort can create a significant change for the benefit of environment.
- Green Entrepreneurship activities should be publicized more as it will create awareness, encourage greater participation and enhance motivation. Moreover, this will also build up the positive corporate image.
- The role of each firm in delivering environmental benefits should be made clear and promoted.
- More studies in Algeria should be undertaken on Green Entrepreneurship as it has several unexplored avenues to be studied for. Practical studies should be focused rather that narrative studies.
- Green Entrepreneurship should be added as separate subject in the curriculum especially in the professional courses like Master degree as that can induce more people to adopt the same as career opportunity. It will also create awareness about the emerging subject.
- Government should take measures to create awareness about Green Entrepreneurship as people still lack the knowledge about it.
- State policies should be increased to support the Green Entrepreneurship. This support should not be limited to financial assistance or awareness programs but shall include every possible aspect where the State can help.
- Training institutions as well as Support and Assistance Institutions could be formed or promoted by the Government to speed up the 'Green' movement

3.FUTURE RESEARCH

- This research study focused on green entrepreneurship and how it can effect on sustainable performance, future research can start from green entrepreneurship orientation and investigate if entrepreneurs can adopt green entrepreneurship as a new concept and approach in Algeria.

- Another consideration for future research is to discover the role of curriculum teaching at universities toward green entrepreneurship, in other words to clear if curriculum teaching can lead to green entrepreneurship orientation.
- A final consideration for future research is to highlight green opportunities and products in Algerian market and show if it can contribute added value to the economy.

Each of these considerations mentioned can help add to the green entrepreneurship body of knowledge.

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appendices

Appendix

Appendix A

Survey Questions for the Research Instrument

The democratic republic of Algeria

Ministry of Higher Education and Scientific Research

University of Ahmed Draria Adrar

Questionnaire research about:

The impact of green entrepreneurship on sustainable performance, case study a sample of small and medium enterprises in Algeria

This questionnaire aims to collect the necessary data to study the impact of green entrepreneurship on sustainable performance in a group of small and medium enterprises in Algeria, and your company has been chosen within the research sample to answer them objectively because of this has a great impact on the validity of the results that the research will reach, as we inform you that this data will be used only for scientific research purposes, thank you in advance for your kind cooperation

First axe: general information Please put an (x) in the appropriate box

1- Classification of companies by ownership	public	private	mixt

2- Classification of companies by sector	1-9 worker	10-49 worker	50-250 worker

3- Classification of companies by activity sector	commercial	Industrial	Services

4- Classification of companies by the size of capital	Less than 10 million	10-99 million	100-500 million	More than

	da	da	da	500 million da

5- Classification of companies by age	Less than a year	5-10 years	More than 10 years

Second axe: We kindly ask you to put an (X) under the appropriate selection according to the degree of acceptance

	Degree of acceptance				
Part two	Strongly agree	Agree	Neutral	disagree	Strongly disagree
1-In our organization, uncertainty is dealt as a challenge.					
2- Our employees are encouraged to engage in activities in new green industries.					
3- Management recognizes that specific proposals in the field of green attitudes may fail while running.					
4- Our organization places more emphasis on opportunities to succeed than opportunities to fail.					
5- In this organization, the new (green-based approach) activity that has failed is viewed as a learning experience.					
6- Avoid actions causing changes to the climate, water, infrastructure and nature.					

7- Avoid penalties, fines, and legal costs for non-compliance with environmental legislation.					
8- Be committed to investing in green research and development initiatives.					
9- We are constantly in search of new opportunities related to our ongoing operations.					
10- We are usually the first to introduce new green services in our industry.					
11- We usually observe business practices as justified in accordance with green social responsibility.					
12- We are constantly searching for green investment opportunities to improve our business performance.					
13- Use alternative energy sources in production and manufacturing					
14- We have always tried to stay ahead of our competition in responding to the challenges of the market.					
15- Advertise positive environmentalism.					
16- Develop the company's reputation as a supplier of eco- friendly products.					
17- Employees are encouraged to assume responsibility for their own work.					
18- It is assumed that employees do their work with minimal supervision.					
19- Employees are					

encouraged to prioritize their own work.					
20- Employees are encouraged to undertake Green R&D Initiatives					
21- Prioritize the reduction of the impact of facility construction and operation concerning employees					
22- Considering the economic situation, our profit has increased					
23- Considering the economic situation, our market share has increased					
24- Considering the economic situation, our sales growth are higher					
25- The return on investment has increased					
26- The return assets have been higher, relative to competitors					
27- The growth in the enterprise's profits is generally due to energy consumption and the reduction of materials					
28- Increase the market share of the enterprise and improve the reputation of the organization					
29- Reduce the cost of energy use					
30- Reduce processing and waste disposal fees					
32- Energy consumption considering the volume of production has decreased					
33- Consumption for hazardous materials considering the volume of production has decreased					

34- Conduct regular environmental audits					
35- Minimizes the environmental impact of its activities					
36- The firm relevantly decreases the frequency of environmental accidents					
37- Reduction of smell/odor emissions and solid waste					
38- Increase the volume of recycled materials and reduce waste					
39- Increase the rate of purchase of environmentally friendly goods					
40- Increasing activities that protect the environment, such as the presence of green spaces in the enterprise					
41- Improved work safety					
42- Improved living quality of surrounding community					
43- Improved work environment					
44- Improved relationship with the community and stakeholders					
45- Increase attention to employee health rules and provide more job opportunities					
46- Improving community health and safety and infection control					
47- Development of economic activities in the community					
48- Reducing the impact of the organization's waste on society					
49- Improving the quality of					

service provided and adhering to the rules of ethics					
50- Develop and design a service and better share employee initiatives in management decisions					
51- Increased commitment to professional ethics and infection control policy					

Appendix B
Sample Email Request to Participate in Internet Survey

From: Mammeri Zakaria, Ph.D. student AT Ahmed Draia University, Adrar

I am writing to you to request your participation in an important survey

Titled by the impact of green entrepreneurship on sustainable performance Your feedback from this survey will help us to identify if there will be an impact of green entrepreneurship on sustainable performance. Your participation in this survey is completely voluntary and all responses will be kept confidential.

 The survey participant will be anonymous and no personally identifiable information will be disclosed By completing and submitting this survey, as a participant, you are providing your informed consent Should there be any questions about this survey, please feel free to contact the researcher directly at mammerizakaria@gmail.com. All email correspondence will remain confidential as well. Thank you in advance for taking the time to complete this survey and we hope to help improve the success of future green entrepreneurship.

Sincerely,

Appendix C

Smpart pls program results

1- Outer Loadings

	aut	eper	iper	pro	risk	sper
aut1	0,671					
aut3	0,648					
aut4	0,844					
aut5	0,751					
eper1		0,784				
eper2		0,819				
eper3		0,737				
eper4		0,647				
eper5		0,795				
eper6		0,748				
eper7		0,706				
eper8		0,720				
eper9		0,556				
iper1			0,702			
iper2			0,773			
iper3			0,701			
iper4			0,713			
iper5			0,783			
iper6			0,733			
iper7			0,728			
iper8			0,680			
pro2				0,585		
pro3				0,657		
pro5				0,748		
pro6				0,764		
pro7				0,797		
pro8				0,856		
ris1					0,672	
ris2					0,802	
ris3					0,755	
ris4					0,675	
ris5					0,748	
ris6					0,711	
ris8					0,687	
sper10						0,739
sper4						0,658

							0,736
sper5							0,736
sper6				- 107 -			0,871
sper7							0,633
sper8							0,674
sper9							0,806

2- Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
aut	0,723	0,760	0,821	0,537
eper	0,888	0,900	0,909	0,529
iper	0,874	0,884	0,900	0,529
pro	0,836	0,875	0,877	0,548
risk	0,850	0,859	0,884	0,523
sper	0,859	0,893	0,891	0,541

3- Discriminant Validity

	aut	eper	iper	pro	risk	sper
aut	0,733					
eper	0,263	0,727				
iper	0,339	0,640	0,727			
pro	0,484	0,345	0,265	0,740		
risk	0,191	0,209	0,406	0,284	0,723	
sper	0,456	0,506	0,509	0,211	0,273	0,735

4- Cross Loadings

	aut	eper	iper	pro	risk	sper
aut1	0,671	0,243	0,311	0,504	0,134	0,313
aut3	0,648	0,125	0,071	0,252	0,123	0,173
aut4	0,844	0,238	0,390	0,257	0,193	0,399
aut5	0,751	0,105	0,051	0,407	0,082	0,383
eper1	0,157	0,784	0,323	0,290	0,187	0,294
eper2	0,160	0,819	0,441	0,267	0,089	0,276
eper3	0,285	0,737	0,319	0,348	-0,125	0,256
eper4	0,086	0,647	0,273	0,417	-0,106	0,029
eper5	0,151	0,795	0,483	0,303	-0,021	0,367
eper6	0,116	0,748	0,387	0,169	0,036	0,252
eper7	0,279	0,706	0,696	0,171	0,421	0,528
eper8	0,254	0,720	0,541	0,207	0,366	0,642
eper9	0,109	0,556	0,652	0,048	0,312	0,484
iper1	0,355	0,459	0,702	0,217	0,432	0,418
iper2	0,273	0,584	0,773	0,118	0,295	0,547
iper3	0,157	0,477	0,701	0,243	0,148	0,235
iper4	0,198	0,519	0,713	0,302	0,175	0,353
iper5	0,124	0,448	0,783	0,148	0,152	0,333
iper6	0,240	0,361	0,733	0,173	0,311	0,248
iper7	0,186	0,475	0,728	0,331	0,339	0,218
iper8	0,317	0,384	0,680	-0,041	0,321	0,565
pro2	0,388	0,123	0,192	0,585	0,316	0,125
pro3	0,467	0,227	0,091	0,657	0,421	0,043
pro5	0,381	0,254	0,114	0,748	0,133	0,172
pro6	0,211	0,237	0,159	0,764	0,173	0,183
pro7	0,289	0,319	0,236	0,797	0,139	0,152
pro8	0,472	0,318	0,311	0,856	0,216	0,213
ris1	0,156	0,099	0,276	0,281	0,672	0,162
ris2	0,363	0,104	0,299	0,368	0,802	0,276
ris3	0,208	0,072	0,308	0,386	0,755	0,103

ris4	0,060	0,118	0,235	0,192	**0,675**	0,040
ris5	0,019	0,251	0,192	0,222	**0,748**	0,150
ris6	0,052	0,253	0,323	0,057	**0,711**	0,301
ris8	0,094	0,122	0,366	0,032	**0,687**	0,222
sper10	0,271	0,387	0,323	0,157	0,136	**0,739**
sper4	0,224	0,362	0,380	0,058	0,029	**0,658**
sper5	0,336	0,331	0,429	0,172	0,110	**0,736**
sper6	0,487	0,476	0,449	0,235	0,260	**0,871**
sper7	0,375	0,353	0,423	0,166	0,179	**0,633**
sper8	0,150	0,418	0,331	0,048	0,291	**0,674**
sper9	0,345	0,300	0,290	0,151	0,311	**0,806**

5- Collinearity Statistics (VIF)

	VIF
aut1	1,143
aut3	1,412
aut4	1,669
aut5	1,606
eper1	2,683
eper2	3,168
eper3	2,837
eper4	2,457
eper5	2,927
eper6	2,405
eper7	2,713
eper8	2,121
eper9	1,663
iper1	2,109
iper2	2,161
iper3	1,893
iper4	2,211
iper5	2,781
iper6	2,243
iper7	2,355
iper8	1,744
pro2	1,704
pro3	1,616
pro5	1,731
pro6	1,941
pro7	2,421
pro8	2,356
ris1	1,665
ris2	2,672
ris3	3,358
ris4	2,484
ris5	2,278
ris6	1,593
ris8	1,635
sper10	2,300
sper4	2,151
sper5	2,380
sper6	2,839
sper7	1,535

sper8	1,677
sper9	2,994

6- R Square

	R Square	R Square Adjusted
eper	0,143	0,132
iper	0,238	0,228
sper	0,246	0,236

7- f Square

	aut	eper	iper	pro	risk	sper
aut		0,012	0,063			0,203
eper						
iper						
pro		0,055	0,002			0,004
risk		0,014	0,143			0,051
sper						

8- Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
aut -> eper	0,054	0,075	0,119	0,451	0,652
aut -> iper	0,277	0,272	0,078	3,555	0,000
aut -> sper	0,444	0,449	0,046	9,732	0,000
pro -> eper	0,389	0,294	0,255	1,522	0,129
pro -> iper	0,002	0,012	0,114	0,020	0,984
pro -> sper	-0,062	-0,058	0,072	0,859	0,391
risk -> eper	-0,078	0,035	0,303	0,257	0,798
risk -> iper	0,365	0,374	0,051	7,194	0,000
risk -> sper	0,202	0,207	0,073	2,778	0,006