

Green Start-ups: The New Face of Green Investing to Realize Sustainable Development Goals.

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Abstract:

Green start-ups have gained a lot of interest in all governments and states, due to the important role they play in economic growth and jobs creation, as well as in enhancing sustainable development principles, through investing in environmentally friendly projects. However; there are many challenges may face them.

This paper aims at highlighting the importance of green start-ups in realizing sustainable development goals, and discussing the main challenges they face, through answering the question: How do green start-ups contribute to achieving sustainable development goals?. The study concluded that there is a significant contribution of green start-ups to sustainable development through their focus on projects that care about the environment, and provide an opportunity to new initiatives for young people, thus contribute in providing job. The study also showed the increasing efforts of governments to encourage this type of enterprises.

Key words: start-ups; sustainable development; green investing; green start-ups.

JEL classifications: M13; Q01

INTRODUCTION

The growth of start-ups has been in effect since the mid-2000s. Since the economic depression of 2009, small and medium-sized enterprises (SMEs) have taken up to 95% of all companies in OECD countries with start-ups particularly contributing to the creation of around 60–70% of new jobs (Wooseung Lee. Boyoung Kim. 2019). In 2018, start-up investments worth USD 99.5 billion were made in the United States alone, which was the largest amount in history, and at least a 30% increase from 2017.

Because of the decreasing rate of growth, big companies and SMEs become unable to contribute in economic growth sufficiently. Under these situations, pioneer countries such as the USA, Japan, and China are actively implementing entrepreneurship and start-up development policies according to their own situations (Kuckertz, A.; et al. 2015). In the USA, many policies have been adopted in order to enhance start-ups, such as the implementation of the Start-up America Initiative, which supported innovative entrepreneurs in the private sector, and actively pursued innovative start-ups and venture investments by enacting the 2012 JOBS Act (Jumpstart Our Business Start-ups Act) to facilitate financing for start-ups, during Obama administration (Orange, D.B. 2011). Then the establishment of the Office of American Innovation within the White House Office for carrying out support policies under the Trump administration. With the initialization of entrepreneurial ecosystems, to enhance start-up's environment.

Similar administrative orders have been set in Japan and China, for activating ecosystems, encouraging innovation, building relationship among businesses and external environment mainly universities and scientific research centres, through establishing a venture ecosystem in the national Strategy of Growth in Japan (Paul, K.; Rollins, C.. 2016). China had also enacted a law on the promotion of SMEs in 2002 through which they established support policies for the development of SMEs. Many other regulatory measures established in other major countries such as : England, France, Germany, India, and Canada to implement entrepreneurship and start-up support policies at the government level, in order to build an innovation-driven economy and secure new growth engines without falling behind the wave of the Fourth Industrial Revolution (Wooseung Lee and Boyoung Kim, Ibid).

Due to the increased spread of start-ups worldwide, and the remarkable increased attention of governments of start-ups, with the necessity of adopting social responsibility toward customers and environment generally under the claims of sustainable development goals implementation, start-ups are facing big challenges to be friendly to environment in selecting their projects to realize sustainability. In this context, green start-up is seen as a good model of green investment to be in the depth of sustainable development fields.

This paper examines how can start-ups integrate sustainable development goals in their activities and strategies, through discussing the following points:

- Start-ups: Definition, Characteristics, and Creating Phases;
- Sustainable Investing in Green Start-ups;
- Green Start-ups: The other face of Green Investments.

1. Start-ups: Definition, Characteristics, and Creating Phases:

Many authors and international entities define start-ups differently according to many views and features. Differently than other enterprises, a start-up can be defined as a project-based organization or company in various business fields that commercializes a new business model by combining innovative ideas or advanced technologies to deal with uncertain environments (Eric, R. 2011.). It is an entrepreneurial venture in its early stages of operations that is typically aimed at resolving a real-life issue with an innovative product or service (built to search for a repeatable and scalable business model). These ventures are typically small in nature, new, and funded either by a founding entrepreneur or by a group of investors who believe in the entrepreneurial concept (Cosmina Lelia Voinea. Et al. 2019). They can be called “gazelle companies”, meaning growing young ventures that are built to create wealth (Aronsson, M. (2004).

Considering the way social, political, commercial and legal aspects shape a country’s economy, start-ups create models designed to enhance the wellness and performance of the country based specifically on those aspects as the critical determinants to drive change (Sopjani, Xheneta, 2019.P : 08).

There are mostly two types of start-up firms. The first type of start-up is explained in the scenario of “Entrepreneur”, This phenomenon refers to the stage even before the Birth or start-up stage of the firm lifecycle. Describing it in a nutshell, this type is just before setting the foundations of the firm, where the owner (Entrepreneur) plans to convert an idea into a profitable opportunity, by planning to start a firm. The second type explains the start-up firms which are already carrying their operations and are in their working phase; however they are yet to achieve the status of a small developed and operating firm. These start-ups are usually in the Birth or start-up stage of the firm life cycle. (Tamoor Tariq. 2013. P :03)

Others said that start-ups can be divided into three types, mainly internet start-ups companies as the following (Klačmer Čalopa, et al. 2014.pp. 24-25) :

- The first type of the start-up companies is called "**The Automizer**" whose characteristics are being focused on customers, attracting customers who show interest in a product, fast performance, common automatization processes that were previously performed manually, a large market, struggle on the existing market, use of new technologies, strong technology-oriented developers;
- The second type is "**The Integrator**" which belongs to start-ups characterized by high security, early profit, targeting small and medium-sized enterprises as well as smaller markets, high probability that it will keep small teams even after scaling (growth and expansion), etc;
- The third type is called "**The Challenger**", characterized by start-up companies having very high sales, as well as customer dependence, and also by complex and rigid markets, repeatable sales processes, more time in relation to the first and second type, in need of more capital, business-oriented teams, o has a large number of users and needs large teams in case of start-up scaling.

1.2 Characteristics of Start-ups

Through the previous definitions, we can distinguish start-ups than other companies through the following features:

- They are characterized as those new companies with high growth potential or a project team starting the process of becoming a business and preparing for the entry to the market”(JÁKI, ERIKA – MOLNÁR. Et al. 2019. 5);
- According to The European Start-up Monitor, enterprises are regarded as start-ups, if they are: (Tobias Kollmann. Et al. 2015. P : 15):

1. Younger than 10 years;

2. Using (highly) innovative technologies and/or business models ;

3. Engaging a significant employee and/or sales growth.

- The remarkable difference between start-ups and other sort of enterprises is that start-ups mean **innovation**, so a new business that doesn't bring innovation cannot be called a start-up ;

- They also cannot not be copied easily;

- They have the potential for rapid growth, they track the value of shares on the capital market and not necessarily profit;

- They are financed differently from other enterprises.(The Internal financing of these start-ups consists mainly in contributions from the founder and his family, but it is generally insufficient, so they have access to external funding through i) banks, ii) venture capital companies, iii) the Business Angels (Mustapha Achibane. Jamal Tlaty. 2018. PP : 277, 278)

- In organizational terms, start-ups are approaching traditional SMEs, as their structures are very low and informal relations are very developed (Herte, Anamaria Diana. 2018. P :57).

According the Algerian legislation, The “Start-up” label is awarded to each company incorporated under Algerian law respecting the following criteria (Executive Decree n ° 20-254 of 27 Moharram 1442 / September 15, 2020):

-The company must not have existed for more than eight years ;

-The company's business model must be based on products, services, or any other innovative concept;

-The annual turnover must not exceed the amount fixed by the national committee;

- At least 50% of the share capital must be owned by natural persons, approved investment funds or by other companies having the “Start-up” label;

-The potential growth of the company must be sufficiently large;

-The company must not have more than 250 employees.

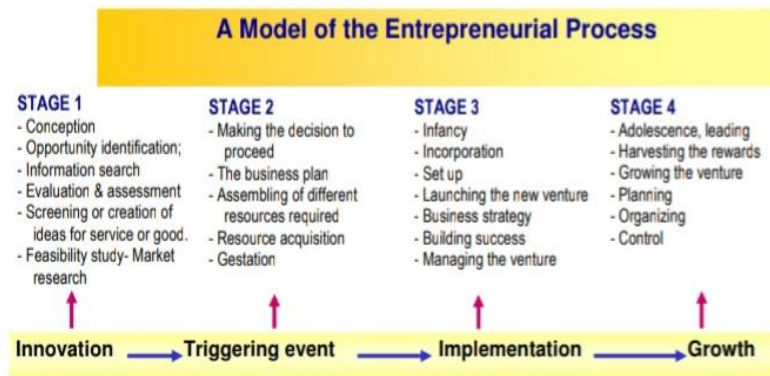
1.3 Phases of start-up’s creation :

As any other sort of enterprises, Start-ups in general follow some steps in creation process, as the following :(The entrepreneurship process.

http://accioneduca.org/admin/archivos/clases/material/identification-of-business-opportunities_1563991153.pdf):

- a. **Innovation**, which includes generating the idea, innovation, identifying a market opportunity, information search, conception, screening ideas for feasibility, identifying where to extract value and the development of the product or service.
- b. **Triggering event**, which includes gestation, the motivation to start a business, the decision to proceed, the business planning, identifying the different resources required, risk assessment, resource acquisition and assembling.
- c. **Implementation**, which includes infancy, incorporation, setting up and launching the new venture, business strategy, implementing the business plan, running the business, deploying of resources, building success and managing the venture.
- d. **Growth** which includes adolescence, maximizing profits, harvesting the rewards and continually growing the venture to include other opportunities. The figure below illustrates the main stages.

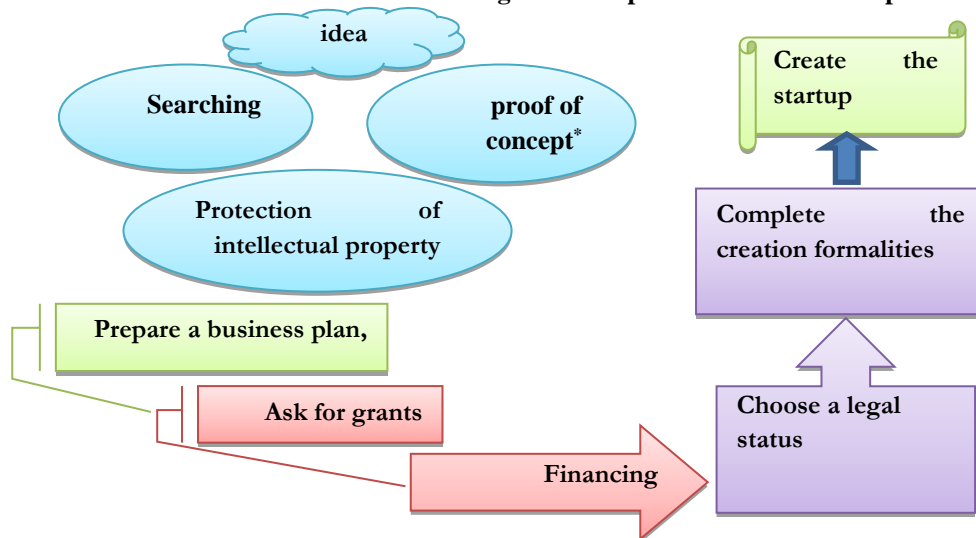
Figure 01 : The entrepreneurial Process



Source : The entrepreneurship process.http://accioneduca.org/admin/archivos/clases/material/identification-of-business-opportunities_1563991153.pdf

In Algeria, entrepreneurs should follow seven steps to create a start-up, as the following: (Searching for the idea, -protect the idea, prepare a business plan, -ask for grants, access to external financing sources, - Choose a legal status, -Complete the creation formalities, then; -create the start-up).

Figure 2 : Steps of creation a start-up



Source : [General directorate of scientific research and technological development. 2020. P :07](#)

***Proof of concept**: is a concrete and preliminary, short or incomplete, experimental realization of a certain method or idea to demonstrate its feasibility.

1.4 The importance of Start-ups :

Whatever the sort of start-ups, or their characteristics, they play a crucial role in fostering competition, inducing innovation- *where they are counted as 'engine' for innovation and often viewed as the source of "creative destruction" because they introduce new products that disrupt or overturn the positions of incumbent firms* (Ömer Tuğsal Doruk and Ergü l Söylemezoğlu .2014. P : 945), and supporting the emergence of brand-new sectors (Colombelli, Alessandra; et al. 2016), they are both a vital source of job creation and productivity gains (Fatih Karahan et al, 2016.)

Start-ups may affect economies directly and indirectly. Direct effects of start-ups can be seen in offering new employment and new production, contributing in migration and increasing regional productivity, declining or closing of incumbents that cannot face the new competition, enhancing the regional competitiveness and growth. On the other side, start-ups may have indirect impacts on economies by : 1) Securing efficiency: start-ups force incumbents to behave more efficiently; 2) Accelerating the structural change: incumbents are substituted by new firms- start-ups-; 3) Amplifying innovation: start-ups may introduce radical innovations, and 4) Creating variety: start-ups may lead to greater variety of products and problem solutions. (Hans Westlund, Amy Rader Olsson. 2011. PP : 02-03.)

Start-ups have not only an economic impact factors such as the creation of new jobs (Kollmann, T., et al. (2017).P:16), but also a special potential for ecological aspects such as the reduction of greenhouse gas emissions (Fichter, K., & Clausen, J. 2013. p. 275). Consequently; they should be careful while choosing projects, to accomplish with this new tendency, and be « GREEN » also

Development Goals

They also play an important role in realizing sustainable development goals through their environmentally friendly projects, where a new sort of start-ups appears under the green economy. The next section will discuss how can start-ups contribute in realizing SDGs, through addressing the sustainable investing firstly, then discussing the adoption of green investing' strategy in green start-ups.

2. Sustainable Investing in Green Start-ups

2.1. Sustainable investing definition

Over the years, financial market participants have gained a better understanding of the value proposition of incorporating environmental, social and governance (ESG) considerations in asset allocations and recognized the potential in the increasing client demand for values-based investing (David Uzsocki, 2020) . Under these conditions a new sort of investment has been appeared, which reflects the SD. This new sort is called *Sustainable investing (SI)— also called responsible investing or values based investing— involves incorporating environmental, social and governance factors when making investment decisions rather than relying purely on financial considerations.* (Global Sustainable Investment Alliance (GSIA), 2019).

It has been defined as an investment procedure that has a potentially positive effect on sustainable growth through the combination of social impact, environmental management, economic performance, market condition, and corporate governance attributes into investment decisions.(Ming-Lang Tseng, et al ; 2019).

2.2. Strategies of SI

Sustainable investment strategies seek both **positive returns and a positive long-term impact on society and the environment**. When making investment decisions, investors pursuing an ESG investing strategy consider(<https://www.intuition.com/sustainable-investing-3-primary-drivers-for-esg-investments/>) :

- **E:** Environmental themes such as investing in companies that are responding to consumer demand for sustainable practices ;
- **S:** Social themes such as investing in companies committed to a diverse and inclusive workplace ;
- **G:** Governance themes, such as investing in companies committed to diverse board composition, strong oversight, and shareholder friendly policies.

2.3 Green Investment as a basis of Sustainable Investment

The word « GREEN » occurred a lot in many fields, it related directly to environment, before coming into management practices where companies whatever their kind, adopt it in their whole strategies. Under the requirements of sustainable development and the protection of environment, start-ups as any other companies should respect these claims to launch environmentally friendly innovations which aim to sustainability. In this context; Green investment is seen as a good pattern of sustainable investments.

In the IMF Working Paper (2011) green investment has been defined as : “The investment necessary to reduce greenhouse gas and air pollutant emissions, without significantly reducing the production and consumption of non-energy goods” ,It covers both public and private investment(

Luc Eyraud, 2011). It “ refers to assets that are in some way defined as green”, e.g. a renewable energy company, or a thematic green fund managing assets, or a carbon credit. However, green investing” can also be undertaken in the form of an investment overlay, e.g. the integration of climate change or ESG elements in the general investment approach or legal SRI compliance (Georg Inderst, et al 2012)

The motivations to realize green investments are diverse, but the literature groups them in four classes (Marian Catalin Voica et al, 2015):

- Financial considerations: return, risk, diversification, long-term risk consideration, internalization of externalities;
- Extra-financial considerations: ecological, scientific, religious, ethical, political;
- Reputational: reputation of the investor, reputation of the company, marketing tool, pressure from media;
- Compliance and fiduciary duty: domestic law and regulations, international conventions, voluntary industry codes, disclosure codes, good governance codes

Most GI is intended either to reduce the pollution caused by energy generation, or to decrease energy consumption. In addition, GI also covers technologies that sequester carbon, as deforestation and agriculture are important sources of carbon emission.(Luc Eyraud, 2011).

Investment managers then implement the strategic decisions in their mandates or funds. Over the years, a number of different approaches have developed. The main strands are: 1. Negative screening, exclusion of undesirable products (e.g. tobacco, palm oil) or sectors (e.g. the arms industry, nuclear industry) 2. Positive screening or selection of assets (e.g. with the help of filters) 3. Investment in green themes. 4. Engagement, activism, voting (to make companies greener). 5. Integration of green / ESG factors in general investment analysis.(Georg Inderst, 2012).

Many companies are interested in applying « green investment » through investing in environmentally friendly projects. In this context, the notion of « green entrepreneurship » is used to define this type of companies generally, this later -Green entrepreneurship- can be defined from two perspectives related to the output (products and services) as well as the process (or production) of an economic activity. Entrepreneurs can enter into an overtly ‘green’ business sector, providing green and environmentally friendly products and services (e.g. waste management). Alternately, green entrepreneurs can provide their products or services through an environmentally friendly process or with the help of clean technologies (e.g. eco-tourism). Usually, green entrepreneurs consider both aspects (see appendix 1) in their business models, creating additional decent employment through the use of more environmentally friendly processes, while reducing the overall environmental impact as a result of people or companies using the final product or service.(https://www.ilo.org/wcmsp5/groups/public/---edemp/---empent/documents/publication/wcms_250688.pdf).

3. Green Start-ups : The other face of ^{Development Goals} green investments

3.1 Green start-ups: definition and characteristics

Green start-ups are no different than any other start-up, besides the fact that it offers more sustainable products or services and the founder is motivated to create green value. These green start-ups can, just like any other start-up, be classified into different business segments. These business segments are: providers of environmental management services, producers of environmental technology and manufacturers of environmentally friendly products (Steven Tromp. 2015. P : 13)

“Green” start-ups are characterized by the fact that their products, technologies and/or services contribute to the ecological goals of a Green Economy. In this context, the notion of « sustainable innovation has been used to distinguish innovations adopted in traditional start-ups than innovations of green start-ups. Sustainable or Sustainability innovation include all environmental aspects as a key feature, but also explicitly claim that radically new or significantly improved products (goods or services), processes that meets a triple bottom line of economic, environmental and social value creation, these practices contribute to economic and social goals of sustainable development,. (Linda Bergset, Klaus Fichter. 2015. P : 120).

Technologies are the most evident domain for green start-ups. According to (Anna Gubanova, et al, 2015) green start-ups may be classified in using green technologies as follows :

1. **Forestry/Agriculture:** include innovative, efficient and eco-friendly forestry/farming technologies that reduce resources to produce food, improve supply chain and ensure sustainable food security;
2. **Energy efficiency:** Energy efficiency technologies enable to save energy in storage, distribution and usage;
3. **Water and waste management:** include technologies which are eco-friendly and efficient in the collecting, purification, conservation, recycling/reusing water and waste;
4. **Renewable energy:** technologies that enable the usage of renewable energy and alternative sources of energy biomass, waste heat etc;
5. **Transportation:** technologies which include energy-efficient and less-polluting vehicles of all types and related components;
6. **Green Building:** technologies enable to reduce the environmental damage from construction by using innovative, energy- and material efficient building materials as well as innovative design ;
7. **Eco-tourism:** technologies that enable “responsible travel to natural areas that conserves the environment and improves the well-being of local people”;
8. **Environmental quality/safety:** technologies which enable monitoring, analysis and control the environmental risks and damage.

Due to the increase attention of « green start-ups », many regulatory measures have been set by states to encourage and facilitate green start-ups activities. We cite as an example: in 2014, the European Commission published the Green Action Plan for SMEs. The plan is designed to help start-ups and other companies take advantage of the business opportunities offered by the transition

to a Green Economy. Germany's new High-Tech Strategy 2025 also underscores the importance of the topic and provides new impulses. It demands the integration of sustainability aspects into the strategic orientation of all start-ups and respective support programs with the aim of accelerating the transformation towards sustainable economic development (Fichter, K. & Olteanu, Y. 2019. P: 15)

3.2 Impact of green investment in green start-ups

Green start-ups may benefit from green investing through the following: (Eva Majurin, 2017. P : 08)

- Access to markets, as clients increasingly demand environmentally friendly products because of increased eco-awareness, but also because of health reasons (greater safety of non-toxic products) or financial reasons (lower operating cost).
- Cost savings, as water, energy and other bills go down and as resource-use become more efficient.
- Access to support, both financial and non-financial, as governments place increasingly high importance on environmental considerations.
- Higher productivity due to a healthier workforce whose ability to work is not compromised by health hazards such as toxins in the workplace.
- A healthier surrounding environment in which the resources needed by the business now and in the future are preserved.

On the other hand, green start-ups contribute positively in many environmental, social, and economic aspects; they have a strong influence in the transition towards a sustainable green economy, and have become a central economic factor that greatly contributes to accelerate growth and jobs' creation. This fact is noticed in emerging economies such as Brazil, China, Mauritius and South Africa. According to a study done by World Bank in 2010, it concluded that on Brazil, for example, there is a possibility of increasing the GDP by 1.0%, more than the business-as-usual scenario in the period from 2010 to 2030, through adopting low-carbon development paths, including avoiding emissions from land use change, and using energy efficiently. Whereas job creation will be 1.10% faster during the same period, and in Germany, for example, these start-ups created more than a million new jobs over the ten years extending from 2008 to 2018 (Ben Fadel Wassila ; Tafer Zohir, 2020).

3.3 The importance of green start-ups

The importance of green start-ups can be appeared in many aspects as the following:

- Green – clean-tech- start-ups produce more novel technologies than non-Clean-tech start-ups. Due to their higher innovation content which is driven by technological capabilities and specific characteristics of the founder (industry experience and educational background of the founder are positively correlated with creating novel technology) (Löf, H., et al. (2018) P: 03);
- Transferring green innovation from the narrow scope of environmental sustainability principles to broader and more comprehensive concepts related to the economy and general employment levels through the new job opportunities it creates (Dehan; Mohamed. Noui; Mohamed Elamin. 2020. P:06);

Development Goals.

- Expanding the consumer base and transform it into sustainable green products and services, as the opportunities presented by innovation in the field of clean technology are often concentrated in areas that are not dealt with as related to clean technology, namely, food, housing and transportation, which are the most important source of household energy consumption and carbon dioxide emissions, This opens the door to more opportunities in the field of green innovation (Ibid). A good example can be presented here, is that of the French green start-up "**Partnering Robotic**" (<https://partnering-robotics.com/fr/>) which launched the first 100 % healthy robot that cleans the indoor air of homes and buildings from pollution, as it moves independently inside homes, and absorbs micro-particles, benzene, detergent residue, viruses, bacteria and unpleasant odours. All that, contribute effectively to maintain human health.
- Providing solutions to existed environment problems through offering green products, and searching for new sources of energy generation, and encouraging investing in renewable energies, under the storage of energies due to the population increase. Furthermore; they can contribute to sustainable development by providing solutions to reduce GHG emissions, improve energy efficiency, implement a circular economy, and operate in a variety of industries and sectors (Enrico Sabbi; Triantafyllia Karampini. (2019). P:20)
- The creation of clean-tech or green start-ups in a geographical area positively depends on the availability of scientific and technological knowledge that spills over from universities and firms located in the area. This knowledge can be leveraged for creating new products and services and for solving technical problems. This creates business opportunities that incumbent firms (which are large and bureaucratic) often discard and prospective entrepreneurs capture for creating their own ventures. (Giancarlo Giudici. Et al. 2017);
- Another essence of green entrepreneurs generally, and green start-ups precisely, is the introduction and implementation of environmentally friendly business initiatives that fostering greater efficiency, low staff turnover, improve employees' engagement and retentions and ultimately gaining of competitiveness (Muo, I., Azeez, A.. (2019). P: 26)

Though the importance of green start-ups as discussed above, many challenges face them.

These challenges touch organizational, financing, political, and many other sides. We cite the most challenges as the following:

- The regulatory and political measures applied on green start-ups are more restricted and complicated than those applied on traditional start-ups, this leads to the increase of costs which consist of cost of investments, and excessive costs of adapting processes (Dehan; Mohamed. Noui; Mohamed Elamin. 2020. P:07) ;
- The lack of scientific and technological skills, and the lack of qualified personnel;
- Financing challenges: Costs regarding finding capital is clearly an obstacle for green investments or finding green equity (Marino Cavallo, et al. 2020. P:10). Green start-ups may face financing difficulties initially while asking for money, due to their lack of collateral/revenues, unknown/inexistent credit history and/or radical innovation with no market history or benchmark, and the involvement in business activities where markets generally do not work well. Although start-ups in general obtain the necessary funding to start a project from venture capital funds , it is difficult with green start-ups, as sustainable and radical innovation can take a lot of time and effort, which does not necessarily correspond to short investment expectations (Linda Bergset, Klaus Fichter, 2015.p: 123), in addition to that, investment and financial institutions; especially venture capital institutions are not necessarily looking for green entrepreneurs, but rather ICT projects;

- Lack of awareness and interest concerning ecologically sound products and services. Many potential customers are often unaware of what is happening in their region regarding sustainable development and the values provided by sustainable products and services (Luis Morales. Et al.. 2015. P:11);
- In addition, financing the idea and converting it into work is just the beginning. The owners of green start-ups need the market and customers to sell their products and services, and

they often face the challenge of the smallness of their local market and its insufficient development, which makes it difficult for them to resort to foreign markets (Ben Fadel Wassila ; Tafer Zohir, 2020. P:05).

See appendix n 2, which illustrates some green start-ups in the world for more understanding the innovation type they adopt, through which we notice that they are all aim to protect environment, utilize natural energies, and contribute in creating jobs.

4. CONCLUSION

The increasing interest and claims of the necessity to integrate sustainable development principles in the companies' strategies, led to the appearance of a new shape of economies which is called « GREEN ECONOMY », this latter is built on the radical transition for more efficient, environmentally friendly and resource-saving technologies to reduce emissions and mitigate the effects of climate change , and tackle resource depletion and serious environmental degradation (Lucien Georgeson, et al. (2017). P : 01). In this context, companies face a new challenge to maintain their competitive position, through adopting sustainable development' principles and respecting green economy rules in their practices.

Start-ups as an important part of the economy , which have more interest from governments are also requested to apply 'green economy' conditions, by investing in environmentally friendly projects through launching clean innovations, and creating new jobs, this can help in realizing sustainability. This fact creates a new sort of start-ups, called : » green start-ups », which play a great role in contributing to sustainable development by providing solutions to reduce GHG emissions, improve energy efficiency, implement a circular economy, create new jobs...etc.

Despite of the importance of green start-ups; there are many challenges may face them, mainly the financing challenges. In order to mitigate the different obstacles which face green start-ups, many procedures are recommended as the following:

- Encouraging young innovators in searching in fields which serve ecological sides, through providing laboratories, and financial support; and creating entrepreneurial spirit and individual initiatives, and raising awareness of researchers about the importance of environmental aspects through organizing forums, clubs, competitions for best ecological innovation...etc.;
- Enhancing the collaboration university-enterprise to benefit from academic researches; and the necessity of opening new specialities aiming at realizing sustainability; Encouraging entrepreneurial spirit and individual initiatives within youngs who have environmentally friendly innovations;
- Diversification financing modes to green start-ups like providing Islamic financing modes, and giving more financing facilities in the existing sources;
- Mitigating bureaucracy in green start-ups creating process;

Development Goals.

- Providing a strong ecosystem for green start-ups including: universities, supply chain, financing institutions, markets...etc. which respect sustainable development principles.

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Appendix 1

Ideas of sustainable business ideas may entrepreneurs invest in (<https://www.nerdwallet.com/article/small-business/sustainable-business-ideas>. Visited on : May, 31st, 2021):

Idea	Meaning
Eco-friendly food supplier	Deliver food from local sources to people or businesses who need them. Farm-to-table restaurants are some of the businesses that you could help supply.
Eco restaurants	Open a restaurant that uses only locally sourced food and sustainable products and processes.
Green cleaning	Use eco-friendly products to clean homes and businesses.
Air duct cleaning	Dust and dirt can easily accumulate in air ducts, preventing the air conditioning system from working properly and thereby increasing energy consumption. Start an eco-friendly small business that serves to regularly clean air ducts to reduce energy consumption.
Fundraiser or grant writer	Many environmental organizations could use help getting funding . Start a career as a freelance grant writer to help them out.
Composting business	Provide a service to pick up compost or a place to drop it off.
Environmental law	Provide legal services to protect the environment or hold entities accountable for violating environmental laws.
Garden planning	Landscape eco-friendly, sustainable gardens for families and businesses to feed themselves.
Energy	Work with businesses or individuals to help them

Green Start-ups: The New Face of Green Investing to Realize Sustainable Development Goals.

auditing and green consulting	implement strategies to reduce their carbon footprint.
Organic nutritionist	This is a powerful sustainable business idea. Help people eat clean—it's better for their health and our earth.
Plant delivery service	Start an eco-friendly small business that sources and delivers plants to people or businesses that will help clean the air around them.
Solar panel manufacturer	Produce the energy-saving panels for homes and businesses.
Geothermal developer	Build power plants that use steam produced from reservoirs of hot water found a couple of miles or more below the Earth's surface.
Wind power development	Build wind farms that produce sustainable energy.
Sell bicycles	One way to reduce carbon emissions is to reduce the number of people driving cars. One way to do that is by encouraging more people to ride bicycles.
Sell scooters	While scooters do emit carbon dioxide, they are much more energy-efficient than cars.
Energy-efficient car sales	Of course, people still want to drive cars. Why not sell more environmentally friendly car options?
Open a consignment or thrift store	How many clothes do you get rid of each year? Recycling old clothes is a great way to reduce the carbon footprint of each clothing item so they don't go to waste.
Manufacture or sell eco-friendly fashion design	Many designers are making clothing from sustainable materials. You could be one of them, or you could sell them.

Appendix 2

Examples of Green start-ups (From: <https://www.europeanbusinessreview.com/the-most-exciting-eco-friendly-startups-in-2021/>. Visited on : 05/31/2021.

<i>Name of the Startup</i>	Definition
<i>Fuergy</i>	<p>Based in Slovakia, this startup was founded in 2018 and made a name for itself by fashioning themselves as the “Airbnb of clean and renewable energy”. Fuergy aims to transform household renewable energy-sharing into reality, developing a mechanism that lets home owners who generate surplus solar or wind power sell their extra energy to their neighbours instead of feeding it back to the grid as is the norm. The same people behind Fuergy also developed brAIIn, a supplementary and proprietary hardware that utilises AI tools in order to “optimise energy and consumption and maximise the efficiency of renewable energy sources”.</p>
<i>Iron Ox</i>	<p>Developed by Brandon Alexander and Jon Binney in 2015, Iron Ox is a unique start-up in that it specialises in agricultural robotics technology, aiming to perfect a fully functional vertical farming system. This venture has managed to secure various fundings from well-known investors such as Y Combinator, Tuesday Ventures, At One Ventures, and Pathbreaker Ventures. To date, it has managed to raise a total of \$45 million. Given their recent funding, the company has expressed its plans to go global and bring their expertise all the way to the national scale. By delivering grown vegetables beyond California, it will allow various businesses to purchase locally grown vegetables, which then will help the reduction of carbon footprint tenfold.</p>
<i>Goterra</i>	<p>Goterra was founded in Canberra, Australia by Olympia Yarger. This unique startup offers convenient waste management infrastructure by collecting clients’ food waste on behalf of waste collectors, as well as support independent business looking for ways to recycle their food waste. It is a modular waste management system that makes use of robots and insects to process the waste by turning it into high-protein stock feed and natural soil fertilizer, the company describing their system as “robots filled with maggots”.</p> <p>The Australian start-up is in it for something bigger: they want to address the rising issue concerned with mishandling of food waste. In turn, they built a convenient solution for this by offering their clean organics from processing, kitchen waste, and pre-consumer waste streams down to post-customer restaurant and household waste.</p>
<i>Facedrive</i>	<p>This 2016 start-up developed by Imran Ali Khan was founded in Richmond Hill, Toronto. The Canadian start-up operates as a ride-sharing and food delivery service, much like Uber and Lyft, except with a focus on sustainability. They describe themselves and their brand as a “people-and-plant-first” venture that provides commuters with an environmentally-friendly alternative for their transportation.</p> <p>Facedrive drivers are reported to earn as much as 90% of their fares and all of the tips, with those who drive hybrid or electric cars earning more. This ride-sharing service is currently available in 10 cities: Toronto, Hamilton, Burlington, Ottawa, and London. Worth mentioning too is how the food delivery leg of their platform is the first of it’s kind to have a green service in all of Canada.</p>