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A REVIEW OF THE LITERATURE ON ENTREPRENEURSHIP AND THE ENVIRONMENT: OPPORTUNITIES FOR RESEARCHING ON THE GREEN ENTREPRENEURIAL ORIENTATION

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Abstract

Nowadays, identifying appropriate and scientific knowledge related to environmental issues and topics represents an instrument for providing a clean environment. In the field of entrepreneurship, researchers have accepted the correlation between the scopes of business and the environment because entrepreneurship activities have been acknowledged as a significant driving force for economic, social, and environmental sustainability. A review shows that the entrepreneurship literature has experienced rapid growth recently, with many developments reported on a broad spectrum of topics. Nevertheless, one of the main concerns of the authors of the present contribution is the nexus of entrepreneurship and the environment. In the present study, a review of the literature and studies on the nexus of entrepreneurship and the environment is presented. The results indicate that none of the existing studies had clearly focused on the concept of green entrepreneurial orientation and the factors affecting this concept. So, in the meantime, the complex, mysterious concept of green entrepreneurial orientation has become a very attractive research topic. On this basis, the present paper covers this subject matter as well. It is doubtless that entrepreneurship, as an independent field of science, requires further theoretical and empirical research in relation to the environment. Indeed, recognition of research opportunities in relation to the green entrepreneurial orientation concept can largely contribute to the theoretical development and empirical studies in entrepreneurship and environmental science. We believe that the present study can bring significant advantages for the development of the research in the field of green entrepreneurship orientation.

Keywords: green entrepreneurial orientation, green entrepreneurship, sustainability

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1. Introduction

The world is facing rapid population growth, limited natural resources, and reduced biodiversity (Volery, 2002), and the subject matter of the environment represents an alarming concern for managers, as argued by Zhu and Sarkis (2004). In the meantime, the general public is paying increasing attention to the environment (Kotchen, 2009), with different countries being propelled toward enjoying the benefits of a green economy, thus providing numerous opportunities for entrepreneurship (Ataman

et al., 2018). Environmental concerns have changed the climate in which global organizations compete, and environmental responsibilities can no longer be seen as simple social issues (Miles et al., 2009). Today's businesses shall be held accountable for evolving social awareness (Zadek, 2004). Some researchers (e.g. Chao and Hong, 2019; Chen et al., 2019) believe that adoption of social responsibilities projects, including those in the field of environment, provides the businesses with not only some deals of competitive advantage, but also credit and reputation. An element of such evolving awareness is the subject

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of the environment and the need for observing environmental parameters by humans in today's world. Despite the challenges ahead for businesses aiming to evolve into green businesses, accomplishing this goal can benefit society (Edgeman and Eskildsen, 2016).

Sustainable development and environmental considerations are increasingly contributing to a strategic foundation for decision-making within businesses. In addition, globalization is often accompanied by the theory that business owners can affect the behaviors exhibited and the values adopted by societies while administering their impact on natural resources (Allen and Malin, 2008). As such, based upon increased concerns about environmental issues, entrepreneurs are in a unique position to take actions that cannot be taken by many traders. This is referred to as ambidexterity, which has been described as the combination of an individual's interests and environmentally friendly business (Anderson, 1998). Entrepreneurship is at the heart of any country (Ataman et al., 2018). According to Silajdzic et al. (2015), in emerging economies, the introduction of green technologies, as well as businesses and associated processes, can be practiced simultaneously with the development of key economic sectors. Allen and Malin (2008) further believed that the concept of green entrepreneurship needs to be well understood in societies characterized by consumerism.

As a standalone field of science, entrepreneurship has experienced significant developments during the recent past. Thanks to the efforts made by different researchers on a variety of different entrepreneurship-related subjects including the entrepreneurial opportunities (Alvarez and Barney, 2007; Davidsson, 2015, 2016; Davidsson and Tonelli, 2013; DeTienne and Chandler, 2007; Hmieleski et al., 2015; Sarasvathy et al., 2003; Shane, 2012; Shane and Venkataraman, 2000), social entrepreneurship (Alvord et al., 2004; Cherrier et al., 2018; Macke et al., 2018), entrepreneurship and institutions (Aidis et al., 2008; Bruton et al., 2010; Estrin et al., 2013), female entrepreneurship (Berger and Kuckertz, 2016; Brush et al., 2017; Verheul and Thurik, 2001), entrepreneurial orientation (Anderson et al., 2015, Covin and Lumpkin, 2011; Rauch et al., 2009; Martens et al., 2016), international entrepreneurship (Johanson and Vahlne, 2009; Peng, 2001; Sarasvathy et al., 2014; Zahra and Hayton, 2008), entrepreneurial failure and leaving (DeTienne, 2010; Shepherd, 2003; Shepherd and Haynie, 2011; Wennberg et al., 2010), corporate entrepreneurship (Covin and Miles, 1999; Hornsby et al., 1993; O'Reilly and Tushman, 2013; Sakhdari, 2016; Zahra et al., 2009), and sustainable green entrepreneurship, which is the subject of the present work, a great deal of theoretical development has been achieved so far. Thanks to the combination of environmental concepts with entrepreneurship, which have been highly regarded by researchers during the recent past, theoretical aspects of this construct and the contextual links between these aspects have been partially

identified. However, the concept of green entrepreneurial orientation has been less discussed.

Scholars are paying more and more attention to the so-called green entrepreneurship all around the world (Potluri and Phani, 2020). The theory of sustainable green entrepreneurship is a relatively new topic, and its definition is still developing. As such, limited research has focused on this emerging topic, leaving many opportunities for further research and studies. Therefore, understanding the relationship between entrepreneurship and the environment is very important (Kotchen, 2009). Hall et al. (2010) found that only a few studies in well-known, credible journals on entrepreneurship have investigated the relationships among sustainability, the environment, and entrepreneurship. This deficiency makes research on this topic even more attractive.

Moreover, a major portion of such studies has been contributed by researchers who have been strongly biased toward sustainability and the environment rather than entrepreneurship. According to Kotchen (2009), the subject matter of entrepreneurship has been given relatively little attention in environment-oriented studies. This means that the main topics related to the environment and entrepreneurship have not yet been explored simultaneously. Similarly, other researches (Dean and McMullen, 2007; Pacheco et al., 2010; Schaper, 2002) have referred to the small amount of literature on the relationship between entrepreneurship and sustainable development, suggesting that researchers are only starting to understand this relationship.

On the other hand, a wide spectrum of recent research works have studied the concept of entrepreneurial orientation (EO) (Martens et al., 2016), and this important concept in entrepreneurship has gained a great deal of attention in theoretical and empirical studies. Despite the growing interest in environmental entrepreneurship and EO, not very much is known about these concepts. A review of the research works on EO shows that no comprehensive research has been performed on green EO (Hörisch et al., 2017). Based on a valuable contribution by Martens et al. (2016), infrequently discussed topics that could provide more opportunities for research and development in this field include the public sector, non-beneficiary organizations, social frameworks and trends, universities, networking, organizational charts, and corporations in emerging economies and developing countries. As such, green EO is an attractive, novel research topic and can provide a step forward in the theoretical development of entrepreneurship.

2. Methodology

Consideration of previous and relevant literature is important for all scientific fields of research and the literature review is a valuable and significant research method. A literature review can be the best Methodological instrument to provide answers to a variety of research questions. This

method is a way of collecting and integrating past research literature that can lead to the exploration of new research opportunities and theoretical development of science (Snyder, 2019). Moreover, it is utilized in interdisciplinary research, creating conceptual models and theoretical frameworks (Tranfield et al., 2003). Also, literature reviews are effective when the goal is to provide a summary of a specific issue or research question. Any kind of literature review approach (e.g. systematic, semi-systematic, and Integrative) can be useful and systematic reviews do not always represent the best plan (Snyder, 2019).

Based on Shepherd and Patzelt (2015) and Sakhdari (2016), criterion sampling was used based on keyword searches, and a narrative review was performed on the literature. A narrative review is a standard review type aimed at identifying and summarizing what has been previously published while avoiding duplications and seeking new study areas not yet addressed (Ferrari, 2015). A semi-systematic review or narrative approach also explores how science in a specific field has developed over time (Snyder, 2019). This approach is formed for issues that have been defined differently and researched within various fields by different scholars and thus obstruct a complete systematic review method (Wong et al., 2013). Keywords used in the present review included Green Entrepreneurial Orientation, Sustainable Entrepreneurship, Green Entrepreneurship, Environmental Orientation, and Green Innovation. These terms were searched for on databases such as Google Scholar, Science Direct, Emerald Insight, and Wiley Online Library. Studies published from 1983 to the end of 2020 were considered.

3. Literature review

3.1. Sustainable entrepreneurship

Based on the pieces of evidence, Hörisch (2015) expressed that entrepreneurs may play a significant role in the social evolution of sustainability. Furthermore, some researchers (Majid et al., 2012) had referred to the concept of sustainable entrepreneurship as the “sustainability-driven entrepreneurship”, while some other studies (Krueger, 2005) simply called it “environmental entrepreneurship”.

The term *sustainable entrepreneurship* is formed by combining the two words *sustainability* and *entrepreneurship*. This sort of entrepreneurship seeks to establish successful businesses aimed at addressing social and environmental problems (Schaltegger and Wagner, 2011; Zahedi and Otterpohl, 2015). Zu (2014) emphasized that the aim of sustainable entrepreneurship, which has been recently referred to as a global movement, is to promote businesses wherein environmental and social impacts of the business are further taken into consideration. This approach has provided entrepreneurs with a wide

spectrum of opportunities for combing the environmental, social, and economic objectives (O'Neill and Gibbs, 2014). In addition, according to Hall et al. (2010), sustainability is the key to any strategy in business. They acknowledged entrepreneurship as an important channel for the goal of achieving a sustainable society.

As viewed by Placet et al. (2005), sustainability can be defined as “*environmental surveillance, social responsibility, and economic accomplishments for both the organization and its stakeholders*”. In a successful strategy for a sustainability-driven business, these three objectives are linked to and support one another. Therefore, sustainability and its different aspects have become an important topic within the business community. Koe et al. (2015) believed that sustainable entrepreneurship is a complex concept. Vatansever and Arun (2016) believed that sustainable entrepreneurship serves as a key for the stack of green jobs, which contribute to a revolution toward a cleaner economy. As defined by Schaltegger and Wagner (2008), sustainable entrepreneurship is “*an innovative, market-oriented guided form that creates value by innovation and environmentally or socially beneficent products*”. According to these researchers, sustainable entrepreneurship is a novel concept that links sustainable development to business activities.

Dean and McMullen (2007) focused on market imperfection when defining sustainable entrepreneurship as “*the process of exploration, evaluation, and exploitation of opportunities or economic situations arisen upon a market failure, with such conditions or situations reducing the environmental sustainability*”. Following the same line of reasoning, Hockerts and Wüstenhagen (2010) defined sustainable entrepreneurship as the exploration and exploitation of the economic opportunities arisen from imbalances in the market. Such type of entrepreneurship culminates in evolving a sector toward higher sustainability in terms of environmental and social conditions. As shown in Table 1 summary of definitions proposed for sustainability and sustainable entrepreneurship.

Koe et al. (2015) and Majid and Koe (2012) defined sustainable entrepreneurship as “*the entrepreneurial process for exploiting available opportunities innovatively to achieve economic interest, social justice, environmental quality, and cultural values in equal positions*”. Therefore, it can be postulated that a universally accepted definition for sustainable entrepreneurship is yet to be proposed, and rather different researchers have formulated different definitions for the concept. However, it should be noted that the sustainable entrepreneurship places equal emphasis on its different dimensions and aspects.

Firms and businesses greatly contribute to not only the economy but also the social and environmental position of various countries (Chao and Hong, 2019).

Table 1. A summary of the definitions proposed for sustainability and sustainable entrepreneurship

<i>Reference</i>	<i>Definition</i>
Vatansever and Arun (2016)	Sustainable entrepreneurship serves as a key for the stack of green jobs that contribute to a revolution toward a cleaner economy.
Koe et al. (2015)	Sustainable entrepreneurship is an entrepreneurial process for exploiting available opportunities innovatively to achieve economic interest, social justice, environmental quality, and cultural values in equal positions. Sustainable entrepreneurship is a possible approach to addressing environmental damages.
Zu (2014)	The aim of sustainable entrepreneurship, which has been recently referred to as a global movement, is to promote businesses wherein environmental and social impacts of the business are further taken into consideration.
Hockerts and Wüstenhagen (2010)	Sustainable entrepreneurship is an innovative, market-oriented guided form that creates value by innovation and environmentally or socially beneficent products.
Hall et al. (2010)	Sustainability is a key strategy and topic in business and entrepreneurship is an important channel for the goal of achieving a sustainable society.
Miles et al. (2009)	Sustainable corporate entrepreneurship is the process of adopting innovation in the products, processes, strategies, territories, or business models to explore, evaluate, and eventually exploit attractive economic opportunities arisen by various environmental problems or social responsibility-related issues.
Schaltegger and Wagner (2008)	Sustainable entrepreneurship is an innovative, market-oriented guided form that creates value by innovation and environmentally or socially beneficent products. Indeed, sustainable entrepreneurship is a novel concept that links sustainable development to business activities.
Dean and McMullen (2007)	They focused on market failure when defining sustainable entrepreneurship as the process of exploration, evaluation, and exploitation of opportunities or economic situations arisen upon a market failure, with such conditions or situations reducing the environmental sustainability.
Placet et al. (2005)	Sustainability refers to environmental surveillance, social responsibility, and economic accomplishments for both the organization and its stakeholders. In a successful strategy for a sustainability-driven business, these three objectives are linked to and support one another.

The paper by Miles et al. (2009) shows how one can incorporate the concept of sustainability into the framework of corporate entrepreneurship. The managers who have accepted the principles of sustainability provide motivational incentives for corporate entrepreneurship, which may lead to the discovery or creation, evaluation, and exploitation of entrepreneurial opportunities; opportunities for attaining reputation, credit, and even more important, competitive advantages. According to these researchers, sustainable organizational entrepreneurship is the process of adopting innovation in the products, processes, strategies, territories, or business models to explore, evaluate, and eventually exploit attractive economic opportunities arisen by various environmental problems or social responsibility-related issues.

Patzelt and Shepherd (2011) presented a model for explaining the difference between different entrepreneurs in their ability to identify sustainable development opportunities. This model expresses that the chances of identifying sustainable development opportunities may increase with “*previous knowledge of natural and public environment*”, “*motivations toward personal benefit*”, and “*motivation toward creating and developing interests for others*”. These relationships are stronger when individuals enjoy previous knowledge of entrepreneurship.

3.2. Green entrepreneurship

Researchers from different disciplines agree that not only is business an important factor in the

environmental problems but it also plays a key role in successfully tackling this issue (Geels, 2011; Hörisch et al., 2017). The eco-friendly business practices create a wide range of opportunities for entrepreneurs (Schaper, 2016). To strengthen environmental sustainability, modern communities feel the need for entrepreneurs who are concerned about the environment (Allen and Malin, 2008). Potluri and Phani (2020) believe that, for a business, environmental concerns can provide the entrepreneurs with a win-win situation in terms of energy preservation, reuse of the material, and lowered cost of recycling. Also, according to Farinelli et al. (2011), it should be noted the green technologies and products should eventually be introduced by “green” entrepreneurs and to achieve a green economy, the issues must be addressed by the entrepreneurs.

According to Jiang et al. (2018), the earliest practices of the green entrepreneurship dates back to 1960 when consequences of the environmental degradation and industrialization gave rise to the development of environment protection regulations in the developed countries. Accordingly, many researchers started to work on the green entrepreneurship and its associated concepts. The term ecopreneurship is a combination of two words: “eco” (ecological) and “entrepreneurship”. Therefore, ecopreneurship can be defined as “entrepreneurship through an environmental magnifier” (Schaltegger, 2002). Green entrepreneurship is a subcategory of entrepreneurship, and the focus on the word “green” highlights the special opportunities that are of greater interest in the newer entrepreneurship. The distinctive

feature of green entrepreneurship is that this type of entrepreneurship involves an eco-friendly outcome and output (Kotchen, 2009).

Green entrepreneurship is an economic activity that involves some products, services, and production methods with a positive impact on the environment, which results in changing consumer behavior and reducing the negative environmental impacts through the provision of the aforementioned products or services (Gevrenova, 2015). According to Tvedt (2016), the market failures and problems are of great importance for understanding the market conditions of services and environmental goods. The problems and conditions, on the one hand, show how opportunistic behavior of individuals could endanger the interests of the whole society (such as excessive consumption of public resources or the environmental pollution), but on the other hand, the entrepreneurship researchers (Cohen and Winn, 2007) maintain that the market deficiencies involve very good sustainable business opportunities and that entrepreneurs can discover the potential for the reduction in wastage and inefficiencies in the production systems and organizations. Therefore, green and sustainable business opportunities exist in a variety of market deficiencies. However, Tvedt (2016) believes that the green entrepreneurship process is more complicated than just responding to a market deficiency (for example, reducing the inefficiency of the company). According to Hörisch et al. (2017), considering the Dean and McMullen (2007) theory, ecopreneurship can be defined as the “process of discovery, assessment, and utilization of the economic opportunities available in market failures”, which relates to the environmental problems.

Lober (1998) states that corporate ecopreneurship can be defined as “the development of new products, services, or organizations to achieve the environmental market opportunities”. Green entrepreneurs represent the social changes (Allen and Malin, 2008; Anderson, 1998) and feel obliged to foster and observe the social norms (Keogh and Polonsky, 1998). According to Anderson (1998), pro-environmental entrepreneurs profoundly find themselves dealing with social values. In some studies (Allen and Malin, 2008; Krueger, 1998; Pastakia, 1998), the entrepreneurs are introduced as the agents of change and progress in both environmental and economic areas. Vatansever and Arun (2016) referred to green entrepreneurship as the panacea for sustainable economic development.

Entrepreneurship and the environment are not separate from each other within the green entrepreneurship’s nature (Anderson, 1998). Keogh and Polonsky (1998) state that “the ecopreneurship means innovation, identification of opportunities, and utilization of the global perspective on the environment.” According to Kotchen (2009), green entrepreneurship emphasizes the opportunities that also provide environmental benefits. Green entrepreneurship is the practice of starting a new

business in response to a well-known opportunity to achieve its benefits and create positive (or reduce negative) environmental outputs. In other words, Kotchen believes that green entrepreneurship is the initiation of a new business that is both profitable and is based on the goods and services that have environmental benefits, improve the quality of the environment, or at least have no harmful environmental impacts like other similar products. Therefore, in many cases, the environmental output from green entrepreneurship is a public good from which everyone gains benefits.

According to Zahedi and Otterpohl (2015), green entrepreneurs are looking for environmental sustainability. They provide innovative solutions for the mode of production and consumption of goods and services as well as improving the business model and helping to green the economy (Ataman et al., 2018). Green entrepreneurs are the innovators who add the core environmental values to their business as a competitive advantage (Gerlach, 2003).

According to another definition, green entrepreneurship refers to the pursuit of opportunities that generate economic and environmental benefits through green activities. Indeed, green entrepreneurship is a combined reflection of greenness, activity in the market, and risk proneness based on the business of a company (Jiang et al., 2018). Bakari (2013) states that green entrepreneurs are motivated by nature and their business activities naturally affect the environment. They strengthen economic sustainability and focus on a sustainable future. The biggest difference between a green entrepreneur and a traditional entrepreneur, as Bakari (2013) believes, is that a green entrepreneur seeks to create a business model that is economically profitable while generating environmental and social benefits. In addition, green entrepreneurs tend to establish environment-friendly businesses combining the profit with the dream of creating a greener commercial world (Thompson et al., 2011). Table 2 proposed a summary of definitions for green entrepreneurship

Willemsen and van der Veen (2014) addressed the role of location or place in creating a different meaning for green entrepreneurship and providing a source of inspiration for innovation and the relation with the brand; a brand based on a regional identity. Therefore, the place creates an opportunity to distinguish green entrepreneurship while the brand plays a very important role in portraying the place and green entrepreneurship. In their paper, Allen and Malin (2008) proposed a design of social awareness by which the green entrepreneurs could manage natural resources. They studied an example of green small to medium-sized enterprises (SME) demonstrating the way the businesses could contribute to environmental and social justice. This is while in practice the SMEs are usually largely ignored, with the small local businesses attracting even more limited amounts of attention despite their potentially significant importance.

Table 2. Summary of definitions provided for green entrepreneurship

<i>Reference</i>	<i>Definition</i>
Ataman et al. (2018)	A green entrepreneur offers innovative solutions to the practice of production and consumption of goods and services as well as the improvement of the business model and greening the economy.
Jiang et al. (2018)	Green entrepreneurship refers to the pursuit of opportunities that generate economic and environmental benefits through green activities. Indeed, green entrepreneurship is a combined reflection of greenness, activity in the market, and risk proneness based on the business of a company.
Hörisch et al. (2017)	According to the Dean and McMullen (2017) theory, ecopreneurship can be defined as the "process of discovery, assessment, and utilization of the economic opportunities available in market failures", which relate to environmental problems.
Vatansever and Arun (2016)	Green entrepreneurship is a panacea for sustainable economic development.
Uslu et al. (2015)	Green entrepreneurship offers new opportunities for groups in societies and businesses in relation to environmental challenges.
Gevrenova (2015)	Green entrepreneurship is an economic activity that has products, services and production methods with a positive impact on the environment, which leads to changes in consumer behavior and the reduction of negative environmental impacts through the provision and consumption of the aforementioned products or services.
Bakari (2013)	Green entrepreneurs are motivated by nature and their business activities naturally affect the environment. A green entrepreneur seeks to create a business model that is economically profitable while generating environmental and social benefits.
Kotchen (2009)	Green entrepreneurship is the initiation of a new business in response to a well-known opportunity that generates profit and creates positive (or reduces negative) environmental outputs. A green entrepreneur initially thinks about the ways to help protect the environment, then asks if these ideas can be profitable.
Schaltegger (2002)	Green entrepreneurship is entrepreneurship through an environmental magnifier.
Gerlach (2003)	Green entrepreneurs are the innovators who add the core environmental values as a competitive advantage to their business.
Keogh and Polonsky (1998)	Ecopreneurship means innovation, identification of opportunities, and utilization of the global perspective on the environment.
Lober (1998)	Corporate ecopreneurship can be defined as "the development of new products, services or organizations to achieve the environmental market opportunities".

Ataman et al. (2018) focused on the concept of green entrepreneurship considering the entrepreneurship development opportunities offered by this concept in Nigeria. In Nigeria, the environment is at risk of natural and human-made disasters including droughts, flooding events, and erosion where the growing population has added to the pressure on the environment. According to this piece of research, Nigeria enjoys huge reserves of natural resources. The entrepreneurs can make use of these opportunities to establish green businesses and hence create millions of jobs across the country. However, a great deal of effort is required to provide for the growth in entrepreneurship and evolution towards the green economy. Therefore, this paper recommends that: (1) the research on and the development of green entrepreneurship contribute to the maturity of its associated activities, and (2) the government is responsible for setting the required policies to promote an environment of entrepreneurship where the entrepreneurs are led toward adopting green innovations.

Farinelli et al. (2011) investigated the promotion of entrepreneurship generations that could identify and accommodate the advantages of green businesses. In this paper, the authors discussed that considering the term "green innovation", the emphasis must be placed on the "innovation" rather than what is generally known as green. They further declared that the investments made by the private sector on green

innovation do not solely produce private benefits, rather enhance the positive external impacts on the society and the environment as well. This is true particularly when private firms do not collaborate to improve only a small portion of the market, rather offer the potential for extending their activities toward achieving a stable change throughout the entire industry.

3.3. Green innovation

If managed appropriately, innovative actions can lead to active environmental development. In the 1970s, the concept of environmental innovation usually referred to pollution prevention. During recent decades, however, the concept of environmental innovation has been extended significantly and has set more and more environmental obligations and requirements for organizations. Accordingly, organizations can contribute to the active environmental management process by taking innovative measures (Dias Angelo et al., 2012). Environmental innovation can largely contribute to the improved environmental performance of companies and help meet the green demands of all stakeholders, including the governments, NGOs, customers, media, employees, and the society (Peng and Liu, 2016). Moreover, Ataman et al. (2018) believed that environmental innovation provides a basis for green consumption and promotes sustainable

environmental cooperation in different stages of the production process and service provision.

Environmental innovation is important for the sustainable development (Guo et al., 2020). Indeed, the concept of environmental innovation has been stemmed from the idea of sustainable development (Hansen, 2009). The environment-friendly innovations deliver an inter-disciplinary concept in between the social commitment of the firm and the innovation (Wagner, 2010). The concept of environmental innovation is not easy to define due to the complexity of its terminology. Environmental innovation refers to a set of systematic actions and changes focused on the environment. Indeed, environmental innovation has been defined as a set of systematic modifications that are made to mitigate adverse environmental impacts. Environmental innovation has faced numerous obstacles (Dias Angelo et al., 2012). According to Peng and Liu (2016), the environment-friendly innovations can be defined as “the production of new products and processes, competitive pricing systems, services, and methodologies designed to meet human needs by providing all people with a higher quality of life with a minimum life cycle while minimizing the consumption of natural resources (including the energy) per unit output and produce minimum possible amounts of toxic material and pollutants”. Kammerer (2009) believed that environmental innovation includes any systematic innovation that benefits the environment, including all changes and innovations that mitigate adverse environmental impacts.

Jansson et al. (2010) expressed that the incorporation of green innovation into green marketing for green products and services is of paramount importance. Farinelli et al. (2011) suggested that the new entrepreneurs in the market tend to keep focusing on the investments on the R&D activities for presenting innovative products to use the available resources more efficiently while providing potentials for improving productivity. Therefore, it can be concluded that green entrepreneurs enjoy high levels of motivation toward advancing. This is why they can create large environmental and social values.

In an attempt to distinguish between different aspects of organizational environmental management, Dias Angelo et al. (2012) identified the dimensions of environmental innovation in more detail. According to these researchers, the concept of environmental innovation can be categorized into three groups: (1) goods/services, (2) processes, and (3) the market. In a research entitled “Green technology and eco-innovation”, Bartlett and Trifilova (2010) presented a discussion on green innovation. In their research, they investigated the relationship between green technology and green innovation to clarify how green technology can be successfully developed into green innovation. They investigated seven case studies in the Russian manufacturing industry and concluded by introducing the green innovation development as a driving force toward the ever-increasing advances on

the road to a green future.

3.4. Entrepreneurial orientation

As a construct, the entrepreneurial orientation has been one of the most researched topics in the field of entrepreneurship (Covin and Lumpkin, 2011; Covin and Slevin, 1989, 1991; Covin et al., 2006; George and Marino, 2011; Lumpkin and Dess, 2001; Martens et al., 2016; Miller, 1983; Rauch et al., 2009; Wales et al., 2013; Wiklund and Shepherd, 2005). Accordingly, more researchers have turned to this topic during the recent past; hence the research on this subject has developed at an increasing rate. In other words, the number of papers published on the entrepreneurial orientation has increased significantly throughout time.

Some studies (Koe et al., 2015; Phan et al., 2002) have used the terms propensity, motivation, intention, and orientation interchangeably. According to Ajzen (1991), the intention (to do something) is a reliable predictor of the actual behavior of a person. Intention can be interpreted as the degree of the effort that an individual is willing to make for behaving in a particular way. An intention or orientation may or may not lead to an actual behavior. In their work, Koe et al. (2015) referred to orientation as the likelihood of exhibiting a particular behavior.

In early research papers on this topic, the entrepreneurial orientation was defined using a three-dimensional landscape (Miller, 1983): innovation, risk-taking, and proactiveness. Miller (1983) expressed that a firm can be recognized as an entrepreneur if they try to bring innovation into commercial products, take considerable amounts of risk, and create proactive innovations to restrict the competitors. Risk-taking refers to performing important activities that require the investment of significant amounts of resources while their profitability is in no way guaranteed (Lumpkin and Dess, 1996). Proactiveness refers to the advantages of proactively projecting the customers' demands, the market needs, and investing in emerging opportunities within the market (Covin and Slevin, 1989). At an ultimate point, innovation is the orientation toward supporting new ideas and experiments and adopting innovative trends (Hernández-Perlines, 2016). The study presented by Lumpkin and Dess (1996) added competitive aggressiveness and autonomy to the aforementioned primary dimensions. Covin and Wales (2012) declared that the single and multi-dimensional measurement models were consistent with various concepts of the entrepreneurial orientation.

Some research works (Dess et al., 2003; Hernández-Perlines, 2016; Ireland et al., 2009; Zahra, 1986) have pointed out the importance of entrepreneurial orientation in organizations. According to Hernández-Perlines (2016), today's specialists exhibit much more interest in entrepreneurship as a trend in the organizational culture and the orientation of a company represents its

strategic state (Covin and Slevin, 1991). Ireland et al. (2009) concluded that the entrepreneurial orientation describes the quality of the organization, which is defined based on several behavioral dimensions. Moreover, entrepreneurial orientation refers to the ability of an organization to undertake continuous renewal, innovation, and risk-taking in the market and its fields of activity (Miller, 1983). Lumpkin and Dess (1996) believed that “the entrepreneurial orientation is a matter of the processes, actions, and decisions that lead to new entries (entry of an organization in particular) to the market”.

Entrepreneurial orientation refers to the set of processes, actions, and decision-making activities that lead to new entries (Lumpkin and Dess, 1996). It monitors the entrepreneurial behavior of the organization concerning the performance of the organization (Hernández-Perlines, 2016). In a meta-analysis, Rauch et al. (2009) performed an extensive review of the studies linking the entrepreneurial orientation to performance.

Based on the valuable research work conducted by Martens et al. (2016), the most frequently cited traditional topics in the relevant literature include performance, innovation, market orientation, retailer businesses, and internationalization. On the other hand, the emerging topics with moderate frequencies of citation (i.e. still requiring further studies but have grown rather more pronounced in the recent years) include strategic orientation, growth, learning, knowledge, resources, capabilities, and family firms. Finally, the following are rarely considered topics, making them potential opportunities for future research: public sector, non-profit organizations, social frameworks and issues, universities, network, organizational structure, and firms in the emerging economies and developing countries.

3.5. *The environmental orientation of entrepreneurship actors*

The question to be answered in this part of this paper is, “Why do only some entrepreneurs exhibit a tendency toward undertaking entrepreneurial environmental actions?” According to Roxas and Coetzer (2012), an individual’s behavior to adapt to an external environment is a function of his/her worldviews. Successful adaptation to the environment is a result of a process that begins with behavioral determination and then leads to an explicit behavior (Ajzen, 2001). Environmental orientation can be an indication of internal organizational values, ethical behavior standards, and commitment to environmental protection. Moreover, the environmental orientation of a business refers to the environmental aspects of that business that affect the way the business communicates to externalities, such as shareholders, or to society (Banerjee et al., 2003). Moreover, the intention has been acknowledged as a primary factor contributing to the recognition of and taking action with regards to the sustainable entrepreneurship opportunities (Thelken and de Jong, 2020). Jiang et al.

(2018) suggested that the green EO refers to the intentional tendency toward achieving potential opportunities that bring about economic and environmental benefits by introducing environmentally compatible goods and services. They stipulated that companies can utilize green EO as a dynamic means to take advantage of market opportunities. Pratono et al. (2019) believed that green entrepreneurial orientation has important effects on sustainable competitive advantage and inter-organizational learning.

In their research, Roxas and Coetzer (2012) referred to the concept of environmental sustainability orientation (ESO). Conceptually speaking, ESO is a business orientation reflecting a company’s philosophy that businesses should perform in a way that is compatible with the environment. They believed that the ESO of a company resembles a three-dimensional structure, with the cognitive, regulatory, and normative factors being the institutional environment factors that can have significant positive effects on the managerial orientation toward environmental sustainability. Companies with high levels of ESO tend to carry out a wide range of activities to reduce the negative impact of their businesses on the environment. In fact, ESO lays out a strategic structure at the level of the company, focusing on widespread organizational awareness, commitment, business activities and plans, environmental responsibility, and sustainable development. Hörisch et al. (2017) suggested a number of personal e.g. income, age, education level, and an entrepreneur’s position in the society, and social factors e.g. government support of environmental entrepreneurship by formal institutions, such as environmental taxes), and environmental pressures and expectations or the environmental culture of the market activists (informal institutions) as the most important variables affecting the environmental orientation of the entrepreneurial businesses.

Koe et al. (2015) acknowledged the cognitive processes performed by managers-owners of small and medium-sized enterprises (SMEs) as an important factor contributing to sustainable entrepreneurship. This paper aimed to evaluate the effects of attitudinal, normative, and perceptual factors on Malaysian SMEs’ orientations toward sustainable entrepreneurship; a total of 404 SMEs were investigated. The previously mentioned piece of literature investigated factors that affect sustainable entrepreneurship orientation. On this basis, attitudes toward the sustainability, social norms (perceived social pressure toward exhibiting or inhibiting a particular behavior, including the opinions, views, or influences of reference groups such as the family and friends), perceived utility (the degree to which a person feels he/she is attached to an entrepreneurial action), and perceived feasibility (a person’s beliefs about his/her ability to take an entrepreneurial action) were analyzed.

According to Peng and Liu (2016), identifying

the factors that affect companies' orientations toward environmentally-friendly innovations is a hot research topic in several disciplines. Individual factors, pressures from governments, shareholders, institutions, organizations, customers, and competitors; strategic motivations (e.g. cost reduction, market development); and managerial intentions and behaviors are important factors contributing to environmentally friendly innovations.

Businesses usually present a green image of themselves, which indicates their accountability regarding public concerns about the environment. These companies can develop their environmental strategies to target green customers (Banerjee et al., 2003). Oña et al. (2013) focused on the environmental proactivity of companies and the factors affecting this matter. Environmental proactivity is a key component of business strategies and corporations' positions, thus bringing about tangible and intangible benefits. The authors believe that it is very important to understand which variables lead companies toward environmental proactivity. Factors such as environmental education, managers' concerns about the environmental issues, the government, economic interests, market opportunities, and the prevention of penalties were accounted for in the model presented by these researchers.

In another work, Banerjee et al. (2003) elaborated on the concept of corporate environmentalism. They identified four important prerequisites of corporate environmentalism. These included public concerns, regulatory forces, competitive advantages, and top management commitment. The results indicated that corporate environmentalism is associated with all of these prerequisites, and the type of industry modifying many of the relationships, as it possesses such unique characteristics as the competition intensity, centralization, and input/output barriers. However, the researchers classified the entire pool of industries into two categories based on their environmental impacts—industries were classified either as having either intensive and moderate environmental impacts. This proposal was presented based on the significant differences between the four dimensions of pollution level, public concern level, the stringency of environmental regulations, and environmental responsibility risk.

Potluri and Phani (2020) performed a deep analysis on the experiences of the traditional and green entrepreneurs. Their research placed an emphasis on the necessity of incorporating the "green" factor into the entrepreneurship educations delivered all along the way from the elementary school down to the university. Applying the so-called structural equations modeling on the data from a survey among 407 students in two European countries, Thelken and de Jong (2020) highlighted the effects of the values and future orientation in the development of sustainable entrepreneurship intention. The results suggested that the policy-makers and other experts in the field of education can stimulate sustainable entrepreneurship

intention through value-activation strategies. Moreover, the governments were found to be able to help strengthen the mental norms that are consistent with the sustainable entrepreneurship intention.

Pacheco et al. (2010) believed that the nature of market promotions must encourage sustainable environment-friendly methodologies. This is especially the case in the emerging economies, where entrepreneurship revolves around survival in the market. Following a similar line of thinking, Silajdzic et al. (2015) argued that the required motivation for engaging in green entrepreneurial activities cannot be provided merely by innovative goals and social commitment; new opportunities for revenue generation must also be created.

On the other hand, many researchers admit the superiority of social and environmental awareness over economic accomplishments. For instance, Patzelt and Shepherd (2011) concluded that more emphasis has been placed on the achievements of sustainable development for others to create motivations for orienting the thoughts toward its opportunities. In their opinion, individuals who practice green entrepreneurship tend to do business (selling green products and services) based on the sustainability principle and according to fundamental green values. These investments in green business do not always lead to a specific monetary profit but rather produce significant positive outcomes for society. Nevertheless, research works have highlighted the role of obtaining personal benefits as an incentive for green and sustainable entrepreneurship (Dean and McMullen, 2007; Pacheco et al., 2010).

Peng and Liu (2016) mentioned that companies are usually not spontaneously interested in investing in and performing activities for the production of environmentally friendly innovations in virtue of their own resources unless external resources (e.g., subsidies given for environmental innovation) are offered.

Roxas and Coetzer (2012) claimed that managers would show greater interest in environmental issues and concerns in their companies if the institutional environment was recognized as supportive of environmental management methods. Furthermore, Meek et al. (2010) inferred that governmental support can take a material form (e.g., granting subsidies for providing environment-friendly services) or allocated through immaterial mechanisms (e.g., activating interactions between environmental entrepreneurs and other key players).

In a research work titled "What influences environmental entrepreneurship?" Hörisch et al. (2017) analyzed the factors affecting entrepreneurs' environmental orientation. According to their findings, the influence of institutions on environmental entrepreneurship has been less regarded. Their results showed that institutions play an important role in entrepreneurial behaviors, especially in relation to the environmental orientation that entrepreneurs adopt in their risk-taking activities.

Uslu et al. (2015) believed that the

governments are responsible for supporting green products, regularly setting and implementing the required policies, establishing and managing institutions' environmental orientation, reinforcing and developing market infrastructures, and administering public and green economies in relation to one another. The public sector, on the other hand, is responsible for investigating and evaluating the opportunities obtained for moving toward a green economy and responding to the financial utilization of this channel for making investments. Similarly, Silajdzic et al. (2015) recognized the government as being responsible for presenting adequate instruments to green entrepreneurs, supporting SMEs in overcoming obstacles, and promoting the investment in green markets, emphasizing government-set policies for mitigating entry obstacles and the cost of establishing a favorable market.

Kotchen (2009) highlighted the importance of the private sector's engagement in addressing environmental issues, as the private sector considers development trends as economic opportunities. Overall, the literature review confirms that institutional pressures, including forced pressures, normative pressures, and/or even imitation, affect the environmental methods adopted and the performance exhibited by corporations (Delmas, 2002; Lin and Ho, 2016). Such pressures can further affect the implementation of environmental methods by different corporations.

On the other hand, pieces of evidence indicate that environmental regulations play a very important role in the realization of green entrepreneurship, making these regulations an opportunity - rather than an obstacle - for organizations. Environmental regulations offer the potential for establishing new environmental markets, requiring improvements to environmental products and services, and increasing resource efficiency among companies. Also, these regulations can bolster innovation and create new markets while motivating environmental actions that can be taken toward innovation and entry to new markets (Tvedt, 2016).

Ochsner (1998) suggested that environmental regulations represent the most significant motivators for developing pollution prevention strategies. Indeed, regulators require compliance with environmental standards, thus contributing to a significant prerequisite for environmentalism. In particular, companies polluting industries (e.g., chemical, plastic, and cement manufacturing) shall be monitored more carefully than their counterparts, with the most intensive regulations to be imposed on such companies because of their greater environmental risks and responsibilities than other industries. Accordingly, the environmental costs and expenses incurred for complying with the environmental regulations differ from one industry to another (Banerjee et al., 2003). In addition to the special regulations concerning green entrepreneurship, there is a more legal context for doing business, and it is anticipated that if the general business environment is

somehow unfavorable for entrepreneurial activities, entrepreneurs are non-proportionally forced away from their objectives right from the start of new high-risk practices (Hörisch et al., 2017).

The next topic to discuss is the attraction of external resources for producing environment-friendly innovations. Such resources can be collected from social networks. The social networks that a company participates in usually include political and business relationships. The external resources obtained from governmental networks include financial support, green purchase orders, and information about industrial policies. For example, governmental support can lower the cost of environmentally friendly innovations. The government can offer further green support in the form of insurance facilities for green products and reduced market uncertainty for companies engaging in green innovation. In addition, information about environmental policies can mitigate the institutional risks faced by companies engaged in environmentally-friendly innovation. The external resources that can be derived from business networks include technological support, green product purchase commitments, green demand, and the development of green supply chains (Peng and Liu, 2016).

In addition to what has been mentioned above, managerial traits such as a manager's norms, beliefs, attitudes, and mental models affect their strategic choices and, hence, the corporation's behavior (Roxas and Coetzer, 2012). The CEO of an organization greatly affects the trend of social responsibilities throughout the company (Chen et al., 2019). A company's manager has profound impacts on the adoption and implementation of environmental management practices across the company (Banerjee, 2002a, 2002b). Tilley (1999) infers that there is a direct relationship between a manager's attitude and the environmental behavior of small firms. According to Banerjee et al. (2003), the top management of a company imposes a direct impact on the environmental orientation of the company. In other research, Cummings (2008) argued that any improvement in the environmental commitment behavior of a company largely depends on the company's managerial attitudes.

According to Peng and Liu (2016), a less-often regarded point is the role played by managerial cognition as a key driver of environmentally friendly innovations. In this respect, highly environmentally aware managers are likely to focus on green innovations and attain high levels of environmental performance. This, in turn, is likely to introduce green production processes, improve existing products, or release new products for mitigating environmental impacts. Moreover, managers with higher levels of environmental awareness can better detect environment-related business opportunities and obtain a better understanding of the environmental methods adopted by their competitors. Similarly, Roxas and Coetzer (2012) expressed that the ESO of a company is primarily determined by the personal characteristics and attitudes of the company's owner. Accordingly,

although the ESO is at the level of the firm, in small enterprises, the dominant and strategic role of managers will ultimately determine the company's general state, strategy, and configuration in relation to the environment. In another study, Chen et al. (2019) believed that the association of the social responsibility performance with the CEO's commitment has improved upon the increased awareness about the importance of the subject-matter of social responsibility during the recent past. They concluded that the social responsibility performance of companies has been much higher in the early tenure of the CEOs rather than that in their late tenure and that the commitment of companies to the social responsibility projects, including those focused on environmental issues, can reduce the professional problems encountered by the managers.

Banerjee et al. (2003) believed that having an environmental orientation might not be as advantageous unless concerns about implementing it strategically are in place. Accordingly, the integration of environmental issues into strategic plans is important. Chen (2011) argued that corporate culture and leadership are positively linked to a green corporation identity and a green competitive advantage. Indeed, organizations must achieve a green corporate culture and green leadership before they can enhance their green organizational identity and hence their green competitive advantage.

In 2002, Corral showed that understanding the technical capabilities and economic risks related to green technologies is an important driver for leading a company toward adopting or developing such technologies. Zhang et al. (2013) performed a case study on a Chinese company and showed that perceptions of the social insight play an important role in the tendency of companies to decide to develop and produce clean technologies.

Li et al. (2020) through the lens of institutional theory and using survey data from 239 companies in China have introduced the entrepreneurial orientation as an important driver of green management of companies in emerging economies. This study considers entrepreneurial orientation as a promising component of green management in emerging economies. Jiang et al. (2018) investigated the effect of green EO on corporate performance in China. They found that the environment can affect green entrepreneurship through, for example, the institutional context, social normative context, or regulations. These researchers believed that green EO will contribute to the development of a beautiful China exhibiting long-term growth. They tested their hypotheses using data from 264 Chinese companies. The results indicated that the association between green EO and corporate performance is adjusted by green technological dynamicity and knowledge transfer and incorporation. Moreover, green EO was found to have a positive effect on the financial and environmental performance of companies, thus strengthening the economic and environmental interests of the society at the same time.

4. Result and discussion

An increasing trend of environmental problems has been experienced during the recent past, with the global attention to the topic grown. This has motivated businesses toward adopting greener economic models wherein the focus is on the design and production of environment-friendly products and services for end-users and customers (Chao and Hong, 2019). The scientific nexus of entrepreneurship and the environment disciplines has led to some research works on green entrepreneurship (e.g. Allen and Malin, 2008; Ataman et al., 2018; Kotchen, 2009; Jiang et al., 2018; O'Neill and Akbasaran, 2016; Potluri and Phani, 2020; Uslo et al., 2015), sustainable entrepreneurship (e.g. Hörisch et al., 2017; Koe et al., 2015; Miles et al., 2009; Patzelt and Shepherd, 2011; Schaltegger and Wagner, 2011; Thelken and de Jong, 2020; Vatansever and Arun, 2016), green innovation (e.g. Dias Angelo et al., 2012; Peng and Liu, 2016) and other topics. However, as our study found, the concept of green entrepreneurial orientation is a fascinating research field. Indeed, by deep reviewing existing studies conducted under the title of green entrepreneurial orientation, it seems that very limited research has been done in this context and most of these researches (e.g. Ameer and Khan, 2020; Guo et al., 2020; Habib et al., 2020) have not provided an appropriate description, construct or model for green entrepreneurial orientation. Therefore, it seems that this concept is not fully understood yet. As another result of this research, a summary of the literature on entrepreneurship and the environment is presented in Table 3.

In fact, science and theories tend to explain real and external phenomena. But is any phenomenon worth a scientific study? What phenomena justify a scientific study? For an external phenomenon to justify a scientific study, it must possess two primary characteristics. First, this phenomenon must be important and impose some effect on the system. Second, the phenomenon must not yet be adequately explained in a scientific field. With these prerequisites in mind, is green EO a scientific phenomenon that is yet to be adequately addressed in a scientific field? There is almost no doubt regarding the importance of the green EO of a business. Moreover, the review of the existing literature has shown that neither the environmental literature nor the entrepreneurship literature has adequately explained green EO as an independent topic.

Researchers tend to create and test theories following a philosophic-scientific thinking approach and then use different theories to describe, explain, and predict a phenomenon. Indeed, an objective of science is to design theories, and our understanding of phenomena is expressed in the form of the relationship between variables. As a matter of fact, a theory is a tool by which we can explain a social phenomenon. Therefore, a theory provides knowledge of what, why, how, and under what circumstances a phenomenon can occur.

Table 3. A summary of the literature on the entrepreneurship and the environment

#	Reference	Research Focus	Important Subjects Discussed	Research Type	Key Findings
1	Jiang et al. (2018)	Investigation of the impact of green entrepreneurial orientation on the performance of the firms	Green entrepreneurship is introduced as a dynamic capability enabling the utilization of new ideas, promoting innovation, and indicating the tendency toward achieving potential opportunities.	Quantitative, the research hypotheses were tested using the data from 264 Chinese firms.	The relationship between the green entrepreneurial orientation and the firm performance is adjusted by the dynamic technology of the green technology and knowledge transfer and incorporation. The green entrepreneurial orientation imposes positive impacts on financial performance and the environment.
2	Ataman et al. (2018)	Investigation of the concept of green entrepreneurship and attention to the opportunities for developing the green entrepreneurship in Nigeria	The adoption of environment-friendly business methods creates a wide range of opportunities for entrepreneurs.	Exploratory; investigation and analysis of the existing research on green economy and entrepreneurship	The findings of this research showed that most of the developed countries and the developing ones have tried hard to operate in compliance with the green requirements according to the policies set by international authorities. This research suggests that, as far as environmental sustainability is concerned, the green economy and green entrepreneurship must gain more attention in Nigeria.
3	Hörisch et al. (2017)	Investigation of the factors affecting the environmental entrepreneurship	Institutions play an important role in explaining the entrepreneurial behavior, especially in terms of the orientation towards the environment that the entrepreneurs adopt for their risk-prone activities.	This study used the data collected by the Global Entrepreneurship Monitor to perform a multi-stage analysis.	First, the results indicated that the environmental orientation is usually utilized as a source for ensuring the legitimacy of the high-risk activities undertaken by the entrepreneurs, so that the entrepreneurs tend to exhibit further environmental orientation should they assess their social position as low. A second, a lower degree of environmental orientation was reported among the highly educated and high-income entrepreneurs. And third, this analysis helps the policy-setters understand that for the sake of green entrepreneurship, not only the political settings must be designed specially, but also the policies must be tailored to the conditions of the domestic economy.
4	ONeil and Akbasaran (2016)	Investigation of the legitimation and learning processes among the environment-oriented entrepreneurs	Compared to other entrepreneurs who are active in more institutionalized fields, the environment-oriented entrepreneurs deal encounter higher degrees of complexity and difficulty.	Qualitative; a longitudinal study on six environment-oriented firms in England	The entrepreneur's values and beliefs contribute to the process through which he/she is legitimated (the "what is important for me" stage). However, this contribution is attenuated when the entrepreneur begins to obtain legitimacy from the audience (the "what is important for them" stage). At the end of the day, the entrepreneurs reach a point where the two legitimation approaches come to a balance.
5	Silajdžić et al. (2015)	Green entrepreneurship in the emerging economies	In the emerging economies, the introduction of green technologies and businesses and the respective processes can proceed concurrently with the development of key components of the economy	Qualitative data gathering; performing interviews with representatives of the government, the social community, businesses, and universities in Bosnia and Herzegovina, and analysis of case studies	The results of this research show that, in emerging countries, entrepreneurship is yet to be well prepared for responding to possible challenges or admitting all sorts of risks for investing in green businesses. In this respect, government policies can attenuate the entry barriers and reduce the cost of establishing an appropriate market.

6	Uslu et al. (2015)	Investigation of green entrepreneurship in Turkey	Some 15% of the research and development on the entrepreneurship activities in Turkey during the recent past has been related to the environment	Review	Governments are responsible for supporting the green products, regular codification and implementation of policies, creating and managing the green orientations, reinforcing and development of the market infrastructures, and joint management of the public economy and the green economy.
7	Koe et al. (2015)	Investigation of the factors affecting the entrepreneurial mindset process such as sustainable entrepreneurship tendency	Sustainable entrepreneurship development is a major challenge for business activists as it is a complicated process.	Quantitative; Effects of attitudinal, normal, and perceptual factors affecting the tendency toward sustainable entrepreneurship were measured among the small to medium-sized enterprises in Malaysia. A total of 404 small to medium-sized businesses were considered in this study.	The attitudinal and perceptual factors were found to impose significant positive impacts on the tendency toward sustainable entrepreneurship.
8	Willemssen and van der Veen (2014)	The role of place or location in establishing a different meaning for the green entrepreneurship	Sustainability defines the very first requirement of the entrepreneurship because the environment is where we live and do business, with the place or location implicitly comprising a part of the green philosophy. Local identity serves as a source for increasing power.	These researchers used the so-called action research for implementing a green trademark. Their paper referred to a village in the Netherland, where the local businesses were mostly small to medium-sized and becoming increasingly aware of their requirement for greenness.	The place or location provides an opportunity for differentiation in the green entrepreneurship, and the role of the trademark in visualizing the place and green entrepreneurship is very important. The green entrepreneurship under an appropriate trademark serves as a factor contributing to the creation of value-added at local small to medium-sized enterprises.
9	Oña et al. (2013)	Investigation of the impact of agents' pressures, firm goals, firm actions, and managerial concerns about the proactive environmental performance of the firms	Observing the environmental aspects as an opportunity leads to improved short-term and long-term economic productivity.	Quantitative; as a statistical sample, a total of 135 Spanish firms were studied.	The results indicated the positive impacts of the managerial concerns regarding the environmental aspects, shareholders' pressures, and economic interests on the environmental orientation of a firm. At the same time, the environmental managerial barriers and the negative impact of the actions taken by the government contribute to a reduced probability of environmental orientation of the firm.
10	Roxas and Coetzer (2012)	Investigation of the effects of three dimensions of the institutional environment on the managerial attitude toward the natural environment and the impact of the managerial attitude toward the natural environment on the sustainable environment orientation in small enterprises	The environmental sustainability orientation of a firm is a three-dimensional structure composed of the knowledge of environmental issues, sustainability methods, and commitment to environmental sustainability.	Quantitative; this study was conducted based on the data extracted from a survey among 166 small manufacturing companies located in three different cities across Philippine.	When managers treat the institutional environment as a supporter of the environment management methods, the managers will be more interested in developing a positive attitude toward the environmental issues and concerns within their companies. Findings indicate that the cognitive, monitoring and normal factors are the environmental elements that impose significant positive impacts on the positive management orientation toward environmental sustainability.

11	Farinelli et al. (2011)	Explaining the role of green entrepreneurship in achieving the green economy	In order to achieve a green economy, it is necessary to have entrepreneurs as leaders.	Review	Developed countries and international organizations tend to place a greater emphasis on the term “Green” and the market opportunities, while the developing countries are more focused on the term “entrepreneurship” and the market demands.
12	Patzlet and Shepherd (2011)	Explaining the difference between entrepreneurs in the ability to recognize sustainable development opportunities	There are sustainable development opportunities for a number of individuals.	Conceptual; presenting a model for recognition of the sustainable opportunities	The “prior knowledge of the public natural environment”, “perception of the threat to the environment”, and “Altruism toward others” can increase the chances of recognizing sustainable development entrepreneurship opportunities. These relationships are even more strengthened when people have prior knowledge of entrepreneurship – including the knowledge of markets, methodologies for providing services to the markets, and customer problems.
13	Pacheco et al. (2010)	Green prison	In a green prison, the entrepreneurs encounter a system of promotions that are less than enough to promote sustainable actions across an industry or market.	Modeling based on the games theory	Although entrepreneurship is an important force for social and environmental sustainability, its efficiency is yet determined by the type and nature of the awards or market stimuli. When the entrepreneurs follow costly sustainable activities, there are chances that the sustainable activities are punished, rather than acknowledged, by the market under special conditions. The entrepreneurs can create/utilize particular institutions including norms, ownership rights, and existing regulations to get out of such a difficult situation in the green prison.
14	Hockerts and Wüstenhagen (2010)	Investigation of the shares of small and large enterprises in the industrial evolution toward sustainable development	The environment-oriented entrepreneurship can be seen as related to the innovation in processes and products.	Conceptual	During the early stages of evolution of industry toward sustainability, the newbies, as compared to existing practitioners, are more interested in following up the sustainability-related opportunities, and the existing companies tend to respond to the activities performed by the newbies by engaging with sustainable organizational entrepreneurship activities.
15	Miles et al. (2009)	Sustainable corporate entrepreneurship	Many companies have focused their research and development capabilities on presenting innovative solutions for the environmental problems and challenges in relation to their products and marketplace. This research shows how one can fit the concept of sustainability into the framework of the organizational entrepreneurship	Conceptual	A company is recognized as being engaged with the sustainable organizational entrepreneurship that exhibits evidence of all three components of sustainability: accountable environment management, social accountability, and long-term economic performance, and the presence of innovation in the company’s products and/or services.
16	Banerjee et al. (2003)	Introduction and investigation of the concept of corporate environmentalism	Environment orientation; is managers’ perception of significant environmental issues encountered by their companies.	Quantitative; the required data was collected from more than 240 firms to test the research hypotheses.	There are four important backgrounds determining corporate environmentalism. These include public concerns, monitoring forces, competitive advantage, and top management commitment. The results of this research showed that the corporate environmentalism has contributions from all of the four backgrounds, with the type of the company adjusting many of such relationships.

However, a fundamental question is regarding what phenomenon is described by green EO? Accordingly, we must first recognize and perceive this phenomenon and explain its causes. This will help us to predict and, hence, control this phenomenon. This is a topic that may be elaborated by future studies.

Considering the traditional structure of the EO construct, as an important conclusion and suggestion, it seems that in addition to the “green risk-taking”, “green innovativeness”, “green pro-activeness” and the “green opportunity-orientation” represents a new component that can be incorporated into the ambiguous construct of green EO. However, it is suggested that future studies address this issue more extensively. The concept of *opportunity* has been consistently mentioned in the entrepreneurship literature, and, as noted before, a number of fundamental studies on entrepreneurship have been devoted to the role of the opportunities in the field of entrepreneurship. For example, Shane and Venkataraman (2000) explained a good conceptual framework for the entrepreneurship, adequately describing the nexus of the individual and the opportunity for forming the entrepreneurship. Moreover, as the “absorptive capacity” of companies to discover, create, evaluate, and exploit green entrepreneurial opportunities increase, they would certainly have a higher green EO. Stevenson and Jarillo (1990) believed that the concept of entrepreneurship as the company's behavior is based on opportunities. On the other hand, most of the definitions proposed for green entrepreneurship have directly referred to the concept of opportunity. Jiang et al. (2018), for example, stipulated that the goal of green entrepreneurship is “to seek potential opportunities that realize economic and environmental benefits by initiating green activities.” Indeed, green entrepreneurship is a reflection of green innovativeness, pro-activeness, and risk-taking in environmental markets. Kotchen (2009) believed that “green entrepreneurship refers to the act of starting a new business to respond an identified opportunity for exploiting some benefit and creating (reducing) some positive (negative) environmental output.” The proposed components of green entrepreneurial orientation have shown in Fig. 1.

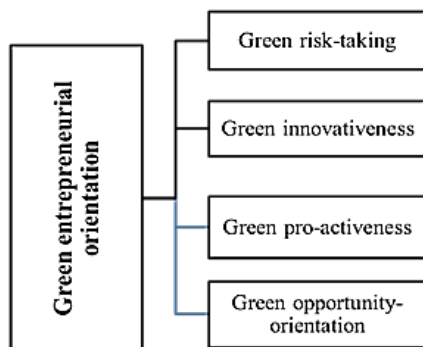


Fig. 1. The green entrepreneurial orientation construct

Gartner (1985, 1988) and then, Shane and Venkataraman (2000) expressed that the entrepreneurship discipline tends to explain a phenomenon. But what is that phenomenon? The answer is the phenomenon of *emergence*, which takes different forms including the starting up of a new business/venture or developing a new product in an existing business. According to traditional theories of management and organization, the existence of an organization has been a fundamental assumption. That is, the traditional management and organization theories always assume an already-established organization and then how this organization must be managed and led to higher levels of productivity to provide the organization with some competitive advantage. However, the emergence phenomenon keeps focusing on the process through how the organization transforms from non-existence to the existence, and how such a process leads to the establishment of a new organization (business) or new entry; this has not been addressed by any other scientific field, but the entrepreneurship science pays attention to this concept well. As another output of this research, we provide a definition of green entrepreneurship. Following the same line of reasoning, the green entrepreneurship can be interpreted as an environmental value-creating emergence. Considering its competitive advantages, the green entrepreneurship cannot be simply imitated or implemented world (Potluri and Phani, 2020) and can rather provide the entrepreneurs with a blue ocean of numerous achievements. Another question to address is that what are the factors contributing to the orientation of businesses toward a value-creating green emergence? Or what factors can enhance/decline the green entrepreneurial orientation of the businesses? A general review of the literature on environmental science, green entrepreneurship, sustainable entrepreneurship, environmental orientation, and entrepreneurial orientation led to the presentation of a proposed conceptual framework of the internal and external factors affecting the green entrepreneurial orientation of businesses (Fig. 2a,b).

We hope that the present research can build into a foundation for new fields of study in the future. Future studies are suggested to undertake broader and more systematic research to explain the concept of green entrepreneurial orientation and its elements. It is also suggested to present a model of the factors affecting this orientation at individual and/or organizational level by means of standard qualitative research on the community of green businesses. One may also consider the outputs of adopting such an orientation. But can the type of industry contribute to the green entrepreneurial orientation of the entrepreneurs? Or how is it possible to measure the green entrepreneurial orientation of a business or an entrepreneur? Comprehensive efforts by the researchers are required to foster the entrepreneurship and environment literature and hence develop the

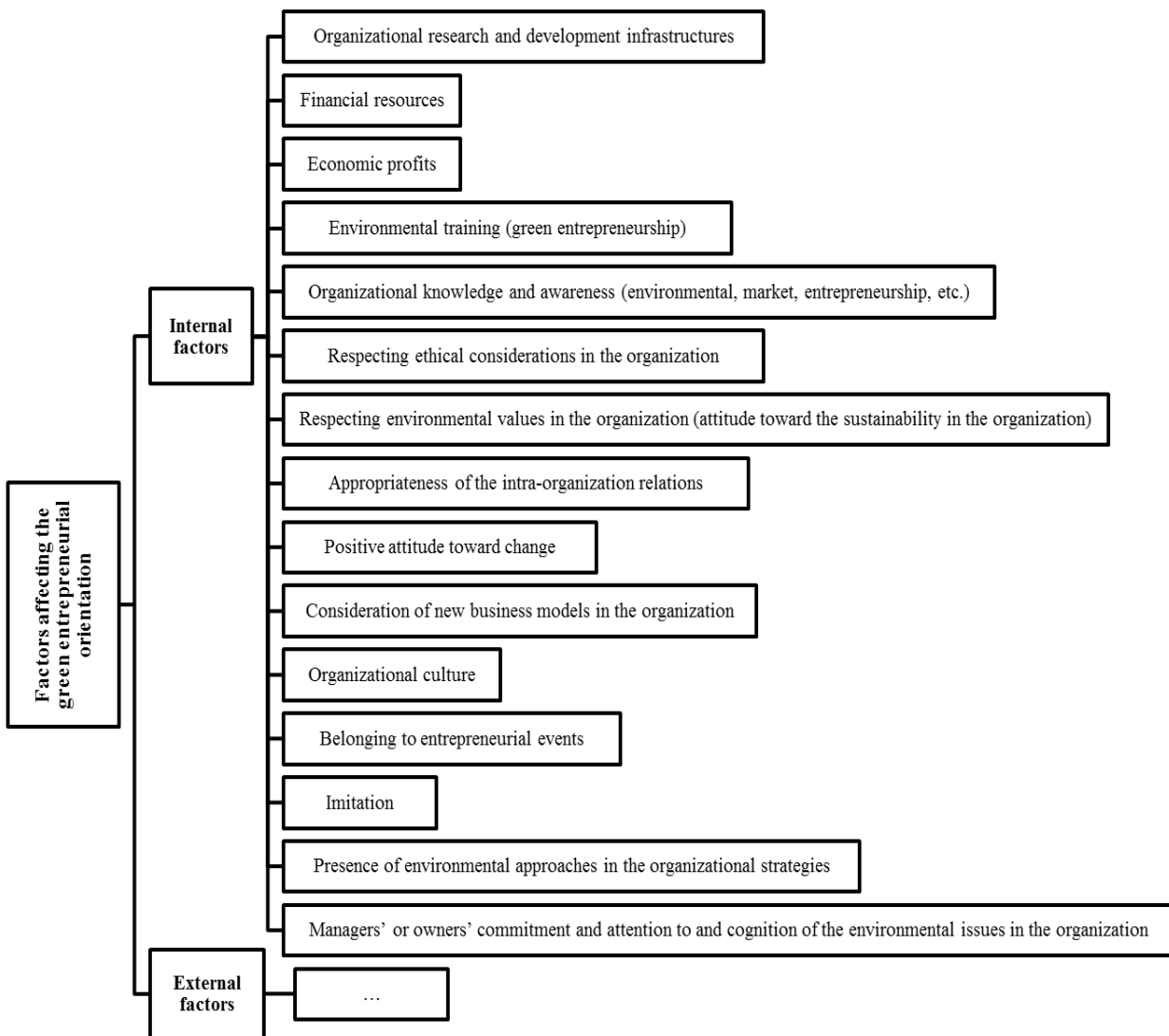
required theoretical and empirical foundations for addressing the above-raised questions.

5. Conclusions

In today's modern world, the environment is rendered as inseparable from other fields of human activity, including politics, economics, security, culture, and others. Every modern society aims to secure a clean environment while achieving economic growth and social welfare. Today, sustainability, as a new cultural necessity, has forced businesses to revisit their strategies and programs. Entrepreneurs can no longer conceal their behavior. In the meantime, there is a broad range of environment-related opportunities available to entrepreneurs. In order to improve the state of the environment, present-day societies need entrepreneurs who plan and take environmentally friendly actions. Accordingly, green entrepreneurs play a key role in the realization of the green economy. In the present research, a review of the literature and studies on the nexus of entrepreneurship and the environment is presented.

We believe that the present study brings about significant advantages for the development of the research in the field of green entrepreneurship orientation. As our study found, the concept of green entrepreneurial orientation is a fascinating research field. Moreover, the review of the existing literature has shown that neither the environmental literature nor the entrepreneurship literature has adequately explained green EO as an independent topic. Thus, one of the results of our semi-systematic review is to identify the field of green entrepreneurial orientation as a context with research capacity for the theoretical development of the scientific nexus between entrepreneurship and the environment.

On the other hand, considering the traditional structure of the EO construct, as an important conclusion and suggestion, it seems that in addition to the “green risk-taking,” “green innovativeness,” “green pro-activeness,” and the “green opportunity-orientation” represents a new component that can be incorporated into the ambiguous construct of green EO.



(a)

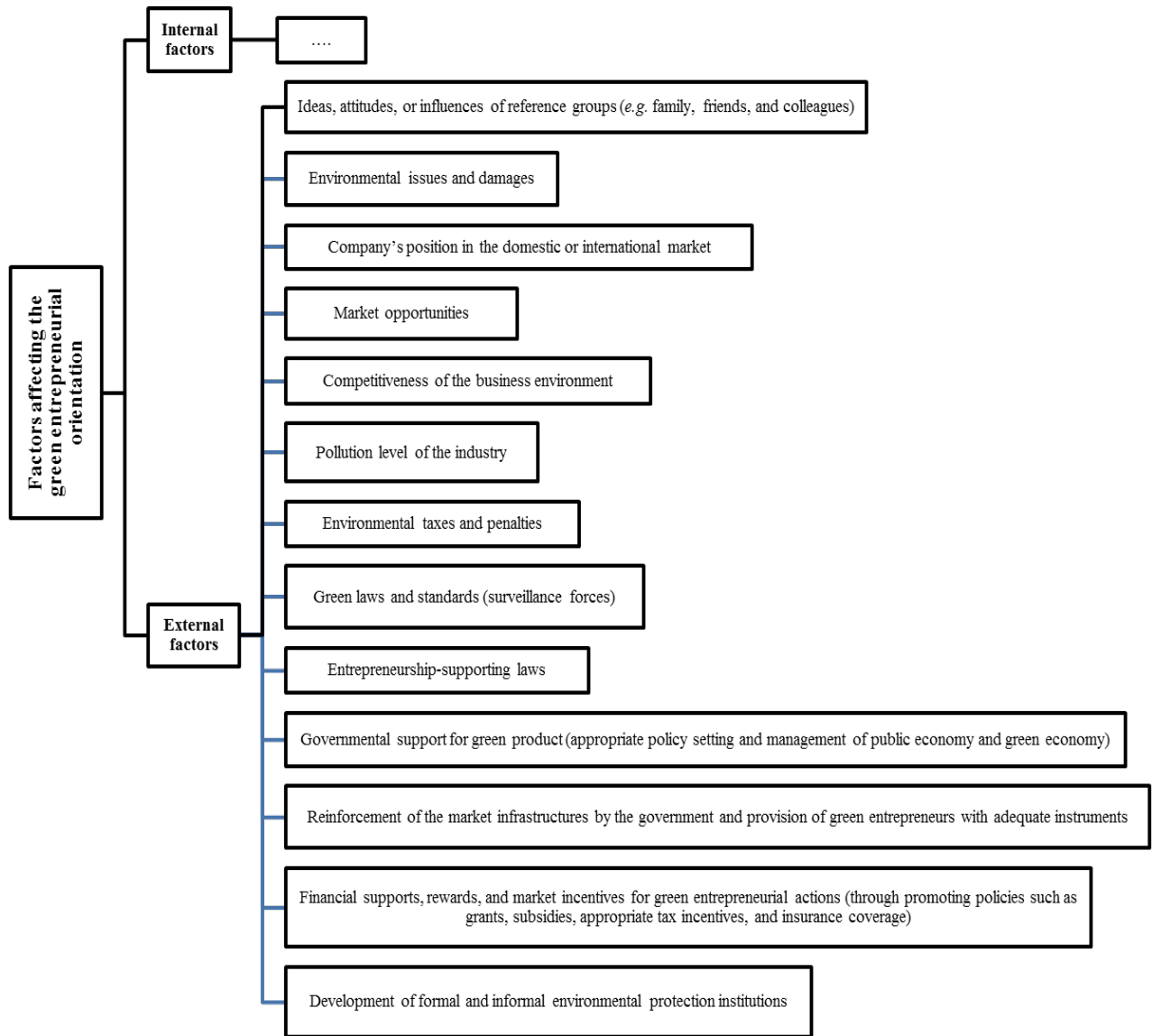


Fig. 2. (a) The internal factors affecting the green entrepreneurial orientation of businesses; (b) the external factors affecting the green entrepreneurial orientation of businesses

Moreover, a general review of the literature on environmental science, green entrepreneurship, sustainable entrepreneurship, environmental orientation, and entrepreneurial orientation led to the presentation of a proposed conceptual framework of the internal and external factors affecting the green entrepreneurial orientation of businesses; these factors as an important output of this research can be used by future researchers to expand their studies in the field.

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