Environmental leadership in start-ups

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Abstract. Nowadays, organizations are facing severe environmental challenges, including global warming, air pollution, oil crisis and water pollution. The society has progressed to emphasize environmental issues and governments have also been implementing stricter environmental regulations, as the impacts will influence business across Europe. In response to pressures from various stakeholders, managers are taking more active involvement to adapt their strategies, total quality environmental management, and in-house green innovation activities to address ecological concerns. To achieve better balance of economic and environmental performance, many corporations have been pushed to be low-carbon and environmentally proactive by carrying out green innovation practices.

We are observing the emergence of a flood of innovative start-ups that promise to have a positive impact on the climate. The topicality and innovation of the concept for start-ups worldwide creates the need for a more in-depth study of the phenomenon. Start-ups dare to position themselves where no established organization is interested and does not dare to pursue opportunities. Taking risk and responsibility in the work of start-ups go hand in hand, especially in times of crises, such as the COVID-19 and the environmental challenges.

Environmental leadership, being essential for the implementation of green innovation practices has received continuous attention from the business sector in recent years, yet few studies have examined its links with the start-ups. The aim of this article is to advance research in the field by investigating the relationship between the role of the environmental leadership and development of start-ups.

Keywords: environment, leadership, start-ups

European green policies

The European Union (EU) published the European Green Deal in 2019 - a set of policy initiatives to turn climate and environmental challenges into growth opportunities with the overarching aim to make the EU's economy sustainable. That means zero net greenhouse gas emissions across the continent by 2050.

The Green Deal defines initiatives across eight pillars. These pillars include sustainable building/renovation, energy, clean & circular economy, smart mobility, food, biodiversity, zero pollution and sustainable finance.

Each pillar is already opening up a multitude of start-up and investment opportunities. The future of industry is digital and green. Europe is entering a new industrial era driven by transformative technologies, new business models and the common goal of de-carbonization.

Whether it is re-imagining manufacturing, construction, energy, logistics or mobility, the firm understanding of these sectors supports the building of more sustainable and innovative Europe.

Green innovation and leadership

There is a rich body of literature investigating environmental management which underscores that green innovation practices would bring efficiency improvement, cost savings, and environmental benefits (Chen, Lai, Wen 2006; Pan, Tian 2017; Zhang, Wang, Lai 2015).

Various studies have explored the relationship between green innovation practices and corporate performance from different perspectives. Some scholars believe that environmental management or innovation will increase the cost of the enterprises, so it is an unnecessary investment and even hinders the development of the enterprises (Pan, Tian 2017). But others insist that enterprises implement environmental management and green innovation which will help them achieve sustainable competitive advantage (Hart 1995; Porter, Van der Linde 1995).

Although there is a significant corpus of work on the driving factors of green innovation practices, there is surprisingly lack of studies looking at leaders' management styles, which may vary considerably from one individual to the other. Although green innovation practices are critical to corporate performance, the readiness of leaders within the organization to actively accept green business, which emphasizes environmental sustainability, is essential as well (Daily, Bishop, Govindarajulu 2009).

Boiral, Baron, and Gunnlaugson (2014) also argue that corporate greening behaviour depends greatly on the involvement and leadership of top managers, who play a significant role in implementing policies and practices in their operation (Graci, Dodds 2008). Leaders' perception of external events and view toward environmental problems as opportunities or threats will largely determine the commitment and actions of greening behaviours (Sharma 2000). In other words, the top managers' leadership style motivates their organization to achieve environmental goals and performance by doing business in an environmental-proactive manner (Mittal, Dhar 2016). Top managers who engage in a particular leadership style would affect an organization's internal values, culture, beliefs, and orientation, which has a great impact at the functional and operational levels (Banerjee, Iyer, Kashyap 2003). Of the various types of leadership, the role of environmental leadership has been associated with the implementation of various environmental practices and top managers' responsibilities in promoting changes (Boiral, Baron, Gunnlaugson 2014).

In organizations, leaders possess higher status, formal authority, and control of resources, and they are more likely to be role models for the follower

to observe and learn (Brown, Treviño, Harrison 2005). Environmental leaders will clearly explain environmental values to followers and take practical actions to implement environmental protection concepts. Such behaviours show an important signal to followers, that is, environmental practices are encouraged in the organization, which will enhance employees' willingness to participate in environmental practices (Robertson, Barling 2013). In addition, by demonstrating environmental behaviours in person, leaders can show employees how to participate in environmental practices in the workplace. What is more, environmental leaders will also provide employees with corresponding learning opportunities to help them improve their ability to cope with environmental issues, thereby promoting the overall organization's environmental practices (Li, Zhang, Xie 2019).

The research on environmental leadership stems from organizations' need for transformation into sustainable development (Liu, Yuan, Zhang 2018). On the one hand, increasingly serious global environmental problems have forced organizations, who are the main producer of environmental pollution, to take responsibility for addressing ecological concerns. Pressures from various stakeholders, namely, governments, consumers, communities, and competitors, also require organization leaders to be environmentally proactive (Bansal, Roth 2000; Wu 2014). On the other hand, the Natural-Resource-Based View incorporates environmental factors into the framework of corporate competitive advantage analysis, emphasizing that the achievement of competitive advantage to a large extent depends on organization's management capabilities that facilitate environmentally sustainable economic activity. Berry and Gordon (1993) consider environmental leadership as an individual's ability to lead a positive shift toward a future environmental vision. From a stakeholder perspective, Jang, Zheng, and Bosselman (2017) define environmental leadership as "the capabilities or acts that promote internal and external stakeholders to achieve environmentally sustainable goals".

Compared with other leadership styles, environmental leadership highlights stronger environmental values, which is also implemented during related organizational processes, activities, and networking. Following this, Egri and Herman (2000) defined environmental leadership as the ability to influence individuals and mobilize organizations to achieve a goal of long-term ecological sustainability. This definition has been widely recognized and adopted by numerous scholars (Boiral, Cayer, Baron 2009; Crossman 2011; Moe 2012). But recently, some scholars define environmental leadership as transformational behaviour (Chen, Chang 2013; Graves, Sarkis, Zhu 2013; Robertson, Barling 2013). Robertson and Barling (2013) propose that environmentally specific transformational leadership focuses on encouraging followers to take environmental-proactive behaviours. Chen and Chang (2013) defined green transformational leadership as leaders' behaviour to inspire employees to achieve environmental goals and exceed expected environmental performance. This article also adopts the perspective of behaviour and we define environmental leadership as leaders' behaviour to motivate followers to take green practices so as to achieve a firm's sustainable development.

Start-ups on the stage

There are no generally accepted definitions of start-ups in the literature. Most authors talk about a company in its first stage of activity. However, the beginning and end of this first stage are not clearly defined and the number of stages is not definitively determined (Levie, Liechtenstein 2010). The existing definitions of start-ups refer mainly to the age of the firms as an indicator for start-ups. Especially in those young companies that have limited processes, structures and procedures the leadership behaviour of founders and CEOs plays a crucial role. They need to develop a vision to motivate all employees, stimulate them intellectually and guide them to achieve the company's vision (Zaech, Baldegger 2017).

The literature suggests that the success of leadership is influenced primarily by its context, which includes the business environment, the life cycle of the company, or the structure of the firm (Porter, McLaughlin 2006). Start-ups operate in a specific context, which is characterized by a high risk of failure (Ouimet, Zarutskie 2014), enormous complexity and unpredictable uncertainty (Sommer, Loch, Dong 2009). In addition, they are associated with a lack of experience and a high degree of flexibility and dynamism. Regarding the growth of start-ups, research indicates increasing resilience to the processes of organizational transformation and improvements with increasing age of the company.

Limited financial and human resources are another central feature of start-ups (Romanelli 1989), which often leads to a flat organization with a small number of levels of hierarchy. In most cases, there is only one level of management, which is led by the founder and CEO. Another characteristic of start-ups is the degree of internal and external uncertainty they may experience (Sommer, Loch, Dong 2009). Internal uncertainty is based on a short company tradition and lack of experience (Atherton 2003) and is associated with a low level of developed procedures and processes. External uncertainty refers to specific environmental conditions, such as a complex and dynamic market in which young companies can operate. Most of the characteristics of the described start-ups are mentioned in the theoretical studies of Bass (1995), Pawar and Eastman (1997), and Shamir and Howell (1999). In contrast, however, the context of start-ups is rarely the subject of empirical research, which is a prerequisite for further research in the field.

Case studies

The following case studies are presented in order to demonstrate the importance of environmental management nowadays for start-ups in that specific field. The management style for each case study is not analysed for the current research, however it might be a backbone for further research and analyses on the specific case studies, presented in the paper.

EntoGreen

EntoGreen is a Portuguese start-up, established in 2014, and the technology of the company is the result of a long R&D process started in 2012.

Using an innovative bioindustrial technology, EntoGreen seeks to contribute to the sustainability of the agro-food sector by solving two major global problems, nutritional scarcity and food waste. EntoGreen specializes in the development of biotechnological solutions for the production of animal protein and organic fertilizers through reuse and valorization of by-products from the agrifood industry[1].

Recently, Banco Português de Fomento invested in the EntoGreen project, which will allow the installation of the first industrial unit in Santarém, using an innovative bioindustrial technology, for the conversion of organic residues of agrifood origin into secondary raw materials, namely in new nutritional sources for compound feed for animals and in organic fertilizers for soils.

Facedrive

This start-up was founded in 2016 in Richmond Hill, Toronto and developed by Imran Ali Khan. The Canadian start-up operates as a ride-sharing and food delivery service, much like Uber and Lyft, except for a focus on sustainability. They describe themselves and their brand as a "people-and-planet-first" venture that provides commuters with an environmentally-friendly alternative for their transportation[2].

Facedrive drivers are reported to earn up to 90% of their ride 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, including Toronto, Hamilton, Burlington, Ottawa, and London. It is also worth mentioning that the food delivery leg of their platform is the first of its kind to have a green service in all of Canada.

Fuergy

Based in Slovakia, this start-up was founded in 2018 and made a name for itself 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 brAIn, a supplementary and proprietary hardware that utilizes AI tools in order to "optimise energy and consumption and maximise the efficiency of renewable energy sources"[3].

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[1] See the EntoGreen website at: https://www.entogreen.com/
[2] See the Facedrive website at: https://facedrive.com/
[3] See the Fuergy website at: https://www.fuergy.com/en

Goterra

Goterra was founded in Canberra, Australia by Olympia Yarger. This unique start-up 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"[4].

The Australian start-up is in for something bigger: they want to address the rising issue concerned with mishandling of food waste. In turn, they provided 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.

Iron Ox

Developed by Brandon Alexander and Jon Binney in 2015, Iron Ox is a unique start-up as it specializes in agricultural robotics technology, aiming to perfect a fully functional vertical farming system. This venture has managed to secure various funds 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[5].

Conclusion

Green start-ups have a rocky road ahead of them, filled to the brim with additional challenges brought about by the erratic world order and their own internal logistic problems. These budding entrepreneurs have to consider their bottom line, social responsibility, economic value, and environmental impact altogether. Nevertheless, once they channel their passion for the environment and motivation to succeed, these ventures will be instrumental in protecting the Earth.

Environmental leaders believe in the new ecological paradigm and they are able to integrate seemingly contradictory corporate visions. Leaders play a key role in identifying and addressing environmental issues. Managers' and employees' concerns about environmental management behaviour often come from the influence of senior leaders. Due to the pressure of stakeholders' environmental expectations and demands, environmental leaders will actively

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[4] See the Gottera website at: https://goterra.com.au/
[5] See the Iron Ox website at: https://ironox.com/

think about and implement corporate green practices to improve environmental benefits and produce green products that better meet consumers' needs. In other words, managers with high level of environmental leadership will look at environmental issues as an opportunity, which may influence an organization's reforming direction.

Leaders are suggested to be trained to improve the ability to develop and implement green actions, thus increasing environmental performance. It is recommended that during the process of hiring environmental leaders, organizations should take some measures to effectively assess managerial candidates' pro-environmental values and attitudes and then make final selection decisions accordingly.

Environmental leaders will positively influence the organization's overall quality management, designing and production of supplier relationship management products, and introduction of new technology, thereby reducing environmental pollution, building green image, and broadening market share of agricultural products for the corporation.

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