

Challenges and opportunities that green entrepreneurs face when building their network compared to traditional network formation, a triple bottom line perspective

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Keywords

Green entrepreneurship, sustainability, Triple Bottom-Line, entrepreneurial challenges, network formation.

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Abstract

The current study investigates how the challenges and opportunities concerning network formation faced by green entrepreneurs differ from traditional network formation. The Triple-Bottom Line is used in order to classify the challenges under people, planet and profit in combination with five inter-firm co-operation theories. A triangulation approach was adopted during this study where a literature research from secondary data is compared to the findings of interviews that were held with twelve green entrepreneurs based in the Netherlands. Results indicated that there is a discrepancy between the challenges faced by green entrepreneurs and the literature, especially concerning the challenges from a planet perspective. Furthermore, network formation opportunities were raised by the green entrepreneurs from different perspectives. These insights are useful for other green entrepreneurs who are about to start with their network formation as a guideline in order to adjust their networking strategies to diminish the negative effects of these challenges and leverage the opportunities. Moreover, the challenges concerning network formation in this research can serve as a basis for researchers to find solutions to these challenges.

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1. Introduction

Friedman (1970) contended that there is one and only one social responsibility for businesses (hereafter also referred to as firms, organizations and companies), which is to make as much profits as possible as long as it is embodied in law and stays within the ethical customs. Friedman also stated that businessmen speak prose when they think that responsibilities like eliminating discrimination, avoiding pollution and providing employment are also important to be considered when directing a company. Of course, this article is written in a different era, where environmental concerns were not as well discovered as they are now.

In the past decade, there has been an increasing awareness towards the ecological and sustainable aspects of entrepreneurship and organizations (De Lange et al., 2012, Young et al., 2013). More and more companies want to reduce their carbon footprint in order to contribute to diminishing the environmental impact that businesses have (Almeida et al., 2012; Thießen et al., 2014). Customers, investors and other stakeholders demand continuous improvements in these environmental facets and companies are increasingly encouraged to implement sustainable business practices to reduce the environmental load and to stay competitive (Johnsen, Miemczyk, & Howard, 2017; Tura et al., 2018).

One way to do so is to improve current business processes in order to be more ecologically sustainable, but the ecological impact of business practices can also be environmentally sustainable from the outset. Ecological sustainable entrepreneurship, or also mentioned as ecopreneurship, environmental entrepreneurship, enviropreneurship and green entrepreneurship, can be amongst the core values for the formation of a new company (Melay & Kraus, 2012; Gast et al., 2017). These terms are all used interchangeably and the last term, green entrepreneurship, will be used throughout this research for uniformity purposes.

Green entrepreneurs play a critical role in the eventual adoption of green business practices by the wider business community (Schaper, 2010). Gibbs (2006) describes these green entrepreneurs as those who attempt to combine the environmental, economic and social components of sustainability in a holistic manner and are said to have a different organizing logic compared to more conventional entrepreneurs.

Previous research showed that additional green entrepreneurs are needed to address present environmental challenges, such as global warming (Allen & Malin, 2008; Gast et al., 2017). In addition to that, organizational system changes can only reduce an organization's environmental impacts to a limited extent (King et al., 2005; Hertin et al., 2008). Therefore, in

order to effectively address the environmental issues of an organization, organizational networks can help to diminish this.

Organizational networks can be considered as “a set of nodes (organizations) linked by a set of relationships (...) of a specified type” (Laumann, et al., 1978, p. 458) and are crucial for gaining access to resources in many ways (Gast et al., 2017). Kimmel and Hull (2012) found that networks can help entrepreneurs to connect to information services, provide access to capital, low-cost support services, and infrastructure. Knowing this, having networks as an entrepreneur is a real asset, but there is not much research devoted to investigating the impact of firm level characteristics and the firm’s ability to benefit from its network positions (Daoud, 2013).

Scholars did research about the benefits of having networks (Kimmel & Hull, 2012) and the challenges that entrepreneurs face when building a network (Lockett et al., 2012), but no scholar focused on the challenges that green entrepreneurs face during the networking formation phase. On top of that, no research has been conducted that aims to emphasize how network formation challenges differ between green entrepreneurs and traditional entrepreneurship literature. This is important to research because knowing how the challenges differ from traditional entrepreneurship could help to create a better understanding of how green entrepreneurs can benefit from this knowledge and create advantages out of it. It could also lead to opportunities for green entrepreneurs to incorporate business decisions, such as whether or not green suppliers should be part of the network, more effectively. So, knowing how the challenges of green entrepreneurs differ from traditional entrepreneurs can contribute in determining their opportunities, resulting in more efficient and effective decision making.

The aim of this research is twofold. The first is to create a better understanding of what the challenges are that green entrepreneurs face when building their network and to compare them with the literature around traditional network formation challenges. This will be researched by interviewing green entrepreneurs that currently are either in the network formation phase or are already past this phase and have a well-developed organizational network. Hereafter, the interview results will be compared to the findings of the literature research concerning the challenges found by other researches. The second aim is to use the Triple-Bottom Line (henceforth ‘TBL’) approach as a base to describe the entrepreneurial challenges and research how the knowledge around these challenges could lead to opportunities for green entrepreneurs.

The TBL has often been used by scholars to define what green entrepreneurship is all about (Schlange, 2006; Hall et al., 2010) and also helps businesses to show commitment

towards society, environment and economics (Majid & Koe, 2012). Moreover, the TBL approach functions as a tool for businesses to measure sustainability performance (Slaper & Hall, 2011). Therefore, the TBL fits perfectly as a base to research the entrepreneurial challenges and opportunities while forming a network from a sustainability angle. Interviews will be used in order to empirically research what the challenges are that green entrepreneurs face and this will be compared with data from secondary sources. The resulting research question of this paper can be found below.

What are the challenges and opportunities that green entrepreneurs face when building their network compared to traditional network formation?

This research explores how network formation challenges differ between green entrepreneurs and traditional entrepreneurs, aiming to fill the currently existing research gap, knowing that closing it is beyond the scope of this research. Next to that, the findings of this research will guide green entrepreneurs by providing an overview of frequently occurring challenges that other green entrepreneurs faced when building their network. Herewith, green entrepreneurs can adjust their networking strategy in order to save time, resources and ultimately create opportunities to build a network more effectively.

In the next chapter, the theories around green entrepreneurship and network formation challenges will be further elaborated on. At the same time, a closer look is taken on how the TBL can help to gain a better understanding of the challenges that entrepreneurs face during the network formation phase. After this, the methodology chapter will include a deep dive into how triangulation was being used to acquire data and why this method is chosen as the basis for this qualitative research. The findings of these interviews will be explained in the results chapter where an overview will be provided of the different challenges that green entrepreneurs face while forming their network. Then, the results will be discussed, which will entail how the data adds value to the literature and the what the implications are for future research. The data, results and findings will then be collaborated together into a clear and concise conclusion.

2. Theoretical framework

2.1 Green entrepreneurship

Green entrepreneurship can be viewed as the implementation of innovations related to sustainability, which its main objective is implementing them and promoting a green economy

(Farinelli et al. 2011). The drivers of green entrepreneurship are the green entrepreneurs and they are considered the economic actors who make it possible to turn ideas into a reality, by transforming prototypes into commercially viable products (Farinelli et al. 2011). The term green entrepreneurship has been used in many different variations by scholars throughout the years (Wagner & Schaltegger, 2010). There are more ways of using this term and scholars have created different overlapping definitions. According to Santini (2017), a major challenge when dealing with green entrepreneurship is to find a unique definition of green entrepreneurs. This is the case because there is a lack of academic consensus about what constitutes a green entrepreneur. An overview of the different variations in the literature and their definitions can be found in Table 1.

Term	Definition	Author
green entrepreneurship	‘the process that consists of individual innovators who see their business as embracing environmental values as a core component of their identity and as aiding in their competitive advantage in the marketplace’	Allen & Malin (2008)
ecopreneurship	‘the process when seeking to transform a sector of the economy towards sustainability by starting up a business in that sector with a green design, with green processes and with a life-long commitment to sustainability in everything that is said and done.’	Isaak (2002)
ecological sustainable entrepreneurship	‘the process of identifying, evaluating and seizing entrepreneurial opportunities that minimize a venture’s impact on the natural environment and therefore create benefits for society as a whole and for local communities’	Gast et al. (2017)
environmental entrepreneurship	‘the process of discovering, evaluating, and exploiting economic opportunities that are present in environmentally relevant market failures’	Dean & McMullen (2007)
enviropreneurship	‘an entrepreneurial orientation that accommodates the needs of the environment and society’	Paulraj (2011)

Table 1: Green entrepreneurship variations and their definitions

In Table 1, for every variation of the term green entrepreneurship, the definition of the most-cited research paper has been used as this is the best representation of the most widespread preference towards the definition of the respective term. It can be concluded from this table that environmental awareness must be amongst the core business values for green

entrepreneurs and that making as much profits as possible should not be the priority. The definition of Isaak (2002) is coming the closest to my personal preference of defining green entrepreneurship. This is the case, because it covers what in my opinion is the key characteristic of a green entrepreneur: a life-long commitment to (social) sustainability and doing green business in everything that is said and done.

2.2 Green entrepreneurship vs traditional entrepreneurship

This life-long commitment to sustainability and doing green business is not in line with the key characteristics of non-green companies according to the literature concerning traditional entrepreneurship. Some scholars found that the main responsibility of the entrepreneur is to create as much shareholder value or make as much profits as possible (Friedman, 1970; Morck, 2014). The social and environmental aspects were seen as a minor importance compared to the economic aspects. Das & Rahman (2009) for example found that the economic factors are considered as the most prominent determinant for entrepreneurs to form strategic alliances. So, not only while founding and managing a business, but also when forming strategic alliances with external parties, economic factors are often considered as the fundamental element for entrepreneurs to consider.

The transition of traditional entrepreneurship towards a more social and environmental aware corporate environment as we know nowadays has its fundamentals in the introduction of corporate social responsibility (CSR) (Carroll, 1999). CSR can be defined as the continuing commitment by businesses to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and the environment (Holme & Watts, 2000; Kolk, 2016). A research by McWilliams & Siegel (2000) showed that customers, suppliers, employees, governments, and shareholders encourage firms more and more to undertake additional investments in CSR. CSR can therefore help businesses as a tool to reduce its environmental emissions because businesses also have a responsibility towards its stakeholders from three perspectives: economically, environmentally and socially. This will be further emphasized in the next chapter.

2.3 Triple-Bottom Line

Now that the difference between traditional entrepreneurship and green entrepreneurship is elaborated on, the TBL approach will be used in order to support, by means of a theoretical framework, how the challenges and opportunities for green entrepreneurs can be categorized.

The term Triple-Bottom Line was coined by John Elkington in 1994 where he strived to go beyond the traditional accounting measures of profit, ROI and shareholder value, but also focused on the broader environmental and social dimensions (Elkington, 1997; Slaper & Hall, 2011). The environmental dimensions generally refer to the amount of resources a firm uses in its operations (e.g. energy, land, water) and the by-products its activities create, e.g. waste, air emissions, chemical residues (Hubbard, 2009). The social dimensions generally refer to the impact a firm has on the communities in which it works (Hubbard, 2009).

The goal of the TBL is to capture the whole set of values, issues and processes that companies must address in order to minimize any harm resulting from their activities and to create economic, social and environmental value (Elkington, 1997). The economic, social and environmental aspects are often perceived as a scorecard that attempts to measure a companies' division of attention that is paid to the 3Ps: profit, people and planet (Slaper & Hall, 2011).

There is also some criticism against the TBL. Although Elkington has introduced the term TBL, the theory has recently been recalled by him. It is not that the economic, environmental and social aspects of entrepreneurship are not important anymore, the opposite is true, but it has been misused by firms as an accounting tool while profit still remained the key driver (Kraaijenbrink, 2019). The TBL should therefore not be used as a tool to describe how green a company is, but it can be used in order to categorize how a business devotes its attention towards the 3Ps. This will also be the theory on which this research is built upon: A tool to categorize the challenges and the opportunities of green entrepreneurs in three categories: planet, people and profit. As a result, this will be researched among green entrepreneurs that are currently in the network formation phase or those who recently founded a business and have a sophisticated network.

2.4 Network formation

2.4.1 Phases of network formation

Following up on the theory that the TBL can help to categorize the challenges and opportunities that green entrepreneurs face, the next step is to define what the network formation phase entails and how the network formation differs between green entrepreneurs and traditional entrepreneurship.

For entrepreneurs, the formation of new ties and ties formed by entrepreneurial ventures is essential because they are presumed to enable access to critical resources (Hoang & Yi, 2015). The forming of these business ties or network relationships come in many shapes and sizes, and so there is no single model which encompasses them all (Jackson, 2003). Although

there is no single model which encompasses all networks, there are three phases that the network formation process goes through resulting in a partnership between two actors in a network (Ginter et al., 2010). The first phase is called the exchange network phase where information is being shared between two organizations. The second phase is the action network phase. Here, mutual goals are being set and collective actions are decided in order to make the network formation a success. The third and final phase is the systemic network phase where long-term formal linkages are formalized and agreed upon. A visual representation of these three phases can be found in Figure 1.

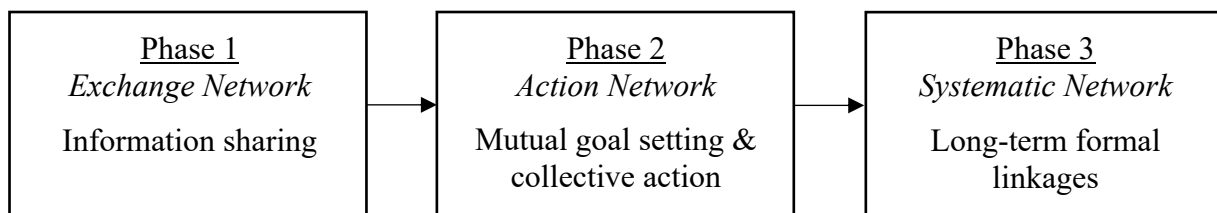


Figure 1: Network formation phases, acquired from Ginter et al. (2010)

2.4.2 Network selection criteria

Knowing what the phases are that every company goes through while forming their network, it is also important to define what a network consists of. Generally, a business network consists of various value adding industry actors, such as manufacturers, suppliers, service providers, customers, research and governmental institutions, shareholders and investors (Glowik & Bruhs, 2014). Finding the right actor that fits in your network as an entrepreneur can be complex. Especially when you are a green entrepreneur, where you seek to start up a business with a green design, with green processes and with a life-long commitment to sustainability in everything that is said and done. In these cases, your network of external partners should also share the same green values. This could make it harder for green entrepreneurs to form strategic partner alliances with actors that share aligning values compared to traditional entrepreneurs. But when is an actor a good fit for your network?

According to Wu et al. (2009), finding the partner selection criteria and developing an appropriate partner selection model are the most important issues before a strategic alliance is formed. The criteria for partner selection that are often used are the characteristics of the partner, the marketing knowledge capability, the intangible assets of the other actor, the complementary capabilities and the degree of fitness (Wu et al., 2009). When the other actor does not completely meet the criteria while creating a partnership within a network, this can be a challenge that also needs to be taken in consideration. The greenness of a company is part of

the criteria characteristics of the partner and should therefore be taken into account while forming the partnership.

Although there is an increase in the awareness and implementation of sustainable business processes in organizations, there is hardly no organization that can say that it is good for the environment in each and every aspect of its operations (Brehmer et al., 2018). If an organization wants to contribute more effectively to reduce its environmental impact, it should not only optimize its business processes but also take a closer look at the entire supply chain, business model and network (Baumgartner & Zielowski, 2007; Enkvist et al., 2008; Elhedhli & Merrick, 2012). So, forming a network as a green entrepreneur with actors that have mutual environmental values could be more difficult compared to traditional entrepreneurs, but on the other hand it results in lower environmental emissions and also reduces your own environmental impact.

2.5 Network formation challenges

As stated above, it could be harder for green entrepreneurs to establish a solid organizational network compared to traditional entrepreneurs, but what are the barriers that make this harder and how do they differ from traditional entrepreneurship literature?

Although industry networks are perceived to bring a range of benefits to entrepreneurs, the manner in which these benefits can be driven and achieved through formal processes of network formation can be questioned (Lockett et al., 2012). Forming strategic partner alliances for your organizational network for example costs a lot of time, money and trust (Larson, 1991; Bierly & Callagher, 2007). It is therefore of high importance to execute this process as efficiently as possible. The corresponding entrepreneurial barriers or challenges can be categorized under people, planet and profit as stated by the TBL, but will also be classified under five inter-firm co-operation theories for the purpose of creating a better overview of the different challenges faced by the entrepreneurs.

2.5.1 Inter-firm co-operation theories

A holistic approach by Veramäki and Vesalainen (2003) is incorporated in order to classify the entrepreneurial challenges in the networking process among five different theories of inter-firm co-operation. These five theories are very well known in the field of inter-firm co-operation and they approach the phenomenon in a versatile way (Veramäki & Vesalainen, 2003). The selected five theories are the transaction cost theory (TCT), resource dependence theory (RDT), strategic management literature (SML), social network theory (SNT) and industrial marketing and purchasing theory (IMP). These will be further explained below.

Transaction cost theory

The TCT explains that relationships are developed in order to reduce transaction costs (Besson, 2018). Moreover, TCT posits that the optimum organizational structure is one that achieves economic efficiency by minimizing the costs of exchange with the other actor in a relationship (Williamson, 1979). The challenges of green entrepreneurs therefore can be classified under the transaction costs theory when they aim to influence the costs of exchange within the relationship between the entrepreneur and the other actor in the network.

Resource dependence theory

The RDT is a theoretical perspective that characterizes the organization as an open system, dependent on contingencies in the external environment (Pfeffer & Salancik, 1978). RDT recognizes the influence of external factors on organizational behavior and, although constrained by their context, managers can act in order to reduce environmental uncertainty and the dependence of resources (Hillman et al., 2009). Every challenge that would involve the need and dependence of resources from the other side of the relationship in a network can be classified under the RDT perspective.

Strategic management literature

The SML examines the entrepreneurial environment and looks inside the firm, developing ideas and methodological advances that follow and try to predict management practice transformation in order to create competitive advantage (Herrmann, 2005). The challenges in the SML are concerned with complexity arising out of ambiguous and non-routine situations with organization-wide rather than operation-specific implications (Johnson et al., 2008).

Social network theory

SNT tells us who is connected to whom in the network and by what relationship (Krause et al., 2007). Companies have adopted social networking to maintain and improve their competitive position (Stanko & Sena, 2017). The use of SNT has motivated companies to rethink their business strategies and is therefore considered a key component while forming a network. Examples of network characteristics from a SNT perspective that have an impact on the effectiveness of the network are the positioning of the focal organization in the network and the strength of the relationship with other actors within the network (Koka & Prescott, 2008; Srba & Bielikova, 2010). Entrepreneurial challenges concerning the network positioning, or the strength of the relationship between two actors in a network, can be classified under the SNT.

Industrial marketing and purchasing approach

IMP has a lot of similarities with the SNT approach as both perspectives emphasize relationships and network positioning as the main message that they convey (Baraldi et al., 2007). But the IMP approach has frequently been used to study buyer-supplier relationships and their embeddedness in wider business networks (Håkansson and Snehota, 1995). Also, the marketing aspects of the IMP approach are different compared to SNT. The IMP approach acknowledges the importance of marketing technologies, which are the many techniques or abilities involved in marketing strategies between different actors in a network (Hunt, 2013). So, the challenges that green entrepreneurs face concerning the buyer-supplier relationship and whether they include marketing related topics, can be classified as IMP challenges.

2.5.2 Challenges from traditional entrepreneurs in literature

Research concerning the challenges that traditional entrepreneurs face while forming a network has been performed by other scholars and an overview of these challenges is shown in Table 2 with respect to the TBL and the five different theories of inter-firm co-operation.

2.5.2.1 People challenges

Diving deeper into the challenges from the literature of traditional entrepreneurs, the first challenge that is classified under the people category from the TBL, is that it could be *costly finding suitable strategic partner alliances*. The scanning of external parties and the employment of agents in the process to find the right fit with the network partners could cost a lot money and time (Reuer et al., 2004). This challenge is important to consider because when you have found the right reliable partner that has aligning values, this could reduce the costs of future transactions (Reuer et al., 2004). As this challenge influences both your total costs while forming your network, but could also drain resources, it is categorized under TCT and RDT.

Managing network positions, or a firm's capability to mobilize and coordinate the resources and activities of other actors in the network, is a challenging and essential task for organizations (Möller & Halinen, 1999). This is not only essential when the network is further developed but also during the network formation phase. The position in a network defines what relationship you have with other actors within the network but also results in a certain degree of resource dependency (Li et al., 2012). A higher market centrality for example is positively related to the ability to acquire resources, to the quantity of resources acquired, as well as to the efficiency of resource utilization (Li et al., 2012). Optimizing your network position while forming your network is therefore essential for entrepreneurs. This challenge is part of both

TBL category	Inter-firm co-operation theory	Challenge
People	TCT	- Costly finding suitable strategic partner alliances (Reuer et al., 2004; Besser & Miller, 2010)
	RDT	- Managing network positions (Möller & Halinen, 1999) - Not meeting enough new people (Brehmer et al., 2018) - Costly finding suitable strategic partner alliances (Reuer et al., 2004; Besser & Miller, 2010)
	SML	- Developing valid views of relevant networks and the opportunities they contain (Möller & Halinen, 1999) - Possibility of Founder's Dilemma (Wasserman, 2008)
	SNT	- Network partner may be competitor (Cravens & Piercy, 1994; Elmuti & Kathawala, 2001) - Managing network positions (Möller & Halinen, 1999) - Not meeting enough new people (Brehmer et al., 2018) - Clash of cultures (Elmuti & Kathawala, 2001) - Lack of skills for, nor the inclination to engage in, cooperative endeavors with other business operators (Besser & Miller, 2010)
	IMP	- Managing network positions (Möller & Halinen, 1999)
Planet	TCT	
	RDT	- Hard to start and sustain networks due to location specific requirements (Besser & Miller, 2010)
	SML	
	SNT	

	IMP	
Profit	TCT	<ul style="list-style-type: none"> - IP issues (Huggins et al., 2014) - Uncertainty of detailedness of the contract (Wuyts & Geyskens, 2005) - Not completely meeting criteria for partner selection (Wu et al., 2009)
	RDT	<ul style="list-style-type: none"> - Lack of resources (Besser & Miller, 2010; Huggins et al., 2014) - Uncertainty of having technology of commercial value (Huggins et al., 2014) - Uncertainty of resource flows among actors (Ebers, 1997) - Uncertainty about the predictability of the conditions that surround a firm (Hite & Hesterly, 2001) - Level of bureaucracy (Huggins et al., 2014) - Inability to share risks (Zineldin & Bredenl�w, 2003)
	SML	<ul style="list-style-type: none"> - Uncertainty about the predictability of the conditions that surround a firm (Hite & Hesterly, 2001) - Uncertainty on how to enter new networks (market area entry, new product/service field) (M�ller & Halinen, 1999)
	SNT	<ul style="list-style-type: none"> - Communication difficulties about expectations (Elmuti & Kathawala, 2001; Zineldin & Bredenl�w, 2003; Lockett et al. 2012) - Structuring a relationship in such a way that both parties are encouraged to perform well and discouraged from acting in self-interest. (Claro, 2004)
	IMP	<ul style="list-style-type: none"> - Safeguarding trust and collaboration (Elmuti & Kathawala, 2001; Zineldin & Bredenl�w, 2003; Claro, 2004) - Developing an optimal customer/supplier portfolio (M�ller & Halinen, 1999) - Lack of marketing skills (Okem & Lawrence, 2013)

Table 2: Entrepreneurial challenges during network formation

RDT and SNT as it concerns on one hand how the resources flow within the partnership due to the positioning and on the other hand how the two actors are positioned within the network.

Not meeting enough new people could also occur when you are forming your network as an entrepreneur. Reaching your potential customers, for example, when you almost have no brand awareness is relatively difficult (Riang & Sarigöllü, 2012). The challenge of finding enough new people for your network formation can be categorized under SNT as it implies finding the right amount of new relationships.

Next, *developing valid views of relevant networks and the opportunities they contain* could be a challenge for entrepreneurs during the network formation process, because the value activities that network partners carry out are not transparent but must be learned through enactment (Möller & Halinen, 1999). The uncertainty that arises here about whether or not these value activities and strategic opportunities are in line with your own organization's values is a challenge that therefore can be categorized under SML.

The Founder's Dilemma, according to Wasserman (2008), emphasizes that entrepreneurs have to make the tradeoff between raising resources in order to capitalize on the opportunities and attracting investors and executives. This often results in entrepreneurs having to give up control over most of the decision making. Research showed that a founder who gives up more equity to attract cofounders, non-founding hires, and investors builds a more valuable company than one who parts with less equity (Wasserman, 2008). Having said that, while forming your network, the entrepreneur has to make sure that the to be formed partnership results in utilizing the network in the most effective way. In other words, the partnership should add value to the network in the best way possible. This resulting challenge can be considered as a SML challenge as the role of the entrepreneur has an influence on the outcome of the decision.

Choosing network partners as competitors can also be a potential threat for entrepreneurs, because this could lead to anti-trust implications about the sharing of information between the collaborating units (Cravens & Piercy, 1994). Not sharing all the information most likely results in an inefficient relationship between two actors and therefore it should be intensely considered when an entrepreneur is forming its network. As this challenge involves the strength and the transparency of a relationship, it can be classified under the SNT.

Different languages, egos, chauvinism and different attitudes are examples of how two actors in a network can differ in terms of culture (Elmuti & Kathawala, 2001). A *potential clash in two different cultures* should be avoided while making the decision to form a

partnership within a network. This challenge also concerns the internal characteristics of the actors forming a partnership and can therefore be classified under SML.

The last challenge from the people category of the TBL, is that of *having a lack of skills for, nor the inclination to engage in, cooperative endeavors with other business operators*. According to Besser and Miller (2010), this challenge to create successful business networks has its origins in the personalities of entrepreneurs and small business owners. This group is often concerned as fiercely independent preferring to do everything by themselves. Hence, this challenge is categorized among the SNT challenges because it involves a reduced willingness to optimize the network. This challenge is both important when the network is further developed but, more importantly, also while forming the network. This is the case, because when an entrepreneur decides to exclude a valuable partner during the network formation phase, this could have negative influences on many different future business processes.

2.5.2.2 Planet challenges

The first noticeable thing from Table 2 is that there are almost no challenges described from a planet point of view. In the planet category of the TBL, only one challenge can be found. This challenge entails that *it is hard to start and sustain networks due to location specific requirements*. Besser and Miller (2010) state that successful regional industrial networks include sufficient numbers of employees with particular skill sets, cooperative traditions among businesses, and supportive governmental, financial, and service organizations. When your partners in the network are geographically further away, this could result in a potential challenge while forming your network. The fact that organizations are also dependent on the partners that are located in the close proximity of the focal company, makes this challenge part of the RDT.

2.5.2.3 Profit challenges

The first challenge that can be found as part of the third and last category of the TBL, profit, is that of having *IP issues* while forming a strategic partner alliance. Huggins et al. (2014), for example, found that IP issues were the second most frequently faced barrier that companies perceive while engaging with research institutes. Making sure that during the network formation process IP issues will not be a risk that could cause any harm to either of the actors, should be carefully considered. Consequently, making sure that there will be no IP issues that could drain extra resources while forming the relationship, and that is why this challenge is part of the TCT.

Another challenge while forming the network is the *uncertainty of the detailedness of the contract* between the entrepreneur and the other network actors. The contract serves as a formal agreement that is decided upon during the formation phase and relied upon during the implementation phase (Wuyts & Geyskens, 2005). The fact that it is important to make sure that every little detail in the contract, if done correctly, achieves economic efficiency by minimizing the costs of exchange, makes this challenge part of the TCT approach.

Not completely meeting the criteria for partner selection can be a challenge for entrepreneurs in order to find the right network partners during the network formation phase. Examples of these partner selection criteria are unique competencies, compatible management styles, compatible strategic objectives and higher or equal level of technical capabilities (Wu et al., 2009). This challenge is included in the TCT category as it describes in what way two actors in a network can align on each other's demands and therefore could reduce transaction costs.

Next, having *a lack of resources* makes it difficult for entrepreneurs to find new potential network partners during the network formation phase (Sandhu et al., 2011). This is a challenge for entrepreneurs, because in order to find new potential partnerships within your network, you need to have the knowledge, the human resources, the marketing channels and the financial resources to do so. This challenge is therefore considered as part of the RDT category.

The *uncertainty of having technology of commercial value* could result in forming an inefficient partnership between entrepreneurs and research institutes (Huggins et al., 2014). When universities for example develop technologies, the uncertainty whether it could result in commercial benefits for companies is mainly due to the lack of knowledge (resources) in the commercialization of innovations. Entrepreneurs should therefore make sure while forming their network that there is enough marketing expertise in house to diminish the risk of this challenge. This challenge is categorized in the RDT category as it concerns the resource dependency while forming the network.

Through networking, firms can gain a competitive advantage because they can get access to desired resources and capabilities that are complementary to their own (Ebers, 1997). The outlook on how the resources are going to flow between actors within the network should be considered in order to diminish the *uncertainty of resource flows* and should already be addressed during the network formation phase. This challenge is therefore categorized under the RDT challenges.

Uncertainty often makes access to resources problematic in new firms because other firms are reluctant to exchange resources with a new firm that faces an uncertain and hazardous future (Gulati, 1998; Hite & Hesterly, 2001). It is therefore a big challenge for entrepreneurs to cope with the *uncertainty about the predictability of the conditions that surround a firm*. Due to the fact that this uncertainty could have an impact on resource acquisition and many other internal business processes, it is considered both an RDT and SML challenge.

The *level of bureaucracy* that comes with the network formation process is also a challenge to overcome for entrepreneurs, due to the large amounts of paperwork and red tape (Huggins et al., 2014). The extensive drainage of resources to get the bureaucratic aspects of forming a strategic alliance sorted, makes this challenge part of the RDT category.

The inability to share risks is a challenge that occurs when an entrepreneur has no or only a few network partners (Zineldin & Bredenl w, 2003). As a result, the entrepreneur has to cover for all the risks itself during the network formation phase and this could make the decision to go for maybe a slightly risky partnership a big challenge. Because the severity of this challenge depends on the risk diminishing resources, it can be categorized under the RDT challenges.

Next, the *uncertainty or the lack of knowledge on how to enter a new market or network* can be considered a SML challenge as this concerns how the entrepreneurs are going to approach this strategic decision internally. The market penetration strategy also heavily relies on identifying the market characteristics in order to leverage this process as effectively as possible (M ller & Halinen, 1999). Having the right network, and therefore forming it, is definitely a key driver to making this process a success.

Communication about expectations is an often-occurring challenge, and issues around this clearly need to be resolved while moving forward within a network (Lockett et al., 2012). As this challenge helps to define how strong a relationship is, or how clearly the mutual expectations are communicated, makes this challenge part of SNT.

Structuring a relationship in such a way that both parties are encouraged to perform well and discouraged from acting in self-interest is an important challenge to address for entrepreneurs (Claro, 2004). It is of major importance to address any possible issues that could occur in order to diminish any risks by means of for example a formal contract. As this challenge addresses the strength of the relationship, it is categorized as a SNT challenge.

Mutual trust between two actors in a network is sometimes difficult to establish, especially as a startup company with no record of performance. *Safeguarding this trust and collaboration* should be leveraged in such a way that both parties have the incentive to perform

well and not try to act in self-interest (Claro, 2004). The level of trust, according to Jamaludin & Ahmad (2013), is also appearing to be a significant predictor of the intention to purchase. Therefore, this challenge is considered part of the IMP category as it concerns the level of trust within a buyer-supplier relationship.

Developing an optimal customer/supplier portfolio can also be classified under the IMP category as it addresses the strength of the buyer-supplier relationship in a network. The capability to manage a portfolio of exchange relationships between customers and supplier in an integrated manner is required in order to diminish the risks and address the mutual needs as efficiently as possible (Möller & Halinen, 1999).

The last challenge that entrepreneurs are facing according to the literature while forming their network, is that entrepreneurs do *not always have the marketing skills* in order to reach all possible network actors. Reaching new customers for example, can be done through different marketing channels, and when you have a lack of marketing skills, it could be a challenge to build up your customer base as an entrepreneur. Because this challenge addresses the marketing aspects of forming the network, it is categorized as an IMP challenge.

The findings in Table 2 will be used as a benchmark in order to compare the challenges that green entrepreneurs face during the network formation phase to the challenges that non-green entrepreneurs face while forming their network. How this will be researched will be emphasized in the next chapter.

3. Methodology

To address the aforementioned research question, a triangulation method was adopted during this study. Triangulation, or a combination of two or more research techniques, is characterized by multiple data sources, which is also the case in this hybrid research approach (Harrigan, 1983; Denzin, 2015). The two techniques that will be used in this research are a combination of interviews and literature research. To empirically analyze if and in what way the challenges that green entrepreneurs have faced during network formation differ from traditional entrepreneurship literature, primary data collection was compared to secondary data sources, which were jointly used to be considered as the base for this research.

In order to research how the challenges of green entrepreneurs differ from those of traditional entrepreneurs, which means comparing two groups of entrepreneurs, a comparative analysis was applied. Comparative research involves comparisons between a minimum of two macro-level units, such as markets or in this case groups of entrepreneurs, at one or more periods of time (Esser & Vliegenthart, 2017). This will therefore be a comparative qualitative

research as the differences and the similarities between the challenges of the two groups of organizations were analyzed together.

According to Austin & Sutton (2014), qualitative research attempts to understand problems, or in this case challenges, from the perspective of common understanding and how human beings experience the world. This results in the perfect fit between qualitative research and the entrepreneurial challenges that are discussed in this paper.

Interviews are the most common qualitative research method and are preferred to questionnaires to answer the research question in this paper (Jamshed, 2014). This is the case, because interviews are flexible, allowing in-depth analysis from a relatively small sample size and place the focus of research on the views of participants (Young et al., 2018). The interviews will therefore help to gather the views of the green entrepreneurs on the challenges they faced in the best way possible.

The primary data will be acquired through interviews with 12 green entrepreneurs. The sample size of studies that use semi-structured interviews is often justified on the basis of interviewing participants until ‘data saturation’ is reached (Francis et al., 2010). Data collection is considered saturated when no new elements are found and the addition of new information ceases to be necessary (Nascimento et al., 2018). Because data saturation at semi-structured interviews often takes place after 12 interviews the decision was made to go for 12 interviews (Guest et al., 2006). These interviews will be held with entrepreneurs from organizations which are considered green start-ups, or also characterized as younger than 10 years, are (very) innovative and/or have a (planned) significant employee/sales growth (Fichter & Olteanu, 2019). Next to that, they are characterized by the fact that their products, technologies and/or services contribute to the ecological goals of a green economy. A visual overview of the organizations in terms of size, age and in what way they are contributing to a greener environment can be seen in Table 3.

These organizations are based in the Netherlands and the interviews were held together with a founder or a member of the top management in order to obtain the most reliable information of the company via a videocall. Permission to record the interview was asked and anonymity was ensured. The interview starts with questions concerning the characteristics of the company, e.g. the size of the company, the unique selling points of the company, the industry that the company is working in and the degree of greenness that the entrepreneur believes its business is at. After this, the questions addressed the possible challenges that the organizations faced while forming their network by keeping the five different theoretical perspectives in mind. The third and final part of the interview was about the challenges that the

green entrepreneurs perceive because of the fact that they are green and if they experienced any opportunities compared to non-green entrepreneurs.

The interview protocols, both in English and in Dutch, which were used can be found in Appendix A and B. As a follow-up to the interview, the data will be analyzed and categorized in the same way as to how it is done in Table 2, so that the comparison can be made between the challenges of the literature around traditional entrepreneurs and the challenges of green entrepreneurs.

The secondary data that is used in this research, is the data concerning the different challenges from the literature around traditional entrepreneurship which can be found in Table 2. This data was acquired through researching published journals by doing keyword research using the channels Scopus, Web of Science and Google Scholar.

The keywords for the search queries that have been used in order to obtain the most complete set of entrepreneurial challenges can be divided into two groups. The first group concerns the keywords related to the challenges of the entrepreneurs, which consists of the following keywords: *challenges, barriers, problems, threats* and *difficulties*. The second group of keywords is related to network formation and consists of the following keywords: *network formation, forming network, partnership creation, forming strategic alliances* and *partner selection*. These two groups of keywords were then combined in order to form the search queries. Using secondary data from the literature was chosen because the data is available from other sources and has already been used in previous research, making it more efficient to carry out in this research.

Once the primary and secondary data was collected, the results were compiled and categorized using the TBL and the five different theories of inter-firm co-operation in a similar table as Table 2. Table 2 and the table with the results from the interviews are then being compared and analyzed where a closer look is taken at the differences and similarities among these two tables. What this implies, as far as opportunities are concerned, will then be emphasized in the discussion chapter.

The validity of this research was guaranteed by making sure that the interview questions were carefully considered, and each respondent was asked the same types of questions. The questions were answered individually while making sure that interviewee is one of the founders of the company or a member of the top management. On top of that, the interview questions were based on the theoretical framework, but the questions were open to not push the interviewee in a certain direction. Moreover, in order to receive information about all the five theories of inter-firm co-operation, questions were asked about all five theories to every

interviewee. Here, the possibility was given for the entrepreneur to add additional challenges next to the answers that were given to the questions so that the amount of challenges is being maximized.

Company	Number of employees	Years since founding	How company tries to reduce impact on environment
A	13	6 years	Creating batteries using materials and minerals that are obtained through processes that are better for the environment than conventional batteries and also the renewable energy is obtained with high efficiency which results in a lower need of generating energy.
B	9	4 years	Inspire people to eat more plant-based food instead of meat, using sustainable paper for packaging and obtaining raw resources from within Europe to reduce transportation impact on environment.
C	6	1 year	Reduce unsustainable material use in kitchens by providing a circular service to housing corporations with kitchen-as-a-service and by helping housing corporations to stimulate the usage of more energy saving kitchen appliances.
D	2	2 years	Help the return of biodiversity at farmers land, by planting flowers and herbs which will be sold as tea.
E	3	2 years	Providing strategic advice and knowledge to housing corporations and municipalities to make the transition towards a gas free living environment.
F	2	1 year	Using biobased circular material for insulation purposes at buildings and houses that is retrieved from bio residual flows in order to provide an alternative to conventional insulation material that produces a lot of CO2 emissions.
G	13	3 years	Providing festivals, events and the construction industry with batteries that are filled with renewable energy to replace polluting diesel generators.
H	6	3 years	Offering a circular charging device that is powered by means of solar panels for tents and that can be acquired through a leasing agreement.
I	3	3 years	Offering reusable products that are made of bio-based materials such as old coffee grounds to replace single use products.
J	2	1 year	Using a print on demand service for clothing and art that is made from sustainable materials and sold online.
K	3	2 years	Producing an alternative to foil that is completely free of plastic while at the same time reducing the usage of virgin resources.
L	13	10 years	Offering a circular service for companies by remanufacturing electric motors in order to reduce linear and therefore more polluting product cycles.

Table 3: Overview green entrepreneurs

The interviews were transcribed so that the challenges can be classified, and the codes will be developed by using ATLAS.ti software. These codes were based on the three P's of the TBL, the five different theories of inter-firm co-operation and hereafter also based on the challenges that were displayed in Table 2 resulting in 39 unique codes. The new challenges

that were found during the interviews were also given a unique code and an overview with all the codes is shown in Appendix C.

As far as reliability is concerned, codewords were developed for each variable to make reproducibility possible. The content of the interview protocols is based on the five different theories of inter-firm co-operation so that the same amount of severity is given to all theories. Moreover, a clear overview of the goal of the research was explained at the start of the interview in order to make sure that the entrepreneur was aware of the data that was needed for this research. Each interview was conducted by means of a videocall, permission to record the interview was asked and anonymity was ensured in order to guarantee that the interviewees felt secure enough to give honest answers.

4. Results

After the interviews were held and analyzed, the challenges from the green entrepreneurs were compiled into a similar table as the challenges that were found in the literature research. There were a few adjustments made in order to interpret the results more effectively. First, the table has been divided into three separate tables (Table 4a, 4b and 4c) where each table consists of one category from the TBL: people, planet and profit. Second, the twelve different green entrepreneurs were added to the table in order to clarify how often a certain challenge was being mentioned by the green entrepreneurs. Lastly, the challenges were distributed into three different groups by making use of asterisks where the *-challenges stand for the ones that were found in both the literature and the interviews, the **-challenges were only mentioned by the green entrepreneurs and not by fellow scholars in the literature, and the ***-challenges were only found in the literature and not in the interviews.

4.1 People challenges

When a closer look is taken at Table 4a, where the challenges that were found among the green entrepreneurs from a people perspective are presented, it can be seen that all but three challenges are mentioned by both the literature and the green entrepreneurs. In total, nine different challenges were mentioned during the interviews, spread over all but one inter-firm cooperation theory, which is the SML perspective.

4.1.1 *Similar challenges in interviews and literature*

The challenge that was mentioned most often by the green entrepreneurs in this category is that entrepreneurs *do not meet enough new people* in order to form their network. This challenge was mentioned by five different green entrepreneurs and the main reason for this was that

because the companies are so small, the reach of the entrepreneurs is limited which resulted in not meeting the right person in the most effective way. Company C, for example, stated that *“to really have a seat at the table with the right person is very difficult as a company with a limited network”*. This challenge was often mentioned by green entrepreneurs that also faced the challenge of *meeting fewer companies that share the same values* from the planet perspective. These two challenges share the fact that meeting enough potential partners that also fit to your expectations in a partnership is a difficult for an entrepreneur.

Another challenge that has been raised often, four times to be exact, was the challenge of *safeguarding trust and collaboration*. Company G said during the interview that *“it is hard to prove your trustworthiness to a potential partner as a starting company when you do not have a track record of your performance”*. This resulted often in the fact that companies had to approach more possible partners which lead to an ineffective network formation process.

Managing network positions has been brought up in two cases, but from three different theoretical perspectives. Company B explained that it experienced this challenge from both an RDT and a SNT perspective, because it faces the challenge of *“finding the right communication and positioning strategy within the network”*. Company D approaches this challenge from a more IMP perspective. They do not encounter the challenge of meeting new partners but they *“get a lot of questions and partner requests which are hard to answer in a consistent way”*.

The fact that it is *costly to find new partner alliances* was in Table 2 categorized in both the TCT and the RDT categories from a people perspective. The results showed that the green entrepreneurs only categorize this challenge as a TCT challenge. This is the case because Company H stated that they *have to do a lot of pilots and testing before they can start a partnership* resulting in high transaction costs.

The challenge that *a partner may be a competitor* and the challenge that there is a *lack of skills for, nor the inclination to engage in, cooperative endeavors with other business operators* were only mentioned once by the green entrepreneurs.

4.1.2 Different challenges in interviews and literature

Three different challenges did not occur in the interviews, but they were mentioned in the literature. The first challenge that was not mentioned by the green entrepreneurs is *developing valid views of relevant networks and the opportunities they contain*. Neither was the *Founder’s Dilemma* mentioned as a challenge. The reason for this could be that merely founders were interviewed in this research and it would be contradicting when a founder explains that he or

she experienced the challenge where the founder should reduce its power at the organization in order to raise more resources for network formation.

Neither was the challenge of *a clash of cultures* mentioned by the green entrepreneurs. This could be due to the fact that most entrepreneurs searched for partners in the same country which did not cause a clash of cultures. Furthermore, there were no new challenges mentioned during the interviews that are part of the people category.

4.2 Planet challenges

When looking at Table 4b of the challenges concerning the planet category of the TBL, it immediately becomes clear that there is a big difference between what the literature describes as network formation challenges and what green entrepreneurs point out as challenges from a planet perspective. This is because green entrepreneurs fully engage in the “planet”, which automatically means that they become more aware of planet challenges than traditional entrepreneurs. In total, nine challenges were newly brought up during the interviews, of which one challenge was mentioned by both the green entrepreneurs and by the literature.

4.2.1 Similar challenges in interviews and literature

The only challenge that is shared by both green entrepreneurs and the literature, and which is shared by two green entrepreneurs, is that it is *hard to start partnerships due to location specific requirements*. According to Company A, an argument for this is “*meeting new partners who have their offices abroad is difficult because of traveling issues*” and Company J experienced that “*the environmental impact of traveling is not in line with the green values of the company*”. A lot of the green entrepreneurs were only active in the Netherlands and did not make use of partners abroad (yet) which resulted in the relatively low amount of times that this was mentioned.

4.2.2 Different challenges in interviews and literature

The challenge that occurred most frequently among green entrepreneurs and not in the literature is that *it is hard to find partners which share the same values* as you do; there are simply fewer companies with green core values. This challenge was mentioned by six entrepreneurs, and Company L describes its situation as “*we are working with companies that are pioneering with circularity, and there are simply not enough players in this industry in order to have a perfect fit concerning the green values*”.

Three entrepreneurs found it *difficult to determine the level of greenness from their potential partners* based on the available information they had before forming a strategic partner alliance. Company J, for example, stated that they “*work together with a partner in*

Bangladesh and that makes it difficult to estimate whether they are the right partner when it comes to ecological sustainability”.

Another challenge of forming your network, that is being shared by three green entrepreneurs is that *partnerships could be used for greenwashing purposes*. According to Company C, they think that “*companies want to work together so that they can communicate to the world that they are working together with green entrepreneurs*”. Moreover, Company D stated that their potential partners “*sometimes wanted to work together for marketing purposes and not for being more environmentally sustainable*”.

Next, a challenge mentioned by three different green entrepreneurs is that a lot of *network partners still prioritize profits over ecological sustainability*. This makes it hard for green entrepreneurs to form partnerships. This is the case, because Company I for example experienced that “*production companies often go for the easy, and cheap way to make quick money instead of doing something good for the environment*”.

Another challenge closely related to this, and which was mentioned by three entrepreneurs, is that it is *hard for green entrepreneurs to find the balance between strategic, not so green partners and green, not so strategic partners*. This means that, from an internal point of view, entrepreneurs sometimes have to make a decision to go for a strategic partner, rather than a green partner. Seemingly, entrepreneurs, in some cases, had to make a trade-off to choose a strategic network partner, in order to allow their business to thrive or survive, and had to form a network alliance with a non-green partner. Two from the three companies shared the last two challenges, which could be explained by the fact that if you choose to engage with a strategic non-green partner, it could happen that you will face the challenge that this strategic partner prioritizes profits over ecological sustainability. This will not happen if you solely engage with green partners – and not engage with strategic non-green ones – simply because these green partners do prioritize ecological sustainability over profits.

A challenge that is mentioned by one entrepreneur is that the *environmental policy changes often*, which makes it hard to adjust to the new rules and regulations. This could result in fewer partnerships because “*companies sometimes cannot find their way in the tax system and therefore choose for alternative partnerships*” as stated by Company E. Company E provides municipalities and local governments with advice in order to make the transition to gas free neighborhoods and buildings. For them, the environmental policy is therefore really important in order to provide up-to-date consultancy to their partners and when it changes often, they will have a hard time coping with it.

It is also *difficult to convince partners to incorporate green business processes*, according to three green entrepreneurs. Company G, for example, explained that it is difficult to “*fight against the established companies that still prefer to use diesel powered aggregates and think that going for a greener alternative is not worth it*”. Non-green entrepreneurs already work in a certain way for decades and now have to change in order to better for the environment, which not necessarily results in more profits. This change in the company’s core identity is often difficult to implement and results in challenges concerning network formation.

The final challenge from a planet perspective, which was brought up by Company K and that cannot be found in the literature, is that there is a *possibility of an echo-chamber where all possible partners share the same values which leads to a lower level of creativity*. When you are only working together with entrepreneurs that are in the same niche market as you are, it might be hard to get access to possible partners outside this network.

4.3 Profit challenges

Table 4c displays the challenges that can be classified under the profit category, where one new challenge was added in comparison to the challenges from the literature and six challenges were not brought up by the interviews in comparison to the literature. In total, eleven challenges were mentioned by the green entrepreneurs from a profit perspective.

4.3.1 Similar challenges in interviews and literature

The entrepreneurial challenge of having *a lack of resources* in order to form the network was the most frequently mentioned by the green entrepreneurs, that is nine times. These resources consist of know-how, connections, funding, human resources and time. Company F, for example, explained that they “*did not have the entrepreneurial skills nor the knowledge in order to form their network in the most effective way*” as this is the first company that the founders founded.

Another challenge that was often shared by the green entrepreneurs, is that many partners are *uncertain about the predictability of the conditions that surround a firm*. This challenge was shared by four different green entrepreneurs. Company K stated that a potential partner “*kept cancelling meetings after the forecasts were discussed*”. This meant that the conditions, in this case the predicted amount of goods that needed to be produced, was not meeting the requirements of the supplier resulting in a failed partnership. Also, the “*age and the experience of the founding team*” are often a reason that results in failed partnerships. This is the case as external parties are sometimes uncertain about the predictability of the performance of the focal company according to Company C.

Furthermore, the *lack of marketing skills* was also considered as a challenge for three entrepreneurs, which for example affected how Company F “*approached the market research and usage of marketing channels*”. Company F founded the company around a business idea that they developed themselves as technical scientists, but the process of reaching customers in the most effective way possible was not their area of expertise.

IP issues were mentioned twice by the green entrepreneurs as a challenge while forming their network. Company K experienced that a competitor could simply “*duplicate the intellectual property and assumed that this was possible because the company was still very small*”. Trying to cope with the issues of this challenge costs time and money resulting in an ineffective network formation process.

Not completely meeting the criteria for partner selection was mentioned three times by green entrepreneurs. An example of a perceived problem in this regard that was mentioned by Company A is they are “*striving to be carbon neutral as far as transport is concerned, but it is at the moment not possible to find a partner that can do this for us who is also affordable*”. So green entrepreneurs want to reduce their impact on the environment even further, but they sometimes simply cannot afford to do so and therefore cannot meet the partner selection criteria.

Moreover, a challenge that was both mentioned by one green entrepreneur and by the literature is that the *level of bureaucracy* sometimes makes it harder to form your network. Company F states that you have to “*comply to a lot of rules and restrictions before you can start building your network*”. This challenge also has some common ground with the challenge that the policy changes often result in more paperwork and red tape. The *uncertainty about the resource flows among the actors in the network* was only mentioned by Company B and the challenge concerning *communication difficulties about expectations* was only pointed out by Company E.

4.3.2 Different challenges in interviews and literature

The challenge that was mentioned during the interviews, but which was not considered in the literature is the fact that the current worldwide pandemic, *COVID-19*, resulted in reduced budgets for companies and “*a bigger barrier to get in contact with new partners as networking events got cancelled*” as stated by Company G. Meeting fewer people due to the pandemic therefore resulted in meeting fewer potential partners and a more ineffective network formation process.

The challenges that did not return in the interviews with the green entrepreneurs are the *uncertainty of the detailedness of the contract with the other partners, the uncertainty of having technology of commercial value, the inability to share risks, the uncertainty on how to enter new market, structuring a relationship in such a way that both parties are encouraged to perform well and discouraged from acting in self-interest and developing an optimal customer/supplier relationship*. Why some of these were not mentioned will be elaborated on in the discussion section of this research.

4.4 Opportunities for green entrepreneurs

Although green entrepreneurs faced a lot of challenges from different perspectives during their network formation phase, the question was also asked during the interviews in what way the green entrepreneurs think they experience opportunities in comparison to non-green entrepreneurs while forming their network. Six opportunities arose, which can be found in Table 5, that can be categorized into four different inter-firm co-operation theories.

The first opportunity, which is categorized as a TCT opportunity, is *that the government stimulates green entrepreneurs by policy making and providing resources*. Company H recognizes that *“there are initiatives by the government to offer grants to sustainable business ideas and they can bring you in contact with for example a consultant”*. This opportunity was mentioned by four different entrepreneurs, which are companies H, I, K and L. Moreover, the influence of the government can help to reduce the costs of the transaction with potential partners and is therefore considered a TCT opportunity. On the other hand, this opportunity is partly contradicting the challenge that stated that the changes in policy occur frequently which makes it hard to leverage policy making. Nevertheless, none of the green entrepreneurs mentioned both the challenge and the opportunity concerning policy together. This means that policy can help green entrepreneurs during their network formation as long as it is not changed too often.

The second opportunity that was brought up by three green entrepreneurs is that *it is easy to obtain funding as a green entrepreneur through for example green accelerators and grants*. Company K got *“access to funding because of being part of a sustainable and circular economy hub where the idea was pitched and received a grant for this”*. This opportunity is considered an RDT opportunity as it involves obtaining more resources in the form of funding. However, this slightly contradicts the challenge that nine out of the twelve green entrepreneurs experienced a lack of resources. Of course, money is not the only resource that was emphasized within the challenge of having a lack of resources, but it is contradicting if companies explain

that it is relatively easy to obtain funding while on the other hand claiming that there is a lack of resources.

Thirdly, six green entrepreneurs brought up that there are *a lot of green or sustainability networks which makes it easier to find partners due to the shared values*. This is closely connected to the previous opportunity, although this opportunity is not only about receiving financial support from fellow green companies, but also that it is easier to find new network partners within the same industry. Company D explains that it was easy for them to find partners because they were “*part of a sustainable coffee and tea alliance*”, and here they could create partnerships relatively easily with other green companies as they “*value not to only make money but also do something good for the environment*”. This opportunity also concerns the access to resources and is therefore classified as an RDT opportunity.

In order to leverage this opportunity in the best way possible, the entrepreneur should make sure that it would not end up in an echo-chamber as discussed in the challenges from a planet perspective, where only similar thinking companies work together which could hamper the level of creativity. This opportunity is not completely in line with the challenge that there are few companies to choose from that share the same green values. In other words, the pool of networks with companies that want to do something good might be growing, but because the mission and environmental targets of green entrepreneurs is so specific, it is difficult to find partners in this pool that share the same values as you do. It is therefore also slightly surprising that three companies share both this challenge and the opportunity.

Fourthly, two companies stated that *green entrepreneurs have a more sustainable future outlook in comparison to non-green companies, because the law, regulations and the consumer mindset is moving towards a greener world*. A result of this is that “*there is more and more need for sustainable solutions in order to meet the sustainability goals set by the government which results in a growing amount of companies planning to work together with green companies*”, as stated by Company F. This opportunity can be categorized in both the RDT and IMP categories as it concerns that it becomes easier to access resources because of the trend towards a more ecologically sustainable world, and it also implies that when you use marketing in order to communicate to the world that you are a green company, it makes it easier to reach other green companies that you can possibly add to your network.

Fifth, *companies are more willing to help green entrepreneurs because they serve another purpose aside from making profits*. This “*creates goodwill among other companies and results in a higher willingness to work together with green entrepreneurs*” according to

TBL category	Inter-firm co-operation theory	Challenge	A	B	C	D	E	F	G	H	I	J	K	L
People	TCT	- Costly finding suitable strategic partner alliances*								✓				
	RDT	- Managing network positions*		✓										
		- Not meeting enough new people*		✓	✓			✓					✓	✓
	SML	- Developing valid views of relevant networks and the opportunities they contain***												
		- Possibility of Founder's Dilemma***												
	SNT	- Network partner may be competitor*							✓					
		- Managing network positions*		✓										
		- Not meeting enough new people*		✓				✓						
		- Safeguarding trust and collaboration*						✓	✓	✓	✓			
		- Clash of cultures***												
		- Lack of skills for, nor the inclination to engage in, cooperative endeavors with other business operators*							✓					
	IMP	- Managing network positions*				✓								

Table 4a: Entrepreneurial challenges from people perspective¹

TBL category	Inter-firm co-operation theory	Challenge	A	B	C	D	E	F	G	H	I	J	K	L
Planet	TCT													
	RDT	- Hard to start and sustain networks due to location specific requirements*	✓											
		- Companies choose profits above ecological sustainability**						✓		✓		✓		
		- Policy changes often, so it is difficult to leverage**					✓							
	SML	- Difficult to convince partners to incorporate green business processes**							✓		✓			✓
		- Hard to find balance between strategic, not so green partners and green, not so strategic partners**				✓		✓				✓		
	SNT	- Possibility of echo-chamber where all possible partners share same value leading to lower creativity**											✓	
		- Fewer companies to choose from with same green values**		✓	✓					✓	✓	✓		✓
	IMP	- High chance of greenwashing**	✓		✓	✓								
		- Difficult to determine the level of greenness of partners**	✓			✓						✓		

Table 4b: Entrepreneurial challenges from planet perspective¹

¹ * = Found in interviews and literature ** = Found in interviews but not in literature *** = Found in literature but not in interviews

TBL category	Inter-firm co-operation theory	Challenge	A	B	C	D	E	F	G	H	I	J	K	L
Profit	TCT	- IP issues*								✓			✓	
		- Uncertainty of detailedness of contract***												
		- Not completely meeting criteria for partner selection*		✓	✓								✓	
	RDT	- Lack of resources*			✓	✓	✓	✓	✓	✓	✓	✓	✓	
		- Uncertainty of having technology of commercial value***												
		- Uncertainty of resource flows among actors*		✓										
		- Uncertainty about the predictability of the conditions that surround a firm*		✓										
		- Level of bureaucracy*						✓						
		- Inability to share risks***												
		- COVID-19 makes it hard to establish new partnerships due to lower budgets and cancellation of events**							✓					
	SML	- Uncertainty about the predictability of the conditions that surround a firm*			✓	✓							✓	✓
		- Uncertainty on how to enter new networks (market area entry, new product/service field)***												
	SNT	- Communication difficulties about expectations*					✓							
		- Structuring a relationship in such a way that both parties are encouraged to perform well and discouraged from acting in self-interest***												
	IMP	- Safeguarding trust and collaboration*					✓							
		- Developing an optimal customer/supplier portfolio***												
		- Lack of marketing skills*				✓		✓					✓	

Table 4c: Entrepreneurial challenges from profit perspective²

² * = Found in interviews and literature ** = Found in interviews but not in literature *** = Found in literature but not in interviews

Inter-firm co-operation theory	Opportunity	A	B	C	D	E	F	G	H	I	J	K	L
TCT	- Government stimulates green entrepreneurs by policy making and providing resources								✓	✓		✓	✓
RDT	- Easy to obtain funding through green accelerators and grants					✓						✓	✓
	- There are a lot of green or sustainability networks where it is easy to find partners due to the shared values											✓	
	- Green entrepreneurs have a more sustainable future outlook in comparison to non-green companies, because the law, regulations, trends and consumer mindset is moving towards a greener world							✓					
SML													
SNT	- There are a lot of green or sustainability networks where it is easy to find partners due to the shared values		✓		✓		✓			✓	✓	✓	
	- Companies are more willing to help green entrepreneurs because they serve another purpose aside from making profits	✓			✓					✓			
IMP	- Green entrepreneurship is a trend, so more companies make the transition towards being greener						✓		✓			✓	✓
	- Green entrepreneurs have a more sustainable future outlook in comparison to non-green companies, because the law, regulations, trends and consumer mindset is moving towards a greener world			✓									

Table 5: Opportunities green entrepreneurs

Company D. This opportunity was shared among three different companies and is part of the SNT category because it includes in what way the positioning of the focal organization in the network is affecting the formation of the network.

The final opportunity that is mentioned by the green entrepreneurs concerning the network formation in comparison to non-green entrepreneurs is that *green entrepreneurship is a trend, so more companies make the transition towards being greener*. This opportunity was shared among four green entrepreneurs and can be classified under the IMP category. This is the case as it involves the effect of more and more companies communicating their green values on how other companies feel the need to also become green. When there are more green companies, it is easier to form your network as a green entrepreneur.

5. Discussion

In this paper, the goal was to provide a better understanding of what the challenges are that green entrepreneurs face when building their network and compare them with the literature around traditional network formation challenges. The results from the interviews showed that there is a discrepancy between the challenges that were pointed out by the literature on the one hand and the challenges from green entrepreneurs on the other. Although some challenges were mentioned both by the literature and during the interviews, the distinction is clearly visible

from a planet perspective. Now, a closer look will be taken at the challenges and opportunities that stand out and those that add the most value to this research, which will then be compared to the literature. Only those challenges and opportunities that require more insights after reading through the results are being mentioned here.

5.1 People challenges

Looking at the entrepreneurial challenges from the people perspective, it is evident that most of the challenges that were found in the literature were also shared among the green entrepreneurs.

From the people perspective, one of the challenges that was shared among green entrepreneurs and the literature is that of *safeguarding trust and collaboration*. Jamaludin and Ahmad (2013) stated that trust is appearing to be a significant predictor of the intention to purchase. This is in line with how green entrepreneurs approach this challenge, as Company I stated that their manufacturers not simply wanted to form a partnership and produce a certain product as “*they had never worked with us nor with the materials that were proposed*”. In this regard, the literature and the interviews with the green entrepreneurs are aligned.

The inter-firm co-operation theories and the TBL categories which were linked to this challenge in Table 2 on the other hand show a difference compared to the findings in Table 4a and 4C. This challenge was categorized as an IMP challenge from a profit perspective, but in the interviews, it became clear that the people perspective should be added since the age of the founders also became an issue related to trust for green entrepreneurs. A study by Li and Fung (2012) found that age is positively related to trust. Having said that, this challenge was also included among the people challenges. Furthermore, the fact that trust issues resulted in a challenge of positioning within the network resulted in the addition to the SNT category. This is the case because a key characteristic of the SNT, as mentioned in the theoretical framework, is how a focal organization is positioned within a network (Koka & Prescott, 2008).

One challenge that was not shared by the green entrepreneurs, but which was found in the literature, is the possibility of the *Founder's Dilemma* (Wasserman, 2008). In spite of the fact that this challenge occurs regularly according to Wasserman, none of the green entrepreneurs mentioned this challenge. This most probably has nothing to do with the fact that it does not exist among green entrepreneurs, but more, as stated in the results, because only founders were interviewed. The possibility that the startup's resource needs drive a wedge between the growth of the startup and the founder's ability to maintain control will probably not be discussed by the founders, but possibly by other members of the green organization

(Wasserman, 2016). An effect of the Founder's Dilemma would be that failure to attract missing resources can be particularly harmful because it can harm growth and increase the chance of failure (Aldrich and Fiol, 1994). Consequently, the green entrepreneur must make sure that this challenge will not occur and should therefore be looked after closely. Future research should also take the non-founding members in consideration while performing this research.

The second discrepancy between the interviews and the literature is that of a possibility of a *clash of cultures*. According to Elmuti and Kathawala (2001), having different languages is an example of how two actors in a network can differ in terms of culture, but the interviews showed none of the green entrepreneurs experienced this challenge. Most of the entrepreneurs are only active in the Netherlands, which presumably resulted in the fact that this challenge was not mentioned. Also, this research by Almuti and Kathawala is from twenty years ago, and the business language has shifted to a more English oriented environment where it became the business lingua franca (Crawford Camiciottoli, 2020). This also implies that there are fewer language barriers nowadays than there were twenty years ago.

5.2 Planet challenges

Not surprisingly, the highest amount of newly introduced challenges by the green entrepreneurs concerning the three TBL categories were found in the planet category. As previously mentioned, when an organization wants to contribute effectively to reduce its environmental impact, it should take a closer look at its entire supply chain, business model and network (Baumgartner & Zielowski, 2007; Enkvist et al., 2008; Elhedhli & Merrick, 2012). Looking at the challenges that were mentioned by the green entrepreneurs concerning network formation, it is clear that this is very difficult as they state that it is sometimes *hard to find the balance between strategic, not so green partners and green, not so strategic partners*.

Green entrepreneurs sometimes have to make the decision to work together with a partner that is maybe not as green as they hoped they would be in order to survive as a company. The difficulty lies in the combination of the pursuit of self-interests and collective interests; the objectives of green entrepreneurs are broader in scope and more complex than those of regular entrepreneurs (Hoogendoorn et al., 2017). This results in the fact that this partnership does not always completely stimulate the environmental impact reduction goals of the entrepreneur. Next to that, the challenge that it is *difficult to convince partners to incorporate green business processes* suggests that it costs a lot of time, effort and therefore money to find the right partnership that has aligning green values as the focal organization. But whether there

is a negative correlation between aligning business values and the level of difficulty to convince partners to incorporate green business processes is something that future research could clarify.

A challenge that was mentioned by one green entrepreneur is that there is a *possibility of an echo-chamber where all possible partners share the same values leading to lower levels of creativity and a decreased access to partners outside the network*. This is in line with Alves et al. (2007), where they state that multidisciplinary and multisectoral environments play important roles for firms and organizations to provide opportunities. Examples are the promotion of linkages between relevant actors and the mobilization of resources to execute more complex research and new product development projects. More specifically, in spite of the opportunity that *there are a lot of green or sustainability networks where it is easy to find partners due to the shared values*, this does not merely result in a reduction of the environmental impact, but it could also lower the level of creativity of green entrepreneurs.

It is *difficult to determine the level of greenness from the potential partners*, according to three green entrepreneurs while forming their network. But how difficult is this in reality? There are several extensive tools available in order to measure the environmental impact, but all of them are relatively complex (Manzardo et al., 2015; Neppach et al., 2017). Two tools, for example, to measure the environmental impact of an organization are calculating the ecological footprint of a company and performing an Organizational Life Cycle Assessment (OLCA) (Manzardo et al., 2015). When companies perform either of these measures, green entrepreneurs can base their decision of whether or not to form a partnership on empirical data. These tools are used more often recently, by both bigger and smaller companies (Manzardo et al., 2015). But then the question arises, will companies publish their scores of how green they are, and could this also negatively influence their network formation? This would be a perfect opportunity for future research in order to see whether more publicly available data on how green a company is would reduce the occurrence of the aforementioned challenge. So, the challenge that the green entrepreneurs face around the difficulty in assessing how green an organization is, is in line with the literature. But whether doing an environmental impact analysis results in solving this challenge and consequently determines a positive outcome concerning network formation is still ambiguous.

A *high chance of greenwashing* resulting in a challenge for green entrepreneurs to form their network was mentioned in the interviews, but not in the literature as such. The term greenwashing already dates back to 1986 when it was coined by Westerveld describing that it is the practice of falsely promoting an organization's environmental efforts or spending more resources to promote the organization as green than are spent to actually engage in

environmentally sound practices (Orange, 2010). Although the phenomenon has already existed for quite some time, it has not been recognized as an entrepreneurial challenge while forming your network in particular. This could be studied in future research.

The results of this research contradict that this is not an entrepreneurial challenge as three from the twelve green entrepreneurs mentioned this. A reason for this could be that most studies focus on the effect that greenwashing has on for example buying behavior, on trust and on environmental performance (Chen & Chang, 2012; Nyilasy et al., 2013; Braga et al., 2019), but not so much on network formation challenges.

5.3 Profit challenges

One challenge from a profit perspective that was mentioned by the literature but not by the green entrepreneurs is that sometimes entrepreneurs experience the *uncertainty of having technology of commercial value*. This challenge was mentioned in a paper by Huggins et al. (2014), and there it was the barrier that occurred most often but was based on the engagement between firms and universities. In this paper, only three companies stated that they worked together with universities and this could have resulted in the fact that this challenge was not being mentioned.

Another challenge that was not being mentioned by the green entrepreneurs from a profit perspective, but which was mentioned in the literature, is the *uncertainty or the lack of knowledge on how to enter a new market or network*. A reason for this could be that the majority of the green entrepreneurs have the sole goal of doing something positive for the environment and see the need to provide the market with a more ecologically sustainable alternative to a current problem. According to Ghisetti (2017), environmental innovations are often characterized by a demand-pull of the market, which could explain the fact that a market pull strategy occurs more often in comparison to a market push strategy among green entrepreneurs. The environmental innovation of Company G for example, is to provide festivals, events and the construction industry with batteries that are filled with renewable energy to replace polluting diesel generators. This environmental innovation resulted in festivals approaching Company G, which made the market entry easier for them. Therefore, the result that the aforementioned challenge was not mentioned in the interviews, is in line with the theory of Ghisetti (2017) but contradicts the findings as described in the theoretical framework.

A challenge that was being mentioned by the green entrepreneurs, but which was not found in the literature, is that *COVID-19 makes it hard to establish new partnerships due to*

lower budgets and cancellation of events. This virus only came to notice at the end of 2019 and therefore the literature around the impact of the worldwide pandemic on organizations is very limited. As a consequence, it is a logical result that there were no challenges mentioned in the literature concerning COVID-19 and entrepreneurial network formation. Future research should fill the gap by diving deeper into what extent COVID-19 is experienced as a challenge by non-green entrepreneurs so that a reliable comparison can be made.

5.4 Opportunities

It is not only the challenges that are important to consider as a green entrepreneur while forming your network, it sometimes also has its benefits compared to nongreen entrepreneurs. The six different opportunities that were raised by the green entrepreneurs resulted in benefits from different perspectives.

The fact that the *government stimulates green entrepreneurs by policy making and providing resources*, for example, is helping green entrepreneurs to form their network more easily. Gibbs & O'Neill (2012) stated that the governmental attitude towards sustainability policy is changing, meaning that policy enhances the fact that environmental challenges are seen as economic opportunities as opposed to barriers. Moreover, Potluri and Phani (2020) emphasize that market incentives and policy plans have pushed the advancement of green intent of businesses, resulting in a better environment for green entrepreneurs to get access to resources. But, opposing arguments are provided in the literature whether this is happening enough and at the right speed. Ye et al. (2020), for example, mentioned that the government should invest more in environmental protection and must therefore increase investment on environmental protection in the future.

Moreover, the results section showed that the aforementioned opportunity is not in line with the entrepreneurial challenge that *policy changes often, so it is difficult to leverage*. This was also emphasized by O'Neill and Gibbs (2016), where they state that these policy contexts can be subject to frequent changes. In other words, the policymakers are aiding green entrepreneurs to form their network, but there is room for improvement on how developed this policy is and how frequently it changes.

The interviews also identified the opportunity that *companies are more willing to help green entrepreneurs because they serve another purpose aside from making profits*. Gunasekaran et al. (2015) comply with this opportunity, as they found that collaboration with green entrepreneurs results in benefits that are normally considered as a long-term effect. Some examples of these benefits are reduction of environmental impact, market performance and

corporate image performance (Gunasekaran et al. 2015). This incentivizes companies to collaborate with green entrepreneurs which makes it easier for green entrepreneurs to form their network.

Lastly, the opportunity that it is *easy to obtain funding through green accelerators and grants* was not only shared among the green entrepreneurs in this research, but also partly by the literature. Demirel et al. (2019) found that the use of public funding is a classical feature of born green ventures. This funding can play an important role to foster entrepreneurship in the green sector and is often provided by means of grants, subsidies, loans or tax incentives (Criscuolo & Menon, 2015). But whether this is easier in comparison to nongreen entrepreneurs is still ambiguous and should be further researched in the future.

5.5 Theoretical contributions

Concerning the theoretical contributions of this paper, this research could help other scholars with the same framework that was used here, combining the TBL with the five inter-firm cooperative theories, in order to classify certain challenges or opportunities but then within other research domains. As a result, the categorization helps to interpret the challenges from different perspectives. This made it easier to create an overview of the different challenges and their exact implications for the entrepreneur. This has not been done before and contributes to the literature as a base for fellow scholars to categorize their findings.

The overview of all the challenges experienced by both green and non-green entrepreneurs and how some challenges are related to one another is also a contribution to the literature as this has not been compiled before. This all-encompassing framework could form the fundamentals for new research where it could be compared to entrepreneurs in different countries for example.

Furthermore, the literature around network formation in green entrepreneurship is still in its infancy and the compilation of challenges concerning network formation in this research can be a basis for researchers to find solutions to these challenges. Greenwashing for example is today still a barrier for green entrepreneurs while forming partnerships with other companies, and policy is not yet tailored to reduce the occurrence of this phenomenon. Therefore, the challenges of this research can serve as a base for fellow scholars to do research in how to solve those.

Lastly, the focus does not lie on the challenges from a planet perspective in the current literature. There is a discrepancy between what the literature explains what the challenges are for entrepreneurs during network formation and what green entrepreneurs mention as

challenges. It is therefore essential that the distinction of the challenges is made between green and non-green entrepreneurs.

5.6 Managerial contributions

The results of this research could serve as an advice for policymakers to critically reflect on the policy in order to incentivize green entrepreneurship even more. Moreover, knowing that the frequent changes in policy are seen as a challenge for green entrepreneurs, this study can serve as an advice to policymakers that the changes should be done less often but more effectively. Having said that, by keeping in mind that governmental funding helps green entrepreneurship flourish, this helps policymakers to have a better understanding on how to incentivize businesses to reduce the environmental impact.

Moreover, the challenges in this paper are useful for other green entrepreneurs who are about to start with their network formation as a guideline in order to adjust their networking strategies to diminish the negative effects of these challenges. In addition, this paper provides green entrepreneurs with a clear understanding of what network formation challenges occur and it became clear that these do differ from traditional entrepreneurship. Thereby, this paper gives direction to green entrepreneurs to anticipate on these challenges. Finally, this paper can be used as a clear overview of the entrepreneurial challenges and an explanation on how this relates to the different inter-firm co-operation theories. This helps to understand how to form partnerships in the future as efficient and effective as possible.

5.7 Limitations and future research

As far as the limitations are concerned of this research, only founders were interviewed in this research resulting in challenges solely from a founder's perspective and not from a high-level or even lower level employee's perspective. This could have provided different challenges that also need to be considered when forming your network.

Next to that, another limitation of this research is that the interviews were being done with the focal company and not with another actor within the same network. This way, you only extract the challenges that are experienced by the founder of one company in a network. Maybe there are also network formation challenges where the fundamentals lie with external factors that influence the focal company.

Another limitation of this paper is that the studies concerning policy and policymakers is based on data outside the Netherlands while the companies that were being interviewed were

all based in the Netherlands. This could have had an effect on the discrepancy between the literature and the interviews concerning policy.

This paper also opens up for future research avenues. As stated in the results section of this research, the green entrepreneurs that are the unit of analysis in this paper are all based in the Netherlands and most of them only operated in the Netherlands. It can therefore be considered a rather homogenous group of entrepreneurs. A possible future research opportunity would be to perform this research among a more heterogeneous group of green entrepreneurs that operate more internationally to see whether the challenges are more in line with the literature.

The importance, or how often a challenge or opportunity is being mentioned compared to the other challenges and opportunities, is also relevant while analyzing the results of the interviews. Some of the challenges were only mentioned by one green entrepreneur whereas other challenges were mentioned by nine different green entrepreneurs. However, to truly understand the importance or the effect of these challenges and opportunities, future research should focus on measuring this. This could be done by means of a quantitative research where the focus lies on which challenges are the most important and which challenges have the biggest effect on the environmental impact of an organization.

Lastly, when the level of importance of the challenges and opportunities is measured, the degree to which green entrepreneurs experience the challenges in comparison to traditional entrepreneurs can also be considered a future research avenue. This would require interviews with both green entrepreneurs and non-green entrepreneurs but provides the literature with more insights on which challenges are more important to either of the two groups.

6. Conclusion

In conclusion, this research aims to answer the research question: *What are the challenges and opportunities that green entrepreneurs face when building their network compared to traditional network formation?* The first challenge green entrepreneurs faced is that companies choose profits above ecological sustainability. Second, policy changes often, so it is difficult to leverage policymaking. Thirdly, it is difficult to convince partners to incorporate green business processes. Fourthly, it is hard to find the balance between strategic, not so green partners and green, not so strategic partners. Fifth, the possibility of an echo-chamber where all possible partners share the same values could lead to lower creativity. Sixth, there are fewer companies to choose from with the same green values. Seventh, there is a high chance of greenwashing. Then, it is difficult to determine the level of greenness of partners. And lastly,

COVID-19 makes it hard to establish new partnerships due to lower budgets and the cancellation of events.

It immediately became clear that the literature focused more on the profit and people aspects of the network formation challenges, whereas the results from the green entrepreneurs showed that the planet challenges are widely experienced too. This is the case as most of the new challenges that were introduced in this research were categorized as planet challenges.

As far as the opportunities are concerned, the green entrepreneurs stated that the government stimulates green entrepreneurs by policy making and providing resources. It is also easy to obtain funding through green accelerators and grants, and there are a lot of green or sustainability networks where it is easy to find partners due to the shared values. On top of that, green entrepreneurs have a more sustainable future outlook in comparison to non-green companies, because the law, regulations, trends and consumer mindset is moving towards a greener world. Finally, companies are more willing to help green entrepreneurs because they serve another purpose aside from making profits and green entrepreneurship is a trend, so more companies make the transition towards being greener. Bottom line is that the biggest opportunity of green entrepreneurs is to lower the environmental impact of businesses as a whole.

In order to really have an impact on the environment, more and more green entrepreneurs are needed, and the occurrence of the challenges should be minimized. On top of that, the opportunities should be leveraged in order to make the green entrepreneurs flourish even more. Policymakers but also researchers need to incentivize this further in order to reduce the carbon footprint that companies leave on the planet and only then we can work towards a better tomorrow.

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Appendix A – Interview Protocol (English)

Introduction

My research is about analyzing the challenges that green entrepreneurs face while building their network and how this differs from the literature on traditional entrepreneurs. I first researched which challenges were found in the literature that often occur in startups and categorized them according to the so-called Triple Bottom-Line theory under people, profit and planet. After that, I will do interviews with 15 different green entrepreneurs, where I will take a closer look at the differences and similarities between green entrepreneurs and entrepreneurs in general. With this dataset, I can investigate what the possible opportunities are for green companies. The data that I will eventually obtain through the interviews will be coded and analyzed so that they will be anonymously processed in the research.

Research question

What are the challenges and opportunities that green entrepreneurs face when building their network and how do they differ from traditional network formation by making use of the Triple Bottom Line approach?

Now, I would like to take the opportunity to ask if I can record this interview so that I can analyze at another time.

Interview questions

Introduction company

1. Can you give me a short introduction to the company and what the company stands for?
 - a. Number of employees?
 - b. When founded?
 - c. Which industry?

Green entrepreneurship

2. In what ways are you trying to reduce your impact on the environment?

General networking

3. Can you tell me a bit about the process of forming your network, how did this go?
4. What challenges did you face during this process?
5. What is the current status of forming your network?
6. To what extent do you think it is important that your partners are also green organizations?
 - a. If so, how do you measure this?

Strategic management literature

7. How did the formation of your network go internally? Who is responsible for this?

8. How did the decision making within the company go, based on what did you decide to start a new relationship with a partner?
9. Did you run into any challenges while finding partners?

Transaction Cost Theory

10. Did you make use of investors or third parties to help you with forming your network?
 - a. If so, was this an easy process?
11. Did you experience any problems concerning intellectual property rights while you were forming your network?

Resource dependency theory

12. Did you have all the right resources to form the network in an optimal way, so not only money but also knowledge, human resources, connections, something else?
13. What challenges did you encounter in this respect during the formation of your network?
14. Have you had the idea that bureaucracy has influenced the formation of your network?
15. Is the physical location of a partner important whether or not you would start a partnership?

Social network theory

16. Can you tell me something about the composition of your network? Think of distributors, customers, investors, other partnerships, etc.
17. Can you tell me something about your position within your network? For example, what kind of communication is there between you and your partners?
 - a. Do you experience any challenges in this respect?
18. Do you also have partnerships with direct competitors?
 - a. Why (not)?

Industrial Marketing and Purchasing approach

19. Did you have the right marketing knowledge to be able to reach enough potential customers?
20. Do you experience challenges when it comes to trust between you and your partners?

Environmental aspects

21. Are there any other challenges you have run into given that you are a green company?
 - a. And what about opportunities?

Appendix B – Interview Protocol (Dutch)

Introductie

Mijn onderzoek gaat over het analyseren van de challenges, oftewel uitdagingen en barrières, die groene ondernemers ondervinden tijdens het opbouwen van hun netwerk en dan hoe dit verschilt ten opzichte van de literatuur rondom gewone/traditionele ondernemers. Ik heb eerst uitgezocht welke uitdagingen in de literatuur beschreven staan die veel voorkomen bij startups, en die gecategoriseerd aan de hand van de zogenoemde Triple Bottom-Line theorie onder people, profit en planet. Nadat ik de interviews met 15 verschillende bedrijven heb gedaan, ga ik dan kijken wat de verschillen en gelijkenissen zijn tussen groene ondernemers en ondernemers in het algemeen zodat ik uiteindelijk kan gaan onderzoeken wat de mogelijke opportuniteiten zijn voor groene bedrijven. De data die ik uiteindelijk heb verkregen via de interviews ga ik vervolgens coderen en analyseren zodat deze anoniem in het onderzoek worden verwerkt.

Research question

What are the challenges and opportunities that green entrepreneurs face when building their network and how do they differ from traditional network formation by making use of the Triple Bottom Line approach?

Ik zou dan nu graag de mogelijkheid willen nemen om te vragen of ik dit interview mag opnemen zodat ik dit later kan analyseren.

Interview questions

Introductie bedrijf

1. Kun je me een korte introductie geven over het bedrijf en wat jullie precies doen?
 - a. Aantal medewerkers?
 - b. Wanneer opgericht?
 - c. Welke industrie?

Green entrepreneurship

2. Op welke manieren proberen jullie je in te zetten om de impact ten opzichte van het klimaat te verminderen?

General networking

3. Kun je wat vertellen over hoe het proces is verlopen van het opbouwen van jullie netwerk?
4. Waar zijn jullie toen tegenaan gelopen, wat zijn de algemene uitdagingen hier geweest?

5. Waar staan jullie nu wat betreft het opbouwen van jullie netwerk?
6. In hoeverre vinden jullie het belangrijk dat jullie partners ook groen zijn?
 - a. Hoe meten jullie dat?

Strategic management literature

7. Hoe verloopt het vormen van jullie netwerk intern, wie is hier verantwoordelijk voor?
8. Hoe verliep de besluitvorming binnen het bedrijf, gebaseerd waarop wordt er gekeken naar of een bepaalde partnership goed was voor het bedrijf?
9. Zijn jullie nog tegen problemen aangelopen om partners te vinden?

Transaction Cost Theory

10. Hebben jullie voor het vormen van jullie netwerk gebruik gemaakt van bijvoorbeeld investeerders of derden om jullie hiermee te helpen?
11. Tijdens mijn onderzoek kwam er naar voren dat tijdens het vormen van het netwerk bedrijven problemen ondervonden met intellectueel eigendom tussen beide partijen. Hoe zit dat bij jullie?

Resource dependency theory

12. Hadden jullie alle middelen om op een optimale manier het netwerk te vormen, en dan niet alleen geld maar ook kennis, mankracht, connecties, iets anders?
13. Waar liepen jullie wat dit betreft tegen aan tijdens het vormen van jullie netwerk?
14. Hebben jullie het idee gehad dat bureaucratie invloed heeft gehad op het vormen van jullie netwerk?
15. Is de fysieke locatie van een partner belangrijk of jullie wel of geen partnership aangaan?

Social network theory

16. Kun je mij iets vertellen over de samenstelling van jullie netwerk? Denk dan aan distributeurs, klanten, investeerders, andere partnerships
17. Kun je wat vertellen over jullie positie binnen jullie netwerk? Welke soort communicatie is er bijvoorbeeld tussen jullie en jullie partners?
 - a. Ervaren jullie uitdagingen wat dit betreft?
18. Hebben jullie ook partnerships met directe concurrenten?
 - a. Waarom wel/niet?

Industrial Marketing and Purchasing approach

19. Hadden jullie de juiste marketing kennis in huis om genoeg potentiële klanten te kunnen bereiken?
20. Ervaren jullie uitdagingen als het gaat om vertrouwen tussen jullie en jullie partners?

Environmental aspects

21. Zijn er verder nog uitdagingen waar jullie tegenaan zijn gelopen gezien het feit dat jullie een groen bedrijf zijn?
 - a. En zijn er misschien juist voordelen?

Appendix C – Coding scheme

Variables	Codewords
Theory categories	
People_TCT	Human, people, employee, knowledge, minimizing costs, reducing costs, cost-efficient, transaction costs.
People_RDT	Human, people, employee, knowledge, access, resources, availability, in house, positioning.
People_SML	Human, people, employee, knowledge, processes, internal, strategic, decisions.
People_SNT	Human, people, employee, knowledge, collaboration, culture, trust.
People_IMP	Human, people, employee, knowledge, marketing, purchasing.
Planet_TCT	Environment, green, ecological, sustainability, minimizing costs, reducing costs, transaction costs.
Planet_RDT	Environment, green, ecological, sustainability, location, virgin resources, access, resources, availability, in house.
Planet_SML	Environment, green, ecological, sustainability, internal, strategic, decisions.
Planet_SNT	Environment, green, ecological, sustainability, collaboration, shared values.
Planet_IMP	Environment, green, ecological, sustainability, greenwashing, image, green marketing.
Profit_TCT	Profits, monetary value, savings, minimizing costs, reducing costs, cost-efficient, transaction costs, IP, contract, criteria.
Profit_RDT	Profits, monetary value, savings, resources, technology, flows, bureaucracy, risks.
Profit_SML	Profits, monetary value, savings, network entry, strategic.
Profit_SNT	Profits, monetary value, savings, expectations, performance, communication.

Profit_IMP	Profits, monetary value, savings, marketing, trust, collaboration, reach, customers.
Challenges	
CostlySuitStrPart	Expensive, partner alliance, effective, resources.
ManNetPos	Acquire, coordination, positioning, centrality, relationship.
NotMeetNetPar	Access, the right person, unknown, awareness.
DevValidViewRelNetwork	Opinion, knowledge, reliable, network, value activities, transparency.
PosFoundDil	Power, strategy, founders, owners, self-interest.
ParCompetitor	Competition, business, rivalry, agreements.
ClashCultures	Culture, vision, mission, language, ethics.
LackSkillsEngEndeavours	Capabilities, skills, cooperation, optimization, open, interested.
LocationRequir	Location, geographical, abroad, transportation, language, time difference.
IPIssues	IP, patents, copyright, legislation, trademark.
UncDetailContract	Contractual, rules, laws, unclear, missing, information.
NotMeetingCritPartnerSel	Fit, misfit, requirements, partner selection.
LackResources	Knowledge, connections, funding, human resources, employees, shortage, lack.
UncTechCommerValue	Added value, commercialization, technology, university.
UncResourceFlows	Resources, sharing, unsure, access, distribution.
UncPredictability	Conditions, situation, fit, stability.
Bureaucracy	Paperwork, red tape, effort, documents, time consuming.
InabilitySharRisks	Risks, possible hazards, both parties, problems.
UncEnterNewMarket	Market entry, penetration, strategy, new markets.
CommDiffExpectations	Expectations, rely, communication, differences.
RelBothParEncourPerf	Performance, both parties, self-interest, mutual.
SafegTrustCollab	Trust, respect, relationship, collaboration, young.
DevOptSupCusPortfolio	Customers, suppliers, consequent, costs, selection.
LackMarketingSkills	Marketing, in house, knowledge, reach, CI, market research.

Green challenges and opportunities	
GrChallenge_UncGrImage	Uncertainty, different values, image, determine.
GrChallenge_Greenwash	Greenwashing, marketing, pretend.
GrChallenge_FewGrEnt	Not many, few, green entrepreneurs, amount.
GrChallenge_StratGrValues	Profit, strategic, expensive, values.
GrChallenge_PolicyIssues	Law, legislation, policy, government, problems.
GrChallenge_KnowImpact	Knowledge, necessity, need, unknowing.
GrChallenge_Corona	Corona, Covid, pandemic.
GrChallenge_NotWillToChange	Hesitant, change, business as usual, difficult.
GrOpp_WillCollabGrEnt	Helping, goodwill, image.
GrOpp_GreenNetwork	Green networks, circular alliance, shared green values, circular industry.
GrOpp_LongTermSus	Sustainable, long term, future.
GrOpp_GrEntFunding	Funding, subsidies, grant.
GrOpp_TrendGrEnt	Trend, upcoming, booming, mainstream.
GrOpp_GovernStimuli	Government, facilitate, subsidies.