4FE16E – Degree Project in Entrepreneurship

Sustainable Entrepreneurship in Practice - Paving the way to a new sustainable society?

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Spring Term 2017

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17 March 1992
Abstract

Although a variety of definitions of sustainability and sustainable entrepreneurship can be found in literature, the concept of the pursuit of both social, environmental and economic goals while creating value is a widely accepted perspective on sustainability entrepreneurship. However, the implementation of this holistic approach turns out to be very complex and hard to realize for sustainable ventures. While literature only gives general and little concrete recommendations on how to implement the integration of sustainability goals in a business, a tendency can be observed that sustainable entrepreneurship is often considered synonym with more environmentally focused concepts like green or eco-entrepreneurship. This paper aims to examine how entrepreneurs integrate sustainability in their business model, and how they manage to integrate the three dimensions. Another research focus is laid on the question of how sustainable entrepreneurs can foster and forward a transformation towards sustainable development.

This study is investigated through multiple case study approach: Nine sustainability startups and institutions promoting sustainability entrepreneurship shall be investigated in order to get more insight on the goals and strivings of sustainability entrepreneurs, how they put them into practice, and how their actions can help to foster sustainable development in an economy.

It was found that the integration of diverse sustainability dimensions is very complex, and most easily solved with a step-wise integrational approach, as entrepreneurs are still facing many challenges mostly due to the current, not sustainably-focused market conditions. Some “green” tendencies can be observed among the startups and institutions observed, but this can rather be traced back to practical reasons, not to the fact that their perspective of sustainability explicitly focuses on environmental aspects. It was further found, that entrepreneurs can be essential drivers for the sustainability transformation, which can also be fostered and accelerated through political action, education, information and transparency, technology, simplicity and access, gamification, psychology and cooperation and networks.

The study has scientific relevance as the struggle of reuniting the three, partly seeming exclusive, aspects of sustainability is a widely discussed topic in literature, which has only provided few practical answers, while at the same time, a tendency can be observed in literature, that researchers seem to especially focus on the environmental aspects of sustainability, while disregarding the importance of social aspects and social change.
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Abbreviations

BOP  Bottom of the pyramid
RQ  Research Question
SDGs  Sustainable Development Goals
UN  United Nations
For far-sighted companies, the environment may turn out to be the biggest opportunity for enterprise and invention the industrial world has ever seen.

*The Economist*
1 Introduction

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Hauff, 1987)

The Brundtland Report “Our Common Future” from 1987 did not only bring clarity for the concept of sustainable development, it also brought the decisive breakthrough for sustainable development to be fostered in research, politics, and the business world (Fischler, 2014). With his introduction of the “Triple Bottom Line”, the researcher John Elkington (1997) laid the foundations for a new perception of sustainability, by reuniting economic aspects with a contribution to environmental protection and socially responsible development. Ever since, the topic of sustainability has gotten more and more attention in academic research, and moved from publications in environmentally-focused academic journals to mainstream economic and entrepreneurship journals (Kuckertz and Wagner, 2010). On a political level, this three-dimensional concept sustainability has likewise become more and more fostered, e.g. through the signature of the Lisbon Treaty, which commits all member states of the European Union to a highly competitive social market, social progress and a high level of protection of the environment (Weidinger et al., 2014).

While the concept of sustainability seems to have been growing in importance over the last decades, the economy and industry are still perceived as the largest contributors to environmental and social degradation. Both in public discussion and research, environmental and social deficiencies are often traced back to industrial mismanagement and exploitation. However, authors like Cohen and Winn (2007) argue that industry equally has the potential to minimize detrimental impacts and use its capacities to reduce negative environmental effects by leading the world into the next, sustainable industrial revolution. In this context, it is especially entrepreneurship that has been getting more and more credit for being one of the substantial drivers for an economic transformation towards a sustainable future. The innovative power of entrepreneurs is considered to bring about sustainable products and processes that successfully address social and environmental concerns (Hall et al., 2010; Pacheco et al., 2010), which is why a high variety of literature on concepts like “sustainable entrepreneurship”, “green entrepreneurship”, “ecopreneurship” or “social entrepreneurship” has come up (cf. (Pacheco et al., 2010; Dean and McMullen, 2007; Schaper, 2010a; Dees, 2001; Berele, 1991). A lively discussion has evolved about how the integration of the three sustainable goals (economic performance, social progress and environmental protection) can result in uncompetitive compromise, or how they can be successfully reunited and bring
competitive advantage (Levinsohn and Brundin, 2011). While some authors argue for the “strong”, thus three-dimensional, implementation of sustainability (e.g. Young and Tilley, 2006), others state that businesses will have to compromise on implementing two of the sustainable principles in order to succeed in their competitive environment (Dean and McMullen, 2007; Schaltegger and Wagner, 2011). Regarding the so-called “strong”, three-dimensional sustainability approach, the requirements to succeed in the market are high for sustainable entrepreneurs: they need to create synergies between the three pillars of sustainability, with which they create competitive advantage over other players and can fulfill customer needs on a mass market level. Comparing this very rigorous and demanding definition to the political discourse and corporate life of the last years, it becomes clear that the concept of sustainability is often used in much broader contexts and becoming more and more diluted, as it is for example frequently used as a synonym for general positive development, or only in an economic context only, standing for good and viable long term economic development (Károly, 2011; Morelli, 2011).

Levinsohn (2013) observes similar tensions in the field of sustainability entrepreneurship in academic research. Besides the “strong” and “weak” perspectives on the triple bottom line approach to sustainability, a variety of other definitions exist, arguing from different perspectives what makes up sustainability and how it can be implemented or not. In his research, he also identifies another tendency: sustainability seems to be more and more constructed in terms of a rather “green”, environmentally focused perspective, rather than building on the equal importance of all three pillars of sustainability.

This leads to the purpose of this paper, which aims to shed more light on the actual practical implementation of the three principles of sustainability in sustainable entrepreneurship. The goal is hence to explore how sustainable entrepreneurs integrate the three pillars into their business models, and if they also tend to follow a rather “green” logic of sustainability instead of aiming to integrate all three dimensions. Further, it is of interest, what kind of role entrepreneurs play in the transformation process to a sustainable market and society. Based on this, the three following research questions were formulated:

RQ1: How do sustainable entrepreneurs implement sustainability in their business model and which challenges are they facing?

RQ2: Is there a tendency towards a “green” logic of sustainability” among sustainable entrepreneurs?
RQ3: How can entrepreneurs contribute to a sustainable transformation and what needs to be done to accelerate this movement?

This paper starts out with a theoretical section, providing an overview on the origins and definitions on the concepts of sustainability and sustainable entrepreneurship. After a review of the use and position of sustainable entrepreneurship and its implementation in literature, the methods for the empirical research on sustainable entrepreneurs will be presented. This is followed by a presentation of the findings of the multiple case study on sustainable entrepreneurs and supporting organizations. After a discussion analysis of the finding, conclusion on the results of the study, and recommendations for further research will complete this paper.

2 Literature Review

The word sustainability has its origins in forestry, where it was coined over 300 years ago by the German natural scientist Hannß Carl von Carlowitz (1713), who stated that sustainability means not to harvest more from a forest than it can re-grow, with the aim that the forest shall be durably conserved (Fischler, 2014). For the following centuries, the term continued to be used mainly in the context of forestry. It was only in the 19th century that first attempts for sustainable business models were made, although it took almost another century, until it the concept of sustainability was also used in a context outside forestry and the environment. After the focus had been laid on only environmental or only social aspects in entrepreneurship literature for decades, the publication of “Our Common Future”, the so-called Brundtland Report, brought the breakthrough by providing more insight on how sustainable development can be defined and fostered in business and society (Fischler, 2014).

The concept finally moved into the focus of general discussion, after it had been preliminarily used by environmental economists and ecologists previously. Consequently followed a period of rise and development of the concept of sustainability, where the formerly separate concepts of economic success, social progress and environmental protection were more and more integrated into one, and also linked to the entrepreneurial process, innovation and opportunity recognition (Kuckertz and Wagner, 2010). Sustainability also started to be increasingly discussed in the business world and in academia, resulting first in the rather reactive approach of compliance to sustainability regulation and legislation. It then evolved to a more proactive and innovative management
approach, leading to the concept of sustainable entrepreneurship (Schmidpeter and Weidinger, 2014). Even though this concept had been in the focus of academic discussion in both environmental, and later mainstream business and entrepreneurship journals since the millennium, leading authors like Weidinger et al. (2014, p.xviii) stressed only recently that sustainable entrepreneurship is still in its “status nascendi”, in its beginnings, and its potential to trigger a change in paradigm and new ways of looking at businesses still needs to be explored.

With this paper’s aim of trying to explore the state and directions of sustainability entrepreneurship, how it can be implemented and change the status quo, it is very important to find a common point of departure in precise definitions of the concepts of sustainability itself, as well as sustainable entrepreneurship.

2.1 Sustainability and sustainable development

The short overview on the historical development of the concepts of sustainability and sustainable entrepreneurship that has just been presented, stresses the importance of the Brundtland Report in 1987. This report provided a very handy and widely used definition of sustainable development by stating that development can only be sustainable if the needs of our present generations are met without compromising the needs of future generations (Hauff, 1987). It is stated that

“in essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations” (Hauff, 1987).

It thus gives more clarity about the concept of sustainable development, which can first and foremost be considered as a process of changing the status quo for the transformation towards a sustainable society and industry. At the core of this striving for sustainable transformation lies the aim of ensuring the viability of future generations and societies.

Together with a definition provided by the NRC follow-up report “Our common Journey”, the Brundtland report with its basic definitions is today the most accepted and most cited document on sustainable development (Levinsohn, 2013), and also represents the point of departure for the construction of a sustainable world economy. For example, the concept of sustainable development was picked up shortly afterwards by the UN Earth summits of Rio in 1992 and later Johannesburg in 2002, stressing again that
“Sustainable development aims at improving the life quality of all people of the world, without increasing the usage of natural resources above the carrying capacity of the Earth.” (Johannesburg Summit 2002, 2002).

It thus explicitly links the striving for human wellbeing (today or in the future) with the well-being of our planet. Consequently, three fields of key importance for sustainable development are pointed out, namely economic growth and equality, protection of natural resources and the environment, as well as social progress (Károly, 2011). Building on a new understanding that sustainability implies not only the endeavor for economic profits but also social well-being and environmental protection, that had evolved since the mid-1980s (Gladwin et al., 1995), the three-dimensional principle of sustainable development is in the center of attention in the report, stressing that the three pillars of sustainability are interdependent and mutually reinforcing and have to be managed in a balance, if fruitful sustainable development shall be ensured (Johannesburg Summit 2002, 2002).

This more and more defined and politically fostered concept of sustainable development, in combination with publications like Elkington’s (1997) Triple Bottom Line and Shell’s (1999) “three P’s” (Profit, People, Planet), led to an increasing consideration of social and environmental aspects in business schools and the business world, resulting in terms like “Corporate Sustainability”, “Corporate Social Responsibility” and “Corporate Responsibility” (Levinsohn, 2013; Young and Tilley, 2006; Mathews and Senyard, 2010). The three pillars of sustainability thus started to find application in the business world, and equally constitute a widely accepted point of departure for managing sustainability in the business world. Sustainable market orientation building on the three-fold approach of integrating economic, social and environmental goals is today a widely used and accepted concept and business world and academic research, and indicates (e.g. according to Mitchell et al., 2010; Hult, 2011) that organizations must find a balance of following the economic, environmental, and social interests of stakeholders while satisfying the needs of customers in a mass market.

2.2 Sustainable entrepreneurship

When it comes to putting sustainability into action, it is often entrepreneurship that is considered as one of the most important drivers of sustainable development, with its innovativeness leading the way to a more sustainable future (Pacheco et al., 2010; Hall et al., 2010; Schaper, 2010b). Not only are entrepreneurs recognized to find innovative solutions in a market context, as Schaper (2010b) points out, they also play a critical part in making the business world adapt greener, or more sustainable ways of making business.
2.2.1 What is an entrepreneur

The question of what exactly defines an entrepreneur is widely discussed in literature, having led to vast philosophical discussion and paradoxical perspectives coming up. However, in contrast to that controversial discussion in literature, it seems rather easy for people to identify entrepreneurs in practice with their strive to take the risk for putting new ideas and opportunities into business. As Schaper (2010b) formulates it, “an entrepreneur is easy to recognize but hard to define”.

Putting sustainable development in the context of entrepreneurship, authors often refer back to Schumpeter’s (1934) fundamental concept of creative destruction (Gibbs, 2009; Hockerts and Wüstenhagen, 2010; Schlange, 2006; Schaper, 2010b). It implies that, instead of relating to existing structures, entrepreneurs create opportunities through newly combining what exists already. They thus create innovative structures and organizations, which leads to market disequilibria that will wipe out the existing structures and pave the way for change and development in economy. Taking this point of view, it is the people and their ideas, hence entrepreneurs for example, that can set new directions and trigger change in society and economy, in contrast to a more traditional assumption of change coming up as an inevitable consequence of circumstances or trends. Thus, entrepreneurs can be viewed as seekers for change and opportunities both for them and society they live in (Schaper, 2010b), which can also be considered a basic assumption for sustainability-driven entrepreneurs.

2.2.2 Defining sustainable entrepreneurship

Whilst sustainable entrepreneurship is often seen to follow similar patterns of creative destruction as conventional entrepreneurship, it fundamentally differs in the normative goal that it follows: in contrast to conventional entrepreneurship, with its endeavor of fostering economic growth, sustainable entrepreneurship follows the maxim of sustainable development. In this context, it is especially the Brundtland definition (Hauff, 1987) that leading sustainable entrepreneurship literature refers to, stressing that the needs of future generations have to be integrated in the entrepreneurial and business action of today (Schlange, 2009; Weidinger et al., 2014; Levinsohn and Brundin, 2011).

However, up until today, the definition of sustainable entrepreneurship remains contested, and a greater common ground for a general definition can hardly be found. Even an investigation for the name of the concept, like Levinsohn and Brundin (2011) conducted it, displays a wide variety only of the terms used for this concept. Next to the most frequently used term of “sustainable entrepreneurship” (e.g. Schmidpeter and Weidinger, 2014; Cohen
and Winn, 2007; Dean and McMullen, 2007; Schaltegger and Wagner, 2011; Young and Tilley, 2006), the researchers also found publications on “sustainability entrepreneurship” or “sustainability-driven entrepreneurship” (Parrish, 2010; Parrish and Tilley, 2010; Schlange, 2009), and “sustainopreneurship” (e.g. Abramahmsson, 2007; Schaltegger, 2000). In a context where sustainability is more centered on environmental aspects, also terms like “ecopreneurship”, “eco-entrepreneurship”, “green entrepreneurship” and “environmental entrepreneurship” were further identified by Schaper (2010b).

An even greater variety can be found in the actual definition of the concept, that will be referred to as sustainable entrepreneurship in the frame of this paper, as it also represents the most frequently used term in literature (Levinsohn and Brundin, 2011). Appendix 1 gives an overview of the most common definitions and their basic assumptions found literature on the topic.

Considering those nine different definitions found, diverse literature streams can be identified. For example, Young and Tilley (2006, p.402) consider sustainable entrepreneurship “an organization that has sustainability at the centre of its structure, operations and management: in essence, an organization that is moving beyond the requirement to demonstrate efficiency in its drive to be sustainable.” In the model that they base on this definition, they explicitly demand for the integration of both economic, social and environmental goals and are thus part of the literature stream that claims for an equal consideration of economic, social and environmental aspects by sustainable entrepreneurs. Although they recognize the partial value that less integrative forms like social entrepreneurship, conventional commercial entrepreneurship and environmental entrepreneurship, as well as their two-fold hybrids, can contribute to sustainable development, they stress that a three-fold integrative approach of sustainable entrepreneurship has to be considered as a separate concept. As sustainable development is not giving primacy to one of the three pillars of sustainable development, and thus avoids compromises arising from that, the authors conclude that this holistic approach is on a higher level than its core elements of social, environmental and economic entrepreneurship and can thus better contribute to fostering sustainable development (Young and Tilley, 2006; Parrish and Tilley, 2010).

Parrish and Tilley (2010, p.35) take a similar approach. They state that the purpose of a sustainable entrepreneur is to “contribute to improved social and ecological well-being” while earning profits for achieving these ends. While also taking a three-dimensional
approach on sustainable entrepreneurship, they explicitly see the economic dimension as a means to achieve the social and environmental goals instead of considering profitability as a goal itself. From this perspective, sustainable entrepreneurs contribute to sustainable development beyond the regular market incentives providing motivation to do business (Parrish and Tilley, 2010).

Similarly, also Schlange (2009) follows a three-dimensional approach of sustainable entrepreneurship, and explicitly demands a *simultaneous* value creation from an economic, social and environmental perspective. He also enlarges the stakeholder perspective for sustainable entrepreneurs: He explains that with the extension of creating only economic value to the creation of also social and environmental value, the entrepreneur will also have to integrate the interests of a larger group of relevant stakeholders, especially future generations, and thus explicitly refers back to the Brundtland definition of sustainable development (Hauff, 1987).

However, there is no general agreement in literature if all three aspects of sustainability need to be integrated simultaneously in sustainable entrepreneurship. For example, Schaltegger and Wagner (2011, p.223) put forward that sustainable entrepreneurship is rather a “form of creating economic and societal value by means of break-through environmentally or socially beneficial market or institutional innovations”. They hence imply that sustainable entrepreneurship can also be reduced to a “double bottom line”, where the bare integration of only economic and social, or only economic and environmental aspects is equally considered as sustainable entrepreneurship.

Schaper (2010b) takes an even more reduced perspective, by perceiving sustainable development as vastly synonymous with environmental responsibility. He underlines the entrepreneur’s strive for the protection of the natural environment in his elaborations on environmentally-centered “ecopreneurship” and stresses that the entrepreneur’s commercial activities “have an overall positive effect on the natural environment and the move towards a more sustainable future” (Schaper, 2010b, p.13), thus leaving social goals aside of his conception of sustainable entrepreneurship, or rather, ecopreneurship. Based on Schaper’s (2010b) elaborations, Isaak (2010, p.43) takes a slightly different approach to ecopreneurship, still putting weight on the “green entrepreneur’s” commitment to environmental change and radical transformation, but also his strive to make “a social statement, not just money”. Even though environmental responsibility and improvement is seen as the core of an ecopreneurial venture, social wellbeing could here be considered as a
sort of hygiene factor of the business venture. However, Isaak (2010) does not give much further explanation on how ecopreneurs can or should make social statements and integrate the social aspect in their business activities.

By basing their definitions on neoclassical economic theory, Cohen and Winn (2007) and Dean and McMullen (2007) take a different approach to sustainable entrepreneurship which focuses on entrepreneurial opportunities. For example, Cohen and Winn (2007) explain that industry is often seen as one of the largest contributors to environmental degradation, which is due to market imperfections like inefficiencies, externalities, flawed pricing mechanisms, and imperfect information. What they stress is that those market imperfections can represent opportunities for radical innovations that cannot only reverse environmental degradation, but also launch the transformation of an industry towards a more sustainable state. With their large innovative potential, the authors explain that it is especially the entrepreneurs that can seize those opportunities to generate entrepreneurial rents, and simultaneously provide solutions to environmental challenges through this.

Dean and McMullen (2007, p.58) take a slightly different approach by defining sustainable entrepreneurship to be a “process of discovering, evaluating, and exploiting opportunities that are present in market failures which distract from sustainability”. They see five types of opportunities for profit arising from market failures: coasian, institutional, market-appropriating, political and informational opportunities. However, by stressing that those market failures arise from sustainability, they take a narrower approach than their colleagues Cohen and Winn (2007, p.35), who propose that sustainability entrepreneurship focuses on economic, psychological, social and environmental consequences of future goods (Parrish and Tilley, 2010).

The literature streams introduced so far can also be categorized from a different perspective. For example, Parrish and Tilley (2010) suggest that the neoclassical approaches clearly see opportunities for profit in the exploitation of opportunities offering solutions for environmental degradation, which would thus rather fall into their category of “opportunistic entrepreneurs”, who might directly contribute to social or environmental improvements, but only as long as the profit-driven incentives for this exist. For their category of sustainable entrepreneurs, Parrish and Tilley (2010) stress the intentionality for integrating sustainability at the core of business, and that sustainable entrepreneurs actively want to make a contribution to sustainable development and see profit only as a means to achieving social and environmental goals. From Parrish and Tilley’s (2010) perspective, also other definitions
based on the three-legged approach of sustainability, like Young and Tilley (2006) or Schlange (2009) fall under this category.

However, the definitions introduced so far rather look at the strivings and goals of sustainable entrepreneurs, and where they originate in. Even though the innovative power of entrepreneurs seems to play a very important role for most of the authors, it is only Schaltegger and Wagner (2011) that elaborate more closely on innovations, introducing the concept of sustainability innovations that serve a niche market in sustainable development, and distinguish them from actual sustainable entrepreneurship, where radical sustainability innovations are taken to a mass market customer base. The authors see the potential to transform a whole industry in those innovations aiming at the mass market, if they manage to achieve high market influence through a large market share or through influencing other competitors and players to adapt sustainable solutions.

Hockerts and Wüstenhagen (2010) take a similar approach in their work on the role of small and large firms for sustainable development. They argue that it is especially radical innovations that will advance sustainable development, and that these innovations can come up both through small firms, so-called “emerging Davids”, and large corporations that are readdressing their strategy towards more sustainability, so called “greening goliaths”. Even though they attribute the potential for transforming an industry towards more sustainability to both types of firms, they also stress that they see the potential for radically transforming a market especially in small firms.

### 2.2.3 Alternative perspectives on sustainable entrepreneurship and its definitions

So far, the contemplations in this chapter have shown that the definition of sustainable entrepreneurship is contested, and that there are very diverse ways for approaching the topic and categorizing what are sustainable entrepreneurs and what not. There remains a lively discussion on which of the pillars of sustainability need to be included in the strivings of a sustainable entrepreneur, if other types of entrepreneurship like social and environmental can be considered as sub-classes of sustainable entrepreneurship or if it has to be considered as a separate concept on a higher level. In any case, sustainable entrepreneurs will have to meet very high requirements in order to be successful in realizing what they are striving for – fostering sustainable development – while still getting a foothold on the market, finding support and making their solutions find broad and long-term application. Integrating survival and success in the business world with a positive sustainable impact – be it in terms of a
Looking at the variety of definitions of sustainable entrepreneurship that have been displayed so far and considering the different perspectives they offer, it can be assumed that the ways for entrepreneurs to implement sustainable business models are even more diverse. In this context, it might be interesting to further investigate on the central assumptions those approaches base on in order to get more insight on what exactly those entrepreneurial actions are aiming at. For example, Parrish and Tilley (2010) deliver two fundamental interpretations on sustainable development, “humans and ecosystems” and “humans in ecosystems”. The first perspective rather focuses on the betterment and growth of the human economic system, where markets have to be optimized in order to be sustainable, whereas the latter perspective especially recognizes the embeddedness of the human in the ecosystem and seeks betterment of current structures through qualitative change, thus sustainable market transformation (Parrish and Tilley, 2010; Levinsohn, 2013).

Another two interpretations for the basic assumptions of sustainable entrepreneurship were formulated by McDonough and Braungart (2002) who distinguish between “eco-efficiency”, the strive for minimizing the environmental and social impact of an organization, and the more recent concept of “eco-effectiveness” which rather aims on eliminating possible negative impact and to preserve and enhance social and environmental resources (Levinsohn, 2013). This implies that sustainable entrepreneurship can either try to use their current resources in a more efficient way (eco-efficiency), or, which would rather relate to eco-effectiveness, strive to have a net positive, or neutral impact on the environment and society (Levinsohn and Brundin, 2011).

In the current market system with a majority of non-sustainable incumbents, a strive for eco-efficiency is certainly an important step towards more sustainable development, as a whole economic system cannot simply be replaced as a whole. However, taking into account the urgency of current levels of poverty, accelerating climate change, and other global social and environmental issues, it seems to be even more pressing to aim for eco-effectiveness in order to ensure the survival and well-being of future generations.

This paper bases on the assumption that eco-effective forms of making business require a radical change of current paradigms which is why effectiveness can supposedly be most easily realized through new models and innovative solutions launched by sustainable
entrepreneurs, who would thus make an important contribution on our way to sustainable development. For this paper, it is therefore of special interest how sustainable entrepreneurs in practice approach sustainability and what they understand under the concept, in order to figure what is their way of fostering sustainable development and where this could maybe be improved and supported for the future.

2.2.4 Sustainable entrepreneurship for a new industrial revolution

One of the most interesting aspects of the analysis of definitions of sustainable entrepreneurship is the firm believe in the innovative power of entrepreneurship and that it can help transform our current system to more sustainability. Looking at it from the classical Schumpeterian perspective, most authors seem to believe that sustainable entrepreneurs can create the basis for a new form of capitalism through their innovative activities (e.g. Dean and McMullen, 2007; Gibbs, 2009). With the current concern for climate change issues and resource scarcity in society, a growing desire of individuals for improving environmental and social conditions can be observed, which, in combination with a willingness to pay for the cessation of damaging activities, can represent opportunities for sustainable entrepreneurs to introduce innovative solutions that can eventually move into the mainstream of economic activity (Dean and McMullen, 2007; Cohen and Winn, 2007; Gibbs, 2009).

Authors like Cohen and Winn (2007, p.29) see in sustainable entrepreneurship the “potential to reverse negative environmental trends by leading the world into the ‘next industrial revolution’”, as “we may be on the edge of a new wave of creative destruction with the potential to change fundamentally the competitive dynamics in many markets and industries” (Larson, 2000, p.315), where sustainable entrepreneurship becomes “the driving force for the establishment of a holistic and sustainable economic–environmental–social system” (Gibbs, 2009, p.65). Schaltegger and Wagner (2011) even argue that the influence of entrepreneurship on a sustainable transformation is fairly underestimated, as it was not legislation, NGOs or politics that changed the world fundamentally, but striking innovations like cars or the internet launched by private enterprises. They see the same innovative and revolutionary potential in radical innovations brought up by entrepreneurs.

For realizing a sustainable transformation, Schaltegger (2002) suggests that firms will have to reach high market influence through achieving a high market share with their sustainable businesses or influence competitors and market actors to adopt their superior sustainable solutions. However, innovations introduced by sustainable entrepreneurs do not only have to be classically on product, process or organizational level. Besides market innovations,
Gibbs (2009) and Schaltegger and Wagner (2011) suggest that sustainable entrepreneurs can also trigger changes in broader socioeconomic institutions through institutional innovations which can result in a change of the general market conditions. According to Pinkse and Groot (2015), sustainable entrepreneurs thus also exploit opportunities for changing institutions, legislation, public policy and industry norms.

However, the road for this radical transformation still has to be paved. Even though a growing number of sustainable businesses and established firms making efforts for more sustainability can be observed, sustainable business models have not yet become a “mainstream” business practice, and concerns about poverty, exploitation and climate change are still high. Thus, there are also critical voices in sustainable entrepreneurship literature, pointing out weaknesses of the current economic framework hampering the realization of a sustainable transition.

For example, Melhus’ and Paton’s (2012) study on multisided cooperation for sustainable development showed that firms can have an impact through voluntary and cooperative engagement for more sustainability. However, they also found out that voluntary cooperation alone was by far not be enough to reach common sustainability goals like the 20% reduction of CO2 emissions in the study. Similarly, Károly (2011) criticizes current economic policies to be too liberal, as he does not see firms engage voluntarily in serious efforts for the achievement of sustainability goals. Instead of hoping for “responsible firms”, he demands for “responsible states” exerting pressure on firms to take care of social and environmental aspects. Only thus, he argues, will sustainable solutions no longer be a second-best solution in the market and gain foothold in the mainstream business world. Further, Pinkse and Groot (2015) remark that the current success of sustainable entrepreneurs, to get a hold in the market and gain market shares and customers, is hampered through market barriers like government intervention or monopoly status of incumbent firms. They mention the clean energy sector as an example, where the infancy of the infrastructure for electromobility is currently hampering the technology to get a foothold in the mass market.

Therefore, Gibbs’ (2009) question in the end of his conceptual investigation on the impact of sustainable entrepreneurship on shifting the business practice to more sustainability, if the current state of entrepreneurial activity is exemplary for a sustainable transformation, or if they are only an exploitation of niche markets that will remain small-scale, seems justified. He consequently calls for more research on sustainable entrepreneurial activity in order to explore the alternative approaches that can bring up a shift in paradigm. This paper aims to
take up this research gap, and will try to explore which role sustainable entrepreneurs can take in this industrial transformation towards sustainable development, where entrepreneurs see themselves and what they think needs to be done in order to foster and accelerate this transformational process.

2.3 Implementing sustainable entrepreneurship

So far, the theoretical contemplations in this paper have revealed that sustainable entrepreneurship is very often associated with a three-dimensional kind of value generation, supporting economic, social and environmental goals. While researchers see very high potential in sustainable entrepreneurship and its innovativeness to be the engine of a future sustainable market transformation, it also became obvious in this paper that the recognition and integration of those three goals can be highly demanding for entrepreneurs and very complex when being put in practice. Therefore, this section seeks to take some closer look into how sustainability can actually be implemented by entrepreneurs and startups.

As authors like Schmidpeter and Weidinger (2014), Schaltegger and Wagner (2011) and Mathews and Senyard (2010) suggest, entrepreneurs can be classified as sustainable if they integrate sustainability in their core business. In context of that, Morrish et al. (2011) stress that sustainable businesses need to integrate sustainability strategically into an organization’s initiatives and suggest that companies need to identify sustainability issues in their mission statement and put this into relation with their products, processes, firm strategy and business model as a point of departure on the road to sustainability. Similarly, also Schaltegger and Wagner (2011) suggest that, with organizations integrating sustainability in the formulation of their goals, it can be assessed how sustainable a firm can be or become in the end.

To give some more insights on the actual process and implementation of sustainable entrepreneurship, Belz and Binder (2017) developed a convergent six step process model. After (1) having recognized a social or environmental problem, entrepreneurs (2) have to recognize a social or environmental business opportunity and (3) start develop a bottom line solution based on that. As a next step, (4) entrepreneurs will have to seek to leverage their business-model to a triple-bottom line model and (5) find form and funding for their sustainable enterprise. In the end, they will (6) create or enter a sustainable market.
With their process model, Belz and Binder (2017) take an interesting perspective on implementing sustainability in business practice. First of all, they suggest that depending on the problem entrepreneurs seek to access, there are at least two different pathways that can be taken. Entrepreneurs can either identify an ecological problem in the beginning, take an opportunity from it and later integrate the social dimension into their business model, or they start out with the identification of a social problem and the opportunity behind it, and integrate the ecological dimension on a later stage. In the end of the process, entrepreneurs will come up with a triple-bottom-line oriented business model, but this will only happen subsequently, as the authors underline:

“The integration of the triple bottom line is a complex process, which takes place sequentially, not simultaneously. All three dimensions of economic, social and ecological goals are considered and at least partly integrated before market entry, which adds to the credibility of the new venture and its sustainable offering” (Belz and Binder, 2017, p.1).

Further, in his study on the nature, motivation and drivers of sustainable entrepreneurs, Schlange (2006) presents a model on how to identify sustainable startups, which he also used for his sample selection. This model can also help entrepreneurs to identify areas of sustainability and what they have to consider when building up a sustainable business. Relating to the simple process of input-transformation-output, which a startup follows in the context of society, economy, ecology and the region it is situated in, the author applied this approach to the three dimensions of sustainability. For the economy dimension, he identified procurement from regional suppliers as input factors, long term growth perspectives and objectives, as well as sustainability orientation and understanding as transformation factors, and long-term cooperation with regional stakeholders as output factors. Moreover, on the ecology side, he listed ecologically sound transport systems (input), alternative energy sources, resource and residual efficiency, minimal emissions and a sound production process.
(transformation), as well as the focus on an ecological product cycle as criteria for a sustainable business model of startups. Considering the social dimension, he suggested equal rights (input), development and participation of the workforce, safety in employment and integration with the regional community (transformation), as well as honest and transparent communication.

His model thus can serve startups as a first guideline for what aspects they have to consider when defining their values, goals, business model and internal processes. However, the model remains fairly general on how all those aspects can be integrated simultaneously and in a synergetic way, while avoiding compromises and loss of competitiveness, which certainly represent some of the biggest worries for entrepreneurs while building up sustainable startups that have to compete in a mainstream business world.

In addition to those two rather elaborate models helping to get insight on the implementation process of sustainable entrepreneurship, some authors give some recommendations for entrepreneurs on how to find a position with a competitive advantage on the market. Petersen (2010) for example recommends sustainable entrepreneurs to strive for reputation, creativity, exclusivity, nearness to customers and technical competence in order to excel over competitors with conventional business models. However, he remains rather inconcrete on how to achieve these characteristics. Also, Isaak (2010, p.43) gives some practical suggestions for ecopreneurs to follow a sustainable strategy in the free economy. He suggests green brainstorming, a reduction of costs where possible, a stimulation of innovations by the
means of green design and networking, as well as green marketing for attracting overwhelmed customers, and efforts for receiving public funding.

Generally, the academic literature on sustainable entrepreneurship seems to stay on a very conceptual and generic level when it comes to giving recommendations for the implementation of sustainable business models. Also, the efforts in literature to give concrete recommendations seem to be of only few number at the moment. Concepts from the corporate sustainability area like Sustainability Balanced Score Card or Corporate Social Responsibility, which Fischler (2014, p.20) considers to be “the best way to put sustainability into practice so far”, offer more concrete practical suggestions rather for larger firms. However, those concepts only hardly include entrepreneurial thinking and aspects and are tailored for larger companies that often have to answer to different conditions and challenges, which is why they can be only of limited inspiration for entrepreneurs (Mathews and Senyard, 2010). Therefore, it remains one of the most pressing quests in literature to further address the question of how sustainable entrepreneurship can be implemented, especially in small and nascent firms. The latter have to struggle hard to integrate sustainability aspects and assure competitiveness on a market that has only started its transformation and is still marked by conventional market structures.

2.4 Struggling with the three-dimensional integration

Even though leading authors like Schaltegger and Wagner (2011) keep underlining that sustainable business models aimed at the mass market can represent a decent competitive advantage in the market, many sustainable firms struggle in practice with the integration of the three pillars of sustainability in the current market environment, as it is only in its beginnings on the way to sustainability (Levinsohn, 2013). As Young and Tilley (2009) remark, entrepreneurs pursuing sustainable goals often find the current market-based economy system hostile towards their non-financial goals. It seems probable that profit motives eventually overlay the originally strong social and environmental motives, as cases like The Body Shop or Ben and Jerry’s being sold to big profit driven corporation show.

This is why Young and Tilley (2009) take a rather radical position on the question if an integrated sustainability approach can be successfully realized in the current market system. They assert that with the current barriers in place, the sustainability entrepreneur, unlike his less integrated pendants of economic, social or environmental entrepreneurs, is still a theoretical abstract today and can hardly be found in reality. This can only be changed through a radical change in system which will improve the conditions for sustainable
entrepreneurship. Eventually, Young and Tilley (2009, p.89) advocate for a move from a mainly profit driven, to a sufficiency-driven logic, which they define as a reduction of consumption, a so-called “living well on less”. With their idea of moving towards a sufficiency economy, the authors imply a decoupling of constant striving for economic growth from resource consumption, where all companies would be turned into non-profit organizations. However, this represents today, as they also concede, an intense challenge to the current market and capitalism-driven ideologies. Eventually, their idea could also be interpreted in the perspective sustainable of “effectiveness”, which is aiming for a neutral or positive outcome in the use of resources and thus considers the overall balance of economic activity.

A similar point of view is also supported by other authors. O'Neill and Gibbs (2016) remark that even with only a green focus, businesses already face big tensions when trying to succeed with a dual, profit- and environmentally-focused, approach on the market. Also Károly (2011) follows a similar line of argumentation, coming to the conclusion that entrepreneurs should take a step back from the three-dimensional definition of sustainability and re-focus on only ecological aspects. He sees a too big concern that in the end, progress in economic and social aspects cannot compensate or reduce environmental risks and damage.

The contemplations in the last paragraph show that following sustainable ideals as an entrepreneur is a very noble approach, but might be very complex in its actual implementation. It remains contested if the high requirements of a holistic approach on sustainability can eventually be put into practice, as also the discussion in academia on strong (three-fold) and weak (two-fold) perceptions on sustainability entrepreneurship reflects. Therefore, one of the central purposes of this paper will be to find out more on how entrepreneurs approach this concept of sustainability in practice, and how they can actually put it into practice. Is an integration possible or will sustainable entrepreneurs start out with only addressing single aspects of sustainability?

2.5  Greening sustainability?

Surprisingly, while academic literature is one of the greatest advocates of a holistic, triple-fold approach on sustainability, a tendency for the simplification of the concept can similarly be found in a number of leading academic articles. Leading advocates for a more integrated bottom line like Young and Tilley (2006) observe that sustainability approaches tend to fall
Back on either environmental or social goals and criticize that this simplified use of sustainability is problematic.

Levinsohn (2013) examined the perception and approach on sustainability in literature in his systematic review of the sustainable entrepreneurship literature landscape and recognizes that the field of sustainability today is still largely influenced by its ecological origins. The term seems to be frequently used uncritically in a more environmentally-oriented sense: “there is a trend towards constructing sustainability entrepreneurship in terms of “green” entrepreneurship, opportunity and conceptual renewal” (Levinsohn, 2013, p.21). He bases this assumption for example on the fact that five out of the six most journal articles in sustainable entrepreneurship that are cited more than ten times a year take a mostly ecology-centered point of view on sustainability. Further, the author argues that articles that take a more critical standpoint on a mostly green focus on sustainability (e.g. Spence et al., 2011; Parrish and Tilley, 2010) have not made it into the leading entrepreneurship journals.

When it comes to the implementation of sustainability, Levinsohn (2013) observes that researchers and business professionals seem to be using the Brundtland report only in a selective way, as they seem to primarily put weight on environmental problems and not to focus on the integration the whole idea and diverse aspects of sustainability. He relates that to the emphasis on the essentiality of environmental sustainability in the Brundtland report. However, the author also forwards that the report also focuses on other issues like peace, security and legal change, which scholars and business leaders tend to oversee or prioritize less. He therefore concludes that the concept of sustainability presented by Brundtland and her colleagues today tends to be “beheaded” as sustainability in general discourse seems rather to be addressed from an ecological point of departure, cutting out especially social and local issues.

Looking at the literature used for this paper, similar observations can be made. For example, the articles of Schaper (2010b), Parrish and Tilley (2010) and Isaak (2010) are part of the collected edition of “Making ecopreneurs” by Schaper (2010a), one of the standard works in sustainability entrepreneurship literature, where already the subtitle (“Developing Sustainable Entrepreneurship”) lets assume that sustainability is considered as mostly being a synonym of ecological objectives. Eventually, in his introductory chapter, Schaper (2010b) explicitly sets sustainability synonym with environmental responsibility, thus giving the concept of sustainability used in his collected edition a rather “green” orientation. This approach is also sustained by Mathews and Senyard (2010), who make no explicit difference.
between sustainability or environmental focus, neither between environmental, green or sustainable businesses.

Moreover, other leading authors like Hockerts and Wüstenhagen (2010) and Dean and McMullen (2007) do stress the importance of integrating both social and environmental values when developing a sustainable economy, but in the end make use of a discourse focusing on “greening” the economy and “green” sustainability.

Considering Dean and McMullen’s (2007) conceptual approach on sustainability, they take environmental degradation and the opportunities for profit arising from that as a starting point, thus putting focus on the solution of environmental problematiques, seeing social progress rather as one possible consequence of the tackling of environmental issues. Looking at those authors’ contemplations from a rather radical point of view, it could be assumed that social progress can be considered to be only a side effect of sustainable businesses, even if it is a desired one, as primacy is being given to environmental goals. This is also supported by the fact that the authors do stress the importance of social aspects of sustainability in the beginning, but then focus their study on the “subclass” of environmental entrepreneurship, instead of investigating on generally sustainable entrepreneurs.

Morelli (2011) follows a similar line of argumentation, basing his contemplations on sustainable entrepreneurship on the assumption that a sustainable environment can be considered as a necessary requirement for a sustainable economic system. Consequently, he argues that actions aiming for environmental improvement and sustainability will contribute to this kind of socioeconomic system. It can be equally assumed that he thus considers social improvement to be a side effect of tackling environmental issues, no matter if taken actively into account or as consequence of environmental value creation.

Considering this tendency in literature, that the holistic approach on sustainability frequently moves towards a more environmentally centered concept, as well as the fact that the actual practical implementation and integration of sustainability values is very complex and often hard to realize, the question comes up if sustainable ventures also tend to rather focus on “green” values in reality, as this would make it easier for them to tackle this complex concept of sustainability and be successful in the market and its transformation towards more sustainability. This is why one central research question in paper does not only focus on the question how sustainability can be implemented by startups, but also if there is a tendency in the business world, to rather follow a “green” oriented approach of sustainability.
3 Methodology

As Weidinger et al. (2014) state in the foreword of their book on Business Success through Sustainability, the research on sustainable entrepreneurship is only in its beginnings. Therefore the research design chosen for this paper is a multiple case study design which is trying to identify current tendencies for sustainability entrepreneurship in practice, instead of evaluating and deeply investigating those trends based on a quantitative research design.

Core focus group of the multiple case study were entrepreneurs from sustainably oriented startups and institutions that aim to foster and support the development of young firms in the sustainability sector. A first selection criterion here has been the prerequisite that those firms have to have sustainability at the core of their business model, while intuitions where chosen after the criterion if they help to realize sustainability at the core of the young businesses and projects they support.

From the beginning, the focus was explicitly set on young or small entrepreneurial firms, instead of also incorporating larger companies and corporations. Even though literature stresses that sustainable entrepreneurship can also happen in big firms (e.g. Hockerts and Wüstenhagen, 2010), it is also stressed that small companies form the backbone of society, and that they have a higher potential to create higher returns from sustainability offerings (Mathews and Senyard, 2010). Equally, it is often underlined that small and young firms represent the innovative cradle of a society.

The double-centered approach on investigating both startups and institutions supporting young firms was chosen, as one of the research aims of this paper is not only to investigate the practical implementation of sustainability, but also the question of how sustainable ventures can help to foster a transformation towards sustainable development. Therefore, also strategies on how to boost startups and motivate entrepreneurs to work in this sector are of interest, which is where institutions like incubators and accelerators can give valuable insights on.

Regarding the selection of startups, a second criterion has been applied. Instead of only looking for young firms supporting the sustainability cause at their core, firms have been selected that provide solutions that help other firms or individuals to become more sustainable and realize sustainability strategies. As those startups both “struggle” with implementing sustainability in their own business model, but also help others to succeed in
this “struggle”, those firms seemed to be of special interest for the investigation. All firms and institutions are situated in Scandinavia, based in Sweden, Norway or Denmark.

3.1 Data Collection

As for the collection of data, semi-structured interviews were chosen as the main source of information for this study. Both for startups and institutions, a general questionnaire was developed and slightly adjusted for every interviewee, based on his/her personal and his/her organization’s history which had been researched online in advance. The questionnaires represented a general guideline for the interviews that were conducted via skype or phone, but were not meticulously followed, in order to guarantee a vivid discussion and have the possibility to go deeper wherever the interviewee could provide more insights on a specific topic. Generally, all interviews covered the diverse fields of interests: (1) Definition of sustainability for the entrepreneur/organization; (2) motivation for sustainable orientation, (3) ways for implementing sustainability, (4) challenges for implementing sustainability, (5) best practices/recommendations for success, (6) ways fostering the process of a sustainability transformation and (7) wishes and demands what still is needed for a transformation towards a sustainable economy and society. The detailed questionnaire framework can be found in Appendix II.

All in all, nine interviews were conducted with founders or higher responsibles of the selected startups and institutions in May 2017 and generally lasted between 30 and 70 minutes. All of them were recorded in order to assure an exact understanding and transcription for analyses in this paper. Table one gives an overview of the interviewees and the organizations they represent.

<table>
<thead>
<tr>
<th>Interviewee &amp; organization</th>
<th>Description</th>
<th>Category</th>
</tr>
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<tbody>
<tr>
<td>Entrepreneur A,</td>
<td>Normative quantifies the ethical and environmental impact of organizations in real time and offers companies to track their socio-environmental footprint and supports their sustainability reporting.</td>
<td>Startup</td>
</tr>
<tr>
<td>Normative in Lund, Sweden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneur B,</td>
<td>Tomorrow uses science, data and machine learning to automatically quantify the environmental impact of our daily decisions. The aim is to present information in a simple and elegant way, e.g. in their electricity map, empowering anyone to have a tangible and positive impact.</td>
<td>Startup</td>
</tr>
<tr>
<td>Tomorrow in Copenhagen, Denmark</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneur C,</td>
<td>Devkittens use their expertise and skills in interaction and material design and combine it with user-centered and gamification approaches in order to develop solutions that make sustainability accessible, simple and fun for users.</td>
<td>Startup</td>
</tr>
<tr>
<td>Devkittens AB in Gothenburg, Sweden</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Entrepreneur D, 
Ducky AS in Trondheim, Norway
Ducky helps companies, schools, and municipalities to have a real impact in sustainability by engaging the organization’s members and using social psychology.

Entrepreneur E, 
Chalmers Ventures in Gothenburg
Chalmers Ventures is a business incubator and accelerator situated at Chalmers School of Entrepreneurship leading diverse programs to found startups and realize business ideas. They have a special track for green tech startups and organize various events for the green startup scene.

Entrepreneur F, 
Sustainable Innovation in Stockholm, Sweden
Sustainable Innovation is a non-profit organization owned by the Association for Energy Efficiency (Effekt) where diverse big renowned tech companies are members. The organization runs a multitude of co-operational projects focused on building a more sustainable, resource-efficient future.

Entrepreneur G, 
ByNature in Oslo, Norway
ByNature is an organization that provides a platform for presenting and promoting Norway’s green credentials to a global audience. Norwegian green innovations are profiled and will be backed by broader promotion of Norwegian green solutions through social media channels and at international events.

Entrepreneur H, 
Xpreneurs/Climate KIC in Munich, Germany
Xpreneurs is an incubation program for technology-driven startups coming from the Entrepreneurship center of the Munich Technical University. Also, startups from southern Germany admitted to the Climate KIC program are hosted and coached there.

Entrepreneur I, 
Inclusive Business in Gothenburg, Sweden
Inclusive Business Sweden engages and supports organizations in developing sustainable, innovative, and inclusive business models with the BoP. The organization strives to develop businesses to profitably and sustainably meet the global challenges of poverty.

Table 1: Interviewees and their organizations
Source: Company descriptions online & interviews conducted

In addition to that, publicly available information about the firms and institutions e.g. on websites or through internet research were taken into consideration to get some deeper insights on the organizations, their goals and the interviewees.

3.2 Data analysis
After the interviews had been conducted and transcribed, the interviewees’ quotations were inserted and regrouped in an excel table, using grounded theory as a review method. Authors like Wolfswinkel et al. (2013) recommend a grounded theory approach for rigorously reviewing literature. As all the nine interviews were very elaborate and had transcripts of several pages, a lot of rich information had to be processed and interpreted. In order to administer this considerable amount of information efficiently and as systematically as possible, a similar approach has been chosen as recommended by the authors Wolfswinkel et al. (2013). Thus, a concept matrix could be built up, and relevant topics and categories
could be derived, which will be introduced in the next chapter and then interpreted in the chapter afterwards.

4 Findings

4.1 Definition of sustainability

As the introduction into theory of sustainability and sustainable entrepreneurship at the beginning of this paper has shown, the definition of sustainability that is most fostered in academia and politics (besides the very general definition of the Brundtland report) centers around a three-dimensional concept where economic, social and environmental goals are pursued.

However, how sustainability can be integrated into business remains rather uncovered in literature, and the definition of sustainable entrepreneurship is contested in academia. Different streams could be identified, e.g. focusing on a rather economics- and market-centered definition, while others argue for an integration of two or three dimensions of sustainability in the core of a business.

Authors like Young and Tilley (2006), who argued to follow a three-dimensional approach also in sustainable entrepreneurship, stress that businesses which equally integrate economic and social and environmental goals at the core of their model are the only ones that can be considered as truly sustainable. However, they also concede that this holistic approach remains a kind of “supreme discipline”, that today can only hardly be found in businesses in practice.

One of the core motivations of this paper was to find out more about how entrepreneurs develop sustainable businesses in practice. For this, the entrepreneurs interviewed were first asked about their perspective, what sustainability is for them, and how they would define it. It was assumed that their perception of sustainability is also reflects in the way they build up their business models (for startups) or in the way they select and assist the business they support (for institutions). This will then be used in the next part of the paper to make conclusions on how sustainable entrepreneurship is practiced in today’s business world.

The definitions provided by the interviews in some way reflected the diversity of definitions that can also be found in literature. As Entrepreneur D put it, “The more we go into it (sustainability), the more we find that everybody has a very different definition.” However,
two general streams could be identified among the definitions provided by the interviewees (for the exact quotes of the definitions, please refer to the table in Appendix III).

First of all, Entrepreneurs D, G, I and H (Ducky, ByNature, Inclusive Businesses and Xpreneurs) directly referred to the three-dimensional concept of sustainability which is also most renowned in literature and politics. Entrepreneur G especially relates sustainability to the concept of Corporate Social Responsibility, as her company Ducky mainly focuses on helping big companies and their employees to improve their sustainable impact. She stresses that this is a very complex topic but should both comprise social and environmental goals, and not only focus on one of them: “we do find that corporate social responsibility incorporates a lot of different aspects like a volunteer community, sort of very social aspects as well, not just doing what’s good for the environment”. However, from her point of view, the economic dimension is not another goal of sustainability, but rather a means for realizing social and environmental aims. This is why Ducky is an idealistic non-profit company, where all profits are plowed back into the company or used for other sustainable projects. “We are also an “ideel bedrift”, an ideal business. […] So we are not in it, to make money. Our shares can never gain any value. Any profit that we do make will be re-invested into the company or invested in other special sustainable activities that we believe in. […] we are doing that purely to make the world a better place”.

Entrepreneur D (ByNature) first of all refers to the rather general definition of Brundtland, stressing the fact that sustainability means “that we live, spend, consume and produce in a way, as Brundtland said, that we do not ruin the climate for our future generations.” Although she directly points out the importance for climate and resources here, she also stresses that sustainability is especially about the “human factor, including people, climate and profit”. However, the environmental and climate-related aspect is especially important to her, as she is working a lot in this area. She acknowledges that green growth “is more focused on climate, environment, and the natural world” but also often mingles it with the concept of sustainability as both have the same means to her: “I might be mixing the green growth with the sustainability sector but it is basically the same: we need to take care of our planet!”

Entrepreneur H takes a similar approach to his definition of sustainability by highlighting the environmental dimension of sustainability. However, he simultaneously stresses the economic dimension of sustainability. “I would define it with exactly those two aspects. On the one hand, there is sustainability in the sense of energy, conserving resources, or referring to the environment, green energy, electro mobility, etc. On the other hand, sustainability also
focusses on developing business models that are built up with the intention of founding long-term viable companies.” He thus does not see profits as a mere means to reach more idealistic goals. Moreover, Entrepreneur H adds a responsibility aspect to the economic dimension, as sustainability for him is not only about making money, but also about creating long-term value. In this context, he concedes that “the societal aspect also has to be included somewhere here.” He does not consider it as a mere social dimension, which is firstly about solving social ills, but sees a business as a part of the society to which it also has to give something back it.

Entrepreneur I (Inclusive Business) rather underlines the social than the societal aspect of the three-dimensional concept of sustainability. She generally considers both social, environmental and economic goals as equally important, and thus also sees more in the economic dimension, than only a means for reaching other goals: “sustainability is about making business, and not charity. So of course, that includes that a business is financially stable and sustainable. But the business also needs to be sustainable in the social and the environmental sense.” Moreover, she adds a special perspective to the social dimension, as the sustainable solutions they support in their institution “should also be affordable for the BOP [bottom of the pyramid]. This means that we would not just go to South Africa and sell water solutions there. It would mean that we go to the townships of South Africa, and that’s where we would sell our sustainable water solutions, give them access to water and increase sanitation.”

The second stream of definitions of sustainability identified refers to a rather resource-based perspective. Entrepreneur F (Sustainable Innovation) puts this very precisely, stating that his institution looks at “energy efficiency, zero emissions and […] how to limit the use of resources towards a circular economy. That is sustainability for us, as of today”. Entrepreneur B (Tomorrow) takes a similar, but broader standpoint, generally stating that “for me, sustainability is the ability to let your resources replenish instead of using them up” and thus also relates to the well-being of future generations and the future well-being of the planet. If resources are used sustainably, then their use is not limited in time, and also future generations can profit from it“. “My criterion for sustainability is that the resources you use for your business should be available forever”, explains also Entrepreneur E (Chalmers Ventures). Moreover, he adds an economic perspective to the resource-based view on sustainability and relates the idea of not wasting or using up resources to the idea of zero footprint. This implies that a business should not cause a new problem through its activity
and reduce its negative impact on its environment (footprint) to zero or even a positive balance. “For example, I think it is easy to say that you solve environmental issues. But in my opinion, it is also about not creating those issues.” Another important aspect of this is that sustainable businesses cover all the costs they cause and do not leave their negative externalities unpaid: “you should not produce a problem at the other end of your business which is not covered by the value you create. For instance, you should not create waste that someone else will have to carry the cost for. Then it is not a sustainable business. Eventually, either the problem of the waste will bring you in a position where someone will say that you cannot do this anymore or you will be faced with paying the cost”. This aspect of covering cost is also picked up by Entrepreneur B, who takes it from a more economic perspective, stating that in a sustainable society, the cost of production of goods or services will also include the coming up for externalities caused during the products. “A system is not sustainable if it does not quantify the externalities, meaning rather the total cost”. This, in turn, will lead to a more sustainable, reduced consumption of products, as the adjusted, higher price will lead to a new equilibrium.

This second, resource-based stream, might seem very centered around the planet and its well-being at the first sight, as it preliminarily focuses on the efficient use conservation of scarce resources, which is directly connected to a careful handling of our planet, nature and the environment. However, also the human factor plays a role in this perspective, as Entrepreneur A’s standpoint shows. He takes the resource-based approach from a slightly different angle, and explains that, the goal of sustainability is the survival of us humans: “What is important for us is that humanity survives, as they are the most intelligent beings on this plant. […] At the same time, we want humanity to have wellbeing, so to be healthy and happy, because this means that you are more productive”. However, Entrepreneur A stresses that humanity can only survive and be well, if also our planet survives: “Resilience means to figure out ways how humanity can survive. One of those is actually to figure out how our planet can survive right now”. However, as the resource-based approach to sustainability puts it, the planet can only survive and be well, if we do not destroy and use up everything the earth offers, but use its resources in a way that they can replenish. Once again, Entrepreneur B offers a more economic perspective to this way of thinking, summarizing it in the following: “If you want to continue optimizing social welfare, the consequence is going to be that we will also have to optimize for the environment.”
Another interesting observation made in the context of defining sustainability is that over half of the interviewees (five out of nine) directly related their contemplations to the UN Sustainable Development Goals (SDGs) (United Nations 2015). For example, Entrepreneur A refers to the SDGs as they can give a framework to figure which indicators could or should be measured e.g. in order to assess the sustainability of e.g. a company through quantified data. More generally, Entrepreneur H sees a general guideline in the SDGs for the startups that are supported in his institution: “Personally, I am a lot in favor of using the EU framework for Sustainable Development Goals as sort of the guideline for criteria and areas to focus on.”

When Entrepreneur E stressed that sustainability is not an individual endeavor, but can only achieved if the whole business community works on it, he also took the SDGs as a point of reference. According to him, all businesses will have to work according to the Sustainable Development goals in a sustainable society and business world. For Entrepreneur F (Inclusive Business), the SDGs are where the institution’s concept of supporting sustainable startups and projects that relate to the BOP comes from. “We are working to give the people on the BOP a chance to be lifted out of poverty and better their life situations. […] It is about doing this in such a way that it is financially, socially and environmentally sustainable. So we do work a lot with the SDGs. In the end, this is where the term inclusive business comes from”.

The SDGs seem to be a practical point of reference in practice for entrepreneurs and businesses that try to integrate the sustainability cause into their business activity. However, the SDGs as a point of reference also show the complexity of the endeavor for integrating sustainable. There are seventeen goals alone that are to be pursued for realizing sustainable development according to the UN. Besides the three dimensions of sustainability discussed in academia, the UN also adds the dimensions peace and partnership, under which the seventeen goals can be categorized (United Nations 2015). This high complexity makes it even harder to integrate the sustainability cause at the core of a business or startup. As

1 “If you look at the UN and their global SDGs, you have goals for no poverty, zero hunger, water, climate, sustainable consumption. There are a lot of indicators for those goals, but a lot of them cannot be measured with the standards that are available today. For example, life below water, goal No. 14, says that you have to conserve sustainably used oceans for sustainable development, but there is no quantification of how we can know if we are using this ocean sustainably. However, if you put data into our system, we can calculate indicators like ocean acidification for example, which effects the bio diversity in oceans. We can for example calculate how much shipping traffic on the sea can effect bio diversity in the sea and how much it impacts the world as a whole. The craziest thing about this is that all this data is available but no one puts it into one system. So this is what we have been doing for the last years.”

2 “Eventually that is where we need to go with our whole business community. So I think this is a very logical conclusion that this will be the case. We cannot have 30-40% working according to those SDGs, trying to think with a long term perspective on the survival of the planet and then we have 60-70% that say that they do not care. That is of course the case today, but for the future I do not see that it could be any other way.”
Entrepreneur D puts it, “Looking at the SDGs, there are so many things that we should work on. It is so complex and so huge. We are only working on climate change so far and it is so complex that I sometimes ask myself how can we possibly do all of this? It is quite impossible”.

This leads to the question how entrepreneurs can actually manage to integrate sustainability in their business models in this very complex context, and what is the current situation about it. The interviewees’ opinions and experiences to that will be discussed in the following subchapter.

4.2 Integration of sustainability

Generally, the interviewees’ perspectives on how sustainability could and should be integrated into businesses can be clustered into three streams.

First of all, three of the interviewees explicitly argue for not prioritizing one dimension over the others. It is important to them to take a holistic approach on sustainability in order not to leave aside any important aspects that can foster sustainable development. For example, Entrepreneur A stresses that “we need to take a holistic approach. I do not believe that only fighting climate change is the way to go […] I believe in a holistic approach where you figure out where neglected causes are and where we do not spend enough to solve these issues.” Entrepreneur I, who works on building up inclusive business models integrating the BOP, elaborates that, besides that very social component, her institution focuses on building up economically viable businesses. However, this does not imply that the three dimensions of sustainability are not equally important in the process, as “the financially sound business model is maybe the most important part, because that is essentially what we do, finding business models that fit into developing markets. But this does not at all mean that the sustainability perspective from an environmental or social standpoint is off”. “We would not support businesses or projects which do not live up to those standards”. Even though the institution of Entrepreneur F focuses on supporting economically viable innovations in, what he calls the “green-tech” sector, thus innovations solving environmental problems, he stresses that also the social dimension must play a role from the start and not be considered as less important. “I think that later is too late. Social goals should not be sub-classed under environmental goals”.

Entrepreneur G takes a similar standpoint and explains that sustainable startups might intend to solve one problem, but they should not be afraid of addressing several goals, and usually
address several ones from the start anyways. “I usually ask my companies which SDG goals they can contribute to and how they do that. Most of them have 3-4 goals combined. For example, you can have a green technology and still make sure to promote equality. I think it is easy to contribute to more than one goal.” She thus gives an example that at least to some extent, it is possible to follow a holistic approach of sustainability integration.

However, Entrepreneur G does not generally argue for a holistic way of integration. Similarly to Entrepreneur B, she thinks that the most pressing issues right now are the climate and environmental issues. For them, planet is too much at risk and the problems arising from it too pressing, than to put the focus elsewhere: “I really think that green is in the focus at the moment. […] Of course, there is a lot within sustainability which is critical, like the UN Sustainability Goals. All themes in these goals are of course important. But I talked to people within the UN and they all say that the first critical problem is the climate, because if we ignore the climate and global warming, there won’t be a climate, or temperature that is livable for people.” Entrepreneur B adds to this that “if we want to continue living, even the people that do not care at all will have to care about the environment, else it is going to impact the social welfare. Environment is kind of a hygiene factor for our welfare. […] Sustainability is triggering a system of economics that enables you to survive in the long-term”.

The third stream identified groups the opinions of four interviewees that argue for a sort of mix of the two first approaches. All of them have experienced the struggle and complexity of integrating sustainability into a business and are therefore rather sceptic towards a successful holistic integration from the start. As Entrepreneur H states, “I do believe that it is really the hardest, the supreme discipline, to integrate all aspects in one company. I think there are only very few companies on the globe that could play in this league. Right now, I cannot think of a single company where I would sign a certificate that they do manage this three-fold integration. This is surely possible, but also difficult”. Nevertheless, Entrepreneur H does not think that this means that it is impossible to build up a sustainable company. “I generally already find it very positive, if a company starts out with one aspect and manifests it in the founding process. […] Then one will have to wait and see how everything develops and what grows from it. I would not say that a company is only sustainable, when it covers all three dimensions of sustainability. If this were the case, I think there were only very few sustainable companies on the globe”.


Entrepreneur H therefore suggests following a step-wise approach which prioritizes one dimension or goal in the beginning, but tries to integrate more and more aspects over time. This is also, what Entrepreneur C sees happening: “I think when you are forming a business or making a business plan, you initially want one thing. You do not want to reach out to too many things at once. Either you start with the environmental side or with the social impact side.” Besides, Entrepreneur E and Entrepreneur D advocate for a stepwise integration and explain that one simply has to start somewhere\(^3\), but also should strive to integrate as many goals as possible in the future development of the business, as Entrepreneur E explains: “we can start with the development goals that are really linked to environmental problems and sustainability from an environmental point of view. Then the next step is quite natural that we include more and more of these development goals into our processes”

Further, the entrepreneurs remain optimistic that in the future, a holistic integration will be possible, as for example Entrepreneur C illustrates: “I think right now, the business world is split up in two streams: either socially or environmentally focused companies. But only for now. In the future, I think that the whole stack will be both social and environmental, that is at least the trend that I am seeing right now.” Also, Entrepreneur E hopes that in the future, it will not be necessary to focus only on parts of sustainable dimensions like green-tech anymore. “Eventually I also hope that there will not be a specific domain limited to green-tech at Chalmers Ventures. I believe that in the future, we will use the development goals as a general framework or guideline for everything we do, and that all of our companies are following those goals. Eventually that is where we need to go with our whole business community”.

However, in order to get there, the entrepreneurs also concede that a lot still has to happen, as current conditions are virtually not leaving much space for more sustainability integration. That is why the next section looks into the challenges that sustainable entrepreneurs and their businesses are facing at the moment, where there might be advantages they can make use of, and, eventually, what it will eventually need for a transformation to a sustainable society and market to happen.

\(^3\) Entrepreneur D: “Ducky works mainly with climate now, but sustainability is a huge topic. We find that climate is just one of those aspects and we do want to expand to include all the other aspects of sustainability at some point. We are starting with climate change because that’s what we are very passionate about and because we need to start somewhere”
<table>
<thead>
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<th>Stream</th>
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| D (Ducky)| Three Dimensional | • Social and environmental goals  
• Profit as a means for achieving sustainability goals | Step-wise            |
| G (ByNature)| Three Dimensional | • “People, climate & profit”: social, environmental and economic goals  
• Stressing the importance of the environmental dimension over the others | Priority: environment |
| H (Xpreneurs)| Three Dimensional | • Importance of all three goals  
• Economic goals especially on a long term perspective in close relation with the societal environment of the company  
• Taking social dimension rather from a societal point of view | Step-wise            |
| I (Inclusive Business)| Three Dimensional | • Equal importance of all three dimensions  
• Adding new perspective on social dimension: business models compatible for the BOP | Holistic            |
| F (Sustainable Innovation)| Resource-based | • Creating a sustainable society through energy efficiency, zero emissions models and circular economy approaches | Holistic            |
| B (Tomorrow)| Resource-based | • Ensure timeless availability of resources through efficient approach which lets resources replenish  
• Taking responsibility for all the cost/ negative externalities occurred | Priority: Environment |
| E (Chalmers)| Resource-based | • Ensure timeless availability of resources through efficient approach which lets resources replenish  
• Taking responsibility for all the cost/ negative externalities occurred | Step-wise            |
| A (Normative)| Resource-based, meta perspective | • Sustainability means to ensure long-term survival of the human  
• Survival & well-being of the planet (thus careful and efficient use of resources) as necessary condition for this | Holistic            |
| B (Devkittens)| | • Promoting the environment and ecologically sound development | Step-wise            |

Table 2: Overview on Definition and integration approaches of the interviewees

4.3 Challenges for sustainable businesses

“I would say yes, it is more difficult for founders following the goal of building up a sustainable business that also aims to realize the three dimensions at the current conditions. The market, the willingness of the society, the technological conditions, finding the right strategic partners, those are all challenges that sustainable entrepreneurs might find even more difficult than conventional ones.” (Entrepreneur H)

While working on integrating sustainability in their business models, entrepreneurs face various challenges they will have to overcome to be successful with their vision and business idea. Even though not every interviewee would take a position as firm as Entrepreneur H, all the interviewees could tell about challenges they face in their daily business while following the sustainability cause. The challenges seeming most pressing according to the interviewees center on the financial side of making business: building up commercially viable business models and finding adequate funding, as six out of nine entrepreneurs elaborated on problems and challenges connected to those topics.
Regarding the business model, Entrepreneur B states: “I think the biggest challenge for every entrepreneur that wants to do anything sustainability related is the business model”. Reaching profitability is one of the biggest issues for sustainable startups, according to Entrepreneur G. “We definitely need to get more business going on sustainability. Many startups have difficulties with making money. It is hard for them to become profitable.” This is something that also the interviewees already have experienced themselves. For example, Entrepreneur A and his partner had to change their original idea of making a sustainability app for consumers to offering business solutions in order to find a way to make money.4 Entrepreneur B still has to sustain his core visions of tomorrow through money gained in other activities like consulting and selling data.5 Before gaining money in the institutions they work for today, Entrepreneur G and Entrepreneur I could only work there as unsalaried volunteers.6

The reasons the interviewees see for this are mostly of structural nature. Entrepreneur G, for example, made the experience that many unpaid volunteers engage in the sustainability scene, offering their services for free, which in the end gives firms no actual incentive to actually pay for it, which, in turn, can make it even harder for sustainable business to monetize. “Many firms do not consider paying for reaching sustainability goals. There must be some incentives lacking in the market. I think there are probably too many volunteers that are so passionate that they give services for free even though they could and should be rewarded monetarily.”

Another reason put forward by Entrepreneur B7 and Entrepreneur E is the fact that sustainable businesses, where one basic assumption is to cover all the negative externalities and costs occurred, right now have to compete on the same marketplace as conventional businesses that, as they are not covering all the costs occurred, have often a much more

4 Entrepreneur A: “The first app we created was actually a consumer app where you could e.g. see your purchases you made and the impact this purchase has had. We really wanted to do that, but then we figured that we have to have a sustainable business model as well, where it came apparent that we had to shift towards businesses. So right now, this consumer part is resting as we first have to figure out what exactly is our business idea with it. Now we are focusing first on our B2B model and get running and make it profitable. Then we move back to the consumer app.”

5 Entrepreneur B: “We are trying to earn money as good as we can by consulting and the different products we have, trying to sell data, which is a completely different industry and not really related to the sustainability industry. We are just using this to make money and funneling it for something different because I really think that in a couple of years we will have that business model at some point and we will be making money. But right now it is a bit tough.”

6 Entrepreneur G: “I started out with doing this promotion for sustainable companies on a voluntary basis. Today I can charge money for representing and promoting them e.g. at events.”

Entrepreneur I: “Initially, my work had been unpaid for at least a year. And then when we started securing projects we started to get paid. Now we are four employees.”

7 Entrepreneur B: „The system is not sustainable because it does not quantify the externalities“
competitive cost structure: “I think that this is the difficult part with green tech or sustainable models. The reason for why it is not working commercially in short term is that there are other competitors in the market that are producing similar things that are not sustainable but society has not put sort of a condition on those other competing businesses that they should take full account for the costs of their waste or that they are using limited resources. They are actually competing on a different playground, a non-sustainable playground, and society is allowing them to do that.” This means that the marketplaces where sustainable companies can succeed under equal conditions do not exist yet. However, in case structural settings change, like for example a carbon tax that makes firms come up for their emissions, sustainable businesses will have it easier to find ways to succeed. Entrepreneur E is optimistic that this will change in the future, even though, to make this happen, sustainable entrepreneurs are also very likely to be faced with firm lobby structures that will need to be overcome, as e.g. Entrepreneur H explains: “One other big problem is that in many areas, you are faced with big lobby structures which you have to overcome or work against. Today, there are still in many sectors too many big players, that follow a very own personal interest. Going against that as a small team is tremendously difficult”.

However, even though the barriers to overcome to build up an economically sound business model are considerable, overcoming this challenge seems to be an essential criterion to finally become successful with a sustainable business. As Entrepreneur E puts it, “I think the most important factor to make good solutions available and to have them applied is that you make them work from the commercial point of view. Like this there will be a push forward, you make them scale and they have an impact. In summary, take these good solutions, make sure that they work commercially and scale.” Both Entrepreneurs E and F relate the economic viability of a sustainable business model directly with its ability to scale up. “What else is important for long-term effects in the sustainability transformation is to reach economics of scope or scale” (Entrepreneur F). If businesses find a way to make their solutions be applied on the mass market, they will become commercially viable more easily.

Besides the structural impediments mentioned so far, Entrepreneur B identified one more burden which relates to a very elementary question in the sustainability discussion. He assumes that, as sustainability foremost implies to limit the use of resources to an extent where they can replenish again, this will have to result in consumption going down (and according to macro-economic models, it would). However, as we are right now living in an
economic system that first and foremost bases on permanent economic growth, this whole system is put into question and might have to be revolutionized.\textsuperscript{8}

When it comes to funding, the interviewees explained that investors are generally hard to find, and that it usually takes much longer to do so.\textsuperscript{9} Further, investments into sustainable businesses are often considered to be riskier and to provide rather slow, than easy money. This is for example where Entrepreneur E sees the reason for why venture capitalists have not found much interest in this kind of investment yet: “The venture capitalist has not seen the value in investing in the same way in green solutions yet. They still consider this as higher risk for some reason”. Entrepreneur F also explains that this is why many sustainable firms get stuck in the “financial valley of death”. Once they have their proof of concept and could try out the mass market, investment by venture capitalists is missing. “You have an idea, make a demo, set up a company and get it started. It is not too hard to get there though. But if you then want to take the next step to industrialization, 90% will fail. We are missing real venture capital to support this step.”

However, the interviewees also saw some positive trends for tackling the challenge of funding. More and more state-funded funds are coming up, offering money for sustainable ideas. This, together with a rising interest by institutional investors in sustainable investments, augments the money available in the market. Especially for state funding though, the effort to get this funding is still very high, as Entrepreneur H explains: “I think there is a lot being done meanwhile, and there is also money that you can use or get. The problem that I see about it, is that the process until you get the money is really taking time, very bureaucratic and still costs a lot of effort. For many, this is still the biggest obstacle for actually applying for funding, as especially in early stage startups, time and resources for that are often lacking for this extra bureaucratic effort”. 

Coming back to institutional investors, Entrepreneur E reports that he at least could observe some rising interest from their side in sustainable investments, a “trend of institutional investors looking for opportunities to invest in green solutions”. But also here, Entrepreneur

\textsuperscript{8} Entrepreneur B: “There is no one that is going to reward you to make something that either incentivizes people to consume less, because that is just less money for everyone, and that is not see as a good thing; or change the way they consume stuff for something more sustainable, because there is now money for transitioning to something better. You need to be super smart but try to find some other ways of earning money on the stuff that you believe that is good for the environment, and that is really hard. This is the core issue.”

\textsuperscript{9} Entrepreneur G: “It takes a long time to find investors, way longer than for usual companies. Right now I am trying to put up a green showroom for helping startups to raise money, but it is difficult.”

Entrepreneur F: “There are often problems with funding and it takes a lot of time to find the right partners and agreements with companies.”
H calls for caution, as he finds it very important to find the right partners when it comes to investment in a startup, who follow a strategic, rather long term perspective.\(^\text{10}\)

Generally, four out of the nine entrepreneurs interviewed underlined the importance of finding the right partners. Even though it is difficult to select and find suitable partners, the entrepreneurs see big opportunities in e.g. taking a triple-helix approach, which e.g. the institution Sustainable Innovation and Inclusive business recommend their startups to take. As Entrepreneur I states, “Right now, it is rather all about this triple helix approach and collaboration”. Entrepreneur F argues strongly for a triple helix approach, reuniting parties from the industry, academia and the state. He sees especially much potential, if those three parties can be brought together with entrepreneurs and their innovative ideas. “We try to involve entrepreneurs, as many as possible. If we can also have entrepreneurs in our demo projects, we can actually try them out for real in cooperation with cities and large industries and also verify results with researchers from the academy. So for us it is a much better way to have the entrepreneur involved in order to look if the idea is scalable, checking the technology, business skills and operational skills. We start out with a triple helix approach and add the entrepreneur in order to really try out the project and see if it is viable.”

What else is very challenging about finding partners, not only for investments, is that many of them do not see the opportunity and potential behind sustainable ventures, as Entrepreneur A elaborates: “Executives need to be educated that there is money to be made in becoming sustainable. The language that they speak is money and if you can combine how you can make money on this and become sustainable, I think this is the first step for them towards becoming sustainable.” However, in order to translate the value of sustainability into the common “language of money” for executives, impacts need to be quantified out which impact firms or people have and what could be the advantages of sustainable systems.

“If you are transparent and you have all the data available for you, companies will actually see on paper what can be done better. If you look at a lot of decisions that are made by companies that want to be more sustainable and are planning initiatives, and you start thinking about the overall impact of e.g. an initiative.” This is where quantified data is

\(^{10}\) Currently I can see a big discrepancy in the market between the way of thinking of sustainably oriented companies and investors and capital providers that rather search for easy money. It is very demanding to find the right setup in this environment. I think, if you want to found and develop a sustainable enterprise, then you have to have the right partners. For instance, I see a much more positive setup and behavior in the German market, than in America, where a lot of money is in the market, but it is rather about easy money and finding the next unicorn. There it is even more difficult for sustainable companies.
needed in order to create transparency. “In the end, you need this transparency to be effective and efficient” (Entrepreneur A)

To sum up, the interviewees identified manifold challenges that especially sustainable ventures are faced with, be it of a financial or a more interactive and informative nature. What is especially important in this difficult situation, according to Entrepreneur H, is that sustainable entrepreneurs need to be patient, persistent and should not lose motivation. “I think that one of the main challenge for being successful with a sustainable enterprise is that you need an incredibly strong personality. You have to be able to see the big picture, to network with the right personalities, and you have to be very patient and be able to not lose sight of the light at the end of the tunnel. The crux is actually that the whole process from zero to a successful business has so many highs and lows and that you may not lose the focus during that, or be influenced by possible investors and partners”.

But, even though sustainable entrepreneurs might have to be very resilient and have a strong character to face the many extra challenges, this does not mean that the interviewees did not see the potential and the advantages that sustainable businesses can have.

4.4 Opportunities and advantages

“It is a race against time to figure out how companies can become more sustainable” explains Entrepreneur A. He stresses that sustainable venturing is an untapped opportunity that many have not happened to see yet. He sees a transformation happening, were firms will have to become more sustainable, be it because of regulation or because of mere resource scarcity and environmental problems. “It is a race against time to figure out how companies can become more sustainable. If you look at EON for example, they are moving totally away from fossil fuels and will only supply renewable energy in the future. That is a big transition for them, but they know that they will be able to position themselves on the market and they will make money in the end if they do this transition now before every other company does it”. Also Entrepreneur D sees the advantage of integrating sustainability better sooner than later, because the political situations and legislation are likely to make this mandatory in the future anyway. “There is research that shows that some companies believe is that the way we are heading right now will lead to lots of taxes and other companies that are not environmentally friendly. They are sort of seeing this as a business opportunity to make a transition before it is more or less too late”.

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As already referred to in the previous chapter, quantifying the impacts of businesses will help to make the opportunities in sustainable business visible. Entrepreneur B explains why: “I think that there is an untapped opportunity in this sense that the reason why liberalism is basically killing the environment is that we are not quantifying it and not putting it into the whole market economy. As soon as we do this, this whole untapped market of managing the environment suddenly has a monetary flow to it. It becomes a popular business model. So you have got both the transition and the opportunity at the same time in this perspective.”

Further, there are companies that can compete with conventional firms in the market environment of today, even without special regulations or a marketplace for sustainable companies. Entrepreneur E explains that “despite of those rules not being in place, they will compete because they will have some other advantage. For example, sustainable solutions are often very cost efficient. Then we can see that those startups do not only compete on sustainability but also on costs.” With sustainable startups permanently reconsidering the use of resources and their endeavor to be as resource efficient as possible throughout the whole value chain, they can operate on a much leaner, and thus more cost-efficient level than conventional companies.

Other important advantages can arise from that, as Entrepreneur F’s example from the energy sector shows, where local supply and a circular economy are key aspects of a sustainable system. “What you gain from local and circular economy is not only on the transport and sustainability side, it is also about independency and security of supply.” Following this approach instead of adhering to non-renewable fossil energy sources like petrol or coal, imports of large amounts can be avoided, as well as geo-political tensions and pollution.

The previous two chapters showed that it is worth engaging in sustainable business, it can bring competitive advantages and the area still has many untapped opportunities to be seized. However, sustainable businesses also will have to overcome manifold challenges to be successful. It could also be seen that a major part of the challenges sustainable entrepreneurs face today are of a structural nature, which makes them even harder to overcome now. But the interviewees also showed optimism that this will change in the future. This is where the following chapter takes up. It looks further into the transformation process to a sustainable market and society, to which extend the interviewees see it happen so far, where they think it is or will be coming from, and what can be done to foster or accelerate it.
4.5 Sustainability transformation

When it comes to the question if the interviewees see some transformation towards a sustainable revolution happening, all of them agreed that there are activities going on right now which are heading into this direction. For example, Entrepreneur I from Inclusive Business confirms that “Much has already happened, let’s just consider that we did not even exist four years ago from today”. Entrepreneur C adds that “now, sustainable business is becoming more of a global phenomenon. […] I would say it is only a matter of time become some sort of green or eco-entrepreneur”. Also, Entrepreneur B sees improvements happening, as he sees a rise in awareness for sustainability topics, “Awareness is definitely getting there”. However, he also stresses that it depends on which metrics are taken into consideration. “If you look at real quantified improvements, it is happening, but is it happening fast enough so that we can say that we are on track? If you talk about climate change at least, it is not on track, at least if you think about the two degrees Paris agreement. It has to happen much faster”. This is a concern that also entrepreneurs G and H are sharing. The see that change and transformation are taking place, but they are taking too much time. “I do believe that there will be a technology shift to sustainability. But technology shifts need time, usually about 20 years. I really hope that this shift will take less time” (Entrepreneur G). “Yes I think it is taking place, or starting to take place. I can see that a change in views is happening, even though, for my taste, this is happening way too slow” (Entrepreneur H).

As reasons for this transformation going on too slowly, Entrepreneur H points out that the fast technological change that is happening right now might be too overwhelming and paralyze society to some extent. “Society is suffering from too many different influences and effects. There is this tremendously fast technological development in many sectors, where even experts today do not really know anymore where we are heading to and are rather trying to turn down risks and dangers as certain technologies are maybe already too far developed”. Besides this, the interviewees criticized for example that there is still too little funding available and more innovation hubs and incubators for sustainable ideas would be needed. Also the willingness and readiness for innovation of big players in the markets still has to improve.\(^\text{11}\)

\(^{11}\) Entrepreneur G: “Sustainable companies need to get more money, also in order to be able to better pay their suppliers. For this you need to scale your solution and build a market for it. But this is only possible if you have investors for this!”
Entrepreneur C: “More concretly I would say that we need more green incubators, so that you can meet with other people with great sustainability expertise. Capital is always nice. Generally, funds, networks and opportunities are also nice.”
Entrepreneur H: “We also need more willingness and readiness for innovation from the big players on the market.”
However, before a closer look is taken into the interviewees’ opinion what could foster and accelerate the sustainability transformation, some light will be shed on where the interviewees think the transformation will be coming from.

4.5.1 Where the transformation is coming from

Similarly to literature, which awards a huge innovative power to entrepreneurs and sees them as the drivers of the transformation, also four interviewees see this potential. Entrepreneur B stresses that “If you look at the innovative power and where it is, it will be in the power of individuals that are trying to do something that is completely different, not in the big institutions that think in an old-fashioned way and have trouble to come up with new things because there are so many people involved that change is hard.” Also Entrepreneur F explain that at their institution Sustainable Innovation, it is so important to involve entrepreneurs in new projects as “they are faster and have more radical ideas than the big players. […] For example, nothing happened with electrical vehicles in the traditional automotive companies. At the core, the products are almost the same as the traditional fuel-fired ones. The different kinds of companies are e.g. Tesla. When they increase in importance, then the traditional companies will change.” This is also where Entrepreneur C picks up. He sees high potential in big entrepreneurial personalities, tech stars as he calls them, can lead the way to change and inspire the masses. “Leonardo DiCaprio doing his documentary “Before the Flood”, or Elon Musk, doing his Solar City project. I think that those entrepreneurs, that shine on through the big masses of the traditional industries like the coal industry, those kind of tech stars, will always help to promote and inspire others. […] The EU have set the EU 2020 and 2030 plans and those goals need to be reached. But those goals can only be reached by creative and inspiring entrepreneurs. It is not going to be easy, but I see huge growth. Some will be the trend setters, some will be the thought leaders”.

Further, Entrepreneur H has an interesting standpoint to that. He finds that radical innovation is needed for dramatic change to happen. He sees current innovations happening, but criticizes that many of them are not very well thought through until the end. “A lot still needs to be done for ground-breaking innovations to happen. I think that radical change will come from small companies, but I also think that the current problem is that we will have to break out of our comfort zone. […] People often talk about disruptive technologies, but […] we often simply develop further the solutions or systems as we know them historically”. He underlines that real disruptive innovations are needed, that define structures completely new. Hardly anyone is capable to sit down in front of a blank piece of paper and do something
completely new. There are only very view entrepreneurs out there who can actually think like this, e.g. Elon Musk who is fiercely following his visions.” However, in terms of innovations, not product and process innovations are needed. Entrepreneur H stresses that a lot could happen through economic and business model innovations, which are right now not much in focus. “Where it gets really innovative is also to re-think the way how your business is modeled. You might have an idea which is sustainable and innovative, but you will press it into the common frames of old business constructs that have proven to be "right". For my taste, there are way too few innovations in business and economy. If we get to a point where we also redefine business models together with the development of new technologies or ideas for sustainability, then it will get really exciting”.

But even though entrepreneurs might lead the way to radical change, Entrepreneur A takes a different perspective and elaborates that this does not have to be the only path to follow. “We are sort of incrementalists. We want to see big change in the world, but we believe that if we can impact a lot of companies a little bit towards being more sustainable, we have more positive impact than being very hard lined and only working with certain companies that are more radical”.

In contrast to this, Entrepreneur D highlights that change does not only need to come from the corporate world. She does see potential in big companies leading the change, but what is even more important to her is that many, many people are involved in those companies, and that it is even more important, to motivate those for triggering change. “We want people to vote with their wallets. […] Everything comes down to individuals. It is our lifestyle that is causing climate change, everything that we demand. Sure, big companies are polluting massively in their production and in their supply chain, but it is only because we demand those products. If we can change the way consumers behave, and what they demand, then, hopefully, we can get everyone on board without having carbon taxes or other regulative elements.”

The interviewees’ opinion about how politics and legislation can help to lead the transformation. For instance, Entrepreneur B is convinced that a carbon tax could be the starting point. “Some regulation like a carbon tax would change everything, because then everyone would focus on lowering emissions and not building wind turbines because of a regulation that prioritizes wind”. However, he also concedes that the first aim should be to completely integrate into society. Regulation could be a way to help, but is surely not the only way. “The way I look at this is that we need sustainability to be completely integrated
into society which means it needs to be completely integrated into economics. In the end, you need a signal which is as powerful as money. Maybe it is not going to be money, maybe it is going to be several signals. Maybe it is going to be a carbon tax that incorporates this environmental concern and the long-term externalities into the price we pay. But somehow, we will need to integrate the sustainability part into society and combine it with money because money is the signal that tells people what to do.” Further, what Entrepreneur F especially highlights is that a carbon tax or similar regulation could be helpful, but only if it is implemented in the right way. “The first thing to think about is surely tax regulation. But this can make the process both faster and slower, depending on how it is implemented. For example, Sweden had a world record from 2010 to 2014 of the percentage of new cars. We are becoming the world champions in buying new diesel cars. But this is not very well known. The political system has just focused on carbon emissions. If you now change to a smaller system, e.g. you set a tax on fossils, things will change. You could charge a carbon tax globally and relate it to the source and not the emission. That would change things.”

4.5.2 What could foster and accelerate the transformation

Having looked into the interviewees’ standpoints on the status quo of the transformation it becomes clear that they find that a lot still has to be done for the transformation to happen, gain momentum and to happen in time. This subchapter takes a closer look into aspects and strategies that could foster and accelerate the transformation. For this, the models that the startup entrepreneurs interviewed have developed are introduced shortly. With their striving to help business partners, people and firms to become more sustainable, they developed strategies that could also be helpful to foster the sustainability transformation when being applied on a broader level.

Entrepreneur A with his business Normative and Entrepreneur B with Tomorrow take a similar starting point. They follow the philosophy that “information precedes action”, as Entrepreneur B puts it. Both companies use a data science approach to quantify impacts of decisions and actions of companies and individuals. By doing that, they can help to create more transparency on the consequences of decisions and actions taken. Entrepreneur A explains that right now, “it is too hard to figure out by yourself what is the impact of your actions and you need help to become more transparent. If you are transparent and you have all the data available for you, this is the first step to solve problems in the company and become more sustainable.” While Entrepreneur A’s company Normative rather focuses on a solution based on quantified data that will help companies to automatically assess their
impact and put it into a sustainable reporting, Entrepreneur B rather focuses on consumer-based solutions, e.g. with the electricity map that gives information when it is most sustainable to consume energy.

The team of Ducky, where also Entrepreneur D is part of, also uses an app for showing individuals the impact they have on the environment. However, in addition to that, they try to motivate people to work on lowering their impact through competitions they can take part in. “What we find is that when you are calculating your footprint, it is pretty depressing. People will think “how am I going to do that? […] That is why we introduced the next step with these competitions, where you do positive things to try and reduce your footprint.” With their competitions, Ducky aims to overcome the feeling of being overwhelmed and paralyzed of people who do understand that they need to become more sustainability in their lifestyle, but do not know where to start. They therefore decided to follow a psychological approach with their solution. “We do a lot of work with climate psychology, not only climate data. We work a lot with people and how to change their behavior, because we found that positive actions is something that will motivate people to change their behavior, especially the social impact of that. Seeing people competing against their peers in a competition, doing something positive, is more influential on people and will motivate them to do the same.”

Ducky organizes these competitions with schools, communes and big companies, they e.g. lately did a big project together with IKEA. Especially for big companies, they see another value added in the competitions besides the access and participation of a large amount of individuals. “When companies come to us, we work with them on their strategies, updating their priorities. We do help with that, but we work with them and their employees to develop something that they can be proud of and have ownership of. We try to make it [sustainability strategies] come from within. We try and encourage the higher management to get people from all levels of the organization involved when building the strategy.” Ducky found that creating sustainability strategies that are also carried by the employees and become rooted within the company culture are more effective.

The latest sustainability project that Entrepreneur C engages in with his company Devkittens is called “Zero Atlas”, shortly described a mixture of PokemonGo and TripAdvisor for sustainable companies. “With Zero Atlas again, we focus on only listing companies that have a green certificate. We are the first database to have all the green certificates in Sweden listed. Our goal for the future is also to have every countries’ organizations to hand out green certificates”. This list is planned to be packaged in an interactive application which reunites
the information on sustainable companies with diverse interactive gamification elements. “We are going to gamify it to make it more fun also for a younger audience to visit those green companies. It is an augmented reality project so that you can find things in the real world”. Entrepreneur sees very high potential in this gamification approach as it makes it easy for people to act and consume sustainably, and adds a fun part which is more motivations. “An interesting way to promote sustainable development is gamification. Triggering the subconsciousness of people towards sustainability with gamification is a huge part of our work, at least. I think there is a huge potential in doing that.”

However, for the solution to be used by consumers, be it sustainable or not, it is important that it is very handy and easy to use. “However, for the solution to be used by consumers, be it sustainable or not, it is important that it is very handy and easy to use, as Entrepreneur C explains: “One thing that we noticed is that you have to consider three aspects: You need to have a trustworthy system, you need to have a fast system, and as a user you need to save time by using it. You as user are so occupied with your own life that you don’t have time for finding these green companies. You need to have them all in one place. Further, user interaction is essential. You as a user want the information directly. […] In this sense, our app will not only be an app. It will be a bot network. So all green companies will get a bot, and that is like customer service. You can book everything instantly, so it is easier for you to just interact with each other.”

Nonetheless, providing an easily accessible and fun way for consumers to act sustainably is only one aspect of the ZeroAtlas project. “I think we need a place for all the eco-preneurs and the green companies in order to find collaborations and chat with each other, almost like a Linkedin for sustainability. And we are kind of doing this right now the Zero Atlas”. Entrepreneur C stresses that network and cooperation can be extremely helpful for eco-preneurs, which is why they also want to work on creating this platform. “Right now, eco-preneurs and organizations and green companies are kind of hard to find right now. There is just a small network of the individual somewhere who are right now trying to form this big network. And we are hoping to create this network, so that everybody can reach out to each other and talk to each other.”

To sum up, the entrepreneurs interviewed use four different strategies in order to help others to become more sustainable, and thus foster sustainable development: Creating transparency with the help of data, using social and climate psychology in order to motivate people to start
and identify with sustainability goals, gamification, simplicity and easy access to also boost motivation and participation, and the creation of networks.

5 Discussion

5.1 “Greening” perception of sustainability?
In the literature review part of this paper, several different streams on how sustainable entrepreneurship can be defined, could be identified. Besides a stream focusing on market and economic conditions, streams of three- and two-dimensional definitions were found, with the latter giving priority to either social or environmental goals (besides the economic dimension).

The definition of sustainable entrepreneurship remains contested in literature. In this context, Levionsohn and Brundin (2011) conducted a deep going systematic literature research of the related literature in order come clear on what kinds of definitions and approaches are most-used in academia. They found that the field of sustainability today is still largely influenced by its ecological origins and that the term “sustainable entrepreneurship” seems to be frequently used uncritically in a more environmentally-oriented sense. Similar observations were also made by other authors like Young and Tilley (2006), as well as during the literature research for this paper. This is why it was of special interest not only to find out what entrepreneurs themselves consider as sustainable entrepreneurship and how they work with it, but also, if a more environmentally focused, “green” association of the term can also be found in practice.

The startups and institutions selected for this research were all chosen because they claim to build up sustainable businesses themselves or support others to do so. In seven out of nine, tendencies for constructing sustainability rather in terms of “green”, more environmentally focused entrepreneurship, could be found. Table 3 gives an overview about the entrepreneurs and their startups/institutions, their definition of sustainability, the solutions or support they offer, and the approach of sustainability integration they advocated for. The grey-shaded boxes give an indication on where tendencies on a rather environmental-focused priority were recognized.
<table>
<thead>
<tr>
<th>Entrepreneur</th>
<th>Definition Category</th>
<th>Definition (short)</th>
<th>Solutions/Support</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, Normative</td>
<td>Resource-based, meta perspective</td>
<td>Sustainability means to ensure long-term survival of the human</td>
<td>Automated calculation and reporting of sustainability KPIs</td>
<td>Holistic</td>
</tr>
<tr>
<td>C, Devkittens</td>
<td>Closely related to environment</td>
<td>Sees himself as ecopreneur</td>
<td>Listing companies with green certificate in his ZeroAtlas sustainability app</td>
<td>Step-wise</td>
</tr>
<tr>
<td>B, Tomorrow</td>
<td>Resource-based</td>
<td>Always assuring that resources can replenish, avoiding negative externalities</td>
<td>Using data-driven approaches to optimize the environmental well-being</td>
<td>Priority: Environment</td>
</tr>
<tr>
<td>D, Ducky</td>
<td>Three-dimensional</td>
<td>Social and environmental goals</td>
<td>Right now, only making challenges about environmental and climate dimension</td>
<td>Step-wise</td>
</tr>
<tr>
<td>E, Chalmers Ventures</td>
<td>Resource-based</td>
<td>Always assuring that resources can replenish, avoiding negative externalities</td>
<td>Support focused on innovative green tech startups</td>
<td>Step-wise</td>
</tr>
<tr>
<td>F, Sustainable innovation</td>
<td>Resource-based</td>
<td>Focusing on energy efficiency, zero emissions models and circular economy approaches</td>
<td>Support focused on innovative green tech startups (esp. energy efficiency, zero emissions, circular economy)</td>
<td>Holistic</td>
</tr>
<tr>
<td>G, ByNature</td>
<td>Three-dimensional</td>
<td>People, climate &amp; profit</td>
<td>Support for startups both focusing on green growth or sustainability. But generally, more working with green growth</td>
<td>Priority: Environment</td>
</tr>
<tr>
<td>H, Xpreneurs</td>
<td>Three-dimensional</td>
<td>Importance of all three goals</td>
<td>Support focused on innovative green tech startups</td>
<td>Step-wise</td>
</tr>
<tr>
<td>I, Inclusive Business</td>
<td>Three-dimensional</td>
<td>Equal importance of all definitions</td>
<td>Support focused on innovative inclusive projects and startups</td>
<td>Holistic</td>
</tr>
</tbody>
</table>

Table 3: “Green” tendencies identified in the startups and institutions interviewed
Firstly, a clear trend can be recognized by looking at the focus of the institutions selected. While Inclusive Business supports startups and projects with inclusive sustainable business models, thus especially considering the social dimension, all other institutions focus their support on green tech startups, which offer solutions with environmentally friendly technology. All institutions set a special focus in their support, and are polarized either in the social or in the environmental dimension, while the environmental dimension seems to be more present, considering the number of four institutions promoting it, compared to one institution promoting the social aspect.

Also for the startups investigated, a tendency can be recognized regarding the solutions they provide. Two out of the four startups (Devkittens and Ducky) provide solutions that are explicitly linked to promoting “green” companies with a focus on the environment or action that is positive for climate and environment. Further, one of the entrepreneurs (B) explicitly links his data-driven approach for quantifying (non)-sustainable impacts to the aim of securing the well-being of planet and environment. Only Entrepreneur A does not explicitly limit the solutions of his startup to environmental factors.

Further, Entrepreneurs C and G link their definitions of sustainability directly to a priority of the environmental dimension, as well as to the priority in integration (Entrepreneur G). Similarly to Entrepreneur B, Entrepreneur G follows an integrational approach where the environmental dimension is considered as the most pressing and important one to be integrated in sustainable ventures.

However, it cannot be generally concluded from this that the entrepreneurs tend to set their striving for sustainability synonymous with the endeavor for environmental wellbeing. This might be the case for Entrepreneurs B and G, who, in their endeavor, are explicitly aiming to solve environment- and climate-related issues. But not even Entrepreneur C, who sees himself as an eco-preneur (not sustainable entrepreneur) and focuses on only listing green-certificate businesses in his ZeroAtlas project, could be clearly categorized as setting sustainability synonymous with a purely environmental focus, as he argues for a step-wise approach that starts out with environmental or social aspects. He sees the trend that in the future, that the situation as it is right now, where startups focus rather on the environmental or social dimension, will change and combine the two different streams into one.

This is also why it is interesting to look into the reasons of the startup of Entrepreneur D to “only” focus on competitions on environmental achievements, as well as at the institutions
of Entrepreneurs E, F and H which are “only” focusing on supporting green-tech projects. All of them argued for a step-wise or holistic approach in integration. The reason why the organizations of Entrepreneurs D, E and H are rather focusing on the environmental dimension right now is because they had to find a starting point, while they are trying to and are believing in a step-wise integration, which will also include social aspects in the future. Moreover, Entrepreneur F sees the social dimension as a necessary condition for every green-tech startup they support.

From another point of view, one could maybe argue that also the resource-based approach on the definition of sustainability is generally rather focused on the environmental dimension. But, the resource-based approach implies first and foremost that society and businesses let resources replenish, and do not use them up or exploit them. It is therefore rather a “zero footprint”, or “zero balance” approach that strives to internalize negative externalities, either by trying not to create those negative effects, or by trying to come up for the cost and damage caused by them if it cannot be avoided. Moreover, talking about resources, of course the resources provided by nature will first of all come to our mind. However, the term resources can have a way broader definition. Environmental or natural resources could easily be interchanged with human or social resources which are equally not to be exploited or overused. This implies that the resource-based point of view does not only focus on the environmental dimension.

5.2 Integration of sustainability

The interviewees comments on their experiences with integrating sustainability into the core of a business showed that the intention of integrating several dimensions or goals of sustainability is a very noble one, but very complex and hard to put into practice. Many interdependencies must be considered, while a business model must be found that can also (at least to some extent) function in the current market context. The reason why the biggest group of interviewees argued for a step-wise approach is that it simply seems to be the most practical way of doing it. With the external market conditions changing, it will also become easier to integrate more aspects.

Referring back to the theoretical part of this paper, where also a step-wise model of implementing sustainability by Belz and Binder (2017) was introduced, it can now be concluded that also practice confirms this step-by-step strategy, taking the interviewees’ opinions into account. While the model suggests starting out with one dimension, making the business model viable, and then aiming for the next one, the steps might be even smaller.
in practice, starting out with different partial aspects of one or another dimension, and slowly adding more aspects to it. This could for example mean that an entrepreneur will try to integrate one or several SDGs during the founding process, and gradually integrate more of them as the business grows and develops.

Further, what this also shows is that the critique by authors like Young and Tilley (2006) is right – a holistic approach aiming for an equal three-dimensional integration might be the only truly sustainable way, but can hardly be implemented – at least in the conditions of today.

5.3 Reflections on the definition of sustainable entrepreneurship

With the three-dimensional definition of sustainable entrepreneurship being one of the two main streams identified among the interviewees’ perception of sustainability, it would seem logic in a next step, to assume that sustainability entrepreneurship represents the creation of value from both an economic, social and environmental perspective, as for example Schaper (2009) puts it, following a three-dimensional approach on defining sustainability entrepreneurship. Still, it has already been repeatedly stated in this paper, that a wholistic three-dimensional concept of sustainability is hard to be put in practice.

When it comes to the practical implementation, it seems that it is rather the Sustainable Development Goals that provide a practical guideline for entrepreneurs. A large part of the interviewees referred to them during the interview and see them as a point of reference when building up sustainable businesses. However, the seventeen goals provided by the UN (2015) do not represent a checklist of which criteria a sustainable venture will have to fulfil. Based on the insights gained during the research for this paper, sustainable entrepreneurs could follow an approach where they try to find a problem which is part of the SDGs, like for example Nr. 3, good health and well-being, develop a solution of this problem, and while building up the business model, make sure that other aspects of the SDGs are not hurt. For instance, the entrepreneurs could make sure that organizational structures foster equality, do not risk life below water and on land, or to pollute water, and also offer internal structures for training and education, that will also help less-educated people to better themselves.

However, the investigation of the interviewees perspectives on sustainability also revealed another stream, a resource-centered approach to sustainability, which is not as much discussed in literature yet. This perspective takes a step back, closer to the original definition of Brundtland, which promotes to sustain a living that will not put an equally good life of
future generations at risk. For, by explicitly adding this future perspective which asks to assure that resources will not be used up and exploited, but used in a way that they can replenish and thus be available for future generations, the well-being of future generations on this planet is taken into account. With a sustainable use of resources that does not exploit any resources, be it natural, human or any other ones, they will be able to sustain their living just like their precedents. It thus takes the sustainability discussion rather from another angle, adding a “big picture” perspective.

This is also where the difference lies in the definition of sustainable entrepreneurship, when it is based on the resource-based “zero-balance” definition of sustainability. In this case, sustainable entrepreneurship is not only about creating value from following solving social and environmental problems and fulfilling goals. It is rather about finding a way of creating value, any kind of value, but to do this in a sustainable system, where no such environmental or social problems are created.

As of today, the state of the industry leaves many social and environmental deficiencies unsolved, which, according to the philosophy of Cohen and Winn (2007) and Dean and McMullen (2008) offers opportunities for entrepreneurs to find solutions to solve those problems. However, in a future sustainable society, those problems mainly caused by market inefficiencies and free capitalism hopefully will not occur anymore, at least under perfect conditions. So maybe, right now, we cannot leave problems like waste in the oceans aside and just find solutions where this waste is not produced anymore, while the waste already produced is still there. There should be an incentive to find solutions for this problem, and to do this in a sustainable way. However, maybe the real disruptive and innovative element in sustainable entrepreneurship is in finding those new models, that do not follow the maxim of steady economic growth, but the maxim of assuring sustainable consumption while creating zero footprint.

Of course, this again, sets very high goals for sustainable entrepreneurs, just like a three-dimensional definition. There might be complexities and interdependencies that will not always make it easy for entrepreneurs to determine whether a decision causes negative consequences and externalities or not, or to which extend one should cover them. But with technology keeping developing further and the society moving forward in the transformation towards sustainability, this might become possible, and we, or our future generations, will be able to live in a sustainable, well-being society on a sound planet.
5.4 Drivers for sustainable transformation

Based on an analysis of the 9 interviews with sustainable entrepreneurs, a number of drivers that can foster and accelerate the transformation towards a sustainable system could be identified.

5.4.1 Political action, regulation and legislation

The first thing to think about in this context, what also a large part of the interviewees referred to, is that politics can be a driver for the transformation. For example, politics contribute to create a framework with more sustainability-focused incubators, more state-funding for sustainable ventures and an environment that fosters radical and disruptive innovation e.g. through more innovation hubs, education programs, funds for cooperations etc.

Generally, a policy giving incentives for following and implementing sustainability goals could be an important driver. Besides an incentive-driven direction of politics, also regulation and legislation can represent measures to foster and accelerate the sustainability transformation. For instance, Entrepreneur B demands for a carbon tax, as he believes that this could dramatically change the current settings and boost sustainable development. However, these legal instruments need to be efficient and effective to really foster sustainability, and the way to getting there is not easy. For example, one of the great visions of Entrepreneur A for his startup Normative, is to perfect their data-driven system on reporting sustainability so that it can become a new international standard, as he considers the current ones not to be sufficient. “For us, at least, also in general I think, it would be important that there is a new standard we can report sustainability with. Right now, the GRI is a very old system and it does not take into account everything you could or should take into account. There is a lot of buzz around carbon dioxide emission. But how much does carbon dioxide correlate with sustainability? Our believe is that only measuring carbon dioxide emissions is only half the truth, or only a small part. You do not take into account ocean acidification, or things like land-use, and other indicators that need to be part of a new standard”. Also, Entrepreneur F sees high potential in political action fostering sustainable transformation, but also says that other approaches might have to be taken, e.g. by rather taxing the sources of pollution, like fossil fuels, instead of taxing the result, i.e. emissions in general.

A second difficulty with political action as a driver for sustainability is that the right politicians need to be in place and they need to be voted by the society. For this, voters need
to be aware of the problem and have the willingness to support this cause. Right now, awareness is rising in society, as several interviewees confirmed, but this trend will have to continue rising in order to change the political landscape.

5.4.2 Awareness and education

Even though awareness is rising, the recognition that a move to a more sustainable system is urgently needed has not completely arrived in society yet. And of course, people need to be willing to support this cause. However, it can be assumed that willingness in society will rise if more people learn about the urgency and necessity to accelerate the sustainable movement and how they could support it. In the end, as Entrepreneur D put it, people do not only vote with their political votes, but also “with their wallets”. Making people aware of the need for a faster sustainable development and how they could also foster it through their individual actions, could thus be an important driver for the sustainable transformation.

5.4.3 Transparency and information

Right now, it is still very difficult for individuals and firms to find out what is the impact of their actions and to evaluate it. As Entrepreneur A explained for example, many companies think they are doing a lot for sustainability or CSR by e.g. sponsoring social projects but do not really know if this is an efficient and effective action in the end. Thus, many firms might be doing greenwashing without even realizing or wanting to do this. “In the end, you need this transparency to be effective and efficient”, or as Entrepreneur B put it, “information precedes action”. Thus, if for example the masses of electronical data available today can be quantified and used to calculate impacts and inform people and companies, just like Entrepreneurs A and B are doing it, people might not only get to know about the impact of their actions, but also find possibilities to change it into a more sustainable way of living.

5.4.4 Technological developments

What Entrepreneur A and B did with their ideas of using quantified data and finding ways to analyze and present it, is basically to take a recent technological development and tweak it in a way so that it can be useful for sustainable development. The collection and quantified analysis of data is an approach that has become more and more established over the last years, be it in the area of marketing, the analysis of user behavior, or in political contexts, like election campaigns. Entrepreneurs A and B found their own way of using (big) data which is already available to make it useful for the sustainability cause. There can be high potential for this in any innovative tech area, be it information technology or another.
5.4.5 Simplicity and access
However, technological developments and gadgets, or information available alone will probably not be enough to accelerate the transformation to sustainability. As a large part of the interviewees confirmed, there is already some action going on, but the pace of the development is too slow at the moment. One booster could be to create solutions that are easily available for people and that will make it easier for people or firms to act and consume sustainably, it can be assumed that many more will use it. As Entrepreneur D stated, many people do know about the dire consequences their current state of living can have, but they are overwhelmed by it and do not know where to start. Providing easy, user-friendly and fast systems, that can even help to make the user’s life easier or save time while acting sustainably, could be a substantial booster to sustainable development.

5.4.6 Gamification
Closely related to the topic of providing easy solutions that make people’s life easier when becoming more sustainable is the topic of gamification. For example, Entrepreneur B uses the gamification approach in his augmented reality app ZeroAtlas. Instead of making sustainability a duty, he turns it into a fun activity which can be a further motivating factor for individuals to become more sustainable.

5.4.7 Psychology
Also Entrepreneur D and her startup Ducky work in the context of finding ways to boost the motivation of people to take action for more sustainable development. They take the social momentum of competitions, motivating people by seeing other people take action. This psychological approach could also work in other contexts and help to motivate greater groups, not just individuals, to help foster the sustainable transformation.

5.4.8 Cooperation and network
Lastly, more cooperation thinking could be a driver for the sustainability transformation. Two of the institutions interviewed use multi-faceted cooperation approaches to build up, optimize and validate the viability of sustainable business models and solutions. Instead of limiting this idea “only” to a triple helix approach including entrepreneurs, cooperation thinking could be a booster for the whole sustainability industry. Instead of seeing other sustainable startups as a competition, one could rather consider them as potential partners, with everyone working on a small aspect of sustainability and everyone contributing to the “big picture”. An important aspect to that is also the activity of networking. If sustainable entrepreneurs get into better contact, create their own platforms and networks, and start to
cooperate, they can gain greater leverage e.g. in order to get recognition for their needs and demands on a political level, or fight against established lobbies.

5.5 Sustainability market place

The examples of startups selected for this research show that entrepreneurs can be very creative in finding ways to get firms and people to act more sustainably. Be it transformation, technology, gamification or psychology, a closer look into more sustainable startups would certainly identify even more ways to foster and accelerate the transformation towards a sustainable system.

However, the investigations in this paper also showed, that a big part of sustainable startups and entrepreneurs still seem to be struggling to find their place in the market and build up a financially sound business model. The current conditions are not exactly friendly for this endeavor, and right now, sustainability marketplace cannot be found. Political intervention and regulation could help solve this problem, but the contemplations on it also showed that this is only a very slow instrument and is currently missing significant support of voters and politicians.

However, many issues related to non-sustainable economic activity like climate change, pollution, poverty and hunger are pressing and do not leave time for a slow, unsteady combating of those drawbacks. This is where the sustainable entrepreneurs come into action. Instead of waiting for the conditions to change, they themselves will have to work on finding ways for boosting the sustainability transformation and work on creating their own marketplaces where they can succeed and grow and scale. In some way, the entrepreneurs interviewed are already doing it, for example Entrepreneur G who is creating a platform for promoting and boosting sustainable Norwegian startups on an international scale. Further, Entrepreneur C is working on creating a platform and network for ecopreneurs, while also Entrepreneur B said that he has been thinking and working hard together with his colleagues on finding a way to build up a market place for sustainable companies.

If sustainable entrepreneurs come together, network and cooperate to gain leverage and create their own market place and conditions, that might be the biggest and most important driver to creating a sustainable world society in time.
6 Conclusion

The purpose of this research was to get more insight on the current state of the art in sustainable entrepreneurship in practice. It was researched how entrepreneurs manage to integrate sustainability into their business models, which challenges they face by doing this, and if their way of implementing sustainability is rather constructed around an environmentally-centered perception of sustainability. Further, it was investigated which role entrepreneurs can play in the transformation to a sustainable future and what could drive and accelerate this movement.

Regarding research question one, which focused on the integration of sustainability into businesses, it was found out that entrepreneurs are still struggling to integrate more than single aspects into the cores of their ventures. The most recommended approach according to the interviewees is to take a step-wise approach while the building up a sustainable businesses, gradually integrating more and more aspects and dimensions as the business grows and gains leverage. This rather scattered and slow process seems to be necessary, as entrepreneurs are still facing manifold challenges when building up a sustainable business, especially when it comes to building a commercially viable business model and finding adequate funding. The current market conditions, where, for example, investors seem to be hardly interested in sustainable models and conventional competitors do not account for all the costs they cause in the form of negative externalities, are still very tough for sustainable businesses to survive and succeed. However, the interviewees are optimistic that this will change in the future, with the sustainable transformation gaining leverage and speed.

Concerning the second research question, if sustainable entrepreneurship tends to have rather an environmentally centered focus in practice, the research did not confirm this assumption. Some “greening” tendencies could be identified in seven out of the nine organizations of the entrepreneurs interviewed. However, only two entrepreneurs took a clear standpoint that they consider environmental concern as the most pressing issues to be solved, and therefore first and foremost focused on the environment with their startups. Otherwise, the environmentally-focused tendencies recognized in other organization were rather of a very practical nature. The entrepreneurs did consider sustainability as a more holistic concept that does not center on the solution of environmental problems, but also includes other aspects like the social dimension or a general approach to act with a zero footprint. However, as the integration of sustainability is a step-wise process for most of them, and one has to start somewhere, this is why their startups rather focus on the environmental dimension right now.
For research question three, which investigated which role entrepreneurs could play in a sustainability transformation and how this could be accelerated, it was found what already literature had stated: Entrepreneurs are considered as major initiators and drivers of the transformation because of their innovative power and capability for creating radical, disruptive innovations. The interviewees agreed mostly that some change is happening already now, but that the pace is still too slow. Considering and analyzing their current models and opinions what else is needed, several driving factors for the sustainable transformation could be identified, like political action, awareness and education, transparency and information, technology, simplicity and access, gamification, psychological approaches and cooperation and networks. However, sustainable entrepreneurs cannot rely on the current market conditions changing on their own. They will have to work on creating their own market places with suitable conditions, in order to succeed and accelerate the transformation process.

Regarding the results of the research, some very interesting insights could be gained. Nonetheless, those insights are based on qualitative research in a non-representative sample and are not quantitatively proven or confirmed. Some future research could, for instance, look into quantifying and validating the accelerating factors of a sustainable transformation to give entrepreneurs some more inspiration where to work on to successfully create their own markets. Further, it could be very interesting to take some closer look at the integration process, to see what could be the success factors and how the complex issue of integrating several goals and aspects can be implemented.

**Special thanks**

At the end of this research paper, the interviewees shall receive some special honors. They invested their precious time in sharing their insights, while they are actually busy with saving the world. Talking to them was very inspirational, and made me want to work in this domain also in the future. Their passion and expertise on the topic of sustainability showed me that the sustainable transformation has to happen, and it has to happen soon and quickly. I hope that after my studies, I will be able to contribute to that as well.
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### Appendix

#### Appendix 1: Most common definitions and basic assumptions on sustainable entrepreneurship

<table>
<thead>
<tr>
<th>Author</th>
<th>Description</th>
<th>Takeaways</th>
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| Young & Tilley (2006) | Sustainable entrepreneurship: (…) an organization that has sustainability at the centre of its structure, operations and management: in essence, an organization that is moving beyond the requirement to demonstrate efficiency in its drive to be sustainable. | - Explicit integration of economic, social and environmental goals  
- Forms like social, economic or environmental entrepreneurship can make some contributions to sustainability, but not to sustainability in a full sense due to compromises arising from primacy of one purpose over the two others  
- Sustainable entrepreneurship as holistic approach as it is giving primacy to sustainable development |
| Parrish & Tilley (2010) | Sustainability-driven entrepreneurs whose fundamental purpose for starting an enterprise is to contribute to improved social and ecological well-being, as well as to satisfy their own quality-of-life interests, and who earn market-based income as a means of achieving these ends. | - Stressing the intentionality of sustainable entrepreneurship  
- Social, economic and environmental entrepreneurship considered as extra types of entrepreneurship which are not included by sustainable entrepreneurship  
- With its fundamental aim of contributing to sustainable development as a whole, sustainable entrepreneurship will lead to new organizational forms |
| Schlange (2009) | A venture qualifies as sustainability-driven if it combines opportunities and intentions to simultaneously create value from an economic, social and ecological perspective. (…) In other words, I posit that sustainability-driven entrepreneurs view their ventures as integral parts of a larger societal context in which they are able to contribute to the improvement of life conditions in the most general sense. They are grounded on the principle of meeting the needs of present stakeholders without compromising the ability to meet the needs of future stakeholders. | - Imperative integration of economic, social and environmental aspects  
- Sustainable entrepreneurship at the intersection of the single concepts of economic, social and environmental entrepreneurship  
- Stakeholders playing a major role in sustainable entrepreneurship, as it aims to include broader perspectives, also those of future stakeholders |
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<tr>
<th>Author(s)</th>
<th>Definition</th>
<th>Additional Notes</th>
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| Schaltegger & Wagner (2011) | Sustainable entrepreneurship is in essence the realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society (…). Defined more widely, sustainable entrepreneurship can thus be described as an innovative, market-oriented and personality driven form of creating economic and societal value by means of break-through environmentally or socially beneficial market or institutional innovations. | - No imperative for integrating all three aspects of sustainability: sustainable entrepreneurship for creating economic and social OR environmental value  
- Focus on disruptive (not incremental) social or environmental innovations  
- Sustainable Entrepreneurs strive for providing solutions for the mass market, not only niches |
| Schaper (2005)    | All green entrepreneurs undertake business ventures which involve a measure of risk, whose outcomes are never predictable and for which the possibility of failure is always present. (…) their commercial activities have an overall positive effect on the natural environment and the move towards a more sustainable future. (…) their personal belief system – their set of values and aspirations – usually sees protection of the natural environment and a desire to move on to a more sustainable future pathway. | - Intentionality of green entrepreneurship: actions based on active strive for improvement  
- Sustainable development considered as vastly synonymous with environmental improvement |
| Isaak (2010)      | The ideal type of "ecopreneur" is defined as one who creates green-green businesses in order to radically transform the economic sector in which he or she operates. Ecopreneurship is an existential form of business behaviour committed to sustainability. Ecopreneurs are counter-cultural or social entrepreneurs who want to make a social statement, not just money. | - Basing on Schaper’s definition on ecopreneurship  
- Sustainable development largely synonymous with environmental sustainability  
- Integrating social well-being as an additional option: “social ecopreneurs” seeking not only to maximize personal profits through recognizing green opportunities  
- Ecopreneurs as producers of disruptive innovations |
| Cohen & Winn (2007)| We define sustainable entrepreneurship as the examination of "how opportunities to bring into existence 'future' goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences." | - Generally implying a three-fold definition of sustainable entrepreneurship, including economic, social and environmental aspects  
- Focus on economic and environmental aspects  
- Social benefits as consequences of environmental and economic benefits (e.g. reduction of pollution increases quality of life and population health; increase of social wealth through entrepreneurial venturing) |
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<tr>
<td>Dean &amp; McMullen (2007)</td>
<td>The sustainable entrepreneurship we discuss is defined by its alleviation of environmentally relevant market failures through the exploitation of potentially profitable opportunities. (…) Sustainable entrepreneurship is defined to be: the process of discovering, evaluating, and exploiting economic opportunities that are present in market failures which detract from sustainability, including those that are environmentally relevant.</td>
<td>- Sustainable entrepreneurship for solving environmental problems: taking opportunities from market failures arising through environmental degradation - Environmental entrepreneurship as subclass of sustainable entrepreneurship - No explicit focus on social aspects except for implying that sustainable entrepreneurs consider the wellbeing of future generations</td>
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<tr>
<td>Hockerts &amp; Wüstenhagen (2010)</td>
<td>We thus define sustainable entrepreneurship as the discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state. (…) We use the term sustainable entrepreneurship to describe activities by small or large firms that represent disruptive, rather than incremental innovation.</td>
<td>- Explicitly linking sustainable entrepreneurship to the generation of both economic, and social and environmental value - Sustainable entrepreneurship in large and small firms can trigger the sustainable transformation of a sector - Transformation through radical innovations of large and especially small firms (eco-effectiveness) - Environmental and sustainable entrepreneurship as subset of social entrepreneurship</td>
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Appendix II: Exemplary guidelines for semi-structured interviews

Questionnaire for startups

1. Questions on the startup & its founding process
   1.1. Where did you get the idea for your startup? What inspired you?
      1.1.1. What is your personal vision behind your startup?
      1.1.2. What are the core values you are trying to follow with your startup?
      1.1.3. How would you personally/in your startup define sustainability?
   1.2. How did you manage to integrate sustainability into your business model?
      1.2.1. Which aspects of sustainability did you integrate in your business? Why?
      1.2.2. Which aspects did you find most important and why?
      1.2.3. Did you have to compromise on some aspects?
      1.2.4. Did you encounter difficulties/obstacles in realizing your sustainable vision?
         1.2.4.1. If Yes – How did you overcome them?
   1.3. Was it generally difficult for you to put into practice your sustainable business vision?
      1.3.1. Or would you rather see it as a competitive advantage?
      1.3.2. Which aspects of sustainability would you consider to be an advantage/disadvantage in market competition?
         1.3.2.1. Do you think that this has changed over the last years?/
         1.3.2.2. Did you see any trends?
   1.4. How do you make sure to integrate the various aspects of sustainability? Do you think it’s better to set the focus on only one aspect (as e.g. environmental protection)?

2. Questions on the general issue of fostering sustainable development
   2.1. How do you think you can contribute to..
      2.1.1. General Environmental protection
      2.1.2. General Social progress
      2.1.3. Other issues in our global society?
2.2. What would it need to transform our society more a sustainable one?
   2.2.1. Should there be any special focus?
   2.2.2. How can entrepreneurs like you contribute to this transformation in general?
   2.2.3. What to you think is the best leverage in this context?

3. Your opinions on sustainability/ sustainable entrepreneurship
   3.1. What are your personal goals?
   3.2. What is your personal vision behind the startup?
   3.3. Why are you so much interested in green/sustainability?
   3.4. What do you think is a must-have for sustainable businesses?
   3.5. Do you think that there is a difference between green/sustainable businesses?
      3.5.1. What makes up the difference?
      3.5.2. Which of them do you think has most impact?

Questionnaire for incubators/institutions

1. Questions on the startups you support
   1.1. How do you select the startups/projects/entrepreneurs you support?
      1.1.1. Are there any special criteria/processes?
      1.1.2. How important is generally sustainability as a criterion?
      1.1.3. How important is environmental protection?
      1.1.4. How important are social aspects?
      1.1.5. How important is the business model/financial viability?
      1.1.6. Can you rate those criteria

2. Practical Questions on integrating sustainability
   2.1. How can manage to integrate sustainability into your business model?
      2.1.1. Which are the most important aspects of sustainability in your opinion?
      2.1.2. What do you think is most difficult about integrating diverse aspects?/ What are the most common difficulties you stumbled on so far?
      2.1.3. Do you think integration is about compromise or competitive advantage?
      2.1.4. Do you think it is easier to concentrate on one aspect of sustainability? // Which one?
2.2. Are there any special skills/partners needed?
2.3. What would you recommend founders that want to build up a sustainable business?
2.4. What do you think entrepreneurs need to succeed with their sustainable business?

3. **Practical Questions on your support**
   3.1. How do you support startups?
   3.2. Do you have any special proceedings for sustainable startups?
   3.3. Are there aspects you put most focus on? Why?

4. **General Questions on sustainable development**
   4.1. How do you think your institution/ startups can contribute to a sustainable transformation?
   4.2. What can you contribute most to/ where do you think you can make most impact?
      4.2.1. E.g. environmental protection
      4.2.2. Social progress (employment, fair conditions, etc)
      4.2.3. Competitiveness of your country
### Appendix III: Definitions of sustainability provided by the interviewees

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<thead>
<tr>
<th>Entrepreneur</th>
<th>Category</th>
<th>Description</th>
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<tr>
<td>A, Normative</td>
<td>Resource-based, humanity survival</td>
<td>You can think about sustainability in a couple of different ways. What is important for us is that humanity survives. If you take a long-term perspective, there are a lot of global catastrophic risks that could happen, that could potentially wipe humanity out. We do not want that though, because we are the most intelligent being that we know so far. We are the only ones that could drive intelligence further. At the same time, we want humanity to have wellbeing, so to be healthy and happy, because this means that you are more productive. Resilience means to figure out ways how humanity can survive. One of those is actually to figure out how our planet can survive right now. So, this is how we define sustainability. You can also look at other ways to define it, but we believe that in the end, everything that affects humanity so that in the bottom line it is whipped out, is unsustainable. What sustainability is, is figuring out ways how humanity can survive. Other ways, I would say, are more low-risk solutions, where you want people to be happy, you want wellbeing. But if you want wellbeing, you can only be sustainable if you also think about future generations and the future of humanity.</td>
</tr>
<tr>
<td>B, Tomorrow</td>
<td>Resource-based</td>
<td>For me, sustainability is the ability to let your resources replenish instead of using them up. We are only using renewable resources in the broadest sense possible. This basically means that you need to live in a system where you have no time constraints imposed to you, where you consume more than the natural vanishment rates then at some point it is only a matter of time until you have exhausted your resources. Being sustainable in that sense means having no time horizon because you are consuming less or right at the limit of what is possible to be replenished. This means that for us we will need to go down in consumption and living standards. For right now, we are emptying things much faster than compared to what they replenish.</td>
</tr>
<tr>
<td>C, DevKittens</td>
<td>Environment</td>
<td>So for you, sustainability means first of all to promote ecologically sound development and the environment? Yes, I would say so.</td>
</tr>
<tr>
<td>D, Ducky</td>
<td>Three-dimensional</td>
<td>The more we go into it, the more we find that everybody has a very different definition. As we work mostly with companies, not individuals, we do find that in corporate social responsibility incorporates a lot of different aspects like a volunteer community, sort of very social aspects as well, not just doing what’s good for the environment. We want to include those other things into our work, but it is one step at a time. But right now we are only working with climate change and environmental activities.</td>
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Sustainability is that the whole business model you are building should be on the basis that you use resources for your businesses in a way that resources do not get scarce. You should try to have access to a resource indefinitely. You base your business model on a way of acting that will not use up everything of this resource. Even if it takes a hundred years until you will run out of this resource, this is not sustainable. So, my criterion for sustainability is that the resources you use for your business should be available forever.

On the other hand of your business model, you should not produce a problem at the other hand of your business which is not covered by the value you create. For instance, you should not create waste that someone else will have to carry the cost for. Then it is not a sustainable business. Eventually, either the problem of the waste will bring you in a position where someone will say that you cannot do this anymore or you will be faced with paying the cost. If you have not taken this into account from the start, then your business model will fail. You will not be able to make it work from a sustainable point of view.

So, my definition of sustainability is that both of those conditions should be fulfilled, while you are still making money. So, when we evaluate ideas, it is important for us that those ideas fulfil those two criteria and that they work from a commercial point of view.

In some cases with green tech, it might be that you take full account for not using limited resources and you take full responsibility for your waste, costs and everything, you might end up with a case where it does not work out commercially – initially, on short term.

Sustainability is quite a large area. For us, we come from the sector of energy efficiency. Sustainable Innovation was founded by ten large companies from different industries. The purpose was to create a cooperation and demonstration process of energy efficiency that involves different sectors and follow a triple helix approach, involving the society, academy and the industry. Further, we also involve entrepreneurs, that is something extra we add to it.

There was a delegation for sustainability. I think it was called delegationen hallbara värder, and they made a report 5-10 years ago where they stated that the sooner different actors from different industries and in society team up and look at challenges in sustainable city development, the better as it would be more efficient and following a long-term perspective. But this requires early planning and early test and demonstration projects. This is what sustainable innovation bases on as a company and where we come from: energy efficiency in sustainable societies.

But then during the years, the perspective became broader. Now we look at energy efficiency, zero emissions and we are looking at how to limit the use of resources towards a circular economy. So that is sustainability for us, as of today.
| G, ByNature | Three-dimensional | I am kind of mixing the definition of sustainability with green growth, as I work a lot with that. I am more into the green sector than the whole sustainability area. Sustainability is that we live, spend, consume and produce in a way, as Brundtland said, that we do not ruin the climate for our future generations. We are spending too much and are emptying out lots of resources so that there will be scarcity in the future. The current rate of extinction is way over the limit in so many areas, we really need to rethink how we are taking care of the planet, not only for the future but also for today.

For the Green Growth definition is how we can still have prosperity and growth and joy as a human being in a way that doesn’t put nature at risk, and the natural resources and the natural world...

I might be mixing the green growth with the sustainability sector but it is basically the same: we need to take care of our planet! I think that green is more focused on climate, environment, and the natural world whereas sustainability is more about the human factor, including people, climate and profit. |
| --- | --- | --- |
| H, Climate KIC/ Xpreneurs | Three-dimensional | I would define it with exactly those two aspects. On the one hand, there is sustainability in the sense of energy, conserving resources, or referring to the environment, green energy, electro mobility, etc. On the other hand, sustainability also focusses on developing business models, that are built up with the intention of founding long-term viable companies. This is not about the next app that is launched on the market in order to make a good and fast exit. I think that Germany has a really good reputation for that. Here you can find the “German Mittelstand”, SMEs that do business on a long-term business and not so much follow the fast money.

The societal aspect also has to be included somewhere here. I think that for us, this already starts with the fact, that many teams also obtain resources from the University environment, that many teams work with working students and interns from early on, and that they are extremely open and ready to support and even improve the education at the University, for instance by coaching students during their final theses. Here, the first step always refers back to University, but we also go further. We also have teams that support projects in schools or in social incubators like for example Impact Hub in Munich where they engage or share their knowledge. We draw attention to the fact that this means is a very important one. I generally think that our whole eco-system is based on the logic of give and take. If you do not give, there is nothing to take. It is a very simple, but very important aspect, also to think of the society. |
I. Inclusive Business

Three dimensional

We are working to give the people on the BOP a chance to be lifted out of poverty and better their life situations. It is not only about knowing where, and selling things they might not need. It is about doing this in such a way that it is financially, socially and environmentally sustainable. So we do work a lot with the SDG. In the end, this is where the term inclusive business comes from.

But first of all, sustainability is about making business, and not charity. So of course that includes that a business is financially stable and sustainable. But the business also needs to be sustainable in the social and the environmental sense. So for example, an energy company that wants to produce energy solutions powered by Diesel would not at all be environmentally sustainable. That’s why we talk to energy companies about solar or wind energy, meaning energy solutions that are renewable and also decompose.

However, those solutions should also be affordable for the BOP. This means that we would not just go to South Africa and sell water solutions there. It would mean that we go to the townships of South Africa, and that’s where we would sell our sustainable water solutions, give them access to water and increase sanitation.

Normally, the solutions we support are very innovative and very new, and are often within the water or energy domain or within IT or digital health. And they often have a sense that it should be sustainable from the very start.