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Market entry of green start-ups through an international
strategic alliance network

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Abstract *(English)*

There is consensus in literature that green start-ups, which develop sustainable and partly disruptive technologies, play a decisive role in the sustainable transformation of the economy. However, despite the immediate need for sustainable transformation and their key role in it, such green start-ups face a variety of challenges that exceed those of conventional start-ups. This approach proposes a strategic alliance consisting exclusively of green start-ups from various markets and countries to drive sustainable transformation by enabling companies to achieve CO₂-neutrality through the alliance product portfolio. The objectives of this research are twofold. First, an overview of the current state of research on green start-ups and their challenges, as well as on strategic alliances with an overarching purpose as their market entry mode, is created. Second, the overall aim of the research is to determine whether such strategic alliance can facilitate market entry into each other's markets and thus lead to a sustainable transformation of the economy. An extensive literature review was compiled in the first step. This was followed by four expert interviews with founders of green start-ups, who can be considered as possible alliance partners based on their solutions, to critically scrutinize or support the current state of research. The research provides a comprehensive overview of the current state. The question of the extent to which such an alliance can facilitate market entry into the respective other markets can be answered primarily by promoting legitimacy, as well as access to the customer base of the other partners and to valuable market knowledge. In addition, the sustainable transformation of the economy can be driven forward through the formation of system-level legitimacy and consequently through the creation of system-level resources. This study closes several research gaps. By providing a foundational understanding of the challenges faced by green start-ups, it can contribute to developing strategies to overcome them. Furthermore, it offers a comparative analysis of the opportunities afforded by strategic alliances specifically for green start-ups versus conventional companies, and evaluates the effectiveness of these alliances as a market entry mode. Additionally, the research explores if and how strategic alliances among green start-ups can drive the sustainable transformation of the economy. In conclusion, the study also opens up new research fields by identifying new gaps.

Abstract *(German)*

In der Wissenschaft besteht Konsens, dass grüne Start-ups, die nachhaltige, teils disruptive Technologien entwickeln, eine entscheidende Rolle in der nachhaltigen Transformation der Wirtschaft spielen. Doch trotz der unmittelbaren Notwendigkeit für nachhaltige Transformation, sowie deren Schlüsselrolle dabei, kämpfen grüne Start-ups mit einer Reihe von Herausforderungen, die über die von konventionellen Start-ups hinausgehen. Der Ansatz dieser Arbeit umfasst eine strategische Allianz, bestehend aus grünen Start-ups aus verschiedenen Märkten und Ländern, die beinahe jedes Unternehmen durch das Produktportfolio der Allianz CO2-neutral machen kann. Die Ziele dieser Untersuchung sind zweigeteilt. Einerseits wird ein Überblick über den aktuellen Stand der Forschung zu grünen Start-ups und ihren Herausforderungen sowie zu strategischen Allianzen mit einem übergreifenden Zweck als Markteintritts-Modus geschaffen. Andererseits soll untersucht werden, ob solche strategischen Allianzen den Markteintritt in die jeweils anderen Märkte erleichtern und damit zu einer nachhaltigen Transformation der Wirtschaft führen können. Im ersten Schritt wurde eine umfangreiche Literaturrecherche durchgeführt. Es folgten vier Experteninterviews mit Gründern grüner Start-ups, die aufgrund ihrer Lösungen als mögliche Allianzpartner in Frage kommen. Die Untersuchung gibt einen Überblick über den aktuellen Stand der Forschung. Die Frage, inwieweit eine solche Allianz den Markteintritt in die jeweils anderen Märkte erleichtern kann, lässt sich vor allem durch die Förderung der Legitimität sowie den Zugang zum Kundenstamm der anderen Partner und zu wertvollem Marktwissen beantworten. Darüber hinaus kann die nachhaltige Transformation der Wirtschaft durch die Bildung von Legitimität auf Systemebene und damit durch die Schaffung von Ressourcen auf Systemebene vorangetrieben werden. Diese Arbeit schließt mehrere Forschungslücken. Indem sie ein grundlegendes Verständnis der Herausforderungen grüner Start-ups vermittelt, kann sie zur Entwicklung von Strategien zur Bewältigung beitragen. Darüber hinaus bietet sie eine Analyse der Möglichkeiten, die sich durch strategische Allianzen speziell für grüne Start-ups im Vergleich zu konventionellen Unternehmen ergeben, und bewertet die Wirksamkeit dieser Allianzen als Markteintritts-Modus. Darüber hinaus untersucht die Studie, ob und wie strategische Allianzen zwischen grünen Start-ups die nachhaltige Transformation der Wirtschaft vorantreiben können. Abschließend eröffnet sie neue Forschungsfelder, indem sie Lücken aufzeigt.

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1. Introduction

1.1. Relevance

*The earth has a fever
-
and the fever is rising.*

Al Gore, Nobel Peace Prize Laureate (2010)

We all perceive the earth as a grand playground, the stage where every event of our lives has unfolded and where, for most of us, our future experiences will continue to occur. We have long seen the earth as indestructible, self-sustaining and only conditionally changeable, believing that landscapes and coastal areas will remain the same, that summer remains summer and that winter will reliably bring snow to clear from the driveway at Christmas. But that is not the case.

The New York Times (March 2024)	As 'Zombie Fires' Smolder, Canada Braces for Another Season of Flames
B B C (May 2024)	Atlantic to get 'extraordinary' hurricane season
The Guardian (January 2024)	Greenland losing 30m tonnes of ice an hour, study reveals

This is the reality. Climate change is like a complex puzzle whose pieces are slowly assembling to form a picture of devastating power and immeasurable significance. Each piece, whether it is excessive wildfires, more frequent storms or melting glaciers, contributes to forming the overall picture of a changing world. This puzzle is man-made. The majority of scientists today agree with the notion that humans are severely degrading many of earth's ecosystems and are responsible for releasing excessive amounts of greenhouse gasses (Cohen and Winn 2007). Initially, nature maintained a balance for millions of years. However, with the advent of human activity, excessive CO₂ began to be released. Natural buffers, like forests and oceans, once absorbed some emissions, but human actions have compromised their effectiveness. As a result, CO₂ emissions are rising while natural carbon absorption is declining, exacerbating climate change. But who or what is to blame? Can global warming and its consequences be halted, and if so, how?

The economy is often viewed as one of the largest contributors to environmental degradation. Companies are considered by many to be the main players creating environmental and social problems and thus to be the source of a lack of sustainability in society (Schaltegger and Wagner 2011). Profit-related goals are pursued in their production using massive amounts of resources and emitting large quantities of CO₂. The potential negative impact of business on the environment has raised concerns among practitioners and academics in the field of sustainability and sustainable development (Cohen and Winn 2007). But do large corporations automatically have to exploit and destroy in order to operate profitably?

There is no doubt that something has to change; the economy has to become permanently sustainable. In science, this is partly referred to as 'sustainable transformation'. The term refers to fundamental, cross-sectoral changes that do not have a negative impact on other sectors or dimensions of sustainability, representing processes of change in human society involved in moving towards more sustainable and equitable futures (Salomaa and Juhola 2020). This transformation requires profound technological, organizational and institutional changes and is partly the result of purposeful strategies (Köhler et al. 2019; Tziva et al. 2021). Such strategies are often pursued by aspiring entrepreneurs who develop and market products or services that not only contribute to achieving environmental goals, but are also geared towards making the economy greener and who found a business from this - green start-ups (Bergset and Fichter 2015).

Green start-ups are anticipated to be more innovative and more credible than established companies in their approach to sustainability, positioning them as key actors in the transformation toward a sustainable future (Ribeiro-Soriano and Piñeiro-Chousa 2021; Hockerts and Wüstenhagen 2010). These efforts prove crucial because, if we have not yet passed the critical tipping points in our ecosystems, it is imperative to have proactive leaders who initiate and drive meaningful changes. Humanity has a duty not only to the earth, which sustains our lives, but also to future generations. However, small actors alone cannot muster the necessary resources or achieve the scale required for such transformative change. Collective action is essential, ambitious minds must unite to address the consequences of our actions over recent decades. One effective approach is to form strategic alliances.

The idea behind this research involves a strategic alliance of green start-ups that, by joining forces, can make any company CO₂-neutral. Each start-up operates in different countries and industries offering different solutions and together they form a product portfolio that can be tailored to any company. For instance, a target company in the manufacturing industry may need more support to become carbon-neutral in the area of energy and less in the area of business travel. A consultancy whose consultants are permanently on the road, on the other hand, needs less support in the energy sector. The first step is to increase the sphere of influence of each green start-up by facilitating their access to the other markets, so that they can then move on to driving forward the sustainable transformation of the economy and thus creating a solution to combat global warming. It is therefore a matter of pushing the small but so essential expanding their impact and making a genuine contribution. Because individually,

they also represent puzzle pieces, each offering only a partial view. However, when combined, they create a complete picture and convey a powerful message.

There certainly are paths to lowering the earth's fever, but this requires everyone to unite.

1.2. Research gap

This academic research deals with such an alliance and attempts to investigate its possibilities and influence. A large number of topics are still unexplored on several levels and require increased focus. The gaps that this work attempts to close are presented below. These research gaps are first explained in ascending order with regard to the academic context, and then in the economic context.

Academic context

Still, there remains inconsistency in the literature regarding the *terminology of such start-ups*. For instance, no distinction is frequently made between sustainable entrepreneurship (Hoogendoorn, Van Der Zwan, and Thurik 2019; Muñoz and Cohen 2018), ecological entrepreneurship (Kuckertz, Berger, and Gaudig 2019), or green start-ups (Bergset 2018; O'Neill and Gibbs 2016). In this work, the terminology of green start-ups is utilized and all sources are evaluated and elaborated with regard to such definition.

In an academic context, there is barely any *comprehensive overview of the green start-ups challenges* that they have to contend with. According to Bergset and Fichter (2015), little is known about the challenges facing green start-ups. The sources identified in the following literature review relate exclusively to sub-areas and, if at all, address these at a more general level. The focus is mainly on individual challenges that underlie the respective research topic, be it financial challenges (Bergset 2018; De Lange 2017; Gast, Gundolf, and Cesinger 2017), institutional challenges (Pacheco, Dean, and Payne 2010; Vermunt et al. 2019), or challenges relating to the business model (Kuckertz, Berger, and Gaudig 2019; Ribeiro-Soriano and Piñeiro-Chousa 2021; Schaltegger and Wagner 2011; Weissbrod and Bocken 2017). With regard to the business model, the focus is also predominantly on target companies and how they can adapt to a more sustainable business model (Geissdoerfer, Vladimirova, and Evans 2018). This study therefore serves as an initial overview in which all areas of challenges faced by green start-ups are presented. This also involves the first comparison of general start-ups and companies with green start-ups.

With regard to the *opportunities offered by strategic alliances*, the participants mostly comprise various players such as established companies (Lopes Cancela, Coelho, and Neves 2023; Shah 2011). Furthermore, there can be identified considerable literature on strategic alliances with institutional organizations at both governmental and non-governmental level (Doblinger, Surana, and Anadon 2019; Tziva et al. 2021). A strategic alliance and its opportunities exclusively between green start-ups has not yet been investigated in the

literature. Also, no distinction has been made to date between general start-ups or established market players such as MNCs and green start-ups. There is hardly any literature on a comparison of the extent to which strategic alliances can offer green start-ups other opportunities than general start-ups and companies, as well as the foundation of such arguments on the previously identified challenges of such green start-ups.

An elaborated *overview of strategic alliances with the overarching purpose of contributing to the sustainable transformation* of the economy - here by providing a diversifiable product portfolio that can make any company CO₂-neutral - has not yet been examined. There do exist studies that examine systemic change towards sustainable transformation and investigate how this can be achieved through alliances (e.g. Tziva et al. 2021). However, there are hardly any publications that consider the key actors in the form of green start-ups, which operate as a driving force with their partly disruptive innovations and technologies, and how such an alliance between these green start-ups can provide a meaningful contribution.

Economic context

In the economic context, a *strategic alliance of different green start-ups*, all of which offer software-as-a-service, which operate in different sectors or industries and which are based in different countries, has rarely been implemented to date. Although each of the green start-ups is driven by the motive of pushing forward the sustainable transformation, it is rare to identify a strategic alliance that has set itself the goal of creating a product portfolio that can lead almost any company to carbon neutrality. As founders of such disruptive innovations and technologies often find themselves in similar circumstances, valuable synergies can certainly arise here. True to the principle 'We're all in this together'. Not only does such an alliance offer economic added value, it also carries a symbolic value in that players from different situations and circumstances join forces with the same overarching goal and jointly combat climate change.

1.3. Research questions

Like any other newly founded company, green start-ups also encounter a variety of challenges. In addition, with their sustainable and sometimes disruptive technologies, they are pursuing an overarching goal that also requires a social rethink, namely to make a decisive contribution to combating climate change and to restructure the economy as it is carried out today. As a result, green start-ups can face a range of challenges that may well exceed those of conventional start-ups. By joining forces through a strategic alliance with other green start-ups, these can be tackled collectively. As the start-ups are further located in different markets, this could make it easier to enter each other's markets. In addition, the broad product portfolio, consisting of various software solutions for different objectives, that can lead any company to carbon neutrality can enable a truly decisive contribution to be achieved. This leads to the following overarching research question RQ:

RQ - Given the challenges a green start-up faces, how can a strategic alliance between green start-ups from different markets facilitate their market entry into the other start-ups markets and, subsequently, lead to sustainable transition of the economy?

The first stage involves developing the components of the overarching research question based on scientific literature, starting with the challenges a green start-up faces. Such start-ups with sustainable solutions represent partly disruptive innovations, which leads them to be involved in business activities where markets are generally characterized by imperfection and failure (Gast, Gundolf, and Cesinger 2017). Not only do these startups have to overcome different or additional challenges beyond those of a conventional start-up, as already mentioned, but these can also complicate a successful market entry into international markets. Thus, the first step is to work out which market entry challenges green start-ups face in order to then design a strategic alliance that can be used to overcome them and, subsequently, ensure a successful market entry. In order to make the conclusions and arguments coherent, it is necessary to focus on the challenges that arise when successfully entering other markets and that can be overcome by entering into a strategic alliance. To investigate this phase, the first sub-research question Sub-RQ1 is as follows:

Sub-RQ1 - Which challenges that green start-ups face can arise for a successful market entry, for which a strategic alliance between green start-ups from different markets can offer solutions?

The planned alliance consists exclusively of green start-ups, which is a novelty insofar as it remains largely unexplored in the literature. This can provide green start-ups with equally differentiated opportunities compared to conventional start-ups and larger companies, partly due to the fact that the latter are not incorporated into the alliance. In addition to conventional opportunities through strategic alliances, the circumstance that the green start-ups are domiciled in different markets may also offer increased potential to facilitate market entry into each other's markets. The logical subsequent stage represents to determine what opportunities are emerging to facilitate mutual market entry and therefore results in the second sub-research question Sub-RQ2:

Sub-RQ2 - What opportunities are offered specifically for green start-ups by a strategic alliance between green start-ups from different markets that can be used to facilitate market entry into each other's markets?

The overarching purpose that practically every green start-up pursues is to make a contribution to sustainability in their own specific manner. This is because they play a

fundamental role in developing solutions for, and fostering, a societal transition towards a low carbon society (Bergmann and Utikal 2021). It can be speculated that an even more significant contribution can be achieved by joining forces. The final step is therefore to work out how a strategic alliance consisting exclusively of green start-ups can contribute to the sustainable transformation of the economy and what actions need to be taken to achieve this. This results in the final sub-research question Sub-RQ3:

Sub-RQ3 - *How can the opportunities offered by a strategic alliance between green start-ups from different markets be used to lead to sustainable transition of the economy?*

The research question and sub-research questions are processed in the findings in the following order: First, the individual sub-areas must be answered in order to subsequently be able to address the overarching research question, which is why the process starts with sub-RQ1 and continues to sub-RQ3, whereby propositions are set up for each. Finally, the overarching Research Question RQ can be considered.

2. Literature review

The first approach involves analyzing and compiling existing scientific literature in order to identify all the prevailing barriers or challenges faced by startups that want to make a contribution to the sustainable transformation towards a circular economy with their innovative solution/product. Once these have been identified, the next step is to work out opportunities for covering or overcoming them through a strategic alliance in order to create a sufficient foundation of argumentation for the design of such an alliance. It is then imperative to determine success factors for the effective functionality of such an alliance in order to derive recommendations for planning and action in the initial conceptualization. The aim of such a strategic alliance is to enable or at least facilitate the successful entry of sustainable start-ups into international markets. In order to concretize the overall picture, the final step of the literature review will examine which different market entry modes exist, which scientific theories can be used to explain the choice of a suitable one and, more narrowed, which theories can be applied to determine the suitability of strategic alliances as a market entry mode for green start-ups. This agenda is pursued after the inclusion criteria, the review procedure, the definitions of green start-ups, of strategic alliances and of market entry modes are briefly presented in the preliminary step.

2.1. Data & Method

2.1.1. Inclusion criteria & Article selection

In order to ensure a consistent argumentation, a strict selection mechanism is applied in the literature review. To identify a comprehensive range of sources, several databases were consulted. The focus here was primarily on ScienceDirect and Scopus database as primary source of data. The greatest thoroughness is applied in these databases. For a more broader outlook, further databases were then consulted, specifically Emerald Insight, SageJournals, JSTOR and Wiley Online Library and, in order not to overlook frequently cited documents, Google Scholar was used for verification as a third stage. Only peer-reviewed papers from the leading scientific economics and sustainability journals and renowned books are considered and no exceptions are made. Furthermore, only keywords that demonstrably contribute to or are associated with the existing topic are used for the research. For the novel companies considered here, numerous modifications of the keywords were taken into account, which could be linked by definitions and explanations from previous literature - more specifically *green startups*, *sustainable startups*, *sustainable entrepreneurship*, *green entrepreneurship*, *ecopreneurship*, *ecological entrepreneurship*, *sustainable SMEs*, *green SMEs*. Furthermore, the following keywords were applied in the second and third sections of the review in order to address the opportunities for and the success factors of strategic alliances: *alliance success factors*, *alliance requirements*, *alliance performance*, *alliance outcome*, *alliance longevity*, *value co-creation*, *alliance drivers*, *strategic motives* and *alliance capabilities*. In the last section on market entry modes, the following terms were primarily utilized: *Market entry mode*, *market entry strategy*, *organizational (entry) structure*, *market establishment mode*, *market entries*, *foreign establishment mode*, *entry choice*. A comprehensible justification for the addition of the keywords can also be found in 7.1 in the appendix. It is also relevant to emphasize that sections 2.2.2. and 2.2.4. of the literature review also include a limited number of papers that deal with multinational enterprises (MNEs) and conventional start-ups and therefore not specifically with green startups. The background to this is to obtain an all-encompassing level of knowledge in order to cover all eventualities on the one hand and to be able to draw possible overarching conclusions on the other. However, these are purposely distinguished from each other.

2.1.2. Review method

Due to the use of the different databases, it was possible to carry out a strict selection process involving three rounds of selection. The first phase involves using the keyword search to examine the thematic relevance of articles found by comparing the title, abstract and keywords used with the existing ones. In the second phase, the focus is already partly placed on a strategic fit in order to have a sufficiently solid argumentation base for the development of such an alliance network through the literature review. The selection here is undertaken on

the basis of managerial implications and limitations and examines not only the thematic fit but equally the strategic fit. In the third round of the selection process, full emphasis is then placed on the strategic component, which is why articles that might be related thematically but did not fit in strategically were eliminated. Of the approximately 200 papers screened in this way in each subsection, 54 papers remained in the first section on the challenges of green start-ups, 44 papers on the opportunities of strategic alliances, 46 on the success factors of the latter and 50 articles that were deemed relevant with regard to market entry modes. Fig. 1 visualizes the literature selection process, including a schematic representation of the main reasons for the exclusion of articles in each of the three rounds.

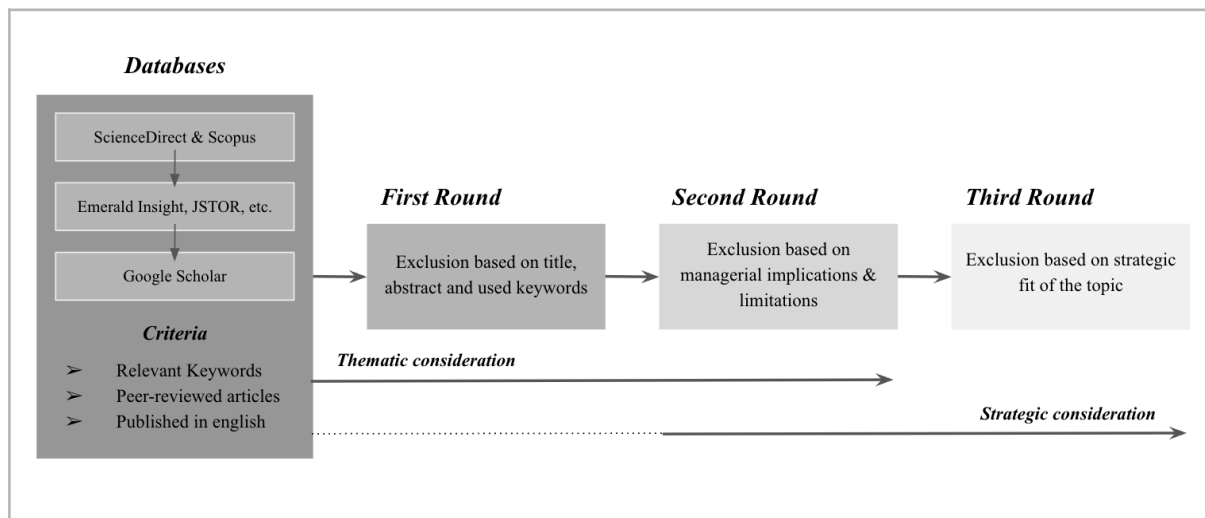


Figure 1: Own Illustration (2023)

In the following step of the review process, all the papers included were analyzed in detail, the most relevant findings were compiled and, in the final phase, the overarching outcomes were drawn together. This complete composition can be taken from the appendix, and the elaborated findings are presented in the following.

2.1.3. Terminology of green startups

The research field on startups, which aim to contribute to a greener economy with their sustainable solutions, is still relatively new and certainly unfounded and, also, there is still little consensus on the terminology used to define such ventures. Many authors use the term *sustainable entrepreneurship*, which, however, includes not only new types of start-ups but also existing market players that are refocusing their business ventures on more sustainable (production & marketing) approaches. In general, the term sustainable entrepreneurship can be defined as an innovative, market-oriented approach that integrates economic, social, and environmental goals, creating value by identifying and capitalizing on opportunities to advance sustainability and address market failures (Dean and McMullen 2007; Hockerts and Wüstenhagen 2010; Kuckertz and Wagner 2010; Lans, Blok, and Wesselink 2014; Schaltegger and Wagner 2011; Shepherd and Patzelt 2011). Sustainable entrepreneurship is therefore focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for

gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society (Shepherd and Patzelt 2011). The terms *ecopreneurship* and *ecological entrepreneurship* serve more as subcategories of sustainable entrepreneurship. Ecopreneurship is the practice of creating new businesses that are profitable and based on goods or services that are impure public goods with environmental benefits, but it is only part of sustainable entrepreneurship and thus not synonymous because, for example, it does not explicitly include the preservation of communities and the development of non-economic benefits for individuals and societies (Shepherd and Patzelt 2011). Ecological entrepreneurship is the process of identifying, evaluating and exploiting entrepreneurial opportunities that minimize a company's impact on the natural environment and thus create benefits for society as a whole and for local communities, but shifts the focus from economic growth (Gast, Gundolf, and Cesinger 2017). Another frequently applied terminology is *green entrepreneurship*. This refers to a commercially oriented business that focuses on technological development that can help reduce human impact on the environment and addresses global environmental issues (Mrkajic, Murtinu, and Scalera 2019; Potluri and Phani 2020). But while sustainable entrepreneurship examines the process of discovering, evaluating and exploiting entrepreneurial opportunities, taking into economic, social and environmental aspects, green entrepreneurship focuses only on the environmental dimensions of sustainability (Binder and Belz 2015). Also, there are two primary justifications for not adopting the terminology sustainable entrepreneurship in this work. Firstly, the concept of the triple bottom line is decisive. This represents the balance between economic health (economy), social equity (people) and environmental resilience (planet) through their entrepreneurial behavior (Elkington and Rowlands 1999). Aside from the term sustainable entrepreneurship, the other definitions are each identified with a focus exclusively on sub-sectors of this, which is why they are taken into account but not utilized as an overarching terminology. Furthermore, the term sustainable entrepreneurship is not used here, as it also includes existing market players that are relocating their business ventures to more sustainable (production & marketing) approaches, which are consequently not considered as overarching terminology in this analysis. The term *green startups* is therefore applied here. Such green start-ups are young and innovative companies that are committed to the triple bottom line value-creation, that strategically develop and market products or services that not only contribute to achieving environmental goals, but are also designed to make the economy greener, and that focus on profitability while minimizing environmental impact and pioneering market-based solutions to environmental problems traditionally addressed by governments and non-profit organizations (Bergset 2015; Bergset and Fichter 2015; Bhatnagar, Taneja, and Özen 2022; Criscuolo and Menon 2015; Kuckertz, Berger, and Gaudig 2019; Sadma 2021).

2.1.4. Definition of strategic alliances

Numerous definitions of strategic alliances have been published in the literature, the most relevant of which have common points of focus. For example, Hitt, Dacin, and Levitas (2024) define strategic alliances as 'long-term cooperative arrangements between two or more firms

to improve their competitive position and performance by sharing resources.' Of particular relevance here is the concept of long-term, which shows that strategic alliances are in most cases based on long-term motivations. Furthermore, Agarwal, Croson, and Mahoney (2010) define them as an 'inter-organizational form where multiple exchange partners agree to invest resources, share knowledge, and engage in economic value-creating activities that build on synergies between the resources and capabilities that each of the exchange partner firms bring to the alliance.' This in particular focuses on joint value creation, also known as value co-creation, through synergy effects of the resources available to the respective partners. A further relevant definition for this analysis was provided by Windsperger, Galak, and Raha (2023) who consider strategic alliances to be 'inter-organizational networks that are characterized by two forms of governance: Either only decision-making rights are assigned between the network partners, or decision-making and ownership rights are assigned between them.' In this case, there comes the level of control, which plays a primary role in the subsequent design of the alliance. Finally, Lambe, Spekman, and Hunt's (2002) definition is considered, viewing it as a 'cooperative effort between two or more companies in which the companies pool their resources to achieve compatible goals that they could not easily achieve alone.' It shows that companies primarily enter into strategic alliances when they cannot easily accomplish objectives on their own. To summarize the above definitions, strategic alliances primarily describe an inter-organizational collaboration that pursues a long-term motive and generates value co-creation through resource and knowledge synergies that a partner company would not have been able to achieve on its own to this extent. In addition, the level of control of the individual partners in the alliance represents a key strategic decision in the formation of such.

2.1.5. Definition of market entry modes

A wide range of definitions also exist for market entry modes, the most relevant of which are examined here. Generally, market entry modes refer to institutional agreements that enable the entry of a company's products, services, technology, human capabilities, management or other resources into another country (Calof 1993; Robles, El-Ansary, and Root 1988). A more detailed perspective is provided by Sharma and Erramilli (2004), who address a structural arrangement that allows a company to implement its product market strategy in a host country by either marketing only or both producing and marketing there itself or in partnership with others. This already provides an initial insight into the distinction between these entry modes, which can be categorized according to their level of control or the extent of their equity rights. In this context, it is also crucial to differentiate from the term 'internationalization'. Internationalization essentially refers to the strategic process of selecting entrance and allocating and implementing organizational resources and capabilities in foreign markets, primarily expanding companies' businesses (Autio and Zander 2016). The process of corporate internationalization involves a number of key decisions: Location (whether a company should invest in a particular host country), mode of entry, level of investment, and how the foreign company should be controlled and managed (Beugelsdijk et al. 2018). Thus, the main difference consists in the fact that 'internationalization' describes the

entire process of expansion into international markets, meanwhile 'market entry modes' refers specifically to the different methods or strategies a company can apply to enter a new market.

2.2. Comparison of literature

2.2.1. (Market entry) Challenges of green startups

With the assistance of the literature research approach described above, 10 overarching areas of challenges or barriers of green startups could be identified in which the most diverse characteristics arise. These are outlined in the following in ascending order of importance for this research or of occurrence in the literature.

Green start-ups face various *technological challenges*. For instance, Khan and Bohnsack (2020) identified that disruptive innovations (sustainable technologies) often have difficulties penetrating the mainstream market, especially those that benefit society. They tend to underperform on attributes that are considered as key attributes of incumbent technologies (Bohnsack and Pinkse 2017). Disruptive innovation places significant emphasis on the transformative effect an innovation has within the market, encompassing both disruptive technologies and disruptive business models (Khan and Bohnsack 2020). The success of those is therefore determined by technological progress and the business model. If technological progress is not fast enough to cross the trajectory of the incumbent technology, the technology might fail (Khan and Bohnsack 2020). In addition, technological barriers emerge in the continuing education of the entrepreneur, reflecting the challenges of developing new solutions and improving entrepreneurial performance, as the CEO of the company often pursues other academic activities (Nunes, Morioka, and Bolis 2022). Regarding a disruptive business model, due to the combination of market, technology and socio-cultural uncertainties, it is difficult to capture value (Susteras and Brito 2023). Further to that, due to the underperformance of attributes that are considered as key attributes of incumbent technologies, an adequate value proposition of the disruptive innovation is required to increase mainstream customer appeal (Bohnsack and Pinkse 2017). Accordingly, it can be summarized that disruptive innovations/technologies, such as those of green start-ups, generally struggle to convince a critical mass with a corresponding value proposition and thus surpass established technologies, and that founders face significant time limitations in order to develop the disruptive technology and, thus, to achieve a competitive technological advantage.

Furthermore, challenges also emerge from the inherent *characteristics of the entrepreneurs* themselves, accentuating the tension between ethical objectives and profit motives (Linnanen 2016). Some entrepreneurs prioritize social benefit over financial gain, facing obstacles rooted in the continued dominance of conventional interpretations of entrepreneurship and associated values that still perpetuate ideals associated with entrepreneurship that emphasize characteristics such as profit-seeking, economic growth and aggressive behavior in mainstream society (Linnanen 2016; O'Neill and Gibbs 2016). Green entrepreneurs,

motivated by diverse backgrounds, grapple with the intricate task of balancing private and societal value creation on the one hand and are more concerned about personal failure than ordinary entrepreneurs on the other, as they have to tackle more complex relationships with stakeholders that surpass the challenges encountered by regular founders (Hoogendoorn, Van Der Zwan, and Thurik 2019). Moreover, their varied motivations and non-business-oriented backgrounds contribute to the struggle of legitimizing their presence in the market, compelling alignment with diverse audience expectations. This alignment, however, may conflict with the founder's original intent to create a tangible impact on the transformation toward a more sustainable economy.

Green startups, like any other type of startup, must overcome the *challenge of building and managing strategic relationships* to relevant counterparts that can be of assistance and support to scale and diffuse the sustainable solution (suppliers, customers, investors and policy makers) in order to develop their business, build a new network or gain a foothold in an existing network (Baraldi et al. 2019; Ribeiro-Soriano and Piñeiro-Chousa 2021). Crucially, these partnerships should help them to meet their triple-bottom-line value creation objective, which is not a primary focus for ordinary start-ups. A green start-up with an excellent economic value creation capacity needs to achieve comparable environmental and social outcomes through collaboration with other companies (Weissbrod and Bocken 2017). A start-up that primarily serves environmental and social outcomes needs to enter into strategic partnerships that help them create the economic value required for the long-term viability of the company. It can be concluded that green start-ups need to follow a different, more cautious approach when establishing a portfolio of strategic partnerships, which does not only consider economic motives, as otherwise there will appear to be a requirement to trade-off between the triple bottom line objectives (Sreenivasan and Suresh 2023).

A further challenge identified is the *difficulty of scalability* of green start-ups (Palomares-Aguirre et al. 2018). According to the entrepreneurship literature, scaling refers to organizations undertaking a 'persistently rapid growth' (Reuber, Tippmann, and Monaghan 2021). Here, this is often referred to as the 'green prison' in which they are trapped (Ball and Kittler 2019; Hockerts and Wüstenhagen 2010; Pacheco, Dean, and Payne 2010). Given that environmental wellbeing is a public good and therefore non-excludable and that improving environmental wellbeing benefits all economic actors, regardless of whether they have paid for it or incurred costs to contribute to it, entrepreneurs are always at a competitive disadvantage (Ball and Kittler 2019; Pacheco, Dean, and Payne 2010). According to Pacheco, Dean, and Payne (2010) this is due to the circumstance that they incur additional costs by implementing the sustainable approach, which they must bear that other less sustainable actors do not, even though they also benefit from the resulting improvement in environmental well-being. This characteristic of non-excludability and the lack of economic returns from pursuing opportunities for sustainable development for target customers can therefore push green entrepreneurs into boundary areas and make the markets for large-scale production better suited to incumbents (Pacheco, Dean, and Payne 2010). Furthermore, new innovative market entrants, which can include green start-ups, face the challenge of both the 'liability of smallness' and the 'liability of newness'. The former refers to the lack of resources necessary

to effectively deploy the routines and structure required to implement and scale their strategy (Gimenez-Fernandez, Sandulli, and Bogers 2020). The latter refers to the difficulty for new companies to compete with established market players due to limited experience and establishment of effective operating practices (Stinchcombe 1965). According to Gimenez-Fernandez, Sandulli and Bogers (2020), the addition of external resources such as knowledge sources predominantly leads the way in overcoming both liabilities, especially in high-tech environments, whereas existing internal resources and monetary investment have a limited impact. Consequently, innovative start-ups face the difficulty of not being able to grow rapidly enough to compete with established market players and thus face an even greater difficulty in escaping the 'green prison'.

At the domestic *institutional and political level*, green start-ups face a number of obstacles. Many authors argue that green startups struggle with insufficient regulatory support by domestic institutions, making a general transition to sustainable practices necessary and possible for all market participants (Berrone et al. 2013; Laukkanen and Patala 2014; O'Neill and Gibbs 2016; Pinkse and Groot 2015; Vermunt et al. 2019). Already when founding a green venture, more institutional obstacles in the form of a lack of financial, administrative and informational support are perceived than with normal entrepreneurs (Hoogendoorn, Van Der Zwan, and Thurik 2019). They argue that administrative procedures and business information are not necessarily tailored to sustainable entrepreneurs, that there is still a lack of support from qualified advisors who disseminate information on best practice models and are able to tailor such models to local circumstances, and that there remains a lack of dedicated support structures such as sustainable business incubators and investment funds for sustainable start-ups. Furthermore, green start-ups often provide solutions that market players can implement to improve the sustainability of their economic activities. For instance, when it comes to a reporting solution for CO₂ emissions, this only gains relevance for target companies when the regulatory framework requires them to set limits. Dean and McMullen (2007) highlight that transaction costs make the internalization of negative environmental externalities difficult without particular institutions to attribute responsibility for environmental damage to market actors and charge them for the damage their activities cause. A clear allocation of responsibility for environmental damage by market players, which could enable green start-ups to contribute significant value through their sustainable solutions, has yet to materialize. Thus, in the absence of a regime of property rights that converts non-excludable and excludable benefits, there will always remain an inefficient supply of clean technologies (Pacheco, Dean, and Payne 2010). The institutional inadequacy and lax enforcement of anti-pollution laws renders the markets particularly challenging for green companies, due to the resulting limited public knowledge and the fact that residents do not prioritize environmental issues (Sreenivasan and Suresh 2023). In addition to that, a further challenge to already existing regulations could be identified. Generally speaking, long-term planning predictability is lacking due to the risk of changes to legislation on environmental permits (Engelken et al. 2016; Nunes, Morioka, and Bolis 2022; Sreenivasan and Suresh 2023). A country's existing regulations can certainly support the green start-up's solution, but there is no guarantee that this configuration of institutional laws and norms will remain in place in the long term and will not be adapted or annulled. Relying solely on regulatory

support as an argument for a start-up's own solution is therefore not a viable long-term business strategy. For instance, abrupt legislative changes to taxes, incentives, etc. can change the sector's market opportunities. In an optimal institutional environment, companies that want to take advantage of the old policies should continue to do so in order to avoid disruption to current business models, but in most cases this is simply not the reality (Sreenivasan and Suresh 2023). Furthermore, there is also a call for entrepreneurial action at an institutional level. There are certainly limitations to the ability of green entrepreneurs to engage in policy activities (e.g. information-based activities, activities to influence expert opinion or self-regulatory activities) and thus gain access to policy makers and influence public policy (Pinkse and Groot 2015). Nevertheless, green entrepreneurs must initiate institutional change to bring about changes to existing rules, public policies, standards and laws (Hoogendoorn, Van Der Zwan, and Thurik 2019; Pacheco, Dean, and Payne 2010). There is consequently a necessity to change existing institutions in the realm of sustainable entrepreneurship. It can thus be concluded that green startups typically exploit opportunities in markets that are characterized by imperfection and failure and that these have a more significant relationship with institutional regulation, as government regulation in imperfect markets plays a crucial role in setting the rules of the game and shaping market access (Cohen and Winn 2007). However, in addition to the fact that there are often inadequate regulations, there is moreover the risk that these will be adapted or completely changed in the future and therefore no longer provide a supportive contribution to a sustainable solution, which the entrepreneur's actions require.

Like any start-up, green start-ups are reliant on the *acquisition of sufficient resources*, which most of them lack (Bocken 2015; Ferri and Lipari 2019; Skala 2019; Sreenivasan and Suresh 2023). As the types of entrepreneurial motivation, knowledge and backgrounds of green entrepreneurs are more diverse and often less business-oriented than typical start-ups, they primarily face a lack of knowledge and base of information about the target markets, be it overestimating demand or not understanding customer needs (Bergset 2018; Bergset and Fichter 2015; Engelken et al. 2016; Skala 2019). As targeted markets in this instance are often characterized by imperfection and failure, it is particularly essential to have a profound knowledge base in order to avoid being drowned out in such a challenging market landscape (Cohen and Winn 2007). However, the availability of information about the markets is frequently limited and knowledge impedes well-grounded strategic decision-making (Engelken et al. 2016). Existing resources must therefore be invested in the acquisition of external knowledge, in the creation of internal knowledge and simultaneously in cooperation with strategically advantageous partners who can assist in overcoming any issues that may be encountered, for which they often lack sufficient time resources, since green entrepreneurs often pursue other academic activities additional to founding a new business (Hoogendoorn, Van Der Zwan, and Thurik 2019; Nunes, Morioka, and Bolis 2022). But beyond that, Engelken et al. (2016) identified a shortage of skilled personnel and insufficient knowledge about potential customers for the renewable energies market, which suggests the general conclusion that knowledge-intensive markets/sectors such as renewable energies are confronted with a shortage of qualified, skilled personnel and therefore also green start-ups, trying to serve solutions for that. In addition, green startups face difficulties in accessing

venture capital with limited or no collateral to offer their investors due to their lack of business education, high level of innovation and especially information asymmetries between entrepreneurs and investors (Bergset 2018; Gast, Gundolf, and Cesinger 2017; Ning, Wang, and Yu 2015; Randjelovic, O'Rourke, and Orsato 2003). It is problematic for entrepreneurs to make their sustainable, but rather long-term, value generation attractive to mainstream investors and thus generate a substantial financial resource base. Green entrepreneurs seem to know little about the investment community, and many investors believe that green entrepreneurs lack knowledge about the realities of financial markets and do not comprehend the interests of investors (Linnanen 2016). In a certain sense, green start-ups convert (parts of) a public good into private goods, which is a specific phenomenon in corporate financing (Bergset 2015). The short-term focus of mainstream investors and the long payback periods of green startups create a dissonance that makes the acquisition of sufficient monetary capital a challenge for such entrepreneurs (Bergset and Fichter 2015; Bocken 2015; De Lange 2017; Migendt et al. 2017). This dissonance between the expectations of venture capitalists regarding quick returns on the one hand and a triple bottom line related potential risk of 'mission drift' of the green company on the other hand are not compatible (Ferri and Lipari 2019; Randjelovic, O'Rourke, and Orsato 2003). As a result, only smaller, weaker groups of investors are normally accessible (Bocken 2015; Randjelovic, O'Rourke, and Orsato 2003).

One of the most frequently reported challenges for green start-ups is the *choice of a suitable business model (BM)*. It can generally be difficult to commercialize a start-up's business solution if customers are not willing to pay for the additional social and environmental value created by the more sustainable character of its products and services (Kuckertz, Berger, and Gaudig 2019). To overcome this challenge, the choice of a suitable BM is crucial. Veleva and Bodkins (2018) view of BM is applied here, using three main elements: the value proposition, value creation and value capture. A business model is used as a plan that indicates how a new business can become profitable (Boons and Lüdeke-Freund 2013). According to Boons and Lüdeke-Freund (2013), it is quite feasible for existing companies to specify these elements of a general business model concept, but for new sustainable ventures this may be unclear. There are no comparable conceptual ideas of sustainable business models yet, for which the lack of clear content related to sustainable development could be an explanation (Boons and Lüdeke-Freund 2013). Thus, how to translate such a value proposition and the resulting value creation into a suitable BM depends in the first instance on the overall understanding of the impact a firm can have (Kuckertz, Berger, and Gaudig 2019). Particular emphasis therefore is placed on value creation along the triple bottom line, as green start-ups are often forced to make a trade-off between the three objectives - social, environmental and economic. Of crucial significance here is the required shift from a focus on environmental issues to the inclusion of economic aspects on the one side and the necessity to look beyond traditional business models and include additional environmental and social value creation on the other side, whereby expected environmental and social objectives often have to be made subordinate to economic ones to survive (Bergset and Fichter 2015; Kuckertz, Berger, and Gaudig 2019; Muñoz and Cohen 2018; Ribeiro-Soriano and Piñeiro-Chousa 2021; Schaltegger and Wagner 2011; Sreenivasan and Suresh 2023). In order to prevent such a potential 'mission-drift' of the company, the choice of the suitable BM is essential (Ferri and

Lipari 2019). This paper focuses primarily on green start-ups that offer their sustainable solution as a product/software-as-a-service. The value proposition of this sustainable BM focuses on the provision of services; in essence, the ownership of a product remains with the company and not with the customer and the product is made available to the customer as part of a rental agreement (Vermunt et al. 2019). This implies that the provider assumes more responsibility and (financial) risks. In terms of the appropriate value capture, the start-up also faces the challenge of achieving a scale of operations that is adequate to meet the quantity and depth of needs in their markets, which can also act as an adequate signal for potential mainstream investors (De Lange 2017; Palomares-Aguirre et al. 2018). Furthermore, an ability to rapidly adapt to new BM - namely BM innovation - is required as a critical factor in securing a sustainable competitive advantage for green start-ups, as it provides them with the flexibility to overcome the challenges associated with evolving market dynamics (Chesbrough 2010; Geissdoerfer, Bocken, and Hultink 2016). If technological progress is not fast enough to cross the trajectory of the incumbent technology, BM innovation can help to appeal to a wider market and still disrupt the incumbent technology (Khan and Bohnsack 2020). Despite the transformative potential, the market poses a major challenge for BM innovation, as many of these fail over time, especially in the early stages (Geissdoerfer, Bocken, and Hultink 2016). The delicate balance between radical innovation and sustainability is highlighted, emphasizing the risk associated with adopting untested or inadequately adapted novel BMs, which can lead to the failure of sustainable businesses (Bocken 2015).

Also in terms of *market challenges*, a sustainable start-up may experience further and different types of obstacles than regular start-ups due to their involvement in business activities where markets are generally characterized by imperfection and failure, which makes a possible entry more complex and challenging for these companies (Cohen and Winn 2007; Gast, Gundolf, and Cesinger 2017; Hoogendoorn, Van Der Zwan, and Thurik 2019; Shepherd and Patzelt 2011). In terms of imperfection, on the one hand, many authors can be cited who attribute to green start-ups generally limited knowledge and information about markets and combinations of market, technological and socio-cultural uncertainties as well as inefficiencies, such as the nature of public goods, inefficient use of resources, monopoly power, externalities (e.g. flawed pricing mechanisms) (Engelken et al. 2016; Pinkse and Groot 2015; Schaltegger and Wagner 2011; Skala 2019; Susteras and Brito 2023). Such new markets are associated with risks for the entrepreneur, who can navigate their market environment in a more or less well-informed manner (Bergset 2018). In terms of market failures, it can be noted that existing prevailing market structures also create difficulties within the triple bottom line in terms of trade-offs and decision-making (Bergset and Fichter 2015). Most notably, Ball and Kittler (2019) have identified a significant number of challenges for green start-ups that are claimed to be due to environmentally relevant market failures that hinder entrepreneurial efforts to address environmental problems. Thus, according to him, the market generally places a lower value on environmental benefits or 'goods', putting these start-ups at a competitive disadvantage compared to conventional technologies. The existence and duration of such market failures suggest that there are barriers to their removal that act as disincentives to green entrepreneurship. This can further

be illustrated by the fact that communicating environmental issues is challenging for green start-ups due to the difficulty of establishing clear cause-and-effect relationships, making it hard to develop a new market for new products (Linnanen 2016). The economic obstacles faced by green start-ups are closely linked to the environmentally friendly nature of their activities. Simply put, improving environmental wellbeing is perceived by all economic entities, regardless of whether they have made a financial contribution or incurred costs to make this possible (Ball and Kittler 2019). The persistence of these market inefficiencies indicates the presence of barriers that make them difficult to remove and limit environmental entrepreneurship.

Whilst also part of the market challenges, *established incumbents* are considered separately here. These represent mature and large established organizations with a rich resource base (Oberländer, Röglinger, and Rosemann 2021). Generally, green start-ups face a strong established industry, characterized by the interests of those incumbents to maintain the status quo (Bocken 2015; Engelken et al. 2016). Innovative green technologies thus compete with established, older technologies already on the market, which have been optimized and refined over the years and are therefore at a much higher stage of development, with broader company-specific capabilities developed over the time, a broader resource base and, as a consequence, greater market power (Kowszyk, Abou-Ali, and Arroyo 2022; Palmié et al. 2021). Hockerts and Wüstenhagen (2010) take a closer look at these challenges. According to them, 'born green' startups, referred to here as 'emerging Davids', are innovation catalysts that explore new technologies towards green sustainability, while resource-intensive 'going green' incumbents, herein the 'Greening Goliaths', are considered crucial to harness green innovation and set new industry standards. In the context of growing competition from these emerging Davids, greening Goliaths are increasingly engaging in their own form of sustainable entrepreneurship. They expect to have a broader impact as they have the potential to reach a mass audience and pursue sustainability initiatives that are broader in scope than the initiatives of the green start-ups they are responding to (Hockerts and Wüstenhagen 2010). Therefore, they may respond by mimicking/adapting the start-ups' innovations without formalized interactions, thus engaging as sustainability entrepreneurs themselves (Hockerts and Wüstenhagen 2010). In order to escape this dilemma, the choice of a suitable business model for the green start-up is of strategic importance and thus goes hand in hand with the findings in the paragraph on 'business models'. This is because incumbents will not fully adopt more 'radical' circular economy business model approaches or imitate start-ups, as they usually focus on common methods such as recycling that do not require a change in their main business models, while start-ups are better placed to adopt more disruptive circular business models due to their greater flexibility and responsiveness to market changes, which can give them a competitive advantage over incumbents (Henry et al. 2020; Hockerts and Wüstenhagen 2010; Palmié et al. 2021).

Lastly, the focus is placed on the *challenges associated with the target groups* of green start-ups. On the one hand, there remains the difficulty of establishing an appropriate value proposition. Green start-ups have difficulties in creating value due to the combination of market, technological and socio-cultural uncertainties and the circumstance that newcomers

with a value proposition that creates environmental and social value, but little additional customer value compared to competing offerings, foster skepticism among the target group (Ciulli et al. 2022; Susteras and Brito 2023). Although a newcomer would generally have less difficulty establishing the credibility of the environmental and social component of its offering, it will find it difficult to convince customers of the overall value of its value proposition given the low level of differentiation (Ciulli et al. 2022). To address customers' skepticism and their lack of understanding of the benefits of their innovative solution over a conventional solution, founders must develop and convincingly communicate a superior value proposition (Susteras and Brito 2023). It is necessary that they go beyond traditional business models and include additional environmental and social value creation to develop this superior value proposition (Kuckertz, Berger, and Gaudig 2019). This also results in the necessity for green start-ups to educate potential customers about their green products and/or services, partly due to their lack of awareness (Rodgers 2010; Vermunt et al. 2019). Many sustainable and innovative business models have failed to convince consumers of the benefits of sustainable products, so in an institutional category, the lack of acceptance by the consumer or customer leads to a need for education to broaden this awareness of sustainability (Todeschini et al. 2017). A more aggressive and targeted approach to green marketing is required for this, partly because green products can be more costly than non-green ones (Bird, Wüstenhagen, and Aabakken 2002). The persistently limited distribution of given products/services is a result of the complex nature of the sustainability challenge. The difficulty in defining clear cause-and-effect relationships hinders targeted communication of such environmental problems and leaves the public still discrediting environmental and sustainable business practices (Gast, Gundolf, and Cesinger 2017; Linnanen 2016). This leads to low customer and societal acceptance and trust in circular products (Linnanen 2016; Vermunt et al. 2019) and a degree of customer inertia due to often lax enforcement of environmental laws and residents not prioritizing environmental issues (Bird, Wüstenhagen, and Aabakken 2002), making a customer base beyond green customers challenging (Bocken 2015; Sreenivasan and Suresh 2023). This customer inertia also results from the need for significant changes in customers' processes when implementing a sustainable solution, which can also result in this kind of perseverance due to the fact that more traditional business model approaches are pursued (Sousa-Zomer and Cauchick Miguel 2018).

A detailed elaboration of the references used can be found in the appendix, the overall challenges developed for green start-ups are summarized in the following table.

Technological challenges	➤ <i>Mainstream market penetration</i> ➤ <i>Technological progress</i> ➤ <i>Superior value proposition</i>
Entrepreneurial characteristics	➤ <i>Tension between ethical objectives & profit motives</i>
Building & managing strategic relationships	➤ <i>Strategic relationships aligned with triple-bottom-line value creation</i>

Lack of scalability	➤ <i>'Green Prison'</i> ➤ <i>Overcome liabilities of smallness and liabilities of foreignness</i>
Institutional/political challenges	➤ <i>Lack of financial, administrative & informational support by institutions</i> ➤ <i>Lack of regulatory incentives/norms</i> ➤ <i>Entrepreneurial action required</i> ➤ <i>Lack of long-term planning reliability due to threat of changing laws/regulations</i>
Resource challenges/constraints	➤ <i>Lack of knowledge & base of information</i> ➤ <i>Lack of skilled personnel</i> ➤ <i>Difficulties in accessing capital</i>
Business model choice	➤ <i>Possible necessity of trade-off in triple-bottom-line value creation</i> ➤ <i>Product ownership, responsibility & risks remains with start-up</i> ➤ <i>Possible adequate BM innovations lack use cases</i>
Market-related barriers	➤ <i>Market imperfection creating limited knowledge & information, uncertainties and inefficiencies</i> ➤ <i>Ongoing market failure due to lower value on environmental benefits/'goods'</i>
Threats from incumbents	➤ <i>Established companies with broader resource base, greater market power and the ability to reach a mass audience</i> ➤ <i>Risk of being mimicked by them</i>
Target group/Customer barriers	➤ <i>Developing a superior value proposition</i> ➤ <i>Need for customer education</i> ➤ <i>Need for careful, but aggressive and targeted green marketing</i> ➤ <i>Low customer trust</i> ➤ <i>Customer inertia due to lack of prioritization of sustainable issues</i>

Table 1: (Market Entry) Challenges of green Start-Ups, Own Illustration (2024)

2.2.2. Opportunities of strategic alliances (Networks)

From this section of the literature review onwards, a conscious distinction is made between sources that refer to established, partly larger companies, some of which have sustainable motives as drivers, but also consider overall start-ups, and ultimately sources that specialize in green start-ups. This approach is intended to provide a comprehensive overview, which also creates a useful foundation for comparison. The following section highlights 8 key areas in which strategic alliances can provide significant opportunities for companies. These are presented in ascending order of importance for this study or their occurrence in the literature.

Technological opportunities through strategic alliances are the first area to be considered here. In terms of conventional, established companies and start-ups, strategic alliances are a means of responding to radical technological change. Established companies make use of alliances with new entrants to adapt, while the new entrants benefit primarily from the ability to commercialize their new technology (Rothaermel and Boeker 2008). Quite often technology agreements involve transfer to a large firm with the necessary manufacturing, scale and distribution outlets, and transfer by a smaller firm that does not have the necessary manufacturing and/or marketing scale, but which benefits from the alliance through the commercial exploitation of the technology by the larger firm (Glaister and Buckley 1996). Significant innovations and knowledge are likely to result from the fusing of complementary skills, a result which is unlikely to be achieved by one firm acting alone (Glaister and Buckley 1996). In particular, technological knowledge can be enriched. Through the possibility of so-called knowledge spillovers, both the source and the recipient gain the ability to acquire external knowledge in complementary areas as well as in the technological area of the spillover (Phene and Tallman 2014). Furthermore, this accessibility to new technological knowledge can provide investors with indices of the company's future performance prospects, which has a lasting impact on their expectations (Koval 2021).

In terms of literature that refers to green start-ups, it can be stated that in the transition to a more sustainable world, the development of sustainable technologies must be accompanied by the promotion of the legitimacy of the technologies (Kishna et al. 2017). Legitimacy is a generalized perception or assumption that an entity's actions are desirable (Rao, Chandy, and Prabhu 2008). According to Kishna et al. (2017), organizations can collaborate to improve this legitimacy of new technologies. Alliances aim to promote specifically technology-based market and social legitimacy by providing access to a partner's sustainable technology, by jointly developing a sustainable technology, or by providing a partner's technology with access to customers and production capacity. Accordingly, alliances promote technological legitimacy by relying on positive externalities, exercising their signaling function and acting as institutional entrepreneurs (Kishna et al. 2017). When considering technological progress, green start-ups rely on both inbound and outbound innovation (Pakura 2020). These outbound innovations are often facilitated by suitable partners such as academic institutions, support platforms/other start-ups, established companies or customers. Therefore, these collaborations contribute significantly to the start-up's technological progress and technology commercialization and, consequently to their business development (Pakura 2020).

Furthermore, opportunities can arise to advance one's own *marketing strategy* through strategic alliances. Considering general, partly already established market participants, Koval (2021) shows that an extensive alliance portfolio can serve as a signal for gaining access to new marketing knowledge, as it facilitates adaptation to environmental dynamics and the development of new opportunities. This assumption is followed by Nakos, Brouthers, and Dimitratos (2014), who further emphasize this adaptation and attribute to alliance participants in the form of SMEs with non-competitors the ability to align their own strategy, structure and goods/services to those dynamics and thus promote international credibility in a foreign market. Moreover, in adopting strategic alliances for marketing purposes, SMEs find out

more about the wider market place and become more discriminating in relation to which markets to serve (O'Dwyer, Gilmore, and Carson 2011).

With respect to green start-ups, especially Kishna et al. (2017) can be identified stating that, through the combination of respective reputations and strengths, alliance partners can provide a complete package of innovative product performance. A firm may enter into an alliance to enhance its rights or qualifications to operate in a particular market, and it may use the reputable image of the alliance partner as a source of market legitimacy (Kishna et al. 2017). This need for market legitimacy can be driven by reputation, a lack of experience or the performance of a firm. Thus, this combination of reputations and strengths in such a collaboration enables a holistic sustainable brand effect. The combination of different expertise and brand images creates trust and credibility among target customers, which has a positive effect on green market positioning (Kishna et al. 2017). Consequently, marketing alliances are focused on bringing sustainable products to specific markets by enhancing market legitimacy.

In terms of *political or institutional opportunities* for established companies, the most notable relates to the circumvention of domestically imposed government trade restrictions in the target market (Taylor 2005). Companies in the defense industry, telecommunications and parts of the financial services industry are often forced to establish relationships with local corporations due to restrictions imposed by the host government to protect certain industries, which allow them to enter these markets (Glaister and Buckley 1996). In addition, an alliance of SMEs with non-competitors in the foreign market provides access to government relations and market/regulation-specific knowledge, which increases international performance or even enables it in the first instance (Nakos, Brouthers, and Dimitratos 2014).

Green start-ups can benefit from strategic alliances in other fields at a political or institutional level. In this context, as well, alliances with non-competitors such as government organizations are considered in particular, as these can help to shape the market environment and demand for the commercialization of green start-ups' products or services through demand-promoting initiatives (Doblinger, Surana, and Anadon 2019). Doblinger, Surana and Anadon (2019) argue that they can furthermore provide access to important social resources, such as greater credibility or a higher status for external (financial) stakeholders. The main explanation for this is the missing profit orientation of government organizations and their mandate to promote (energy) innovation and technology transfer (Doblinger, Surana, and Anadon 2019). Tziva et al. (2021) also support this argument and identify the role of alliances and networks as the strategic creation of beneficial institutional conditions for sustainable transition, as they promote the adoption of potentially useful innovations and sustainable consumption. The most relevant consideration for green start-ups, however, relates to strategic alliances with other market actors. Glaister and Buckley's (1996) reasoning can be applied here, which describe the possibility of conformity with the host government's policies or regulations through such an alliance. The domestic alliance partners' specific knowledge of local regulations enables green start-ups to conduct a higher quality evaluation of the suitability of the foreign market for their sustainable solution. This can include an initial demand assessment as well as a better strategic predictability of future

regulatory changes and thus contribute to the long-term prosperity of the green start-up in the foreign market.

Looking at the *opportunities of a strategic alliance in relation to the business model*, a range of aspects can be highlighted - all based on Veleva and Bodkin's (2018) classification, which describes the business model using the aspects of value proposition, value creation and value capture - looking at conventional companies and start-ups in the first instance. According to Sambasivan et al. (2013), alliances place companies in a better competitive position in their industry and enable them to respond more effectively and appropriately to environmental changes. This enables them to tailor their value proposition to address changing customer demand (Sambasivan et al. 2013). A strategic alliance also contributes significantly to value creation. By engaging in external cooperation, micro-firms might be capable of compensating for their size-inherent competitive disadvantage, because alliances are typically formalized when the firms forge a vulnerable position (Gundolf, Jaouen, and Gast 2018). Collaboration not only bridges critical resource gaps, but also indirectly contributes to gaining a competitive advantage in the market by creating unique and idiosyncratic resources (Wittmann, Hunt, and Arnett 2009). In a successful alliance, complementary resources can be integrated to create added value (Ireland, Hitt, and Vaidyanath 2002; Van Gils and Zwart 2009; Wittmann, Hunt, and Arnett 2009). Companies seek to create a bundle of resources that is valuable, unusual and difficult to replicate, helping to ensure that competencies do not become rigid core competencies that would limit the company's competitiveness (Ireland, Hitt, and Vaidyanath 2002). In terms of enhanced value capture, reference can be drawn to Glaister and Buckley (1996), who argue that the expansion of a firm through alliances can be viewed as a means to gain economies of scale and some control over inputs (vertical linkages) at low cost, to reduce the risks associated with replacing external markets with quasi-internal markets, and to extend the firm's sphere of control.

In the following, sources will be referred to that examine green start-ups, with the emphasis on meeting the triple bottom line. According to Boons and Lüdeke-Freund (2013), the sustainable value proposition offers measurable ecological and/or social value in concert with economic value. To this purpose, compromises between optimized product and service performance (e.g. convenience, low costs) and improved social and ecological impact (e.g. dematerialization, better working conditions) must be found in the business-society dialogs (Boons and Lüdeke-Freund 2013). However, in a scenario where the initiator of the sustainable business model is a newcomer to the market whose value proposition creates environmental and social value, but offers little additional customer benefit compared to competing offerings, it will be difficult for the green start-up to convince customers of the overall merit of its value proposition given the low level of differentiation (Ciulli et al. 2022). A cooperative approach in the form of a strategic alliance is therefore likely to be adopted to overcome these difficulties (Ciulli et al. 2022). When it comes to value creation, these alliances primarily serve to hit the triple bottom line. A sustainable start-up with an excellent economic value creation capacity can achieve comparable environmental and social results by collaborating with other companies (Weissbrod and Bocken 2017). Inversely, a green start-up that primarily makes an ecological and social contribution can achieve an improved economic value creation capacity (Ribeiro-Soriano and Piñeiro-Chousa 2021). In terms of

value capture, alliances are also a viable instrument because, according to Chen, Xu, and Zhou (2017), alliance members can use the alliance to obtain and internalize the resources that are lacking and that help companies to overcome internal obstacles in order to advance their sustainable development. Therefore, this alliance is seen as a means of value creation to break down these barriers (Chen, Xu, and Zhou 2017). Strategic alliances can therefore contribute to an improved and more adequate definition and scalability of the business model of a green start-up by offering opportunities to value proposition, creation and capture on the foundation of the triple bottom line.

Market-related opportunities through alliances for conventional, partly already established companies and start-ups are an intensively researched field of science. Strategic alliances offer firms easier expansion/access to unfamiliar territories or markets and are therefore useful for obtaining or maintaining a competitive advantage, especially in relation to small firms (Ireland, Hitt, and Vaidyanath 2002; Lorange, Roos, and Brønn 1992; Prashant and Harbir 2009; Sambasivan et al. 2013; Van Gils and Zwart 2009). Marketing/distribution alliances in particular significantly reduce the decisive distance to a market (Van Gils and Zwart 2009). This simplified access to foreign markets is also facilitated by the circumstance that alliances are a vital source of external market knowledge for the company through partners of various countries, facilitating the pursuit of identified market opportunities and the creation of new goods and competencies by knowledge spillovers, meaning the inadvertent and unpaid sharing of knowledge among organizations (Haase and Franco 2015; Phene and Tallman 2014; Van Gils and Zwart 2009; Zahoor, Al-Tabbaa, and Khan 2023). Given the advantages that early entrants can enjoy - such as the ability to command premium prices and the potential to acquire a sizable market share - the pace of internationalization facilitated by this can be crucial (Glaister and Buckley 1996; Haase and Franco 2015). Furthermore, various authors have recognized that alliances help established market players to increase their market power (Arora, Belenzon, and Pataconi 2021; Glaister and Buckley 1996; Prashant and Harbir 2009). Among other reasons, this is accomplished through the ability to respond better to market dynamics. Companies that face pressure from the technological environment and lack the necessary resources and expertise to compete successfully in the dynamic market are more likely to create alliances with companies that have complementary resources and expertise (Haase and Franco 2015; Sambasivan et al. 2013; Van Gils and Zwart 2009). This market power can further be increased by focusing on one's own market legitimacy. Kishna et al. (2017) recognize that a firm can enter into an alliance to enhance its rights or qualifications to operate in a particular market and that it can use the reputable image of the alliance partner as a source of market legitimacy. This need for market legitimacy may be due to a company's lack of experience, reputation or performance (Kishna et al. 2017). In addition, strategic alliances increase the competitiveness of the partners through the combined internal resources of diverse firms, which can be used defensively to reduce competition or offensively by working together to dominate a common rival (Glaister and Buckley 1996).

Literature analyzing the opportunities for strategic alliances for green start-ups with regard to the market has so far been extremely limited and mainly refers to alliances between sustainable start-ups and established larger market players or institutions. Since green

start-ups primarily operate in markets that are characterized as market failures or inefficient, Ball and Kittler (2019) have investigated support mechanisms developed through collaboration with institutions to overcome them. These support mechanisms for green start-ups serve as a catalyst, as they mitigate the environmental market failure that hinders eco-innovation and thus minimize the barriers to entry into the energy market for startups. For green start-ups engaged in renewable energy, support mechanisms have profoundly changed the rules of the game thanks to their interventionist approach in establishing a market for entrepreneurial actors (Ball and Kittler 2019). Strategic alliances with institutions in the respective countries can therefore remedy the market failure and create more advantageous market conditions for green start-ups. Considering the 'Green Prison', also related to market failure and inefficiency, mentioned in the section 'Challenges of green start-ups', which puts green start-ups at a competitive disadvantage, Pacheco, Dean, and Payne (2010) has recognized that entrepreneurs can also take advantage of inter- or intra-industry alliances to attempt to transform the rules of the game and create sustainable development opportunities. By building relationships with powerful and reputable players, entrepreneurs can increase their credibility and overcome customer inertia and market circumstances associated with escaping the green prison (Ciulli et al. 2022; Pacheco, Dean, and Payne 2010). While this involves collaboration with institutions, entrepreneurs themselves can escape the green prison by changing or creating the institutions - norms, property rights and legislation - that incentivize competitive games (Pacheco, Dean, and Payne 2010). If one then considers that most of the sustainable solutions of green start-ups are disruptive innovations, the disruptor's dilemma can also be mentioned, which can be overcome with the help of strategic alliances. This disruptor's dilemma represents the challenge that innovative technologies face as they scale, as the need for broader market appeal can compromise the simplicity and efficiency that originally characterized them (Petzold, Schmidt, and Scaringella 2023). Here, Petzold, Schmidt, and Scaringella (2023) show that disruptive market participants are proactive, strategic players who can consciously enter into strategic alliances with partners who are not affected by the disruption in order to secure resources, relationships and legitimacy at an early stage in order to develop their disruptive business models in niche markets. Over time, they move closer to the mainstream market and engage in alliance portfolio reconfigurations, allowing affected incumbents to enter their portfolio but using the power of unaffected partners to limit incumbents' strategic interference (Petzold, Schmidt, and Scaringella 2023). It can therefore be concluded that strategic alliances certainly offer market-related opportunities for green start-ups, particularly in terms of their credibility (Kishna et al. 2017), in overcoming the green prison by removing market failures and inefficiencies and in overcoming the disruptor's dilemma. The choice of alliance partners appears to be crucial here and involves other green start-ups as well as institutions and incumbents at different stages of market penetration.

With regard to *strategic or scalability opportunities*, the first phase again draws on literature that relates to general businesses or start-ups. For a number of authors, for a start, the potential for identifying growth opportunities through alliances is addressed. Kohtamäki, Rabetino, and Huikkola (2023) consider alliance networks as a source of learning and competitive advantage by providing a platform for interaction and learning and by providing

alliance experiences that increase a company's ability to absorb knowledge from alliance networks. This is particularly beneficial in accelerating the post-entry internationalization of SMEs after market entry, as they gain access specifically to external knowledge and market insights (Zahoor, Al-Tabbaa, and Khan 2023). Also, when it comes to regulatory circumstances in the target market, alliances with local partners can help accommodate the host government's policies, which is crucial for scaling (Glaister and Buckley 1996). Strategic partnerships are commonly formed to circumvent government-imposed trade restrictions (Taylor 2005). Other sources focus on potential resource allocation and process optimization through strategic alliances. These are often considered key options for businesses to grow both internally and externally due to the lack of crucial resources and time (Gundolf, Jaouen, and Gast 2018). Strategic alliances enable companies to improve their overall performance by leveraging the strengths of collaboration, reducing non-value-adding activities and promoting a focus on individual competencies (Whipple and Frankel 2000). Partners can thus complement one another and gain access to new resources and competencies for innovative activities (Hajdini et al. 2017; Sambasivan et al. 2013; Swoboda et al. 2011; Whipple and Frankel 2000). Gundolf, Jaouen, and Gast (2018) emphasize, for instance, that product alliances between small companies can expand the product range and open up new markets without enlarging the size of the company. Activity alliances, on the other hand, offer the opportunity to jointly develop new services, question strategies and rethink fundamental activities (Gundolf, Jaouen, and Gast 2018). It is fundamentally emphasized that companies forming alliances can thus achieve a better competitive position in their industry and are able to react better to steady changes in the environment by gaining internal and external knowledge (Sambasivan et al. 2013).

Up from here, due to the limited literature available on the scalability of green start-ups, the approach is based on Horne and Fichter's (2022) systematic literature review on empirically verified factors that promote the growth of impact start-ups. Impact start-ups are growth-oriented start-ups that replace less sustainable practices with new technologies, products or services that have a net benefit for sustainability, which includes green start-ups (Horne and Fichter 2022). In general, organic growth for start-ups may be limited due to low product demand and the costs of company growth, which is why scaling beyond a niche of concerned customers is problematic without adopting a collaborative attitude to overcome this (Ciulli et al. 2022; Glaister and Buckley 1996). Horne and Fichter (2022) empirically identified 10 factors for this purpose, which are listed below and sources are consulted to provide evidence that strategic alliances can offer added value. The first of these is 'venture internal factors', more specifically the entrepreneurial orientation and experience of the team, which has an influence. Thus, Zahoor, Al-Tabbaa, and Khan's (2023) suggestion that strategic alliances provide access to and use of important external knowledge and external talent expertise can be applied to accelerate the internationalization of SMEs after market entry. The next two factors 'ecologically-oriented business practices' and 'sustainable entrepreneurship' can also profit from this, as alliances enable access to external knowledge and resources on eco-design and eco-innovation or sustainable business models that allow them to create societal and environmental value while ensuring profitability (Zahoor, Al-Tabbaa, and Khan 2023). The factor 'Access to knowledge and networks' can also be explained by this, as the facilitated flow of knowledge and access to social capital of the

network of other partners also offers potential benefits (Ahuja 2000; Hajdini et al. 2017; Ireland, Hitt, and Vaidyanath 2002; Sambasivan et al. 2013; Zahoor, Al-Tabbaa, and Khan 2023). The factor 'Regulatory and Policy Support' can be supported by Glaister and Buckley's (1996) statement that strategic alliances can help to accommodate the policies of the host government, which is essential for scaling. Furthermore, the factors 'Access to financial resources' and 'Technological innovation and adoption' can be improved by the fact that a larger alliance portfolio signals to investors a company's ability to exploit new opportunities, adapt to environmental dynamics, improve financial performance and utilize technological knowledge or access to cutting-edge technology (Koval 2021; Zahoor, Al-Tabbaa, and Khan 2023). When it comes to the growth factor 'Organizational culture and leadership', Haase and Franco (2015) have found that international strategic alliances are useful for sharing experiences in the areas of innovation and organizational learning, which helps to build values and promote a culture of innovation and sustainability. The 'market demand and customer acceptance' factor is enhanced by alliances in that they provide access to new customers, provide credibility in the market and promote the legitimacy of the green start-up's technology (Baraldi et al. 2019; Kishna et al. 2017; Nakos, Brouthers, and Dimitratos 2014). The last factor mentioned by Horne and Fichter (2022), 'Intellectual property protection', is supported by the pooling of resources within alliances, as green start-ups can concentrate on expanding and protecting their own expertise while relying on their partner(s) in other areas (Swoboda et al. 2011).

Next, considering *resource opportunities through strategic alliances*, the first section again refers to sources that consider general companies or are generalizable. Experts generally share the consensus that alliances enable access to new (material) resources that a company or start-up itself does not possess (Baraldi et al. 2019; Baum, Calabrese, and Silverman 2000; Hajdini et al. 2017). According to the findings of Das and Teng (2000), alliances can enable access to different types and characteristics of resources from the time of foundation, subsequently divided into property-based resources and knowledge-based resources. On the one hand, required resources can be characterized by imperfect mobility, meaning that they are difficult to acquire due to incomplete or inefficient factor markets, which is why strategic alliances can help to facilitate access to these resources by creating a common platform for exchange and sharing (Das and Teng 2000; Hoffmann and Schlosser 2001; Panico 2017). Property-based resources, which are characterized by imperfect mobility, are, for example, human resources, while knowledge-based resources can be organizational resources (e.g. culture) (Das and Teng 2000; Horne and Fichter 2022). A further characteristic of such potential resources is that they are imperfectly imitable, i.e. it is particularly challenging for companies to acquire or replicate similar resources that give another company a competitive advantage (Das and Teng 2000). Such critical resource gaps can be closed through strategic alliances (Nakos, Brouthers, and Dimitratos 2014; Wittmann, Hunt, and Arnett 2009). Property-based resources, which are characterized by imperfect imitability, include patents, contracts, copyrights, trademarks and registered designs, while knowledge-based resources can represent technological and management resources (Das and Teng 2000). The last characteristic of resources to which strategic alliances grant access relates to imperfect substitutability, i.e. resources that cannot simply be replaced by others, especially if they are

specific to a company's value creation (Das and Teng 2000). Such resources are physical resources on a property basis and technological and management resources on a knowledge basis (Das and Teng 2000). The focus here can be placed specifically on complementary resource combinations that lead to the creation of unique and idiosyncratic resources, difficult to replace or replicate (Wassmer and Dussauge 2011; Wittmann, Hunt, and Arnett 2009). Following on from this, once the alliance has been established, it can be observed that it can generate value in the form of unique resources and ultimately a competitive advantage by pooling complementary resources and capabilities and utilizing synergy effects (Ahuja 2000; Arora, Belenzon, and Pataconi 2021; Ireland, Hitt, and Vaidyanath 2002; Panico 2017; Zahoor, Al-Tabbaa, and Khan 2023).

If one considers the literature on green start-ups in the second step, one can again build on the characteristics of resources identified by Das and Teng (2000). The general access to resources through strategic alliances is also evidenced here (Cacciolatti et al. 2020; Ciulli et al. 2022; Ribeiro-Soriano and Piñeiro-Chousa 2021). Resources characterized by imperfect mobility can also represent reputation, which is not easily acquired (Das and Teng 2000). Here, Kishna et al. (2017) identified that alliances can promote the legitimacy and thus the associated reputation of sustainable pioneer technologies by tying companies and their resources to the technology through a signaling function. Alliances also bring advantages for green start-ups with regard to imperfectly imitable resources, as they can close critical resource gaps and thus gain a competitive advantage with complementary resources (Ciulli et al. 2022). These can prove essential, particularly with regard to green start-ups and their triple-bottom-line value creation, for instance in order to utilize exclusive partnerships from other partners or provide expertise in communicating the value of sustainable solutions to target customers. For a green start-up acting in isolation, these can certainly pose a challenge to imitate. Das and Teng (2000) also justify the emergence of imperfectly imitable resources with causal ambiguity, which refers to the opaque link between a company's resources and its competitive advantages (Das and Teng 2000). In the learning process about sustainable alliance partners within an alliance, this can be overcome and thus access to such imperfectly imitable resources can be created (Hübel, Weissbrod, and Schaltegger 2022). The last characteristic of resources of imperfect substitutability can be explained insofar as these resources are essential for the value creation of the green start-up within the triple-bottom-line (Das and Teng 2000). Especially in terms of value creation according to this principle, partnerships with other green start-ups can help to obtain the resources that start-ups lack and thus overcome internal obstacles, for example through exclusive access rights to markets with high environmental regulations (Chen, Xu, and Zhou 2017; Weissbrod and Bocken 2017).

To conclude, the literature about *knowledge/skills/learning opportunities of strategic alliances* is revisited here, looking at overall start-ups and other companies in the first phase. In terms of knowledge opportunities, the argumentation is based on Grant and Baden-Fuller's (2004) dichotomy between possible knowledge generation ('exploration') and knowledge application ('exploitation') in strategic alliances. This dichotomy between the theses 'alliances as learning' (exploration) and 'alliances as knowledge access' (exploitation) illustrates the dual role of alliances: they facilitate the exploration and generation of

knowledge as well as its efficient use and application, which makes them valuable for companies when it comes to overcoming boundaries and increasing the efficiency of knowledge utilization (Grant and Baden-Fuller 2004). Contributing to the 'alliances as learning' thesis is the facilitation of the embedding of tacit knowledge through strategic alliances (Van Gils and Zwart 2009). Further, alliances provide a beneficial tool for knowledge development, as activities such as exchange, trade, cooperative development or the supply of goods, services or technologies are important to generate knowledge/expertise (Khamseh, Jolly, and Morel 2017). The thesis 'alliances as access to knowledge' is supported by the assumption that alliances enable businesses to create an expanded knowledge base that builds on existing knowledge (exploitation) (Ireland, Hitt, and Vaidyanath 2002; Mani, Ashnai, and Wang 2022; Panico 2017). This knowledge base also allows insights into the ongoing research of other companies and into products being developed for commercialization (Zahra and Hitt 2024), but also insights into foreign markets (overcome liabilities of foreignness) and cultures, which help to improve preparedness and develop more appropriate internationalization strategies (Baraldi et al. 2019; Glaister and Buckley 1996; Haase and Franco 2015; Nakos, Brouthers, and Dimitratos 2014). Knowledge spillovers, the unintended and unpaid transfer of knowledge between organizations, represent an opportunity to use & apply external knowledge in complementary (technological) areas for both the source and the recipient (Phene and Tallman 2014). Even for companies with international know-how, alliances can aid access to knowledge about expansion into new markets and the development of a multinational/global strategy (Glaister and Buckley 1996). With respect to skills/capabilities opportunities, building strategic alliances also provides start-ups with access to a network of complementary skills that combines competencies and capabilities while minimizing redundancies, conflicts and complexity (Baum, Calabrese, and Silverman 2000; Haase and Franco 2015; Lunnan and Haugland 2008; Sambasivan et al. 2013; Taylor 2005). Moreover, alliances play a crucial role in supporting SMEs in developing various new capabilities across organizational boundaries and specialized know-how, which is essential for the post-market entry period through their alliance partners (Panico 2017; Zahoor, Al-Tabbaa, and Khan 2023). In terms of competencies, alliances are also a crucial source, whether to create new ones (Arora, Belenzon, and Pataconi 2021; Phene and Tallman 2014), or to preserve existing ones so that they do not become rigid core competencies, which would limit the company's competitiveness and ability to succeed in the dynamic market (Ireland, Hitt, and Vaidyanath 2002; Sambasivan et al. 2013). Kohtamäki, Rabetino, and Huikkola (2023) also identified learning opportunities through alliances by dividing learning in alliances into four sub-areas. First, 'Learning in strategic alliances' emphasizes firm-level factors with a strategic focus that enable value creation from alliances, such as absorptive capacity (Kohtamäki, Rabetino, and Huikkola 2023). Alliances increase a company's competitiveness by promoting rapid learning and change, especially under complicated and volatile conditions (Hoffmann and Schlosser 2001; Van Gils and Zwart 2009). Another way of learning through strategic alliances is through 'relationship learning', which emphasizes the marketing perspective and focuses specifically on distribution chains and learning in the relationships between manufacturers and distributors as a context (Kohtamäki, Rabetino, and Huikkola 2023). The third area of learning opportunity is 'learning in innovation networks', which represents the learning of partners and their impact

on innovation performance, precisely through the sharing of knowledge and the combination of complementary skills. It provides opportunities through asymmetries in knowledge and skills that shape learning in innovation networks as part of a two-way innovation process, with the absorptive capacity of partners playing a key role in this process (Kohtamäki, Rabetino, and Huikkola 2023). Indeed, international strategic alliances have proven to be useful for sharing and absorbing innovation and organizational learning experiences (Haase and Franco 2015). The last opportunity cluster, namely 'Learning in social networks', looks at learning opportunities especially through the lens of social interaction within an alliance, collaboration and social embeddedness (Kohtamäki, Rabetino, and Huikkola 2023). Access to social capital of alliance partners plays a particularly important role here (Ireland, Hitt, and Vaidyanath 2002).

Due to the fact that there is extremely limited literature on knowledge/learning/skills opportunities related to green start-ups, a different approach is used here. Based on Bergset and Fichter's (2015) classification of different types of green start-ups and their characteristics, references are drawn to sources that present knowledge/learning opportunities through strategic alliances. The first type of green start-up is the 'alternative start-up', which is committed to sustainability and is often rooted in social or ecological movements and therefore brings a perspective that is characterized by personal values rather than a formal business education (Bergset and Fichter 2015). Kohtamäki, Rabetino, and Huikkola's (2023) 'learning in strategic alliances' sub-section, which emphasizes factors at company level that enable value creation from alliances, such as the ability to absorb economic knowledge, can be highlighted here. 'Relationship learning' can equally be applied here, as it focuses on distribution chains and learning in the relationships between manufacturers and distributors as context, which can benefit the founder's economic understanding (Kohtamäki, Rabetino, and Huikkola 2023). This is particularly relevant because a sustainable start-up with an excellent environmental and social value creation capacity & knowledge can achieve comparable economic results and absorb relevant knowledge by collaborating with other companies (Weissbrod and Bocken 2017). The second green start-up type is the 'visionary start-up' that is driven by a global sustainability mission, prioritizes its growth, and collaborates to meet real needs while maintaining its commitment to high-quality sustainable principles (Bergset and Fichter 2015). The focus here can be placed on Grant and Baden-Fuller's (2004) 'alliances as knowledge access' (exploitation) thesis. Such a knowledge base provides insights into other companies' ongoing research and products being developed for commercialization (Zahra and Hitt 2024), which can help them maintain high-quality, sustainable principles, but also insights into foreign markets to overcome their liabilities of foreignness and drive growth (Baraldi et al. 2019; Nakos, Brouthers, and Dimitratos 2014). The third green start-up type 'inventive start-up' is characterized by highly innovative entrepreneurs who possess strong technical skills and often a social commitment to their community, but have limited formal business education or experience due to their technical or inventive background (Bergset and Fichter 2015). Kohtamäki, Rabetino, and Huikkola's (2023) 'learning in strategic alliances' subfield can be exclusively cited for this, which provides them with opportunities to absorb economic knowledge from the other alliance partners. The fourth green start-up type is the 'ecopreneurial start-up', where entrepreneurs are primarily economically motivated and strongly market-oriented, as they

identify opportunities that are likely to be scalable and try to achieve high growth in a short period of time (Bergset and Fichter 2015). Since entrepreneurs are often not inventors themselves, they rely heavily on other people and possibly a larger network to realize their idea, which is why Kohtamäki, Rabetino, and Huikkola's (2023) last cluster 'learning in social networks' can be considered here in particular, which looks at learning opportunities especially through the lens of social interaction within an alliance, collaboration and social embeddedness. Access to the Allianz partner's social capital therefore offers an opportunity to gain access to such a larger network (Ireland, Hitt, and Vaidyanath 2002). The last type of green start-up referred to is the 'unintentionally green start-up', which are motivated by economic factors and often have an entrepreneurial background, contribute to sustainability by unintentionally occupying a niche for sustainable business activities and reflecting traditionalist values (Bergset and Fichter 2015). Here, opportunities for strategic alliances can be developed based on Hübel, Weissbrod, and Schaltegger's (2022) assumption that learning about sustainable alliance partners is more relevant to the overall process of sustainability-oriented alliance learning than learning from the partners themselves. Through this absorption of knowledge, expertise and operations, an unintentionally green start-up with an excellent economic value creation capacity & knowledge can achieve comparable environmental and social outcomes by collaborating with other companies (Weissbrod and Bocken 2017).

A detailed elaboration of the references used can be found in the appendix, the overview of general opportunities through strategic alliances is presented in the following table.

Area of Opportunities	Established companies & overall start-ups	Green Start-Ups
Technological Opportunities	➤ <i>Responding to radical technological change</i> ➤ <i>Technological knowledge spillovers</i> ➤ <i>Positive investor signals</i>	➤ <i>Promotion of legitimacy of technology</i> ➤ <i>Access to partner's sustainable technology</i> ➤ <i>Development of new sustainable technology</i> ➤ <i>Access to partner's customers & production capacity</i> ➤ <i>Technological progress</i>
(Green) Marketing Opportunities	➤ <i>New Marketing Knowledge</i> ➤ <i>Adaptation/Alignment to environmental dynamics</i> ➤ <i>Promotion international credibility</i>	➤ <i>Combination of reputations & strengths</i> ➤ <i>Creating trust & credibility among target groups</i> ➤ <i>Bringing products to specific markets</i>
Political/Institutional Opportunities	➤ <i>Get around trade restrictions of the foreign country</i>	➤ <i>Creation of beneficial institutional conditions</i>

Area of Opportunities	Established companies & overall start-ups	Green Start-Ups
	➤ Access to government relationships ➤ Access to market/regulation-specific knowledge	➤ Access to social resources (credibility) ➤ Conformity with host government's regulations ➤ Better predictability of future regulatory changes
Business Model Opportunities	➤ Improved adaptation of the value proposition ➤ Improved value creation through unique & idiosyncratic resources ➤ Enhanced value capture through control over inputs, reduced risks & economies of scale	➤ Improved value proposition along the triple bottom line ➤ Value creation: Overcoming mission drift in relation to triple bottom line ➤ Improved value capture from external resources
Market opportunities	➤ Facilitating access to new & unfamiliar markets ➤ Access to market knowledge through knowledge spillovers ➤ More efficient response to market dynamics ➤ Overcoming market distance ➤ Increasing competitiveness ➤ Source of market legitimacy	➤ Overcome market failure & inefficiencies ➤ Increase credibility & legitimacy ➤ Overcome customer inertia ➤ Escaping the 'Green Prison' ➤ Overcoming the 'disruptor's dilemma'
Strategic/Scaling opportunities	➤ Identification of growth opportunities ➤ Accommodation with host government policy ➤ Resource allocation & process optimization ➤ Better response to changes in environment	➤ Factors like venture internal factors, Ecological-oriented business practices, Sustainable entrepreneurship, Access to knowledge and networks, Regulatory and policy support, Technological innovation and adoption, Organizational culture and leadership all improved by access to further knowledge ➤ Factors like access to financial resources, Market demand and customer acceptance, Intellectual property protection all improved by resource-pooling

Area of Opportunities	Established companies & overall start-ups	Green Start-Ups
Resource opportunities	➤ Access to resources characterized by imperfect mobility through platform for exchange & sharing ➤ Access to imperfect imitable resources through closing of critical resource gaps ➤ Access to imperfect substitutable resources through unique and idiosyncratic resources ➤ Pooling of complementary resources & capabilities	➤ Access to resources characterized by imperfect mobility, e.g. through legitimacy & the associated reputation ➤ Access to imperfect imitable resources that help to overcome causal ambiguity ➤ Access to imperfect substitutable resources to meet their triple-bottom-line value creation
Knowledge/Skills/Learning opportunities	➤ Possible knowledge generation ('exploration') in strategic alliances ➤ Possible knowledge application ('exploitation') in strategic alliances ➤ Knowledge spillovers ➤ Network of complementary skills ➤ Development of new capabilities ➤ Preserve competencies not to become rigid core ones ➤ Four sub-areas of learning opportunities	➤ Alternative start-ups can absorb economic knowledge of partners ➤ Visionary start-ups can access growth & market knowledge of partners ➤ Inventive start-ups can absorb economic knowledge of partners ➤ Ecopreneurial start-ups can learn from social networks/capital of partners ➤ Unintentionally green start-ups can absorb environmental & social knowledge of partners

Table 2: Opportunities through strategic alliances, Own Illustration (2024)

2.2.3. Success factors of strategic alliances (networks)

In the following section, no distinction is made between conventional companies and green start-ups referred to with regard to the success factors of strategic alliances. Nor is always the order of occurrence of relevant sources on the respective topics taken into account, but rather the component of the alliance life cycle. The factors that contribute significantly to the success of strategic alliances are addressed in the following section. This is grounded in the general temporal context of Hoffmann and Schlosser (2001), who divide the success factors of strategic alliances in small and medium-sized enterprises into five phases, pertaining to different stages during the relationship development: the phase of strategic analysis and decision to collaborate, the phase of searching for a suitable partner & partner selection, the phase of design & governance of the alliance, the post-formation phase of implementation

and management of the alliance and finally, the termination of the alliance. This paper serves as a reference because green start-ups also represent small & medium sized companies and the findings therefore apply more effectively. Support for this temporal approach is further provided by other scholars (Lorange, Roos, and Brønn 1992; Prashant and Harbir 2009; Taylor 2005).

Phase 1: Strategic analysis and decision to collaborate

The first stage involves the company evaluating whether entering into a strategic alliance represents a suitable means of overcoming the challenges of dynamic market conditions and the lack of access to necessary resources and knowledge.

Two factors come into play first in the analysis and ultimately in the decision: the *strategic flexibility* required due to the dynamic market conditions and, at the same time, the *need for control*, or more precisely the asset-specificity, which makes an alliance appear to be a suitable option if there is a high need for the former and a low need for the latter (Hoffmann and Schlosser 2001). The formation of alliances requires the management of complicated strategic interactions within interorganizational relationships that combine cooperation and competition, thus prompting companies to invest in value creation and leading to a decision on how much control and (a)symmetrical dependence is required and can be carefully managed (Panico 2017).

Furthermore, there remains the need to *identify one's own specific strengths* and, building on these, to *search for complementary (or similar) resources* (Hoffmann and Schlosser 2001). A company looking for alliance partners must have something to offer ('surplus resources') and look for complementary or similar resources to transfer or bundle (Das and Teng 2000; Hoffmann and Schlosser 2001). This can lead to a high degree of dependency between companies across company boundaries, especially if a partner's resources are considered valuable and important for its own value creation and competitive advantage, which is why this also entails the level of controlling (Lunnan and Haugland 2008). Start-ups in particular, with limited resources, will likely have to make at least some trade-offs when deciding what type of resources to invest in - whether in an alliance capability, relationship resources and/or idiosyncratic resources (Wittmann, Hunt, and Arnett 2009).

Also, it is essential to *derive alliance goals* for the company itself from its own corporate strategy or to align them in order to ensure the strategic value of the alliance (Hoffmann and Schlosser 2001; Lorange, Roos, and Brønn 1992; Lunnan and Haugland 2008; Tziva et al. 2021). The strategic analysis must therefore assess whether and how an alliance can improve the company's overall strategic position in the intended domain (Hoffmann and Schlosser 2001). Lorange, Roos, and Brønn (1992) developed four generic strategy motives that need to be identified and that can be achieved by forming an alliance. These are the defense strategy (additional access to new competencies, markets, technologies or specific resources in order to maintain a competitive advantage in the long term), the catch-up strategy (strengthening a company's competitive position and enabling it to take on a leading role), the retain strategy

(companies with a marginal business area that want to maintain their presence and maximize their efficiency) and the restructure strategy (restructuring the business area or even abandoning it) (Lorange, Roos, and Brønn 1992). With regard to green start-ups, for instance, strategic motives may also be attributable to regulatory conditions in the target market that need to be aligned with the help of a catch-up strategy (Tziva et al. 2021).

If one of the main purposes of the strategic alliance is to enhance knowledge, the strategic analysis must also be conducted to decide whether the goal is *to acquire knowledge or to access existing knowledge*, in line with the company's strategic orientation (Grant and Baden-Fuller 2004). Since one of the primary advantages of alliances is access to knowledge, it becomes crucial to analyze in which areas exactly knowledge is required and which knowledge is needed in order to develop a complementary knowledge base by selecting the most suitable partners (Grant and Baden-Fuller 2004).

Finally, expectations regarding the *time horizon* must be elaborated, as it can often require a considerable period of time for strategic alliances to achieve their identified objectives, if only because the development of the alliance takes a long time (Hoffmann and Schlosser 2001). Whether an alliance would require a short or long longevity is an executive decision that ought to take place prior to the formal formation of the alliance (Rahman and Korn 2014). Rahman and Korn (2014) assert that the greater the misalignment between the preferences for the alliance horizon, the more difficult it will become to negotiate an agreement on the alliance horizon. This decision on which type of long-termism is appropriate for a company depends not only on the complexity of the cooperation project, but also on the previously mentioned resources available for deployment (Rahman and Korn 2014).

It becomes evident that before the actual process of selecting suitable partners can even begin, numerous factors must be considered to determine whether a strategic alliance represents the right approach and, if so, which strategic goals should be the focus of the company. The overview of success factors in the phase of strategic analysis and decision to collaborate is presented in the following figure.

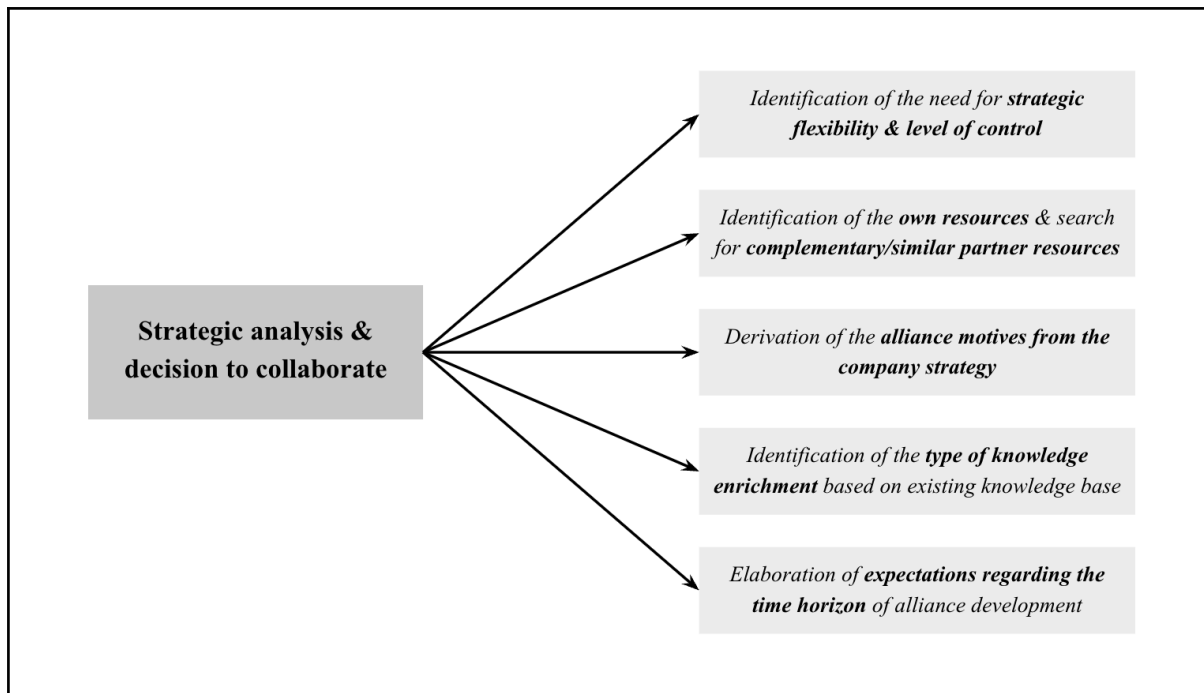


Figure 2: Success factors - Phase 1, Own Illustration (2024)

Phase 2: Searching for a suitable partner & partner selection

In general, companies that have opted to enter into a strategic alliance need to ensure a high level of alignment with their potential partners, as a lack of alignment can ruin a potentially valuable collaboration (Ireland, Hitt, and Vaidyanath 2002; Russo and Cesarani 2017). Cooperation with other companies, especially from other countries, constitutes a serious commitment and therefore this process requires careful planning and selection of allies, gathering detailed information about the future partner and its objectives (Haase and Franco 2015).

Building on *established trust-based relationships* is therefore the first stage, as trust not only reduces the need for control, but also lowers transaction costs and ultimately leads to greater benefits from the relationship (Hoffmann and Schlosser 2001). The development of trust already begins in the partner selection phase, in which one party forms an initial mental image of the other party with which it will enter into the alliance (Boersma, Buckley, and Ghauri 2003). For Boersma, Buckley, and Ghauri (2003) trust is built in this phase of the alliance through promissory, goodwill and competence. Choosing a partner with an expectation of trust, a willingness to gradually but continuously disclose the company's strategic goals for the alliance while partners do the same, and showing patience provides the foundation (Ireland, Hitt, and Vaidyanath 2002). This runs through the entire alliance life cycle and therefore plays a particularly crucial role at the beginning.

The selection of a partner with matching values, particularly in terms of *cultural fit*, and a shared philosophy follows on from this and underlines the necessity of this for the long-term success of an alliance (Hoffmann and Schlosser 2001; Kale, Dyer, and Singh 2002). Swoboda et al. (2011) see this cultural fit as an implicit aspect of the configuration fit at a personal

level. A match between the basic ethical and moral values of the partners and between their openness, their management and leadership style and their risk and security orientation has a positive effect on the alliance (Swoboda et al. 2011).

Prashant and Harbir (2009) further identify the critical importance of *complementarity, compatibility and commitment* when selecting alliance partners. Complementarity provides certainty of positive outcomes due to the complementarity or overlap of resources, products or competencies, while compatibility focuses on the fit of working styles and cultures (Nielsen 2007; Prashant and Harbir 2009). Cooperation partners who have complementary (or similar) resources can create synergies in combination (Hoffmann and Schlosser 2001). Partner commitment is emphasized as particularly important, as it requires their willingness to commit valuable resources to the relationship and to commit to working together despite possible adjustments, but can be problematic to measure (Prashant and Harbir 2009).

In addition, attention should be paid to a sustainably *differentiated but partially overlapping skills* base when selecting partners. This contributes to the success of the alliance, as the learning of skills enables the partners to work more closely together in the fulfillment of the alliance tasks, while a low learning of skills raises doubts about the effectiveness of the alliance and mistrust of the partner's motives (Doz 2007). Hoffmann and Schlosser (2001) also argue that certain strengths of the partner are essential in the area of cooperation, as the company's own resource endowment should be supplemented by access to the partner's resources, which can certainly facilitate good cooperation skills.

Khamseh, Jolly, and Morel (2017) describe the need for an *exploratory mindset* for companies as the most efficient learning mode. A potential partner with interesting knowledge does not represent a real opportunity for the company if the company is not able to take a flexible, self-challenging approach to adopting the external knowledge (Khamseh, Jolly, and Morel 2017). This must be accompanied by an exploratory attitude on the part of the partner, otherwise an inefficient approach to utilizing the external knowledge may occur due to the fact that interacting with unknown knowledge and then deciphering and integrating it into innovative processes is arduous (Khamseh, Jolly, and Morel 2017).

According to Das and Teng's (2000) findings, certain *resource profiles* of suitable partners should be characterized by attributes such as imperfect mobility, imperfect imitability and imperfect substitutability in order to promise increased value creation. In terms of alliance portfolios, Wassmer and Dussauge (2011) represent value creation at the level of the alliance portfolio through a function of benefits arising from synergistic combinations of network resources accessed through alliances with different partners, as well as costs arising from the substitutability of resource combinations between the focal company and its alliance partners. When searching for suitable additional alliance partners, care must therefore be taken to ensure that these partners can provide network resources with the highest value enhancement potential and that their resources are not substitutable (Wassmer and Dussauge 2011). This non-substitutability of the partners should also be sought with regard to their knowledge through a balance between similarity and dissimilarity. The substitutability of the partners

here, i.e. the fact that the focal company benefits less by appropriating the knowledge of both partners than by appropriating the knowledge of only one partner, has opposing effects on value creation and capture (Arora, Belenzon, and Pataconi 2021).

For Nielsen (2007), *reputational considerations* in relation to potential partners also take on an additional significance for a company's potential in alliances, as these determine the perceived status of the company and can serve as a source of legitimacy. This applies in particular to companies entering new markets or sectors or working together across national borders, as cooperation with a well-known company can signal quality and trustworthiness and thus serve as the basis for a positive assessment by a potential partner (Nielsen 2007).

An additional critical determinant for the successful selection of an alliance partner is the partner's degree of *country risk*. If companies are confronted with conditions that prove to be uncertain and unfavorable in the target market, the choice of a suitable alliance partner is of vital importance. Generally considered, country risk encompasses public institutions and political measures created by governments as a framework for economic, legal and social relations (Nielsen 2007). The elements that determine country risk could therefore include: an effective, impartial and transparent legal system that protects property and individual rights; stable, credible and honest public institutions; and government policies that promote free and open markets (Nielsen 2007). In the case of green start-ups, there are additional elements such as existing environmental regulations, the environmental awareness of institutions and the chance that the planned legislation will change or not be enacted, which could be risky for green entrepreneurs (Gast, Gundolf, and Cesinger 2017; Sreenivasan and Suresh 2023). For instance, abrupt legislative changes in taxes, incentives, etc. can alter the sector's market opportunities (Sreenivasan and Suresh 2023).

A final factor to consider in the selection of a suitable alliance partner involves the *existing alliance experience* of a potential partner company. According to Zollo, Reuer, and Singh (2002), the literature consensus is that the accumulation of a company's experience in an organizational activity leads to improved performance in that activity. Companies accumulate a collective understanding of how to perform organizational tasks, which is tacitly updated and refined (i.e. without explicit articulation or codification) to achieve continuous marginal improvements in performance (Zollo, Reuer, and Singh 2002). This implies that a partner with a more distinctive general alliance experience is better suited than an inexperienced firm (Rahman and Korn 2014; Russo and Cesarani 2017). Careful observation of the quality of the company's existing interorganizational routines developed from previous alliance experience should therefore be considered in the alliance formation phase when selecting partners (Doz 2007; Zollo, Reuer, and Singh 2002). With respect to partner-specific alliance experience, it can also be argued that existing one can be considered beneficial. As the alliance partners work out the operational details of the cooperation agreement, both develop a more detailed understanding of each other's culture, management systems, capabilities, shortcomings and so on (Zollo, Reuer, and Singh 2002). By participating in multiple alliances over time, the partners can tacitly develop a set of routines that form the basis for their interaction with each other and have a lasting impact on the effectiveness of an alliance (Zollo, Reuer, and Singh

2002). However, from a long-term strategic perspective, it should also be considered that studies exist that found previous alliance experience can indeed have negative long-term effects, which contradicts studies suggesting that alliance capabilities, often used as proxy for a firm's alliance experience, are beneficial for alliance outcomes (Kale, Dyer, and Singh 2002; Lunnan and Haugland 2008). One explanation for this could lie in the circumstance that almost every alliance poses unique challenges and the sole application of previous experience can have negative effects (Lunnan and Haugland 2008). This aspect should therefore be evaluated in conjunction with the general excellence of the partner's ability to cooperate mentioned above.

The overview of success factors in the phase of searching for a suitable partner and partner selection is presented in the following figure.

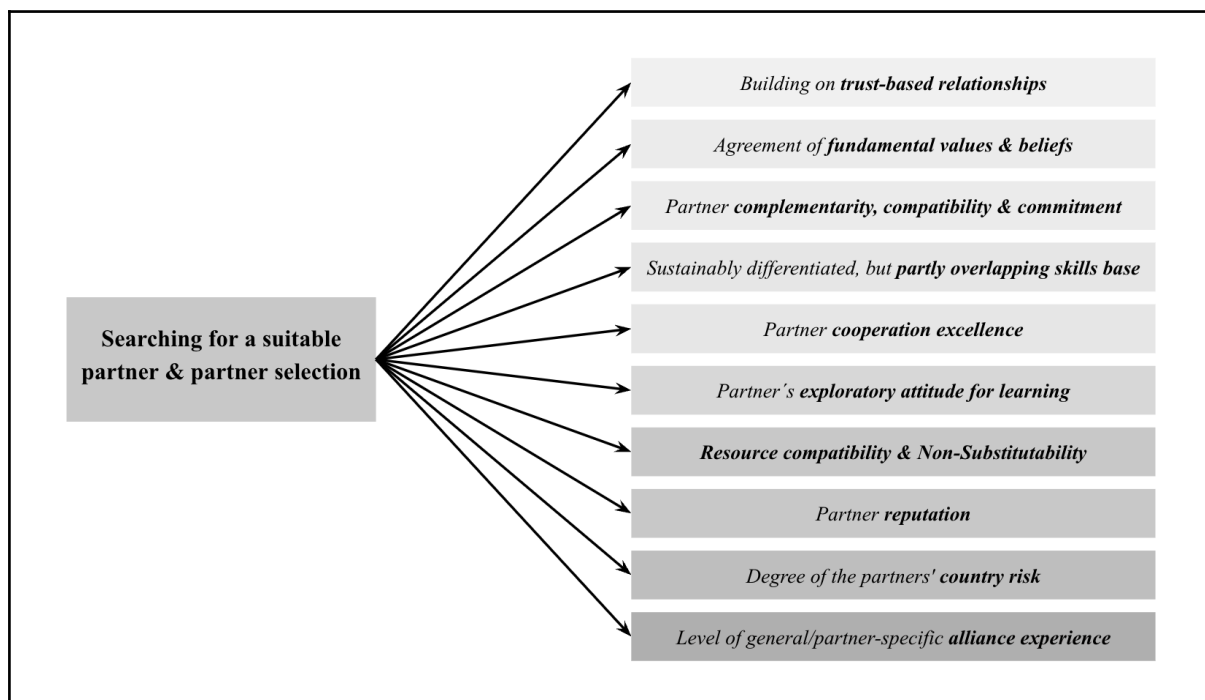


Figure 3: Success factors - Phase 2, Own Illustration (2024)

Phase 3: Design & Governance of the alliance

The following phase is based on Prashant and Harbir's (2009) and Krishnan, Geyskens, and Steenkamp's (2016) classifications and their key governance mechanisms applied in strategic alliances and, building on this, the success factors developed by Hoffmann and Schlosser (2001) serve partly as generic categories for an in-depth examination of these in subcategories. A company faces a range of risks through an alliance that can have a negative impact on the company itself or its partner, so the way a company shapes the governance of an alliance in the planning phase of the alliance lifecycle is critical to the success of the alliance. Three main mechanisms for addressing governance issues in alliances emerge as key considerations: (Non) equity ownership governance, contractual governance and relational governance (Krishnan, Geyskens, and Steenkamp 2016; Prashant and Harbir 2009). It is

crucial to emphasize that these approaches are not mutually exclusive (Hoetker and Mellewigt 2009).

Prashant and Harbir's (2009) first mechanism to consider the effective governance of alliances relates to the *level of (non-)equity ownership*. When forming an alliance, companies must carefully consider the relative extent of their control over resources and the resulting (a)symmetrical dependence (Panico 2017). According to Rahman and Korn (2014), the alliance with symmetric control between partners is less susceptible to termination, but the enhanced threat of opportunistic behavior increases the pressure to race for power, and even more resources are wasted on efforts to increase value. In contrast, under asymmetric control, the calculative logic of trust is more effective in high value and high frequency alliances (Rahman and Korn 2014). This coincides with Hoffmann and Schlosser's (2001) statement on reciprocity between the partners as an essential dimension in evaluating the performance of an alliance. The focus here is therefore also on the power structure in the alliance, which leads to instability if it is unevenly distributed (Hoffmann and Schlosser 2001). It is therefore a requirement that each partner contributes equal resources at each stage in order to create a platform for the partners to collaborate, exchange information and coordinate their tasks (Hoffmann and Schlosser 2001; Ma et al. 2012). Those hierarchical structures can assist when the partner's reputation is unknown and the focal company expects opportunism from the partner as a result of the high level of behavioral uncertainty and the specificity of the assets (Rahman and Korn 2014). Consequently, when there remains a general uncertainty about market conditions, the equity-based alliance represents an efficient form, as it has the characteristics of 'mutual hostages' (through equity commitment & care for the alliance and its outcome), facilitates hierarchical monitoring and creates an incentive through a proportion of the profits for all partners (Prashant and Harbir 2009). By contrast, the least hierarchical structure relates to the non-equity structure, which is based on contractual agreements, involves no co-ownership or exchange of equity and has no management structure to oversee the partnership (Rahman and Korn 2014). The method by which (bilateral) contractual agreements define the alignment of incentives here constitutes an important feature that characterizes those partnerships without equity ownership (Niesten and Jolink 2018). In such cases, the use of a steering committee that continuously monitors the alliance and is thus able to counteract opportunistic behavior provides assistance (Lorange, Roos, and Brønn 1992). Furthermore, according to Zollo, Reuer, and Singh (2002), a focus can be placed on prior partner-specific alliance experience, as this is considered a substitutive coordination mechanism for equity governance. The assumption here holds that companies without prior relationships benefit from an alliance with equity participation, while an alliance without equity participation is preferable as soon as the companies have a prior relationship (Zollo, Reuer, and Singh 2002).

Prashant and Harbir (2009) identify the *contractual provisions* in the alliance agreement as the second mechanism for effective governance. This so-called contractual governance refers to the use of a comprehensive set of provisions and clauses that define mutual rights and obligations and provide for legal and private sanctions in the event of non-compliance (Krishnan, Geyskens, and Steenkamp 2016). Five factors contribute significantly to the

success of the Alliance's planning with regard to its governance structure. First, according to Hoffmann and Schlosser (2001), precise goals and tasks should be defined from the start in order to minimize behavioral uncertainty and the resulting need for control. Frequent disputes about the duties of cooperation and the distribution of output (rights) otherwise cause high costs for conflict resolution, which impairs the benefits of cooperation (Hoffmann and Schlosser 2001). These should include rules regarding inputs, processes, dispute resolution and expected outcomes (Doz 2007; Prashant and Harbir 2009). Second, in the planning phase of the alliance, ways to minimize disputes over 'outlearning' and, as a result, to preserve and protect core competencies should be considered (Hoffmann and Schlosser 2001; Ireland, Hitt, and Vaidyanath 2002). The acquisition of new technologies or capabilities by one partner may be seen as an undesirable drain on the other partner's proprietary expertise, jeopardizing its own competitiveness (Hoffmann and Schlosser 2001). Thus, enforcement provisions relating to intellectual property protection and detection of infringements can counteract this, setting limits on each party and improving monitoring, thus limiting potential opportunism (Hoetker and Mellewigt 2009; Krishnan, Geyskens, and Steenkamp 2016; Prashant and Harbir 2009). In ultimate cases, the court can impose sanctions by imposing binding contractual terms (Krishnan, Geyskens, and Steenkamp 2016). Third, the agreement of clear and realistic goals for the initial phase of the collaboration should be considered in the design phase, as these ensure concrete implementation steps and early successes and drive the development of the alliance (Hoffmann and Schlosser 2001). The main role of managers is to foster converging expectations by communicating to reduce the uncertainty created by separate judgments of interdependent parties (Agarwal, Croson, and Mahoney 2010). Fourth, the determination of intra- and inter-firm competitive information flows by partners should equally be considered to promote learning and adaptability between partners (Ireland, Hitt, and Vaidyanath 2002; Prashant and Harbir 2009). This contractual information flow governance enables a coordinated response to changes in uncertain environmental conditions, as partners need not only to share information in a timely manner but also to rapidly coordinate on an appropriate response (Krishnan, Geyskens, and Steenkamp 2016). Fifth, anticipated milestones should be defined in an implementation plan, which can serve as a basis for a targeted and controlled implementation of the alliance (Hoffmann and Schlosser 2001). In contrast to the five factors, however, too much hierarchical control in the form of contracts and formal agreements should also be avoided, as otherwise the alliance forfeits its living organism and tends to take on sterile traits (Taylor 2005). In his research, Taylor (2005) found that respondents tended to rely more on informal relationships and networks than on formal mechanisms. Moreover, formal governance mechanisms incur costs both initially (the cost of negotiating and designing the mechanisms to be used) and during an alliance (the cost of gathering and collating information, preparing and providing documents) (Hoetker and Mellewigt 2009). Thus, too strong contractual and formal agreements also lead to a certain degree of protectionism, which has a negative impact on knowledge transfer and ultimately the performance of the alliance (Nielsen 2007).

The self-enforcing governance described by Prashant and Harbir (2009), often and also here referred to as '*relational governance*', is the third mechanism for creating efficient and sustained alliance governance that needs to be considered. These refer to mechanisms that

promote the development of trust, goodwill, reputation and social identification (Hoetker and Mellewigt 2009; Prashant and Harbir 2009). Examples include committees, working groups and joint problem-solving (Hoetker and Mellewigt 2009). In this way, conflicts can be resolved on the basis of transparent communication and a preference for non-opportunistic win-win solutions (Hoetker and Mellewigt 2009). Hoffmann and Schlosser (2001) also describe prioritizing this joint creation of added value, i.e. spending less time arguing about the distribution of the joint 'cake' and instead focusing on making the joint 'cake' as big as possible, as an essential success factor in the planning of the governance structure. Relational governance mechanisms can foster such collaboration in the implementation of value creation initiatives that require the sharing of tacit knowledge between partners, the exchange of hard-to-price resources and the offering of answers that are not explicitly provided for in the contract (Prashant and Harbir 2009). Also, transaction costs such as costs for complex adjustments or monitoring costs can be reduced as there is a willingness for flexible response and no external supervision by third parties is required (Prashant and Harbir 2009). And lastly, it can serve as an effective means of overseeing and controlling the behavior of the partners if it is based on a certain resource dependency between the partners (Prashant and Harbir 2009). However, there remain disadvantageous aspects, which are mainly associated with considerable costs in terms of time and resource allocation (Hoetker and Mellewigt 2009). In terms of costs, for instance, Hoetker and Mellewigt (2009) emphasize the fact that managers and engineers have to travel between company locations, which takes up a considerable amount of time. Another essential component of the relational governance mechanism is trust. In an alliance context, trust suggests that a partner's actions will meet expectations, including the absence of opportunistic behavior (Ireland, Hitt, and Vaidyanath 2002). Krishnan, Geyskens, and Steenkamp (2016) divide it into integrity-based and benevolence-based trust, with the former representing the confidence that partners possess a strong sense of fairness and that neither side will engage in behavior that violates a set of principles that the partners deem acceptable. Benevolence-based trust, in contrast, describes the trust that partners will not behave selfishly because they believe that the other 'intends to act benevolently apart from a self-centered profit motive' (Krishnan, Geyskens, and Steenkamp 2016). The primary benefit of the presence of trust-based governance comes from the bilateral expectation that partners will not exploit each other's vulnerabilities (Krishnan, Geyskens, and Steenkamp 2016; Wittmann, Hunt, and Arnett 2009). This can be built up during negotiations through unilateral commitments that also emphasize the importance of the planned partnership and this mutual trustworthiness (Hoffmann and Schlosser 2001). Otherwise, a lack of trust in the future behavior of the partners leads to the need to take costly security precautions against opportunistic behavior, which in turn leads to increased transaction costs again (Hoffmann and Schlosser 2001). However, side effects must also be taken into account here. For example, while trust reduces the need for mutual monitoring of uncertain behavior, it can create a systematic bias that can lead to erroneous judgments and an inappropriate response to environmental changes (Krishnan, Geyskens, and Steenkamp 2016). It may also be accompanied by an immediate decline in performance due to the adoption of some aspects of internal supply that reduce incentives (Hoetker and Mellewigt 2009). These can be a more frequent granting of second chances or a greater willingness to negotiate unexpected cost increases (Hoetker and Mellewigt 2009). The creation and

maintenance of trust thus acts as a significant component of the relational governance mechanism in strategic alliances, minimizing the need for mutual monitoring of uncertain behavior, but potential side effects such as systematic bias and performance degradation must also be considered.

Strategic decisions on the governance of alliances require an understanding of the relationships between these governance mechanisms. Contractual complexity, for instance, does not differ between equity and non-equity alliances, implying that equity alone is not sufficient to ensure successful alliance governance, as they may even complement each other (Prashant and Harbir 2009). There remains also no consensus on the interaction of formal and informal governance, whether one type of mechanism replaces or supplants the other or whether they complement each other, so that relational governance reinforces the positive effects of formal governance and enables partners to accept formal contractual governance more easily despite the incompleteness and ambiguity of contractual clauses (Prashant and Harbir 2009). In Taylor's (2005) research, respondents relied more on the informal relationships and networks that develop trust and engagement than on formal mechanisms. Krishnan, Geyskens, and Steenkamp (2016) also include behavioral and environmental uncertainty as significant influencing factors that should guide the decision on governance. Hoetker and Mellewigt (2009) integrate the characteristics of property-based and knowledge-based assets as part of the process of consideration. Ultimately, it depends above all on whether the performance of the alliance should be made measurable with the help of security measures or in view of the characteristics of the transactions involved (Prashant and Harbir 2009).

The overview of success factors in the phase design and governance of the alliance is presented in the following figure.

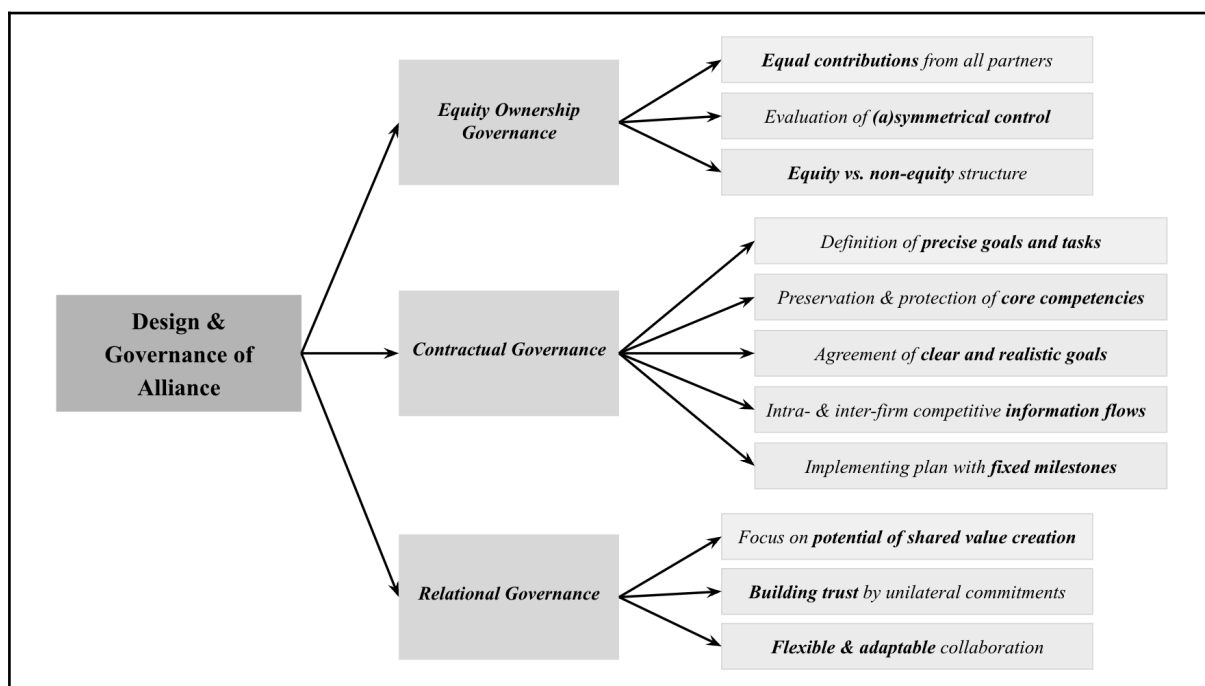


Figure 4: Success factors - Phase 3, Own Illustration (2024)

Phase 4: Post-formation phase of implementation & management of the alliance

Although strategic analysis, optimal partner selection and the selection of the most strategically appropriate governance structure are of fundamental significance for the prosperity of a strategic alliance, this must be proactively managed and maintained in the subsequent process. In this context, the focus needs to be placed on several factors, which are elaborated in the following by working out the statements by Prashant and Harbir (2009), Hoffmann and Schlosser (2001), and Russo and Cesarani (2017) in a cumulative framework with factors displayed in ascending order of occurrence or relevance.

Once the basic rules and framework for the alliance have been agreed, an *initial collaborative pilot project* should be initiated and carried out to familiarize the partners quickly (Hoffmann and Schlosser 2001; Tziva et al. 2021). Hoffmann and Schlosser (2001) suggest that rapid measurable successes generate a dynamic that not only counteracts distance and remaining skepticism, but also strengthens the entire alliance management.

According to Hoffmann and Schlosser (2001), the *commitment and support of top management* represents an important success criterion in the implementation phase of an alliance. This provides both encouragement and the provision of sufficient resources (e.g. personnel, travel, technology, material equipment, but also financially) for personnel directly involved in the alliance activities (Whipple and Frankel 2000). It is therefore crucial to involve such top management in the alliance or, if applicable, to align it with them (Lorange, Roos, and Brønn 1992).

Given the strong interdependence between the partners, *conflicts* are frequent in alliance relationships; the success factor lies in the way in which they are managed and resolved (Russo and Cesarani 2017). Russo and Cesarani (2017) see the main causes of alliance conflicts in organizational, administrative and cultural differences between the partners, in other words in the asymmetry of input and output factors. There consequently ought to be a focus on equality, which ensures the equivalent commitment of each partner in the alliance cycle. However, as this frequently proves insufficient, suitable mechanisms must be created to resolve or escalate any conflicts that arise (Prashant and Harbir 2009). Further, Russo and Cesarani (2017) list different expectations on the alliance as a further reason for the emergence of conflicts, which is why it is important that goals are compatible and can be achieved simultaneously. This is consistent with Hoffmann and Schlosser's (2001) assertion in the design & governance phase of the alliance that precise goals and task definitions must be set and mutually agreed beforehand to avoid potential conflicts.

Continuous *performance evaluation* forms the foundation for monitoring the progress of the alliance throughout its lifecycle (Hoffmann and Schlosser 2001; Russo and Cesarani 2017). It enables an overview of the extent to which adjustments should be undertaken or even a termination of the cooperation should be considered (Tjemkes, Vos, and Burgers 2017). According to Russo and Cesarani (2017), partners must develop an integrated performance

evaluation approach composed of metrics that takes into account and evaluates all the various aspects of strategic alliance performance. These aspects include economic performance (Economic value of the alliance relationship), strategic performance (Alliance management effectiveness), operational performance (Efficiency and effectiveness of alliance process on a daily basis), learning performance (Outcome of learning process) and relational performance (Value of interpersonal relationship) and must be combined simultaneously (Russo and Cesarani 2017). Without such a continuous review, taking into account all aspects of performance, a company in an alliance cannot fully exploit the development potential of the alliance or may only realize that the collaboration takes a wrong direction when it is already too far advanced (Hoffmann and Schlosser 2001). However, on the basis of research in the supply chain sector, Whipple and Frankel (2000) note that there is still considerable room for improvement when using precisely defined (e.g. written) performance measurements, also because both partners entail their own performance expectations, which can harbor potential for conflict by focusing on the performance of merely one party.

The resource-based logic, as stated by Das and Teng (2000), suggests that the competitive advantage of alliances is based on the effective integration of the valuable resources of the partner companies. Therefore, it becomes essential that once the decision to collaborate has been made and the basic objectives have been aligned, *each partner provides the resources required* for the alliance (Hoffmann and Schlosser 2001). At this starting point, the partners should therefore not hesitate to invest in the partnership (Gudergan et al. 2012). Gudergan et al. (2012) also attribute better long-term performance to non-equity alliances in which the partners make greater resource efforts to fulfill the functional responsibilities assigned to them. The reason for taking this approach is that it can lead to a lock-in situation, as the investments outside the relationship have a lower value than those within (Lunnan and Haugland 2008). This increases the involvement of the partners and at the same time enables an initial building of trust between the companies. It also promotes an early examination and evaluation of the resources brought into the alliance in terms of their resource types and the resulting benefits (Das and Teng 2000). In this way, Das and Teng (2000) developed four types, more precisely supplementary and surplus resources, as well as complementary and wasteful resources. Here, complementary resources increase the value of the alliance through synergy, surplus resources remain unused but can serve as a kind of buffer against unforeseen circumstances, complementarity involves similar resources of different natures, and wasteful resources lead to inefficiencies (Das and Teng 2000). These categorizations serve as a framework to evaluate partner-provided resources, aligning them with alliance goals and deriving initial actionable insights. In essence, the prompt establishment of necessary resources in the alliance not only contributes to achieving alliance goals but also helps address property issues proactively at an early stage (Hoffmann and Schlosser 2001).

Also in the post-formation phase of an alliance, *trust building* remains one of the most critical factors for the success of such an alliance since each party depends on the other to satisfy mutual goals (Ireland, Hitt, and Vaidyanath 2002; Prashant and Harbir 2009; Whipple and Frankel 2000). While Krishnan, Geyskens, and Steenkamp (2016) subdivision in the formation of an alliance is carried out through integrity-based and benevolent trust, Jiang et

al. (2015) focus more on trust formation in the postformation phase. They categorize trust in this phase as competence trust (adequate resources & capabilities) and goodwill trust (integrity & good faith) and focus on the aforementioned resource sharing (Jiang et al. 2015). Their study results indicate that the sharing of tangible resources is facilitated by goodwill trust alone, while the sharing of intangible resources is facilitated by both goodwill and competence trust. Alliance managers consequently need to consider that both goodwill trust and competence trust are viable means to improve the sharing of resources among partners and consequently the performance of the alliance (Jiang et al. 2015). Prashant and Harbir (2009) elaborate on three trust-building mechanisms that contribute to the developing of both aspects of trust: as in the formation phase, trust should be demonstrated through unilateral commitments, but also by showing trustworthiness through honoring commitments (diligently honoring all commitments, ensuring that it only commits to actions that are within its capabilities and power), and by building interpersonal trust (associated with the social bonds that develop between these individuals through interaction). A high level of trust assists partners to reduce their resistance to the use of formal process control mechanisms as performance factors, as the latter, when complemented by trust, make the coordination of an alliance's day-to-day activities more effective (Balboni, Marchi, and Vignola 2018). These coordination mechanisms will be considered in more detail in a subsequent section. Because of its importance, alliance managers should therefore not only work to build trust when forming alliances, but also place great emphasis on it in the further alliance life cycle stage, especially with regard to the sharing of tangible and intangible resources.

As already outlined by Phene and Tallman (2014) previously, knowledge spillovers, i.e. the unintended and unpaid transfer of knowledge between organizations, offer both partners the opportunity to use and apply external knowledge in complementary areas. Nevertheless, attention must be paid to *preventing the unwanted outflow of knowledge* (Hoffmann and Schlosser 2001). Continuous monitoring of the exchange of information and a conscious increase in knowledge-related mobility barriers in order to protect its core resources appear to Hoffmann and Schlosser (2001) to be decisive success factors. Also, Ireland, Hitt, and Vaidyanath (2002) emphasize here that in order to maintain the alliance and promote learning between the partners, each company must regulate the flow of competitively relevant information to its partner and at the same time safeguard proprietary knowledge. However, according to Nielsen (2007), excessive protectiveness has a negative impact on the transfer of knowledge and the performance of the alliance, as it can be an obstacle to effective alliance management and thus lead to uncertainty and misunderstandings. He therefore describes successful cooperation in strategic alliances with a degree of protectiveness that should be the lowest possible. It thus requires consideration, also based on control mechanisms and the level of trust, to what extent and to what degree knowledge sharing should take place.

Based on transaction cost economics, Hoffmann and Schlosser (2001) emphasize the need for an *information and coordination system* that connects all alliance units. A clear coordination process is core to the success of an alliance as how partners deal with changes in their internal and external environments requires continual adjustment to maintain their focus on achieving their goals (Dhaundiyal and Coughlan 2022). To this end, they bring modern

information and communication technologies into play, which can significantly reduce ongoing transaction costs and contribute to efficiency. Through such communication technology, managers may plan, organize, and provide initial and follow-up feedback when they communicate effectively, which can diminish fears of opportunism, mitigate issues with restricted rationality, and decrease defection from cooperative outcomes (Agarwal, Croson, and Mahoney 2010). In addition, (Kale, Dyer, and Singh 2001) attribute greater influence to the existence of an alliance structure for managing internal coordination than to alliance experience. Prashant and Harbir (2009) identify three classic mechanisms for establishing an information and coordination system: programming, hierarchy, and feedback. Programming facilitates coordination by providing clear guidelines on tasks, accountability, and implementation timelines, thereby enhancing clarity, predictability, and decision-making speed among partners (Prashant and Harbir 2009). Hierarchy involves establishing formal roles with decision-making authority to oversee partner interactions and facilitate information and resource sharing (Prashant and Harbir 2009). Feedback mechanisms like joint teams or collocation aid partners in promptly sharing information, mobilizing resources and adapting to evolving interdependence (Prashant and Harbir 2009). Coordination problems refer to the difficulties in coordinating actions between partners and can occur even when partners' interests are fully aligned, so it is recommended to jointly integrate a coordination and information system that takes into account the three mechanisms mentioned.

Gudergan et al. (2012) describe the need in establishing the alliance not to limit the adaptability of its efforts in order to take advantage of changing circumstances more efficiently. However, *continuous improvement and adaptation* of the cooperation process, in particular the willingness to be flexible about the alliance objectives, remains crucial during the post-formation phase of the alliance, as the partners must recognize their differences in structures, processes and routines of action in the ongoing collaboration and then identify how they can overcome or even strategically combine them in order to increase the efficiency of the collaboration (Doz 2007; Taylor 2005). This can generally lead to the partners adapting and consequently improving their cooperation process over time (Doz 2007). Among other factors, this adaptability can be facilitated by the success factors described previously. For instance, Prashant and Harbir (2009) relate the willingness to adapt to changing circumstances to the degree of trust between the partners, which again emphasizes the importance of building trust. Dhaundiyal and Coughlan (2022) also emphasize the importance of clear coordination processes for the success of an alliance so that partners can continuously adapt to changes in their internal and external environment, which requires constant adjustment to remain focused on achieving their goals. Combining these factors, it can be summarized that managers should adapt output and process coordination mechanisms to the level of trust achieved in alliances to prevent conflicts and unnecessary costs, as trust evolves over the alliance's life cycle (Balboni, Marchi, and Vignola 2018).

The last success factor in the post-formation phase of an alliance is the *capacity and willingness to learn* (Grant and Baden-Fuller 2004; Hoffmann and Schlosser 2001; Taylor 2005; Whipple and Frankel 2000). In one sense, alliance partners should be willing to share knowledge and competencies and mutually adopt new knowledge from the other partners

(Taylor 2005). More importantly, however, it requires a company to identify its own absorptive capacity, in other words its ability to recognize the value of new, external information from partners, process it and use it for economic purposes (Cohen and Levinthal 1990). Hoffmann and Schlosser (2001) refer to both aspects together as learning capacity and emphasize that learning success in an alliance depends on how extensive this learning capacity is and how transparent the partner's complementary knowledge reveals itself to be. As a first step, managers need to understand the forms of alliance learning, which Kohtamäki, Rabetino, and Huikkola (2023) classify as relationship learning, learning from alliances, learning in innovation networks, and learning social networks, and in which absorptive capacity is particularly relevant in the latter three. This coincides with the assertion by Khamseh, Jolly, and Morel (2017) that the choice of learning mode must be determined, as the use of external knowledge requires the exploratory mindset mentioned in a previous section, as it promotes the flexibility to challenge existing internal knowledge and processes. As such, alliances enable a company to participate in extensive networks and thus imply a higher absorptive capacity and consequently a higher learning capacity (Grant and Baden-Fuller 2004). Otherwise, there arises the danger of so-called 'learning races', in which the partner that acquires the complementary knowledge of the other most quickly will have the greatest success in the collaboration, which shifts the balance of power in favor of this alliance partner (Arora, Belenzon, and Pataconi 2021; Hoffmann and Schlosser 2001). However, as soon as the question of promoting effective collaboration becomes the focus of attention, many standard intuitions of the learning race view can be overturned or relativized, as one's own absorption capacity can be reduced or the transparency of one's own activities increased (Arora, Belenzon, and Pataconi 2021). In order to identify one's own learning capacity, a general understanding of the form of alliance learning should be gained in advance and, if necessary, adapted on this foundation.

The overview of success factors in the post-formation phase of implementation and management of the alliance is presented in the following figure.

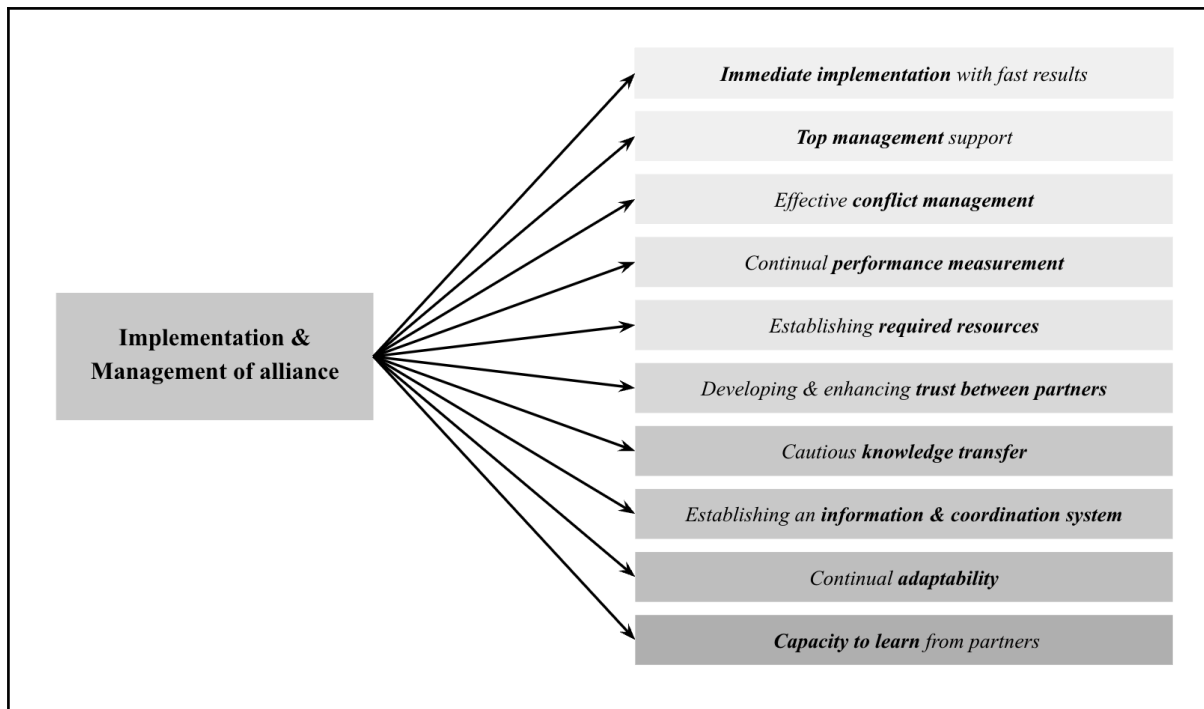


Figure 5: Success factors - Phase 4, Own Illustration (2024)

Phase 5: Termination of the alliance

The aim of the alliance termination phase is to organize an exit that brings favorable results for all parties involved, while taking into account the complexity of the process in terms of key actions and stakeholders, social and economic costs, as well as its speed and simplicity (Tjemkes, Vos, and Burgers 2017).

There is a range of alliance terminations, which Tjemkes, Vos, and Burgers (2017) refer to as options for further alliance development and represent the natural end of an alliance, extension, premature termination, changes to the alliance structure and the takeover of one partner by the other. A natural end occurs when all alliance goals have been achieved (Russo and Cesarani 2017). Changes in the alliance structure imply that the forms of alliance governance change, e.g. a reorganization based on the level of control from an equity alliance to a non-equity alliance or vice versa (Russo and Cesarani 2017). Nevertheless, it occasionally occurs that an alliance ends earlier than planned, so a premature termination, for which the reasons can be multifaceted. Tjemkes, Vos, and Burgers (2017) categorize these into three groups of factors: structural deficiencies, process deficiencies and (unforeseen) external circumstances. Structural deficiencies can include national cultural differences, as they are often present in the partnership from the outset and can influence the structural design of the alliance, but also lack of technological and organizational fit, as well as task complexity, conflicts among partner firms and lack of prior alliance experience (Jiang, Li, and Gao 2008; Krishnan, Martin, and Noorderhaven 2006). Managerial difficulties, if, for instance, the organization or structure of the alliance is not adequately aligned with the management challenges, can also be categorized in this group (Park and Ungson 2001). Process differences can occur when partner firms are dissatisfied with their ability to take

advantage of the partnership, when they lack inter-partner trust, or when asymmetric learning is present (Jiang, Li, and Gao 2008; Rajan, Dhir, and Sushil 2020). External circumstances can represent loss of reputation, which can suffer from unpredictable events (Jiang, Li, and Gao 2008). Regardless of the type of termination, the necessary *framework of prerequisites and conditions* should already be defined in the conception phase of alliances in order to avoid discrepancies later on (Hoffmann and Schlosser 2001). This also applies to premature termination, for which framework conditions can also be defined in advance, ranging from contractual to interpersonal arrangements on how to behave.

In the second place and going along with this, Hoffmann and Schlosser (2001) describe the termination of an alliance as a difficult undertaking that requires delicacy and skill. Partly as a result of the fact that the trustworthiness and reputation of the company may suffer, partners must be treated in a *respectful manner and transparency* must take priority if the termination process is to run smoothly (Hoffmann and Schlosser 2001). The main reason for this is that potential future alliances can build on the experience of the existing ones and potential new partners may also take a deficient reputation of the other company into consideration.

The overview of success factors in the phase of the alliance termination is presented in the following figure.

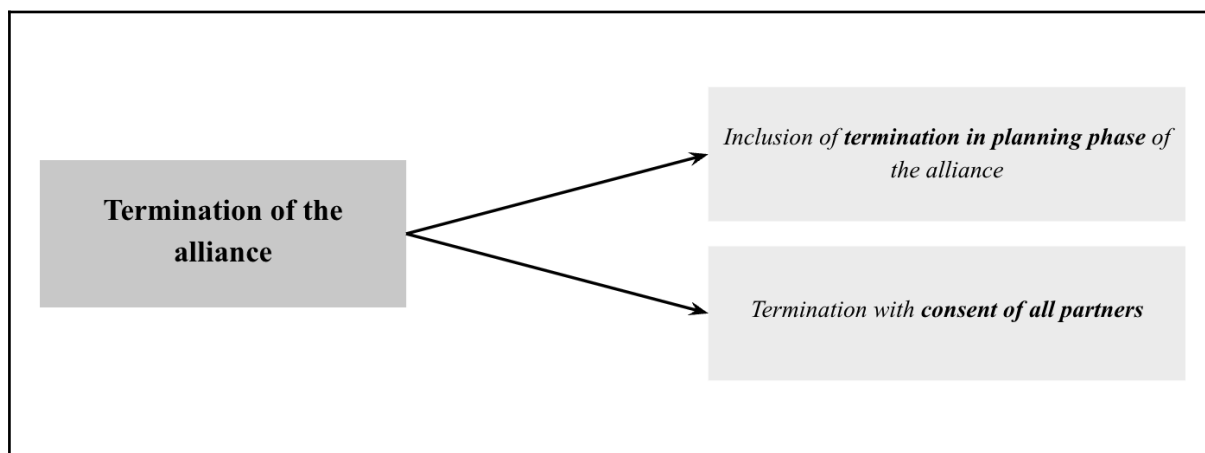


Figure 6: Success factors - Phase 5, Own Illustration (2024)

2.2.4. Market entry modes

The following section analyzes the existing literature on market entry modes in several ways. After the chapter 'Data & Method' has already dealt with the definition of market entry modes in general, the first section in the following examines in more detail which different market entry modes exist and how they can be categorized. The second section first discusses theoretical approaches and models applied by other scholars to explain factors that significantly determine the choice of a suitable mode of entry and, building on this, to explain the resulting entry mode choice. The third section then links the existing facts by looking at the literature for combinations of strategic alliances as a market entry mode for start-ups and

narrowed down alliances of start-ups with a sustainable purpose in the final section.

Categorization of market entry modes

Generally the various market entry modes can be categorized according to the aspect of equity, which ultimately goes hand in hand with their level of control, which, in this context, refers to the company's ability to direct operations to achieve its goals (Pan and Tse 2000; Petrou 2009; Slangen and Hennart 2007). This overarching classification of equity vs. non-equity modes is followed by scholars such as Slangen and Hennart (2007), Pan and Tse (2000) and Nakos and Brouthers (2002), while the majority of other studies concentrate on the level of control (Blomstermo, Deo Sharma, and Sallis 2006; Johnson and Tellis 2008; Pehrsson 2008; Sanchez-Peinado, Pla-Barber, and Hébert 2007). According to Pan and Tse (2000), companies in the equity category choose between wholly owned operations (Greenfield, Acquisition & Others) and equity joint ventures (Minority EJV, 50% EJV, Majority EJV). These entail a considerable use of resources, ongoing management and direct interaction at foreign locations (Pan and Tse 2000). In the non-equity category, on the other hand, the choice can be drawn between contractual agreements (Alliances, licensing, franchising, R&D contracts & others) and export (Direct export, indirect export & others), in which no independent organization takes place and which is based on established and fixed contractual relationships (Pan and Tse 2000). Direct export hereby takes place via a foreign intermediary, indirect export via a domestic intermediary and own export, for instance, via own salespeople (Welch 2015). Brouthers and Hennart's (2007) classification is more based on the principle of distinguishing between the level of ownership (Joint ventures vs. wholly owned subsidiaries) and the mode of establishment (Greenfield vs. acquisitions). Firms can enter foreign markets through contracts (with distributors, resource suppliers, licensees and franchisees) or by extending the firm abroad, setting up sales or manufacturing subsidiaries and, should they decide to set up such affiliates, whether they will share the ownership of such with other firms (an equity joint venture) or decide to keep full ownership (Brouthers and Hennart 2007). Greenfield joint ventures (newly established subsidiaries) enable collaborative establishment of shared foreign ventures, leveraging local expertise, while acquisitions (purchase of firms in the host country) provide rapid market entry and competitive advantage through full control of existing foreign entities (Brouthers and Hennart 2007; Welch 2015). Lastly, Johnson and Tellis (2008) classify the market entry modes solely according to their level of control. While high-control modes of entry require a greater commitment of resources abroad and expose the firm going abroad to a higher degree of uncertainty, low-control modes require a more limited commitment of resources, resulting in less uncertainty for the firm abroad (Blomstermo, Deo Sharma, and Sallis 2006). The mode with the lowest level of control he classifies as export. It is closely followed in his categorization by license and franchise, the formal permission or right offered to a firm or agent in a host country to use the proprietary technology or other knowledge resources of the home firm in return for payment, which constitutes a moderate degree of control. Further moderate control can be exercised in the modes of strategic alliances and joint ventures, while the mode with the highest degree of control falls on wholly owned subsidiaries (Johnson and Tellis 2008). Blackburne and Buckley (2019) describe an additional market

entry mode through the innovative phenomenon of international business incubators, addressing liabilities of foreignness in the internationalization process. This constitutes a shared office-space facility located in a foreign country that provides temporary accommodation and assistance to newly arriving firms until such time as they feel able to 'graduate' or leave to set up a permanent presence of their own (Blackburne and Buckley 2019).

The classification in this paper follows the equity vs. non-equity principle, as illustrated in the figure below.

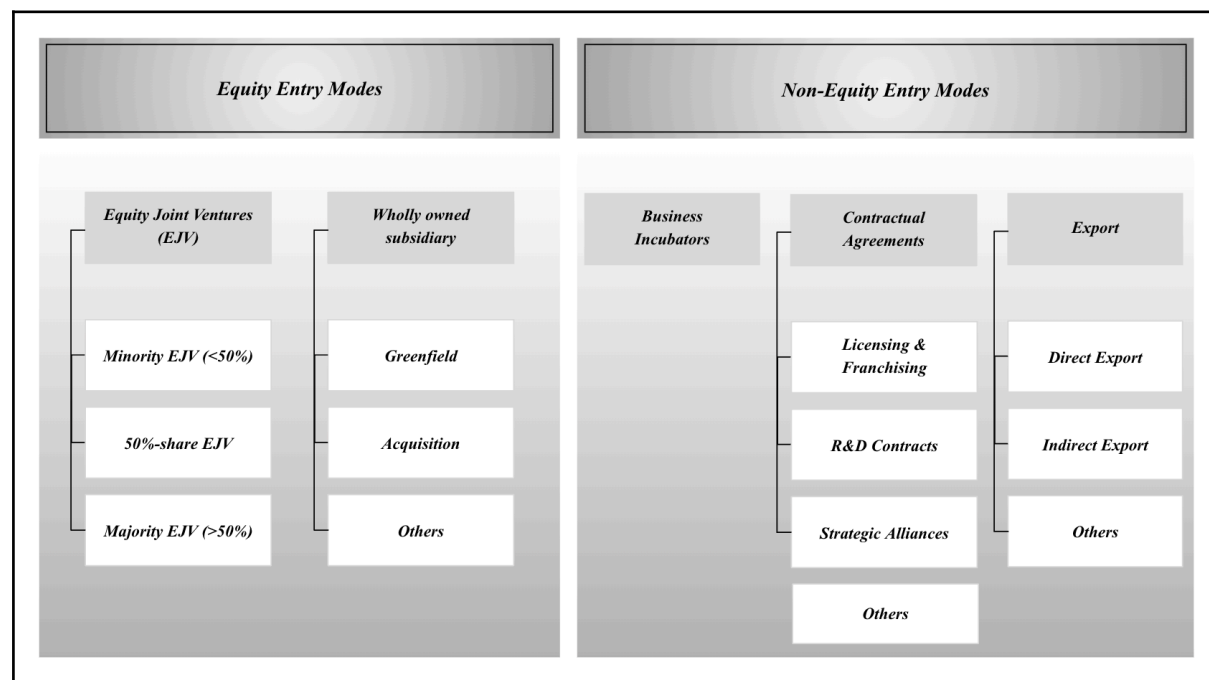


Figure 7: Market Entry Modes, Extension of Pal and Tse (2000)

General theoretical consideration of market entry mode choice

A large range of theoretical approaches exist in the academic literature that attempt to explain the decision of the market entry mode on the basis of identified factors and motives. According to Brouthers and Hennart's (2007) and Lauf and Schwen's (2014) review, the transaction cost analysis, the resource-based view, the institutional theory and Dunning's eclectic framework can be identified here, serving as the theoretical foundation for around 90% of academic research (Brouthers and Hennart 2007).

Almost half of the studies used the theory of *transaction cost analysis (TCA)* (Brouthers and Hennart 2007). Elaborated by Williamson (1985), it describes that when expanding abroad, companies opt for a certain organizational structure - markets (non-equity modes) versus hierarchies (equity modes) - depending on how cost-efficient one structure is compared to the other. With increasing control over the market entry method towards equity modes, accompanied by higher commitment and resource commitment, the costs therefore increase (Johnson and Tellis 2008). The aim is thus to minimize overall transaction costs and

inefficiencies and maximize long-term efficiency (measured by risk-adjusted return on investment) (Blackburne and Buckley 2019; Qi et al. 2020).

Three factors in particular are emphasized that cause market transaction costs and control costs: Asset specificity, behavioral & environmental uncertainties and frequency (Beugelsdijk et al. 2018; Laufs and Schwens 2014; Williamson 1985). Asset specificity describes how certain material and human resources can depreciate in value if they are to be used for purposes other than their purpose (Williamson 1985). The lower the specificity of these assets, the lower the cost of protecting their know-how from competitors (Brouthers and Nakos 2004). Behavioral uncertainty, or internal uncertainty, arises from a company's inability to predict the behavior of individuals in a foreign country, which can increase control costs (Brouthers and Nakos 2004). International experience has been identified as an indirect way to measure behavioral uncertainty, which can reduce such uncertainties (Maekelburger, Schwens, and Kabst 2012). However, the more familiar companies become with international markets and the more confidence they gain, the better they are able to manage the trade-off between control and risk (Blackburne and Buckley 2019). Environmental uncertainties, also known as external uncertainties, refer to the risks associated with a host country and highlight cultural distance in particular as a significant influencing factor (Maekelburger, Schwens, and Kabst 2012; Williamson 1985). The latter increases information asymmetry and consequently leads to increased monitoring costs (Morschett, Schramm-Klein, and Swoboda 2010). Lastly, frequency refers to whether companies need to use market contracts or integrate transactions internally and develop their own enforcement mechanisms, whereby the fixed costs of integration are only justified if the transaction volume is large enough (Brouthers and Hennart 2007). Thus, while a company can protect its proprietary know-how and minimize its market transaction costs by integrating its foreign operations, it must also weigh the need for integration against the costs of controlling the hierarchical structure and weigh precisely this trade-off. Therefore, companies strive for a balance between integration benefits and control costs when choosing the form of market entry (Brouthers and Nakos 2004).

However, especially with regard to SMEs, many questions remain unanswered. For instance, it does not explain how SMEs can use an entry mode to transfer and protect their assets, which plays a crucial role in a strategic alliance when it comes to the implementation phase of the alliance (Laufs and Schwens 2014). Also, external uncertainty factors other than cultural distance were only considered to a limited extent, whereas SMEs are particularly sensitive to institutional challenges and this becomes essential with regard to green start-ups and their stronger connection to environmental regulations and institutions. In addition, Laufs and Schwens (2014) identified only limited consideration of the ownership structures of SMEs and their influence on the exercise of control over activities in the host country. They cite Dunning's eclectic framework in particular as suitable for this, which will be examined in more detail later on. Overall, Lu (2002) also describes it as static and therefore cannot make an appropriate long-term estimate.

A further theory to explain market entry mode choices is the *resource-based view (RBV)*. While the TCA focuses on the costs of resource transfer, the RBV focuses on the potential benefits of transferring resources in alternative modes (Meyer, Wright, and Pruthi 2009).

RBV generally views a firm as a bundle of interrelated and idiosyncratic resources and resource transformation activities (Barney 1991).

According to Barney (1991), developing or acquiring such company-specific, idiosyncratic resources and capabilities, which are valuable, rare and only imperfectly imitable and for which there are no generally available substitutes, gives companies a resource-based advantage. The characteristics of such unique resources and capabilities ultimately dominate the choice of market entry mode, which is made on the basis of resource requirements in the target market (Lindsay, Rod, and Ashill 2017; Qi et al. 2020).

According to Sharma and Erramilli (2004), the RBV approach assumes that companies choose market entry modes to transfer existing resources to foreign markets, taking costs and benefits into account. This is because increased control over essential resources increases a company's chances of success, as these tangible or intangible resources enable assets to be used effectively (Johnson and Tellis 2008).

Sharma and Erramilli (2004) divide this decision into location and ownership. When making location decisions, companies utilize competitive advantages in production and marketing activities by placing them where these advantages apply and considering compatibility with host country factors (Sharma and Erramilli 2004). In ownership decisions, firms transfer resources internally or through the market, taking into account factors such as the transferability of resources, imperfect imitability and the ability of host country firms to absorb these resources (Sharma and Erramilli 2004). For instance, uncertainty about the environment in the host country tends to lead to the avoidance of full ownership in order to protect the company's resources (Morschett, Schramm-Klein, and Swoboda 2010). SMEs, characterized by a scarcity of critical resources and capabilities, build their market entry mode choice according to precisely this, as it otherwise imposes constraints on their ability to reach more advanced stages of internationalization (Laufs and Schwens 2014). Knowledge of the foreign market also represents such crucial resources (Laufs and Schwens 2014). Therefore, for SMEs entering foreign markets, capabilities, especially in culturally distant and emerging markets, are often dependent on external resources, including local contacts and specific assets such as information and networks (Lindsay, Rod, and Ashill 2017).

Some scholars encourage future research to apply the resource-based view (RBV) in research on SMEs' choice of market entry mode in foreign countries, especially in terms of their resource constraints. Research on resource-based modes of entry still seems to be quite limited and could be extended by studies that combine the resource-based view with other perspectives such as institutional theory (Brouthers and Hennart 2007).

According to Brouthers and Hennart (2007), *institutional theory* states that the institutional environment of a country affects the decisions of companies because the environment reflects the 'rules of the game' according to which companies participate in a particular market. New institutionalism subdivides this institutional environment into informal (culturally developed patterns of behavior) and formal (political, legal and economic regulations and circumstances) institutions (Schwens, Eiche, and Kabst 2011). On this basis, the new institutional theory assumes that the institutional environment of a country consists of regulatory, normative and cognitive dimensions (Laufs and Schwens 2014). According to Laufs and Schwens (2014), the regulatory dimension consists of rules and laws that are

responsible for the stability of society. They define the normative dimension with social values, culture and norms of society, while the cognitive dimension concerns social structures that are considered to be taken for granted. The choice of foreign market entry mode therefore reflects the extent of compliance of the foreign subsidiary with these dimensions in the host country (Yiu and Makino 2002).

The new institutional theory therefore emphasizes that by striving for legitimacy and acceptance in the host country, companies adapt to its conditions by adopting practices that are 'isomorphic' to those of other organizations (Morschett, Schramm-Klein, and Swoboda 2010; Yiu and Makino 2002). Thus, companies attempt to adapt to their external institutional environment by conforming to the institutional pressures of other organizations and behave accordingly, and ultimately imitate others within their organizational category, suggesting that their choice of entry mode is influenced by the prevailing patterns of other actors in the same industry and/or country, especially in uncertain environments (Beugelsdijk et al. 2018; Lu 2002). For this purpose, Lu (2002) identified three types of imitation: frequency-based, trait-based and outcome-based imitation. Frequency-based imitation involves copying structures and practices widely adopted by organizations within a firm's environment, exerting a uniform influence on decision-making (Lu 2002). In contrast, trait-based imitation is more selective, focusing on successful firms and their identifiable characteristics, such as entry mode choices, while outcome-based imitation involves mimicking decisions that have led to successful outcomes (Lu 2002).

Numerous applications of the (new) institutional theory have also been applied to the SME sector, as it also provides theoretical perspectives that can be applied to their entry into foreign markets (Lindsay, Rod, and Ashill 2017). SMEs tend to be more sensitive to challenges arising from the host country environment, as these put a strain on their resource base, and therefore react differently to such challenges than large MNEs (Schwens, Eiche, and Kabst 2011). Schwens, Eiche and Kabst (2011) also distinguished between informal and formal institutions. With regard to informal institutions, they claim that the greater the differences in culture and ideology between the home and host country, the higher the costs and risks of doing business for SMEs. With regard to formal institutions, they claim that the higher the institutional risk of the host country, the more SMEs are required to adapt their business to inadequately functioning political, legal or economic institutions (Schwens, Eiche, and Kabst 2011). Brouthers and Nakos (2004) assert that full/partial ownership can enable SMEs to take control of such institutional challenges that arise in the host country. Institutional theory differs from transaction cost theory mainly by placing more emphasis on contextual variations in the institutional environment and considering different key determinants affecting the choice of organizational structure (Yiu and Makino 2002). Brouthers and Hennart (2007) see further steps in the required investigation of the interactive effects of institutional factors on other decision criteria, for instance how institutional dimensions influence the ability of companies to utilize certain resource-based advantages.

In particular, the importance of location-specific factors is discussed in *Dunning's Eclectic Paradigm*, which represents the fourth most frequently applied theoretical construct to explain the choice of market entry modes. Despite not being a theory, this framework summarizes various streams of international economic theory that significantly influence the

decision on mode choice (Brouthers and Hennart 2007). Dunning's paradigm is divided into three pillars of factors that play a role in the decision: location-specific factors, ownership-specific factors (firm-specific advantages) and internalization factors (Dunning 1988). According to Canabal and White (2008), ownership advantages relate to the control, costs and benefits of inter-firm relationships, location advantages to the commitment, availability and costs of resources, and internalization advantages to the reduction of transaction and coordination costs.

The framework thus provides an instrument that incorporates the crucial findings from resource-based (company-specific), institutional (location) and transaction cost (internalization) theories (Brouthers and Hennart 2007). Location-specific factors are gaining increasing importance in influencing the international business activities of companies, especially in relation to non-production-related costs (transaction costs) (Hill, Hwang, and Kim 1990; Pan and Tse 2000). They include institutional and productive factors existing in an international market or geographical area (Laufs and Schwens 2014; Schellenberg, Harker, and Jafari 2018). According to Laufs and Schwens (2014), ownership advantages are firm-specific competitive advantages (resource-based view), which must be unique and sustainable (e.g., a firm's international experience, the ability to differentiate a product or service). Internalization factors refer to the ability of companies to lower transaction and coordination costs by managing certain activities internally within the value chain (Schellenberg, Harker, and Jafari 2018). The advantages here lie in the benefits a company obtains when it opts for a high commitment mode of market entry rather than internationalizing through partnership arrangements (Dunning 1988).

Hill, Hwang and Kim (1990) focus on a more strategic component in their analysis using the Eclectic Framework. The choice of market entry mode for a company depends, according to them, on the strategic relationship sought between its operations in different countries, taking into account the overall strategic position, with each mode entailing a different degree of control, resource deployment and associated risks when expanding into foreign markets. However, their investigation relates exclusively to MNEs.

Leveraging the OLI framework in relation to SMEs, the research indicates that SMEs can mitigate host country risks through the use of high commitment market entry modes and that SMEs' perception of risk related to the host country plays an influential role in the choice of market entry mode (Laufs and Schwens 2014). However, according to Laufs and Schwens (2014), theoretical advancements in SME internationalization are hindered by unresolved questions regarding the access of financially constrained SMEs to alternative assets for controlling foreign market activities, potentially reducing the need for high-commitment entry modes. Additionally, further research is needed to understand how different types of location-related risks affect SME entry mode choices, while also exploring the role of firm ownership status, an aspect largely overlooked in existing literature drawing on the OLI framework (Laufs and Schwens 2014).

Strategic alliance as market entry mode for general start-ups or SMEs

To date, scholars have combined the subject of market entry modes with strategic alliances and start-ups or SMEs in various approaches. Due to the fact that the literature on this link is

still limited, the papers are explicitly mentioned below and considered separately along the content chronology from the comparison of different market entry modes for SMEs, via the comparison of MNEs to SMEs with regard to strategic alliances narrowed down to the investigation of alliances as market entry mode of start-ups, ultimately leading to software start-ups. This also holds relevance in the present context, as all green start-ups that are eligible for an alliance like in this work offer a software solution.

Burgel and Murray (2000) can be cited as an initial starting point for the literature on *start-ups and their general market entry mode decisions*. Their study integrates multiple theoretical frameworks, including process models, transaction cost economics, and organizational capability perspectives, to understand entry mode choices of technology-based start-ups, considering firm-specific, product-specific, and target country-specific factors. The market entry decision they modeled was simplified to the choice between direct export and distribution abroad, as these are the two predominant alternatives. While larger companies prefer direct export or wholly-owned subsidiaries for control, these options are often impractical for young start-ups, which is why the preferred entry modes of technology-based start-ups are characterized by a relatively resource commitment and are directed toward commercialization rather than foreign production (Burgel and Murray 2000). However, they also report that technology-based start-ups have a tendency to enter several foreign markets within a short time span. Additionally, collaboration with established intermediaries can help mitigate the 'liability of newness' and address customers' reluctance toward untested foreign suppliers, particularly in sensitive fields (Burgel and Murray 2000). Lu and Beamish (2001) also drew a comparison with regard to SMEs and their market entry decision. They use a statistical model to compare exporting with foreign direct investment and alliances as a market entry strategy for SMEs in foreign markets and take performance as a benchmark. Their analysis shows that using strategic alliances with partners that have local knowledge can serve as an efficient market entry mode to overcome resource and skill constraints. Indeed, SMEs can acquire knowledge about the host country and develop new organizational capabilities internally by gaining increasing experience in new geographic regions (Johanson and Vahlne 1997). However, compared to wholly-owned entries, the difficulties in managing alliances can range from conflicting objectives, lack of trust and cultural differences to conflicts in the distribution of control, which means that there is also no guarantee of successful entry into international markets (Lu and Beamish 2001). They also cite finding the right partner as a serious challenge, especially in terms of knowledge of the host country. Given the potential risks and costs and the low marginal benefits, alliances with companies from the home country or third countries could even have a negative impact on the performance of an SME (Lu and Beamish 2001). However, overcoming 'liabilities of foreignness' in particular can hinder the development of export activities, but forming a strategic alliance with local partners who have knowledge of the host country can be an efficient strategy to cope with the aspect of international market entry (Lu and Beamish 2001; Zhou, Wu, and Luo 2007). It can therefore be concluded that technology-based start-ups tend to have a low resource commitment and therefore prioritize foreign commercialization over foreign production as a market entry mode, while at the same time wanting to penetrate multiple international markets simultaneously. If this is to be achieved through a strategic

alliance, numerous components must be taken into account, including the choice of partners, not consisting of partners from the home country or third countries.

A certain *comparison of the market entry mode of MNEs and SMEs* is provided by Brouthers, Nakos, and Dimitratos (2015). They show that a gap in resources and capabilities plays a rather subordinate role for MNEs and therefore the focus in such an alliance is on overcoming the liabilities of foreignness, while SMEs also possess these gaps in addition to the liabilities of foreignness, but can address them efficiently through a strategic alliance. Building on the RBV and resource dependence perspectives, they developed and tested theories to explain how participation in alliances can serve as a means for SMEs to successfully enter the market. They consider research and marketing alliances separately, whereby the latter can primarily help to establish an effective marketing network in a foreign market and thus build up the necessary skills, which can ultimately also reduce the liabilities of foreignness (Denk, Kaufmann, and Roesch 2012). Above all, the findings of Brouthers, Nakos, and Dimitratos (2015) highlight that such alliances tend to enhance the existing resources/capabilities at the firm level, at least for SMEs, and not simply provide some additional lacking resources/capabilities that the SME can utilize. In their view, SMEs therefore benefit to a greater extent from participating in an alliance if they have the required capabilities to transfer and utilize the externally provided knowledge, because without these capabilities they may end up in a position of dependency.

Strategic alliances as a viable market entry mode for SMEs is primarily examined by Sheang Lee, Hua Lim and Tan (2000). Therefore they developed a theory of strategic alliances as a market entry and deterrence strategy that explicitly takes into account the resource constraints of SMEs and is based on the penetration of markets dominated by large competitors. Such an alliance can consist of several SMEs with similar interests, with non-competing major corporations and/or other SMEs who possess complementary strengths and expertise (Sheang Lee, Hua Lim, and Tan 2000). Their theoretical foundation is based on the game theory approach and primarily considers competition as the greatest external challenge even before institutional, social and technological change, while the lack of resources is seen as the main internal challenge here, which is why they cannot compete with large competitors. According to them, SMEs can overcome this through strategic alliances, giving them a better chance of competing with their larger rivals. In addition, complementary expertise can lead to greater strength and a competitive advantage through an alliance with other SMEs (Sheang Lee, Hua Lim, and Tan 2000). Furthermore, according to them, joint activities generate cost benefits through economies of scale and strengthen the negotiating position with suppliers. Conditions have also been established to enable the functioning of such an entry-cum-deterrence strategy by SMEs, which range from a sufficiently large target group, sufficient joint resources and complementary strengths to visible synergies (Sheang Lee, Hua Lim, and Tan 2000). Zain and Ng (2006), on the other hand, generally consider network relationships as an influential component in the choice of market and market entry mode of SMEs. They refer to the Network Theory approach to examine the internationalization process of SMEs. Rapid and successful growth of firms appears to be the result of their integration into international networks, with key partners often guiding the choice of foreign market and providing the

mechanism for market entry (Coviello and Munro 1997). Therefore, strategic alliances as a market entry mode or cooperation agreements between small firms can improve penetration of foreign markets and provide access to the partner's distribution channels (Zain and Ng 2006). Defee (2006) also sees strategic alliances as a suitable path for SMEs to overcome credibility concerns and enter new markets. In this case, the focus lies on SMEs in the supply chain and a comparison of non-equity vs. equity alliances is made. To guide SMEs in global expansion, a simplified decision process map is proposed, aiding in the decision of which market entry mode a SME should choose. According to Defee (2006) a distinction between non-equity alliances and equity-based ventures can be unclear in alliance terminology and is therefore clearly defined here. By leveraging unique resources and tacit knowledge, non-equity alliances facilitate the creation of new capabilities and acquisition of market-specific knowledge and choosing partners with established reach in foreign markets enables SMEs to expand with lower risk and cost (Defee 2006). Also, according to Defee (2006), initially non-equity based alliances can evolve into more permanent equity-based arrangements, fostering long-term growth through resource pooling. His model empowers resource-constrained SMEs to gain a competitive advantage in the global marketplace and can be viewed in the following.

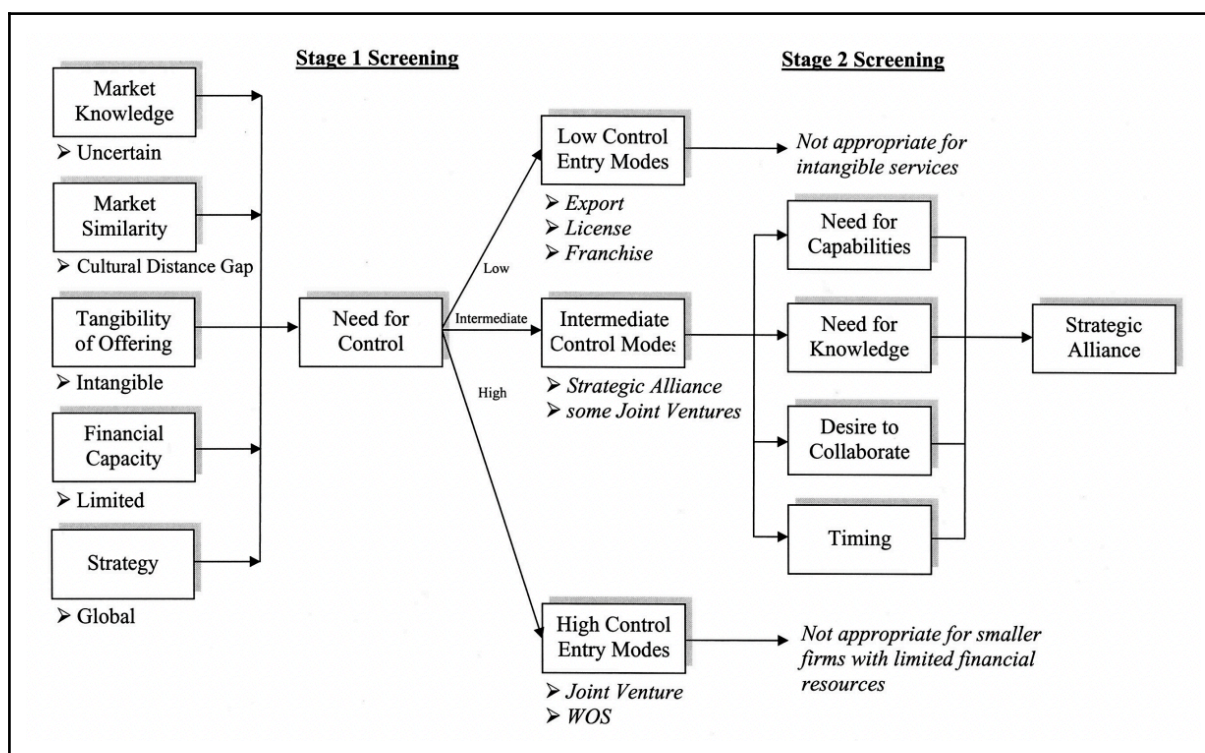


Figure 8: SME Market Entry Decision Process (Defee 2006)

Narrowed down to *software SMEs or start-ups and their choice of a strategic alliance as market entry mode*, Coviello and Munro (1997) can be mentioned first. They examine the influence of network relationships on the internationalization process of small software firms by using multi-site case research. They integrate traditional models of incremental internationalization with the network perspective, reflecting an accelerated version of the stage model perspective and focusing on a set of formal and informal network relationships

that impact foreign market selection and mode of entry, as well as product development and market diversification activities. According to them, strategic alliances can improve the potential for foreign market penetration by providing access to a network of additional relationships. Their results clarify that managers of small software firms need a better understanding of the impact of network relationships on their internationalization activities, and the potential for such relationships to provide entry to foreign markets. Further, managers should be aware of the speed at which internationalization can occur through network relationships, and that partners may govern both market selection and mode of entry (Coviello and Munro 1997). Furthermore, using a qualitative research methodology, Kennedy and Keeney (2009) identified strategic partnerships between software SMEs as an important mechanism for entering foreign markets, accelerating sales cycles and reducing risk in overseas markets. Partnerships can be equated with non-equity alliances here, as the definition used also revolves around the pooling of resources and skills to achieve common goals, with each company maintaining its own separate entities (Whipple and Frankel 2000). Thus, barriers can be minimized through access to appropriate knowledge of overseas target firms, product synergies and facilitated distribution channels, ultimately leading to easier market entry (Kennedy and Keeney 2009).

Strategic alliance with sustainable purpose

Due to the fact that strategic alliances between green start-ups to facilitate market entry into other markets and which are subject to the overarching vision of a greener economy have been a limited field of research to date, a different approach is chosen for the following section. However, as already identified, a strategic alliance can contribute to a successful market entry in many aspects, which is why this section is also included in the 'Market entry mode' chapter. Using a micro-meso-macro framework, Ribeiro-Soriano and Piñeiro-Chousa (2021) have worked out how green start-ups at the micro level can bring about systemic changes towards sustainability at the meso and macro levels through the management of innovative strategic relationships, which can also include strategic alliances. The macro level refers to the institutional context and the conditions or environment for sustainable growth, the meso level to the interactions between the parties involved and especially the knowledge spillover between them, and the micro level to the individual characteristics and motivations of the parties involved and how these are implemented in specific business models and strategic and technical decisions (Ribeiro-Soriano and Piñeiro-Chousa 2021). In the following, papers are examined that consider the different levels.

The following *micro level* is divided into three sections, as is the case in the systematic overview of the literature on ecologically sustainable entrepreneurship by Gast, Gundolf and Cesinger (2017). Firstly, general drivers for green entrepreneurship are identified, followed by the resulting strategic activities for green entrepreneurship and their results in the third section.

Typical drivers for such founders include familial circumstances that have affected their environmental awareness since childhood (Schick, Marxen, and Freimann 2002). Their partly innovative ventures value ecological and social objectives at least as equally as economic

objectives (Hockerts and Wüstenhagen 2010; Schaltegger and Wagner 2011). The focus on social and ecological justice leads to environmental objectives being integrated into their business model and becomes more apparent in countries or regions where the regulatory framework is inadequate (Allen and Malin 2008; Montiel and Husted 2009).

Strategic activities primarily include networking with external stakeholders. Entrepreneurs committed to ecological sustainability are driven by their personal values and passion for sustainability (Schaltegger 2002). To navigate the complexities of sustainable business practices, they rely on support networks that offer various functions, including access to information services, capital, support services, and infrastructure, as well as opportunities for idea and resource sharing (Kimmel and Hull 2012). Sustainable entrepreneurs need to be aware of the importance of influencing key social actors and opinion leaders who are able to foster effective relationships between different stakeholders (Block and Paredis 2013). Moreover, they aim to create a conducive institutional environment for sustainable development (Pinkse and Groot 2015). This involves employing collective action strategies such as framing a vision of sustainability, legitimizing sustainable development through moral and pragmatic reasoning, and collaborating to drive innovation (Woolthuis et al. 2013). Furthermore, integration with other firms or local authorities is deemed essential for sustainable enterprises, as it positively shapes the formulation of proactive sustainable strategies (Gast, Gundolf, and Cesinger 2017). This integration is facilitated by collective action strategies bolstered by social capital, which involves forging partnerships with individuals or civil organizations to establish conduct rules, implement certification schemes, and advocate for favorable legislation (Pacheco, Dean, and Payne 2010). Overall, social capital and collaboration emerges as a potent catalyst for driving change across economic, environmental, and societal domains (Gast, Gundolf, and Cesinger, 2017). Thus, green start-ups must embrace radical innovation in their business models and processes while effectively managing business-to-business (B2B) relationships to fulfill their triple-bottom-line value creation objectives (Weissbrod and Bocken 2017).

In terms of outcomes, Schaltegger and Wagner (2011) often describe profits for sustainable entrepreneurs as a medium for solving environmental challenges. Therefore, they focus on real sustainable value, i.e. the creation of economic, social and environmental value that promotes 'values beyond profit and market penetration' (Schaltegger and Wagner 2011; O'Neill and Gibbs 2006). Jolink and Niesten (2015) divide their distinct goals and business models into four categories, consisting of different combinations of environmental scope and a focus on the mass market and profitability. These represent 'those who want to create a better world', 'those who want to make the world a better place', 'those who see making money as a means' and 'those who see making money as an end' (Jolink and Niesten 2015). The crucial aspect here relates to the fact that the business model converts added value into value and thus creates greater customer benefit for environmentally conscious consumers. Overall, sustainable entrepreneurs may prioritize non-financial objectives, suggesting that the opportunity-driven nature of their ventures is not predetermined, yet they contribute value through sustainable practices (Gast, Gundolf, and Cesinger 2017).

At the *meso level*, Hübel, Weissbrod and Schaltegger (2022) can be referred to. Using a qualitative, exploratory case study, they investigated the potential of learning from

sustainable start-ups in a strategic alliance to promote sustainable corporate innovation at a major European meat producer. A distinction is made between learning from and learning about the alliance partner. Their results show that learning about the alliance partner is central to the overall sustainability-oriented alliance learning process and only accelerates over time due to a prevailing inhibition threshold, but extends beyond product-related learning (e.g. development, marketing) to sustainability-related learning (e.g. perspectives, goals) and can ultimately support an incumbent's contribution to the sustainability transformation of mass markets.

The research by Ciulli et al. (2022) places the focus more on the scaling of general sustainable business models (SBM) in order to create a real environmental and social impact towards sustainable transformation, which can be facilitated by means of strategic alliances. They differentiate between the type of initiating actor (newcomer vs. incumbent) and the differentiation of the value proposition (high vs. low) and furthermore compare the types of collaborators, indicating which partner can provide which resources. With regard to collaboration with sustainable start-ups, this primarily involves increased legitimacy and credibility as well as the development of new target segments (Ciulli et al. 2022). Using their framework, they develop four scaling-through-collaboration strategies to scale the SBM in such a way that an impact is created.

Kishna et al. (2017) examine the role of interorganizational alliances in creating legitimacy for a sustainable technology in order to disseminate it and thus contribute to sustainable transformation. Their analysis is based on a database with information on 105 alliances in the field of bioplastics in the period 1990-2013, distinguishing between three types of legitimacy: technology-related market legitimacy, technology-related social legitimacy and technology legitimacy. The results show that alliances aim to promote technology-related market and social legitimacy by, among other things, giving a partner's technology access to customers and production capacities. Alliances promote technological legitimacy by relying on positive externalities, signaling and acting as institutional entrepreneurs (Kishna et al. 2017). Alliances for technology-enabled markets and social legitimacy are often bilateral alliances between for-profit companies that produce and commercialize sustainable technologies, as is also the case in the present work.

Doblinger, Surana, and Anadon (2019) developed a data set of 657 cleantech start-ups and 2,015 alliances with governments and other partners. According to them, cleantech start-ups enter into alliances with other private sector companies for reasons of profit orientation and knowledge of market developments. However, for effective ecosystem development that can make a difference in creating an impact and the likelihood of being successful in the market through an alliance, diversity of partners is a typical characteristic, which in turn can point to governments as suitable partners, among others (Clayton, Feldman, and Lowe 2018; Laursen and Salter 2006). However, due to limited resources in terms of personnel or cash flow, it can be particularly challenging for them to bring in a wide variety of partners. Therefore, to benefit from alliances, start-ups need to evaluate to build relationships with those partners that have the most discretion over critical resources that complement the start-up's resource portfolio (Doblinger, Surana, and Anadon 2019).

At the *macro level*, Planko et al. (2016) can be referred to. According to them, the literature

so far only described the importance of a supportive external environment for sustainability transformation, but did not yet provide insights into how to strategically build up such an environment. Therefore, they introduce the concept of strategic collective system building which describes processes and activities that networks of actors or alliances can strategically engage in to collectively build this environment for their innovative sustainability technology. System building is defined as 'the deliberate creation or modification of broader institutional or organizational structures in a technological innovation system carried out by innovative actors' (Planko et al. 2016). In their conducted case study, all interviewees recognized the importance of working together with other system players to increase user awareness and demand for and diffusion of their new technology. In their overview of the strategy framework for system building and its system-building activities, they note that collaborations are needed both in the government direction to enable legislation, marketing collaboration for user awareness and competitive collaboration against other technology clusters to build a market or enter an existing one. These system-building activities that networks and alliances of firms can carry out can achieve desired system level changes toward sustainability (Planko et al. 2016).

Furthermore, Tziva et al. (2021) use a case study approach in their study to investigate the strategic creation of favorable institutional conditions for the transition to sustainability through strategic alliances. They developed an analytical framework to examine the factors influencing alliance formation and the contribution of such alliances to system building. The analytical framework is structured as follows: Factors that play a role in alliance formation are organizational motives, organizational resources, and relationships. Alliances, in turn, shape system-building strategies and consequently contribute to the creation of resources at the system level. This can be seen in the following figure.

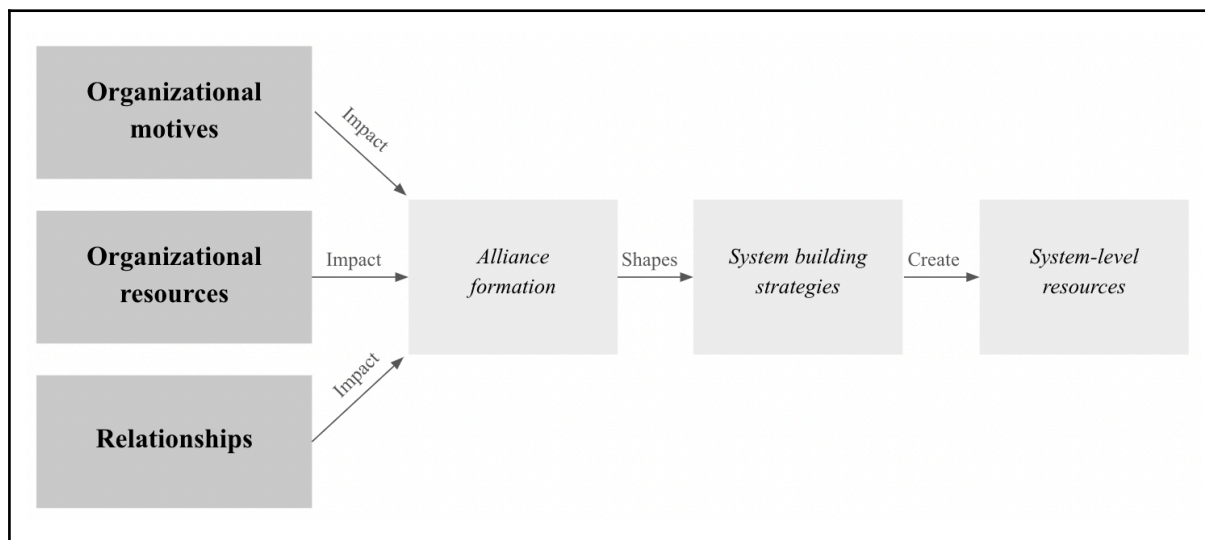


Figure 9: Analytical framework - Creation of system-level resources, own Illustration based on Tziva et al. (2021)

Their findings underscore the significance of alliances between diverse types of organizations in accelerating transitions by facilitating the adoption of potentially beneficial innovations and sustainable consumption practices. However, they also highlight that the transformative potential of alliances varies depending on the types of actors involved.

3. Research methodology

For the methodology of this work and to support the findings of the literature review, the approach of qualitative data gathering is applied in the form of expert interviews with the representatives of green start-ups that can be considered for such a strategic alliance.

In the first phase of concretizing this approach, the selection of suitable partners is developed and justified on a scientific basis. Next, the presentation of the general procedure of the expert interviews with these selected partners is applied. This includes overall relevant information about the expert interviews, how the experts were contacted, their characteristics and the elimination of ethical problems, down to the general interview guidelines. Subsequently, the method of conduct based on the five phases of Mayring (2014) is presented, which was applied to render the transcribed interviews measurable for an argumentation basis.

3.1. Data collection process & Selection of partners

In the first instance, a synthesis of conceptual frameworks for circular business models developed by Geissdoerfer et al. (2020) is applied to analyze the areas in which companies can drive forward their own sustainability towards CO₂ neutrality and, based on this argumentation, the selection of suitable green start-ups for the alliance is explained.

Circular business models and their innovation represent the most important levers at the organizational level for the implementation of a circular economy (Geissdoerfer et al. 2020). Companies that want to embrace the circular economy model need to introduce innovative business models that reassess the value proposition and create value chains that prioritize cost efficiency, production effectiveness and overall business performance (Rashid et al. 2013). Based on this view, Geissdoerfer et al. (2020) developed a general overview and synthesis of conceptual frameworks for circular business models and innovations in circular business models that can support and guide organizations in decision-making and adoption. Four strategies for circular business models are applied to the three elements of the business model, value proposition, value creation and value capture (Geissdoerfer et al. 2020). The three elements describe the general definition of a business model, consistent with the definition used in previous sections of this work. Geissdoerfer et al. (2020) outline the four strategies for circular business models as Cycling, Extending, Intensifying and Dematerializing. They describe cycling as end-of-use strategies such as reuse, repair and remanufacturing that are employed to extend the life of products, materials and energy by returning them to the production cycle instead of disposing of them as waste. Extending involves maximizing the lifespan of a product through design and operational practices, fostering long-term customer relationships and generating additional revenue streams during product use, thereby reducing the demand for new product manufacturing (Geissdoerfer et al. 2020). They describe intensification as the adoption of sharing models through effective capacity management, digital capabilities and customer relationship management, as well as

the promotion of new business models such as product service systems (PSS) that create recurring revenue streams and minimize idle time and structural waste, reducing the need to manufacture new products and waste production. The final strategy they represent concerns dematerialization, which focuses on immaterial solutions such as services and software that ensure value creation through closed loops and collaborations for recurring revenues and higher profit margins, thus reducing the use of physical resources. These four strategies can also be integrated into a single business model, particularly within a business model ecosystem (Geissdoerfer et al. 2020). The following table illustrates the overview developed by Geissdoerfer et al. (2020) in its original form, which will be applied to the present subject in the following.

	Value Proposition <i>(Main Products/Services, Customer Needs & problems, How to address them)</i>	Value Creation <i>(Key value chain elements, core competencies, Resources & capabilities)</i>	Value Capture <i>(Revenue streams, Cost drivers, Revenue models like leasing or platform fees)</i>
Cycling <i>(Reuse, Repair, Remanufacturing, Reverse Logistics)</i>	<i>Used/Refurbished products, customers in need for affordable green products/processes, taking back products & renew them</i>	<i>Reverse supply chain, access to end-of-life products, suppliers outsourcing & collaborations to close the loop, product operations</i>	<i>Additional revenues, savings with reduced costs for resource input, based on direct sales or trade of resources</i>
Extending <i>(Long-lasting products, Marketing & Consumer Education encouraging long product life)</i>	<i>Long lasting products with upgrading, customers in need for reliability, providing high-quality products & services</i>	<i>Product design, digital capabilities, service network collaboration, marketing & consumer education</i>	<i>Customer loyalty, revenue from products, based on service packages or tailored contracts</i>
Intensifying <i>(Sharing models, rental/leasing models, user cooperatives, pooling models)</i>	<i>Collaborative consumption services, customers in need for lower total cost of ownership, temporary availability of products</i>	<i>Capacity Management, digital capabilities (tracking), product-service system design, contract & customer relationship management</i>	<i>Increased long-term profit margins due to savings, pricing per unit of service, long-term customer relationships</i>
Dematerialising <i>(Software instead of hardware, Service instead of product, Consumer education)</i>	<i>Services reducing need for hardware, customers in need for expertise, providing turn-key solutions</i>	<i>Technology design for digitalization, product-service systems design, consumer education rationalizing demand</i>	<i>Increased profit margins due to additional value from uniqueness, savings from using products for longer</i>

Table 3: Circular Business Model Framework (Bocken et al. 2016; Boons and Lüdeke-Freund 2013; Geissdoerfer et al. 2020; Richardson 2008)

By following these strategies and integrating them into their business model, companies can pave the ground for CO2 neutrality. The approach to selecting suitable sustainable solution providers in the form of green start-ups will therefore be based on this overview and research into solutions that promote precisely these strategies. With the help of the freely accessible databases Crunchbase and EU-Startups.com, which stand for comprehensively covering the global startup ecosystem through investors and startups. Research was then carried out into suitable green start-ups having its headquarter in Europe. In addition, searches are carried out at country-specific level on suitable databases, such as deutsche-startups.de or Gründerszene in Germany. A further criterion for the selection of suitable partners was not necessarily the identification of a start-up based on the year in which it was founded, but rather the fact that the company is still in an early phase of its development and is geared towards growth and

innovation. With this approach, 19 suitable potential green start-ups were identified for the 'Recycling' strategy and 27 for the 'Extending' strategy. The 'Intensifying' strategy comprised 20 green start-ups and the 'Dematerializing' strategy 36. For each strategy, up to 3 of these were then contacted and ultimately one suitable expert interview partner was arranged for each. The basic justification given by the other potential partners for refusing an expert interview consisted primarily of a lack of time and the concern about disclosing sensitive information about their own business activities. A further criterion for the selection of suitable partners was not necessarily the identification of a start-up based on the year in which it was founded, but rather the fact that the company is still in an early phase of its development and is geared towards growth and innovation. In the following, the green start-ups that agreed to be interviewed are briefly applied to the subject matter and strategies here.

Company A's software was designed to help companies to map the issue of energy holistically and was chosen in view of the 'Dematerializing' strategy, as an intelligent energy management system can help to reduce resource consumption by relying on intangible solutions such as software and data analysis to optimize energy consumption. By implementing such a system, companies can economize on physical resources and reduce their carbon footprint by using energy more efficiently while lowering their operating costs.

Company B developed a sophisticated software tool to quickly assess the recyclability of packaging during the sales and development process. It supports companies along the packaging value chain in assessing recyclability with software and data to combat the flood of packaging waste. It can be used to pursue the 'Extending' strategy, as it maximizes or extends the service life of packaging. Not only the pure material properties of the packaging are taken into account, but also country-specific information on legislation and waste management systems, which are crucial for assessing recyclability.

Company C offers a digital platform to develop and scale the circular construction sector on market terms. It can provide support to the 'cycling' or 'extending' strategy as it focuses on optimizing the end-of-life of construction materials and buildings and returning them to the production cycle instead of disposing of them as waste. By developing the digital platform for circular construction collaboration, the start-up is helping to promote the reuse, repair and remanufacturing of building materials. The implementation of a 'Building & Material Bank' enables users to store and reuse used materials for future construction projects, reducing the need for new materials.

Company D offers an employee-inclusive software to achieve climate targets and reduce travel costs at the same time. The solution can contribute to the 'intensification' strategy in that it focuses on strengthening and improving existing business models and practices through innovative solutions. By integrating the software into clients' existing travel systems, the start-up offers a way to increase the efficiency and effectiveness of business travel by motivating employees to make more conscious decisions. In addition, the seamless

integration of the software into existing booking systems allows for easy implementation and use by customers.

To some extent, it proved feasible to support the respective green solution for several strategies, which also goes hand in hand with the assertion of Geissdoerfer et al. (2020) that the strategies can also be integrated into a single business model and do not necessarily exclude each other. An overview of the matching of the green start-ups with the respective strategies previously developed by Geissdoerfer et al. (2020) can be accessed in the following illustration. A more detailed elaboration of the respective green start-ups in the form of case studies is provided in the following section.

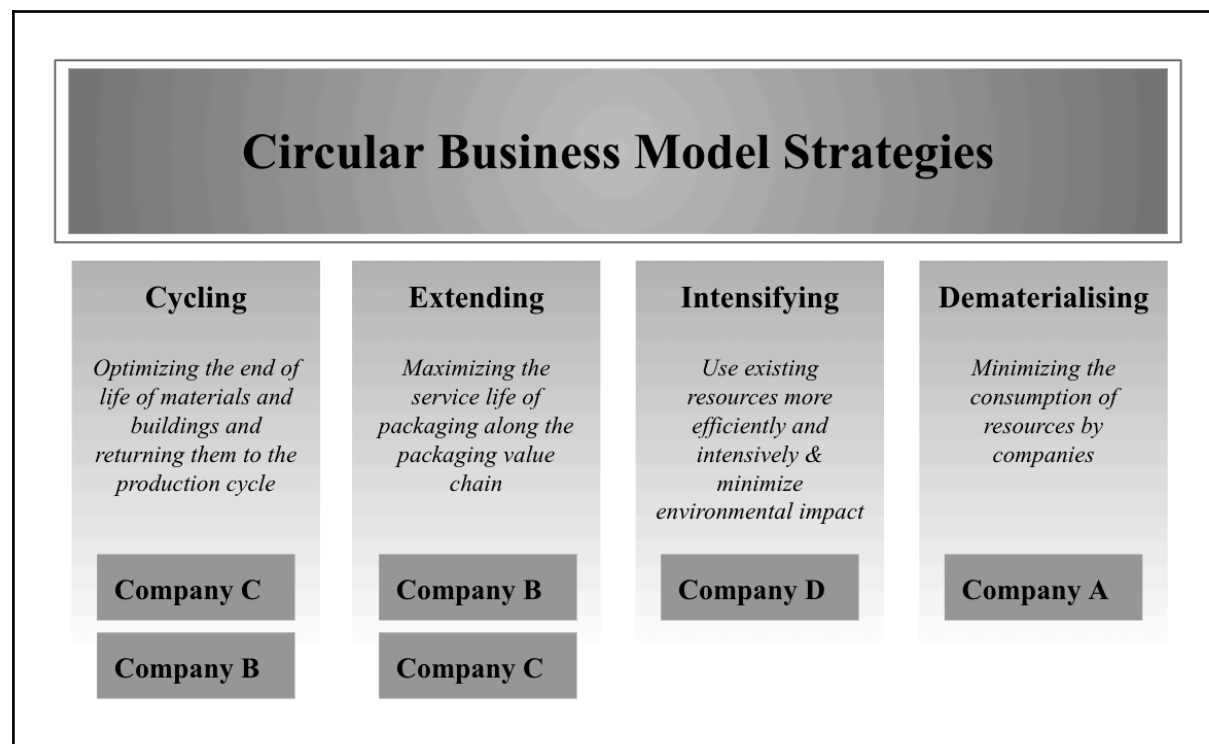


Figure 10: Selection of suitable Start-Up Solutions, own Illustration based on Geissdoerfer et al. (2020)

3.2. Expert interviews

Based on the existing literature on the subject in chapter 2, semi-structured expert interviews were derived via Zoom, each with a maximum length of 30 minutes. Accordingly, this involved 4 semi-structured expert interviews, conducted over a period of 2 weeks in early 2024. The semi-structured format has proven to be both versatile and flexible as an interview technique in qualitative research, promoting reciprocity between interviewer and interviewee and enabling to adapt the following questions based on the interviewees' previous answers (Galletta 2013; Kallio et al. 2016). This is particularly effective insofar as a certain level of knowledge has already been built up through the literature review and can be used as a basis guideline for addressing the specific requirements and topics of the respective green start-ups.

The companies selected using the previously elaborated approach were contacted by email or via LinkedIn. The outreach included a brief presentation of the anticipated strategic alliance, as well as the classification within the framework of a scientific paper. In addition, the suitability of the green start-up for such an alliance was emphasized in order to better illustrate the motive behind the request.

The anticipated interviewees in the form of experts contacted here represented the founders or co-founders of the green start-ups and without exception, so that no distortion of (managerial/entrepreneurial) perspectives and a more well-founded comparison could take place. It is noticeable that the founders come from very different sectors and industries, but almost all possess an economic background, both professionally and academically. It should also be emphasized that half of the interviewees have a doctorate, which underlines the validity of their expert status. More detailed information on the founders who agreed to take part in such an expert interview can be found in the following table.

	Company A	Company B	Company C	Company D
Gender	Male	Female	Male	Female
Age Range	25-35	25-35	30-40	25-35
Nationality	German	German	Danish	German
Professional background	Consulting	Business Research	Start-up Ventures	Consulting
Educational background	Technology & management-oriented business administration (PhD)	International Cultural & Business Studies	Participatory design practices in urban development (PhD)	International Management

Table 4: Profile of the experts, own illustration (2024)

To ensure that the data collected is used for scientific purposes at most, a digital agreement document was utilized. This was sent to the interviewee by email in advance of each interview and legalized by signature. The focus of this document was on the voluntary participation and anonymity of the data, the deletion of the data after the evaluation of the work, and conformity with the provisions of the General Data Protection Regulation.

In addition to the above mentioned agreement, a second document consisting of the anticipated interview topics was sent to the interviewees by email. The guideline of the expert interviews included a focus on a general company profile and its value proposition, the market-related orientation, the identification of the biggest challenges of the respective start-up, the discussion about opportunities through alliances, as well as the success factors for the functioning of these and finally the focus on the influence of such an alliance on a possible market entry into international markets. As these involved semi-structured interviews, they only served as a general guideline that was used to determine the

overarching topics. According to the course of the interview, it could thus be adapted to the interviewee's answers and an identified focus could be elaborated to a greater extent.

3.3. Method of conduct

To enable the data collected in this way to be analyzed, a content analysis is conducted, as it enables a systematic and theory-based reduction of a large amount of text data of any kind of communication to the essentials by dividing the material into unifying categories (Fastenrath and Braun 2018). This can consist of an inductive or a deductive approach, whereby an inductive approach was chosen here so that individual cases are merged to form a greater entity (Elo and Kyngäs 2008). The reason for choosing the inductive method is that there remains insufficient prior knowledge about the phenomenon and that knowledge is still fragmented (Lauri and Kyngas 2005). Although an initial knowledge foundation was developed by means of the literature review, this was not based on existing concepts and theories. Concepts such as 'green prisons' were presented in the interviews based on the scientific literature and the questions aim to review and deepen these already existing identified constructs. In general, the structuring content analysis approach of Mayring (2014) is applied and the procedure is consequently divided into five phases: (1) Elaboration of an initial category system based on the research questions, (2) coding of relevant text passages following the elaborated category system, (3) revision of the previously defined categories and sub-categorization, (4) coding of the transcribed data based on the revised category system and (5) interpretation and discussion of the results. The individual phases are presented in the following and applied to the addressed topic, phase 5 will be elaborated in the chapter 'Findings'.

3.3.1. Phase 1 - Development of initial category system

Robson (1993) emphasizes the importance of being aware of the research question and the aim of the data collection. Recalling the research question, the first step is to develop a preliminary categorization system on the basis of which the first round of coding takes place 'Given the challenges a green start-up faces, how can a strategic alliance network between green start-ups from different markets facilitate their market entry into the other start-ups markets and, subsequently, lead to sustainable transition of the economy?' A first simplistic categorization can be derived from this and from the findings of the literature review. A first category contains the challenges that such green start-ups face. Once these have been summarized, a further category in the form of the opportunities provided by a strategic alliance can be used to explain how such challenges can be effectively overcome. Another category, 'success factors of strategic alliances' contains what enables such an alliance to function. No distinction is made here between the individual life cycle phases of the alliance. The fourth category 'market entry' summarizes all statements that suggest a simplified market entry made possible by such a strategic alliance through its ability to overcome the challenges, but also the previous approach to entering new markets. This enables a later interlinking of relevant conditions and requirements to explain the relationships. The fifth

category 'overarching purpose' deals exclusively with statements that point to the vision of the green start-up to drive sustainable transition and how such a strategic alliance can enable this overarching vision. It is also essential here to be able to establish a valid connection to the other categories in order to later provide a profound basis for argumentation in the case of a diversified product portfolio through the alliance that can drive any company to CO₂ neutrality and thus to achieve a more sustainable economy. These five overarching categories are classified below in the first coding round and adjustments are then made on the basis of these to enable a more detailed examination of the results. Furthermore, Elo and Kyngäs (2008) state that it must be determined whether the data analysis should deal exclusively with the manifest content or also with the latent (interpretative) content, which correlates directly to the interpretation tendency. Due to the fact that parts of the literature review also assume a higher sense of such an alliance in commonly making the economy greener, a dual approach is applied here by means of manifest content and interpretative content, especially when it comes to the stated mission of the respective green start-up to drive forward the sustainable transition of the economy. Subsequently, the latent content relates primarily to the fifth category of the superordinate purpose.

3.3.2. Phase 2 - First coding round

MAXQDA24 software is used to code the results. This is particularly suitable for its simple application and evaluation of small to large qualitative data sets. In the first coding round, all completed transcribed interviews are now matched to the categories on the basis of their statements. As the categories have so far only been superordinate in order to classify the statements appropriately in context in the first step, no measurable results can yet be extracted from this coding round. The focus of this round is primarily on thematic classification. The units of analysis range from individual statements to a complete answer in the form of a paragraph. The quantitative distribution of the identified statements is illustrated in the following overview. The majority of the statements identified relate to the challenges and opportunities of a strategic alliance, which is advantageous in that these can be sub-categorized in the following step. Due to the fact that the fifth category is mostly based on interpreted statements derived from latent content, there remains a comparably high quantity here, which needs to be refined in the following.

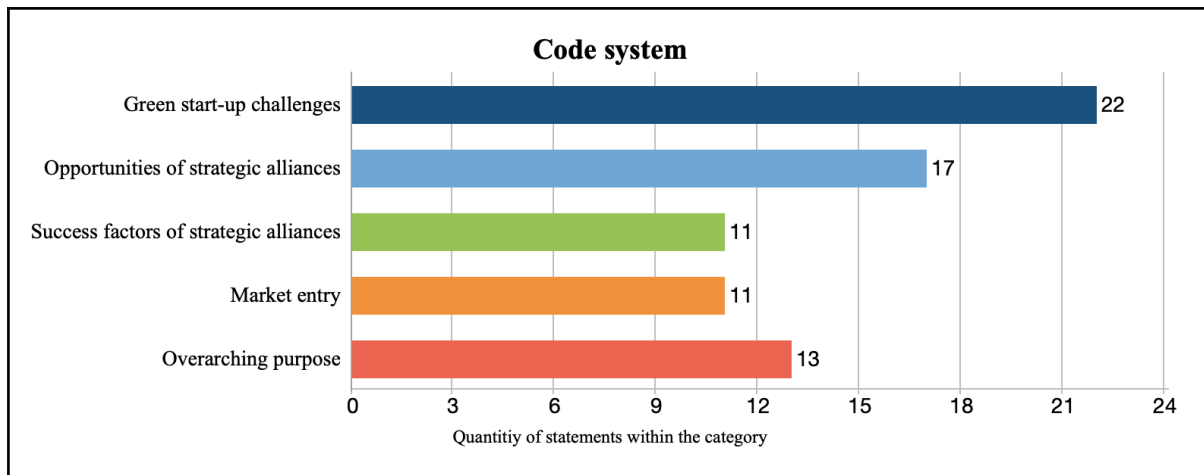


Figure 11: First round of coding, own illustration from MAXQDA (2024)

3.3.3. Phase 3 - Revision & Sub-categorization

An initial revision of the categorization is now being carried out. In this instance, the unit of analysis mainly consists of statements in the form of individual sentences. Entire paragraphs have been split up, which were previously bundled into the supercategories. The first supercategory 'Challenges of green start-ups' was divided thematically and sub-categorized based on the identified challenge areas of the literature review. This resulted in five sub-categories into which all the statements previously listed in the challenges could be divided. These represent institutional/regulatory challenges, resource constraints, market-related barriers, target group-related barriers and lack of scalability. This sub-categorization allows the content to be linked later with the results of the literature review on this point. The same was done with the second supercategory 'Opportunities through a strategic alliance'. In this case, eight sub-categories could be developed that can meaningfully subdivide all relevant statements. These include technological opportunities, business model opportunities, market opportunities, resource opportunities, (green) marketing opportunities, strategic/scaling opportunities, political/institutional opportunities and knowledge/skills/learning opportunities. As expected, the third main category 'Success factors of a strategic alliance' could be divided into the five phases of Hoffmann and Schlosser (2001), which were adopted in the literature review. The fourth category was renamed in the second round from 'Market entry', which appeared to be general, to 'Market entry strategy'. This favors a subsequent subdivision of this into the subcategories 'Existing entry strategy', considering all previous efforts and approaches, and 'alliance as entry strategy', whereby a further subcategory formation is carried out here in a third round in order to divide up different possibilities and approaches that a strategic alliance can offer. The last super-category 'overarching purpose' is now divided into two sub-categories 'situation' and 'vision'. The situation focuses on observations of the market and the target group, as well as other prevailing circumstances. The vision, on the other hand, follows a (desirable) outlook for the future.

3.3.4. Phase 4 - Second coding round & Resulting procedure

In the second coding round, all statements are now matched to the respective sub-categories. Due to the procedure of not operating at paragraph level, but specifically at statement level in the form of individual sentences, the quantity of coded segments in the respective subcategories increased. Here, a first dual approach is already chosen with regard to content, namely both manifest and latent content is taken into account. This is particularly relevant in the sub-category 'overarching purpose'. A quantified representation of the relevant categories and sub-categories is shown in the following figure.

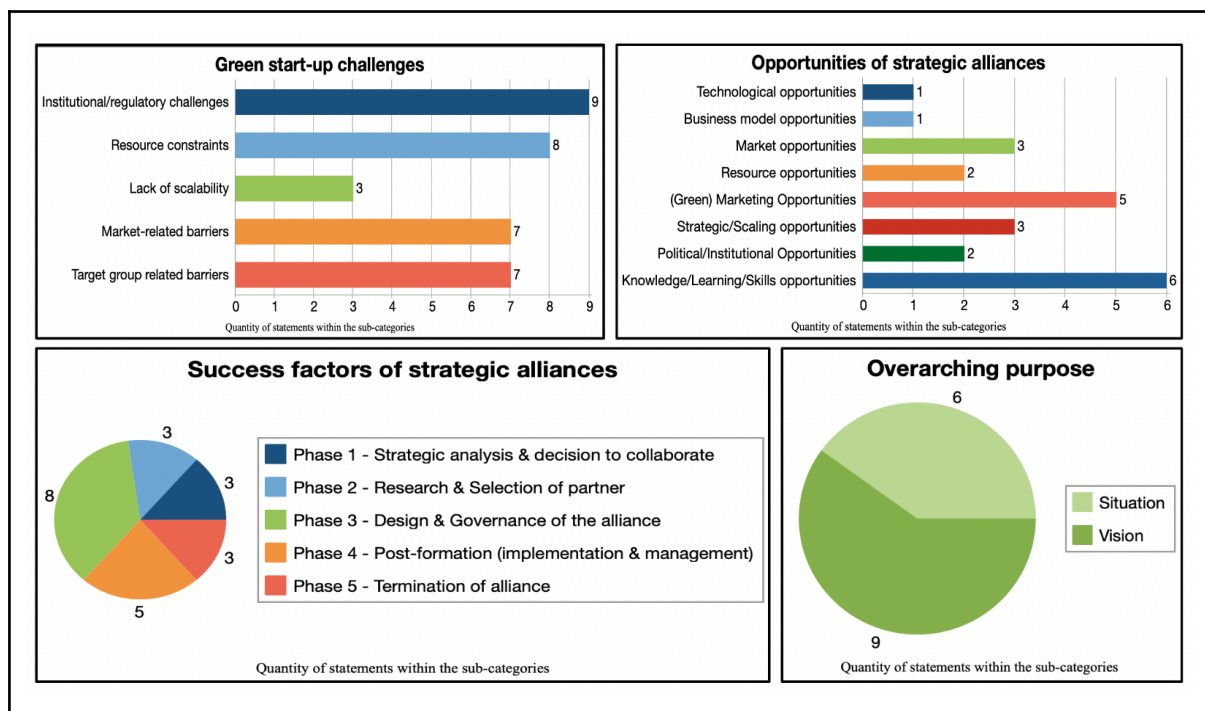


Figure 12: Second round of coding - part 1, own illustration from MAXQDA (2024)

As already explained in the previous section, a further second sub-categorization is created for the category 'market entry strategy' based on the first two sub-categories 'existing entry' and 'alliance as entry strategy'. The background to this is that this allows a comparison to be made between previous efforts to enter new markets and those undertaken by means of a strategic alliance, which serves as a basis for arguing why a strategic alliance can facilitate market entry. A strict separation is drawn from the general possibilities of an alliance, which was evaluated in the previous section. The distributions for this are shown in the following figure.

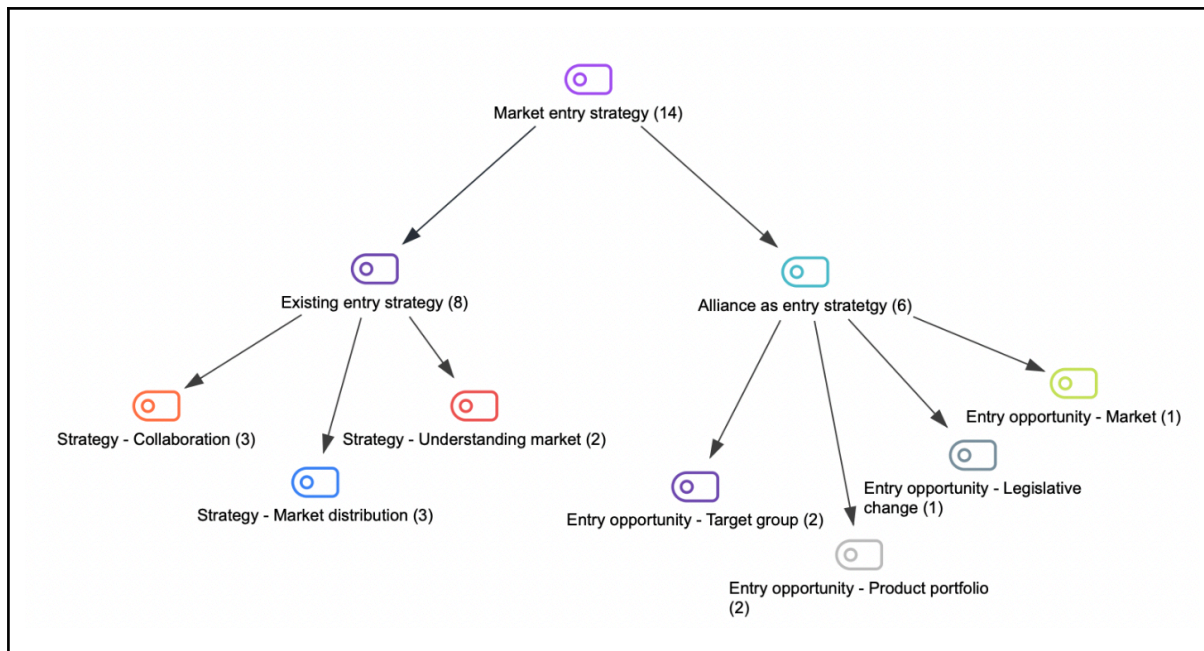


Figure 13: Second round of coding - part 2, own illustration from MAXQDA (2024)

Due to the fact that the sample is limited and mainly serves as support for the argumentation based on the literature review, a category-based analysis along the main categories is chosen to analyze the coded content. Sub-categories, which are based on a low complexity and quantity of statements, are worked out by means of simple summarization. Those whose complexity is greater are made compatible by means of step-by-step summarization in the form of a reduction of the first round of summarization (Mayring 2014). An overview of the relevant summaries is attached to the appendix in the sections 6.10-6.12.

4. Findings

4.1. Findings of the expert interviews - Company profiles

The sources of the information provided in the following represent the statements of the founders of the green start-ups and are elaborated on this basis. The structure of each case study includes their company profile (solution, employees, location, etc.), their target group, their market focus, their biggest challenges and their willingness to enter into a strategic alliance.

Case Study - Company A

Generally, the first green start-up is operating in the energy sector and has developed an AI-based software to save energy costs and CO₂. The company was founded in 2022, already employs 44 people and is headquartered in Munich, Germany. Also, they operate exclusively in the B2B sector. With the software, companies can optimize their consumption and thus increase their energy efficiency. The intelligent analysis of energy and other company data by

the developed AI enables energy cost savings. In the second step, Energy can be purchased intelligently and efficiently and all legal requirements can be understood and mapped using the software. In the long term, it can also be used to comply with required environmental management audits. In summary, the start-up helps to identify unusual energy consumption at an early stage, to access flexible electricity tariffs and to adjust consumption accordingly.

So far, the young company's *target group* primarily comprises the traditional manufacturing industry and its existing customers predominantly include plastics manufacturers, the metalworking industry and steel forges. In addition, the start-up lists customers in the banking sector, bakeries or retirement homes. These are preferably in the range of 50-200 employees, meaning in the SME sector. However, it was also recognized that the software is certainly industry-agnostic, as the topic of energy has relevance in all industries and therefore almost every company can be mapped. In particular, the green start-up can benefit from the fact that target customers have limited know-how and time capacity on the subject of energy.

In terms of *market focus*, the existing customer base consists primarily of the German market. The background to this lies in the fact that a third of all relevant target companies have a presence in this market, among others. However, the focus remains on the international market, which has so far been achieved using three strategies. On the one hand, existing customer portfolios can be used to access their foreign subsidiaries and new international companies can be approached through their referrals. On the other hand, another focus lies on strategic partnerships, through which both the market expansion and product synergies can be developed. Lastly, another focus is on market readiness, as regulations and conditions can vary from market to market. Ideal markets must therefore be identified and evaluated in advance in order to ensure optimal conditions for foreign market entry.

The *biggest challenges facing the green start-up* include market-related barriers. Every market is different, dynamic and constantly changing due to the fact that the digitalization of the grids and the entire energy market is being driven forward. This also goes hand in hand with the fact that a limited resource base makes it difficult to serve each market individually according to its requirements and to adapt the software product accordingly. As an example, it is mentioned here that the software is available in German, which is not very conducive to non-German markets and would therefore have to be adapted. The currency can also play a role here, as the solution primarily brings financial benefits. The start-up also counts institutional circumstances among its challenges, as these can change constantly and reporting obligations are increasing. However, the biggest challenge for the company relates primarily to customers. The main issue here concerns the capitalist mindset of customers, who attach less importance to the contribution made to the environment than to the economic benefits, which is why measurement is based solely on the cost savings achieved by the solution. Target groups must be informed, which goes hand in hand with the last challenge mentioned, a certain dichotomy that can also be counted among entrepreneurial characteristics. On the one hand, you want to make an impact, but on the other, you have to argue about money, which contradicts the founders' actual mission. The last statement was

given in response to the question about the green prison identified in the literature and the extent to which this applies to company A.

With regard to the *willingness to enter into a strategic alliance*, company A was certainly willing to do so. Above all, such an alliance proved attractive for the green start-up in terms of customer synergies, allowing better access to each other's customer base.



Figure 14: Profile of company A, Own Illustration (2024)

Case Study - Company B

In general, the second green start-up operates in the packaging industry and offers a software solution that serves as a sustainability management platform for the packaging value chain. The company was founded in 2020 as part of an innovation project, employs 22 people and is based in Freiburg, Germany. This software is also exclusively applicable in the B2B sector. The solution enables companies to enter their packaging information manually or by importing it into the platform. This information is then compared and matched with the relevant regulatory requirements. The software also performs cost calculations and evaluates the recyclability of the packaging. Companies can evaluate the results in a simplified manner, create reports and manage their packaging sustainably in an international context.

Company B's *target group* to date comprises companies that have a variety of packaging in their (product) portfolio, whose packaging has a certain degree of complexity and which are internationally oriented. Its main target group consists of brand manufacturers such as Beiersdorf, Procter & Gamble (P&G) and Nestlé, in other words companies in the consumer goods industry. However, it was also noted here that almost any company that is involved with packaging in any respect can be mapped with the green start-up's solution. Due to the dichotomy of the statement on the target group, which only partially suggests that almost every company can be mapped with the solution, this information is given as yes/no in the following illustration.

In terms of *market focus*, the young company, which emerged from a project involving various international companies along the value chain, was able to build up an international

customer base with the companies involved at an early stage. The primary focus initially lay on the German market, but was quickly expanded to other markets due to the positive reputation of the international companies. As a result, customers already exist in Italy, the UK, the Netherlands and France. Three strategies are being employed to gain a greater foothold in international markets. On the one hand, after successfully entering the market with two to three brands, agencies are used to promote outreach. Above all, taking this approach helps to minimize language and cultural barriers. The second strategy mentioned here involves cooperation with domestic institutions, as a packaging system must be in place in each country, where labels have to be listed so that all packaging is put into circulation. There is a mutual necessity in this respect, as local institutions are also dependent on information that the green start-up can provide. The third strategy involves collaborations with other start-ups in order to gain valuable insights into the market and target group, which events are relevant and to be able to access their customer base. Company B therefore also pursues an international focus.

Existing *challenges facing Company B* remain entirely limited. Due to the fact that existing regulations in the current situation rely on the solution of the green start-up, the institutional challenge for Company B is virtually non-existent. Neither does the concept of the green prison apply to Company B, as its solution offers its target customers numerous economic advantages, such as overcoming compliance issues, cost reduction and risk minimization. The danger of incumbents mimicking the solutions existed at the beginning, but quickly became apparent that the technological and professional lead of the green start-up was difficult to catch up with. Therefore, the most essential factor that was named as a challenge represents limited time due to long sales cycles. This goes hand in hand with a limited availability of resources, which is particularly noticeable in the form of a lack of specialist personnel, among other things in product development. Three years ago, these two factors led to the decision to switch from organic growth to investors, which was linked to extensive considerations by the founders. The question involved how many shares in the company should be divested, as this monetary support also entails disadvantages in the form of reduced decision-making autonomy. Furthermore, the market-related challenge of existing uncertainty on the market goes hand in hand with the inertia of the target group. Many companies are taking a wait-and-see approach, which is why a fundamental task for the green start-up is to educate customers that they should take action.

A *willingness to enter into such a strategic alliance* also applies in Company B. The relevant condition mentioned here relates to the participants not having any overlapping solutions, but nevertheless having an overlapping customer group. If this proves to be the case, the willingness to enter into such an alliance appears to be very high, as can be deduced from the statement 'You can't do it alone'.



Figure 15: Profile of company B, Own Illustration (2024)

Case Study - Company C

Generally, company C operates in the construction sector, was founded in 2020, comprises 8 employees and is headquartered in Copenhagen, Denmark. This green start-up is dedicated to revolutionizing the construction industry by transitioning towards circular construction practices. Their digital platform serves as a comprehensive solution to address the challenges associated with this transition, such as legislative barriers and a lack of demand and supply. By digitizing existing knowledge and transforming it into usable data, they facilitate decision-making and promote transparency within the construction value chain. Their innovations, including the 'resource mapping tool' and 'building bank,' enable stakeholders to assess the viability of refurbishing buildings versus demolition, considering factors like embodied carbon. Additionally, their collaboration with Autodesk aims to seamlessly integrate a market exchange for secondary materials into existing workflows, offering a holistic solution for circular construction challenges.

In terms of its *target group*, Company C also predominantly operates in the B2B sector. Predominantly because wealthy private individuals who own several buildings themselves may also benefit from this, but tend to be the exception. It is therefore mainly aimed at professional building owners such as companies, developers and public institutions that manage larger portfolios of buildings. No information was provided on specific existing customers. Due to the dichotomy of the statement on the target group, which only partially suggests that almost every company can be mapped with the solution, this information is given as yes/no in the following illustration.

In terms of *market focus*, Company C is currently working on developing a Minimum Viable Product (MVP) of their digital platform, thanks to a recently raised funding that will enable a quicker market entry. Initially, they are focusing on meeting the needs of the Danish market, also due to limited resource capacity. Talks are then planned with other players to examine entry into other markets. However, such expansion will be included in future strategic planning and is therefore not being used in the current situation. However, the effectiveness of their decision support depends heavily on local legislation and construction practices,

which need to be analyzed and worked out in every market in advance. Nevertheless, the concept of the market exchange is transferable to any market, which is why the focus can also be turned to international markets in the coming years. The strategy for such a market entry is predominantly based on collaborations with other players. It consists primarily of identifying and eliminating specific gaps in the market. One critical gap that the current focus lies on relates to the lack of documentation for materials and existing buildings. If other companies possess relevant data sets, potential partnerships might be viable.

The first *challenge of the green start-up* is posed by institutional regulations. The start-up is actively campaigning for political change in Denmark and can already claim to have exerted significant influence on regulations there. At the same time, they are trying to adapt to European legislation to ensure compliance on a broader level. However, the current regulations still fail to create favorable conditions for the growth of the company and the adaptation of the target group's behavior and mindset. Financing represents another big challenge due to the fact that the majority of funding in the area of sustainability impact tends to be channeled into energy-related projects rather than resource-oriented initiatives. As a result, raising finance, particularly venture capital, is proving extremely difficult as there is no well-established market for circular economy initiatives. This issue can be categorized within the area of resource constraints. Due to the dominant legislation and the attitude of the market, the concept of green prisons applies to Company C. The founder takes the view that there is currently a prevailing mindset in the market that favors maintaining the status quo, as this seems to be the economically most viable approach. The inertia of the target group, rooted in the belief that the market will naturally evolve, maintains idealistic goals while the status quo is preserved. Furthermore, the emerging market is full of obstacles, and in Denmark they actively work to identify and remove these obstacles through various activities. At the same time, they are trying to develop a product that meets the needs of the market. However, there is another challenge, particularly with regard to know-how in international markets, which the founder is well aware of.

With regard to the *willingness to enter into such an alliance*, the founder emphasized that the formation of strategic partnerships for opening up new markets appears to be crucial and that such a willingness therefore exists. In the current phase, the focus is on companies that could be perceived as competitors by others, as it is primarily about tackling societal challenges. They are also part of the EU Circular Build Alliance in Denmark, which brings together policy makers and companies to work towards circular build goals. Actively seeking alliances is therefore central to their business strategy and crucial to tackling the complex challenges they face.



Figure 16: Profile of company C, Own Illustration (2024)

Case Study - Company D

Overall, the company D profile includes 13 employees, a headquarters in Berlin, Germany, and a founding year around 2021. The company operates in the B2B sector of the business travel industry. The green start-up has developed a sustainability plugin for corporate travel booking systems that aims to overcome the limitations of existing systems in encouraging greener travel choices. By supplementing these outdated booking tools with features such as transparency, nudging, gamification and incentives, the green start-up encourages employees to choose greener travel options. The solution fills a gap in the market by offering large companies a flexible and transparent way to integrate sustainability aspects into their business travel strategies, which can lead to a reduction in carbon emissions associated with business travel.

The *target group* of the green start-up currently focuses primarily on management consultancies and service-oriented companies, in other words companies that rely heavily on business travel and cause more than 70% of their ecological footprint through travel. In principle, however, the start-up's solution can be applied to any company that shows the potential. Nevertheless, it is also evident that other approaches take precedence for manufacturing companies, where business travel only accounts for 1% of emissions.

The *market focus* to date lay on the German-speaking countries, meaning the DACH market, due to the in-depth market knowledge of the local dynamics and understanding of the general conditions. Nevertheless, the focus has increasingly shifted to international market penetration. The software can be used for almost any market, partly because business travels exist in every market. Experimental approaches are still being pursued, which are primarily based on networking, such as events, association work and conferences.

A number of different *challenges* can be named. The green startup faces market-related barriers due to variations in the level of advancement and prioritization of sustainability within travel management across different companies and markets. This diversity in approaches necessitates tailored strategies and solutions, making it challenging to directly

transfer successful strategies from one market to another. Furthermore, the concept of green prison can also be applied to company D. The driving forces behind companies seem to deviate from saving the climate. They are not acting with the direct intention of saving it, but rather because of regulations and the pressure behind them, which sooner or later will force them to act. The prospect of necessary action against climate change is not perceived by target customers, both companies and private individuals. Arguments about competitiveness are often cited, which entail a comparison with competitors who are not adapting a sustainable solution. These indices clearly exhibit the characteristics of a green prison. Target group-related barriers can also be identified. Target customers usually only take the initiative from the bottom up because employees harbor environmental doubts about the company's operations. However, persuading management and communicating the sustainable solution of company D in a way that adds value proves to be thoroughly challenging. Due to social tendencies towards impact-driven intentions, the challenge of acquiring suitable labor resources does not exist. The green start-up can also count on a similar view from investors when it comes to financial resources. Although such a limitation existed at the initial stage due to founding requirements, this is no longer perceived in the ongoing process. Lastly, the green start-up is extremely dependent on domestic regulations and must keep an eye on them at all times. Regulatory dynamics can therefore play into the company's hands or hamper it. Due to the heterogeneity of regulatory frameworks in different countries, it is necessary to adapt to them if the company aims at entering the same market. In France, for instance, domestic flights play a subordinate role due to the policies, which does not benefit company D's business model and adjustments would therefore have to be made. However, the green start-up sees itself as well-equipped for the moment due to the long lead time of changing regulations in its industry and its own agility and adaptability. With further growth and a transition to more settled structures away from a constantly changing start-up culture, this problem could arise more frequently.

As far as the *willingness to enter into such a strategic alliance* is concerned, this can certainly be identified if synergies exist. However, it is important to carefully examine where these synergies actually exist and where you may be investing unnecessary time in order to create synergies. It is therefore imperative to identify where the distinction really needs to be drawn and where this knowledge can be used.



Figure 17: Profile of company D, Own Illustration (2024)

4.2. Proposition Development

Once the results of the expert interviews have been placed in the respective context by means of case studies in the first step, the research questions can be answered in the following step and propositions can then be developed on this basis. As already described in section 1.3, the process involves the following: sub-RQ1 - sub-RQ2 - sub-RQ3 and, based on the results, answering the overarching RQ.

Sub-RQ1 - Which challenges that green start-ups face can arise for a successful market entry, for which a strategic alliance between green start-ups from different markets can offer solutions?

Initial challenges prevalent in the literature associated with market entry into new markets include a lack of scalability due to liabilities of foreignness and smallness, as well as building strategic relationships aligned with their triple-bottom-line value creation. To address these, strategic alliances provide a means, but further effort is needed as there is a general lack of experience in an alliance of green start-ups and each of them is faced with unifying their triple-bottom-line value creation. Another essential challenge is market-related, as markets in which green start-ups operate are often characterized by market inefficiency, imperfection and market failure. Limited resources in the form of lack of knowledge & base of information about the markets also play a role here. Especially with regard to the latter, alliances help to efficiently build up the necessary knowledge and thus compensate for a lack of resources and uncertainties in the market. Due to the fact that market failures can mainly be overcome through alliances with institutions, which is not the case here, the first predominant challenge that can be overcome through strategic alliances is to close knowledge gaps and obtain relevant information about market conditions and circumstances. Statements such as *'It's crucial to note that when expanding to countries like Germany, the UK, or France, we anticipate encountering a distinct set of barriers and market dynamics.'* from company C or *'At the moment, it is probably a question of understanding how advanced the market is and*

whether companies have already gained a foothold in this topic.' from company D underline this assumption. Therefore the **first proposition** states:

1. *A challenge that green start-ups face when entering new markets and that can be overcome through a strategic alliance with green start-ups relates to the lack of knowledge and information about the respective markets and their dynamics.*

Another challenge for the successful market entry of green start-ups is target group-related. Here, a prevailing customer inertia due to lack of prioritization of sustainable issues and their aspirations to maintain the status quo can be highlighted. A lack of trust in new, sustainable technologies and the need to educate them is present and prevents them from successfully entering new markets. This could also be identified in the expert interviews through statements such as 'You have to educate the customer as there is a duality, because on the one hand you want to achieve an impact, but on the other hand you also have to argue about money' from company A or 'Currently, the prevailing mindset favors maintaining the status quo, as it is economically more feasible.' from company C. These can similarly be overcome by means of strategic alliances to acquire initial customers and develop legitimacy, which is why the **second proposition** is as follows:

2. *A challenge that green start-ups face when entering new markets and that can be overcome through a strategic alliance with green start-ups relates to the prevailing customer inertia, the lack of trust towards sustainable solutions and the necessity to educate them.*

Sub-RQ2 - What opportunities are offered specifically for green start-ups by a strategic alliance between green start-ups from different markets that can be used to facilitate market entry into each other's markets?

In terms of institutional opportunities through strategic alliances, it can be mentioned that specific knowledge of the domestic alliance partners about local regulations provides an opportunity to better qualitatively assess the suitability of the foreign market for their sustainable solution. This can include an initial assessment of demand and better strategic predictability of future regulatory changes, thus contributing to the long-term success of the green start-up in the foreign market. In general, this can be a decisive advantage, but in the particular context of an alliance of green start-ups with limited knowledge of each other's regulatory frameworks due to their different industry focus, it cannot be seen as one of the main means of facilitating market entry for the specific green start-up here, even though better predictability can be created as the general behavior of the institutions is revealed. Rather, general knowledge can be acquired that includes strategically appropriate economic procedures, which can be essential to meet their triple-bottom line value creation, but also specific insights into foreign markets in order to overcome their liability to foreignness and promote growth. Concepts such as the 'alliances as knowledge access' thesis underline the

assumption that strategic alliances offer access to such insights. This is supported by statements from the experts, such as *'If a partner approaches me with the intention of entering the German market, I can provide insights into which events can be skipped and which should definitely be attended, which contacts can be found at which events and which not. To learn from each other how the respective market works, in order to then be able to give a warm intro.'* from company B. Based on the experience gained by the partners, such insights can be applied above all to how appropriate arguments on sustainable issues can be communicated. An **initial proposition** could therefore be as follows:

3. *A strategic alliance between green start-ups from different markets offers the green start-ups opportunities to gain access to specific market knowledge for an appropriate argumentation on sustainable issues.*

'It seems like you're often called upon to be the go-to person for sustainability, even if it's not directly related to your area of expertise. In this case, it could be very helpful to be part of something bigger to coordinate better and handle requests more efficiently. (...) I definitely see a great benefit in gaining more insights and information from companies in order to be able to react better to the uncertainties and possible changes.' - Taking up the previous topic with valuable knowledge, this statement from company D holds further potential through a strategic alliance for green start-ups. The efficient bundling of resources characterized by imperfect mobility in the form of knowledge about sustainability can not only promote the ability to react appropriately and the stock of knowledge. Thinking one step ahead, this type of expertise supports the company in appearing more legitimate and trustworthy, as market participants' queries and doubts can be addressed more convincingly and specifically. It can enhance a company's own reputation and consequently help to bypass or even overcome the widespread problem of prevailing customer skepticism and inertia towards sustainable technologies. Alliances also offer access to new customer segments or the customer base of the other partner, which provides an initial foothold in the market of the other green start-up. Companies that are already customers of the other partner have to a certain extent already overcome their skepticism towards sustainable technologies and are more easily accessible by reference to the partner. It therefore offers access to market participants who are already better educated, which can then be approached more efficiently using a targeted outreach strategy. This leads to the following **second proposition** of the sub-research question 2:

4. *With the help of access to the already educated target group and increased legitimacy, a green start-up can overcome customer skepticism and inertia towards sustainable technologies through a strategic alliance of green start-ups from different markets.*

Sub-RQ3 - *How can the opportunities offered by a strategic alliance between green start-ups from different markets be used to lead to sustainable transition of the economy?*

The approach to answering this research question resembles that used in the literature review, evaluating how a strategic alliance of green start-ups can drive forward the sustainable transition of the economy from the micro to the meso and macro level. With regard to the micro level, the motivations of the entrepreneurs should coincide. The approach of the four categories of sustainable entrepreneurs, namely 'those who want to create a better world', 'those who want to make the world a better place', 'those who see making money as a means' and 'those who see making money as an end', can be used here. This is crucial insofar as it allows appropriate collective action strategies to be developed subsequently. At the meso level, entering into a strategic alliance can promote technology-related market and social legitimacy by, among other things, giving a partner's technology access to customers. To create an effective ecosystem that can make a difference in creating an impact and the likelihood of market success through an alliance, the diversity of partners is crucial. In the present context, this is given by the operations of green start-ups in different industries and markets, as supported by the assumption of company C, visible in their statement *'Therefore, it's not necessarily confined to construction companies; a systemic change is required, and various actors, including energy companies, have the potential to drive this transformation.'* By taking up the concept of collective action at the macro level, system-building strategies can be set up in a strategic alliance, which ultimately create system-level resources that drive sustainable transformation. In this context, this means that by enabling access to the already educated customer base of the other partners, an initial foothold can be created in the market, which increases market impact. Once the first companies have adapted a sufficient number of alliance participants' solutions to become CO₂-neutral, the reputation of the individual alliance participants and of the alliance as a whole is enhanced. This promotes a system-level legitimacy of the alliance as the first system-level resource and indicates the effectiveness of the initiative. A system-building strategy that encourages rethinking can now be developed and supported by joint projects. For instance, a green start-up that specializes in renewable energy can work together with a green start-up from the construction industry to implement sustainable building projects. Ultimately, the system-level legitimacy gained by the alliance promotes opportunities for cooperation with institutions that can be used to create favorable legislative conditions. This leads to higher demand and ultimately supports the rethinking that has already been initiated. The **fifth proposition** reads as follows:

5. *By creating system-level legitimacy, a strategic alliance of green start-ups from different markets can create further system-level resources such as regulatory influence, which ultimately contribute to more demand for sustainable technologies and a rethinking in the economy towards sustainable transformation.*

RQ - *Given the challenges a green start-up faces, how can a strategic alliance between green start-ups from different markets facilitate their market entry into the other start-ups markets and, subsequently, lead to sustainable transition of the economy?*

All of the previously developed propositions can be summarized below and contribute to answering the overarching research question. By providing access to specific market knowledge, which contributes to a better foundation of argumentation for sustainable technologies, as well as overcoming customer skepticism and inertia towards sustainable technologies through access to the partners' already educated customer bases and increased legitimacy, a strategic alliance of green start-ups can indeed facilitate gaining a foothold in each other's markets. Statements such as '*A strategic alliance could definitely help, because the respective partner companies can make recommendations to their customers, sort of as a suitable partner for the topic of energy.*' from company A or '*Yes, exactly when it suits the customer target group.*' from company B support this assumption. Once legitimacy has also been achieved at alliance level, system-level strategies in a collective action can be utilized to create decisive system-level resources such as regulatory influence, which contribute to a rethink and ultimately drive sustainable transformation. Thus, the final and **overarching proposition** of the respective issue reads as follows:

6. *By creating access to market knowledge, leveraging the partners' customer base and increasing the legitimacy of sustainable technologies, a strategic alliance between green start-ups from different markets can facilitate market entry into each other's markets and thus increase system-level legitimacy to create system-level resources that lead to a sustainable transformation of the economy.*

5. Conclusion

Once the findings from the knowledge gained from the literature review and the data collected from the expert interviews have been elaborated and placed in the context of the research question, the last step is to finalize the work and provide an outlook on implications and future fields of investigation. For this purpose, on the basis of the results, the first step consists of explaining what contribution this work provides to research and what implications can be drawn at theoretical and management level. It is then necessary to summarize the limitations of this work and what was generally disregarded in the research. In the final step, an outlook will be given by looking at emerging fields of research. On the one hand, these build on the work and, on the other hand, complete the investigation by closing the previously identified limitations.

5.1. Implications

Theoretical implications

The overall aim of the research was to determine whether a strategic alliance consisting exclusively of green start-ups from different markets can facilitate market entry into each other's markets and thus lead to a sustainable transformation of the economy. For this

purpose, a literature review was carried out, the sub-chapters of which provide a comprehensive foundation for the argumentation, followed by a qualitative data analysis to support the findings and to expand them.

The first sub-chapter '(Market entry) Challenges of green start-ups' closes the research gap that no comparison of the challenges faced by green start-ups has been carried out in the literature to date. A total of 10 areas were identified, ranging from the necessity of trade-off in triple-bottom-line value creation in relation to the business model, limited knowledge & information, uncertainties and inefficiencies in relation to the market, to the concept of 'green prison', which green start-ups have to contend with due to prevailing customer inertia and skepticism. Scholars can draw valuable insights from this, which serve as a basis for their argumentation on topics relating to green start-ups and overcoming their obstacles, or to uncover new gaps in the literature.

A comparison of the opportunities of strategic alliances for green start-ups with those of general companies and start-ups, as in the subchapter 'Opportunities of strategic alliances', has also not yet been carried out, thus closing another gap. The approach therefore was mostly done with concepts in which the literature placed green start-ups in a context relevant to this section and specific sources could then be applied to provide an explanation. Eight overarching areas were identified for green start-ups, in which the access to market-specific knowledge and market opportunities in the form of increased credibility & legitimacy and overcoming customer inertia and thus the 'green prison' represent the most essential ones. In the present context, it is particularly helpful to determine what opportunities exist in an alliance consisting exclusively of green start-ups and how these opportunities can help in overcoming the identified challenges they are facing.

Ultimately, the last chapter 'Market entry modes' of the literature review opens up, among other, a further field of research and attempts to create an initial foundation for this by taking stock of previous research. This involves strategic alliances of green start-ups that have the overarching purpose of driving the economy towards sustainable transformation and how this can be achieved. The subdivision into micro, meso and macro levels has created a comprehensive overview that can later be used to conduct more specific and in-depth research at the respective level. For the context here, it became clear that the type of entrepreneurial motivation is crucial at micro level and that the development of strategic partnerships and alliances is necessary at meso level in order to generate an impact. At the macro level, the focus should be on developing system-level strategies to create system-level resources that drive sustainable transformation and rethinking in the economy.

A qualitative data collection in the form of expert interviews was then conducted to support the findings of the literature review and to gain further valuable practical implications. The results of the expert interviews also provided valuable confirmation of the opportunities of a strategic alliance. It became clear that the primary expected benefits of the experts were in customer synergy and access to these, as well as access to valuable knowledge and insights that can be used to optimize the outreach strategy. This proved to be supportive in that the results confirmed the focus already placed on the most important components. Also, this supported the assumption that a strategic alliance can facilitate market entry into the other start-ups' markets. The part 'success factors of strategic alliances' is also improved by the results of the expert interviews, which provided further considerable input in this regard. For

instance, it emerged that a fixed-term alliance would be more desirable for the interviewees, which contradicts the overarching goal of long-term sustainable transformation of the economy and requires further research.

Practical implications

A strategic alliance of different green start-ups, all offering Software-as-a-Service, operating in different sectors or industries and based in different countries, offers a novelty not only to science. The combination of different solutions and expertise that can make any company CO₂-neutral simplifies entry into new markets and thus increases influence and reach. On the other hand, it offers the opportunity to effectively initiate changes at a systemic level and drive existing ones forward. The research here has shown that many factors need to be considered and the right partners chosen, but provided there are sufficient synergies, such a product portfolio enables a strategy tailored to each company. This can not only overcome prevailing obstacles, but also fulfill the overarching motive of every sustainable entrepreneur - to generate an impact.

5.2. Limitations

With regard to the results of the literature review, it can be noted that, in the section of '(Market entry) challenges of green start-ups', the examination of the business models is rather superficial and there is no elaboration on whether there are business models that are not suitable for a strategic alliance. A closer look at the compatibility of different business models is also not taken into account in this work. With regard to the parts on strategic alliances, it should be noted that specific alliance characteristics were not examined in detail. There is no detailed comparison of equity vs. non-equity alliances that highlights the characteristics, the suitability in the respective context as well as the advantages and disadvantages of each type of alliance. Although the focus here lies primarily on non-equity alliances, company C remarks that an equity alliance can also be advantageous in the present subject matter. In the 'market entry modes' section, previously used scientific theories were examined, but theoretical approaches that are more concerned with explaining the topic of the overarching purpose of sustainable transformation and the strategic alliance based on this were not taken into account.

With regard to the methodology, the limited number of experts surveyed represents a limitation that makes it particularly challenging to generalize the results obtained. In this case, they primarily served as a supporting resource for assumptions derived from the literature and as an initial starting point for the practical implementation of theoretical considerations on such a strategic alliance. However, in order to obtain well-founded findings for answering research questions by means of hypotheses, a larger sample of experts is required. Three further limitations can be identified with regard to conducting the expert interviews. On the one hand, little attention was paid to the overarching purpose of such an alliance for sustainable transformation in the course of asking the questions. Although it was

possible to identify latent conclusions from the founders' statements, it would have been possible to go into more detail about the approach they want to use to achieve their overarching goal and how exactly this goal is structured with regard to the respective start-up. This includes, for instance, whether they are aiming to only make companies carbon-neutral or whether they are aiming to prompt a social mindset change. On the other hand, the analysis method of the expert interviews was based on manageable complexity. It was primarily a matter of reproducing the respective statements, so the categorization and coding served exclusively to simplify contextualization, thus in-depth examination of impact relationships and differences between the individual characteristics were omitted. Finally, three of the four green start-ups examined are based in the German market, which sufficiently represents a very strong European market, but creates the limitation to one region only.

5.3. Future research

5.3.1. Increased focus on green start-ups and their differences

There remains no debate in the literature that green start-ups play a decisive role on the path to sustainable transformation for the economy (Chapman and Hottenrott 2022). Their partly disruptive innovations often represent the starting point for systemic change at an economic level, with technologies and solutions that are later either adapted or mimicked by established market players (Hockerts and Wüstenhagen 2010). Research should therefore place a greater focus on green start-ups, starting with the challenges faced by them and the extent to which these challenges differ within the various industries in which the green start-ups operate. As the results of the expert interviews reveal, the main challenges differ. For instance, companies A, C and D perceive themselves to be in a green prison due to customer inertia and skepticism towards sustainable solutions, as well as the prevailing desire of the target group to maintain their status quo. And yet the opposite applies to company B, which can be attributed primarily to favorable legislation, so that they consider themselves in a competitive advantage. Such greater focus will also make it possible to derive supposed patterns that a large number of green start-ups in the energy sector encounter, for instance, and can therefore be generalized and how these can best be overcome in the respective industry. This can also serve as a guidance for investors who have only limited reference knowledge to date and can only access generalized resources via academic literature. A comparison at country level can represent a further in-depth step in this regard, which can serve as a reference for entrepreneurs using managerial implications to decide which markets are most suitable for successful entry. A model could also be developed here that can be utilized to identify suitable markets at any time. Such a comparison at country level can also help institutions to draw parallels with other countries on how the domestic market can be designed to be more attractive for sustainable business start-ups and the entry of foreign companies in the sustainability sector.

5.3.2. Difference between challenges of green vs. conventional start-ups

Increased focus can also be placed on the differences between the challenges faced by conventional start-ups and green start-ups. So far, no explicit comparison of these has been identified in the literature. To date, this work has also exclusively elaborated and outlined the differences between the opportunities offered by a strategic alliance between green start-ups and non-green players. The challenges were exclusively related to green start-ups, as the differences are of secondary relevance in this context. Comparing and contrasting these can lead entrepreneurs when it comes to adapting strategies from others as a green start-up, as well as investors who are interested in investing in sustainability and need a comparison of green vs. conventional investment objects when assessing the risk of their invested money. In relation to the 'green prison' principle, recommendations for action and research can also be drawn as to the extent to which green start-ups can overcome the prevailing limitations with regard to the market and target group and achieve a possible scaling comparable to that of conventional start-ups.

5.3.3. Organizational design and decision-making processes

Increased focus should also be placed on the organizational characteristics and design of green start-ups and their evolution. Above all, the subject of decision-making processes and their speed can play a decisive role. Due to the different industries in which the green start-ups operate, there may be essential differences that have an impact on decision-making also within the strategic alliance. In one green start-up, decision-making processes may be fast, while another may face the need to align strategic decisions with multiple parties. There can also be decisive differences with regard to investors if one start-up has to obtain their approval for all decisions, while the other possesses more freedom. This can also be applied to risk management, which can certainly represent an influential component and could therefore provide additional insights. In the case of a successful alliance that assists green start-ups to enter and scale into foreign markets, the organizational design of each start-up needs to be continuously adapted. According to Handoko and Tjaturpriono (2023), start-ups experiencing exponential growth try to manage the tension between structuredness and flexibility and thus remain innovative by combining management-centered and employee-centered approaches. This opens up a further field of research in which it is necessary to investigate which approaches the alliance partners can choose here and to what extent these are compatible with the others.

5.3.4. First use case of such alliance

In the next step, it can be worthwhile to carry out a practical application in order to test the developed constructs. For this purpose, existing literature on comparable alliances can first be used and compared on the basis of the knowledge gained here. On the one hand, this can include alliances in which green start-ups are involved and which take place with other, non-comparable players such as institutions, non-profit companies or already established

larger market players. On the other hand, general alliances between start-ups that are not necessarily active in the field of sustainability can be examined, but which also consist exclusively of such start-ups. Alliances that do not have sustainable transformation as an overarching goal, but which target other overarching goals, perhaps even social change, can also be of interest here. The respective alliance can then use a pilot project to provide potentially suitable alliance participants with insights into whether the existing knowledge is applicable to the topic or covers it well. Such a project can already consist of two green start-ups and their goal of mutual market entry. Initial parameters can be defined in order to make success measurable. Should such an initial practical research project prove successful, a larger number of green start-ups from different markets can be drawn on.

Appendix

Literature Preparation - Terminology

	Citation	Statements
Sustainable Entrepreneurship	Patzelt and Shepherd. (2011) "The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "what is to be sustained" with "what is to be developed"." In: Entrepreneurship Theory and Practice, 35(1), 137–163. Hockerts K, Wüstenhagen R. (2010) "Greening Goliaths versus emerging Davids—theorizing about the role of incumbents and new entrants in sustainable entrepreneurship" In: Journal of Business Venturing 25(5): 481–492. Schaltegger, S., Wagner, M. (2011) "Sustainable entrepreneurship and sustainability innovation: categories and interactions". In: Business Strategy and the Environment, 20(4): 222–237. Lans, T., Blok, V., Wesselink, R. (2014) "Learning apart and together: towards an integrated competence framework for sustainable entrepreneurship in higher education". In: Journal of Cleaner Production, 62(C): 37–47. Kuckertz A, Wagner M. (2010) "The influence of sustainability orientation on entrepreneurial intentions—investigating the role of business experience". In: Journal of Business Venturing, 25(5): 524–539. Tilley, F., Young, W. (2009) "Sustainability entrepreneurs: could they be the true wealth generators of the future?" In: Greener Management International, 55: 79–92. Dean, T.J., McMullen, J.S. (2007) "Toward a theory of sustainable entrepreneurship: reducing environmental degradation through entrepreneurial action" In: Journal of Business Venturing, 22 (1), 50–76.	Definition: Sustainable entrepreneurship is focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society. Definition: Sustainable entrepreneurship is 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. Explanation: Sustainable entrepreneurship is the only approach capable of combining economic, social and environmental value creation, with an overall concern for the well-being of future generations. Definition: Sustainable entrepreneurship can be described as an innovative, market-oriented and personality-driven form of creating economic and societal value by means of breakthrough environmentally or socially beneficial market or institutional innovations. Definition: Sustainable entrepreneurship is seen as a way of generating competitive advantage by identifying sustainability as new business opportunities, resulting in new and sustainable products, methods of production or ways of organizing business processes in a sustainable way. Definition: Sustainable development-oriented entrepreneurs are those individuals with entrepreneurial intentions who aim to manage a triple bottom line. Definition: A sustainability entrepreneur is an individual who holistically integrates the goals of economic, social and environmental entrepreneurship into an organization that is sustainable in its goal and sustainable in its form of wealth generation. Definition: 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.
Ecopreneurship	Patzelt and Shepherd. (2011) "The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "what is to be sustained" with "what is to be developed"." In: Entrepreneurship Theory and Practice, 35(1), 137–163.	Explanation: Ecopreneurship is part of sustainable entrepreneurship but it is not synonymous because it does not explicitly cover, for example, sustaining communities, and the development of non-economic gains for individuals and societies. Definition: Eco-entrepreneurship is the practice of starting new businesses that are profitable and based on goods or services that are impure public goods with environmental benefits.
Green Entrepreneurship	Potluri, S., & Phani, B. V. (2020) "Incentivizing green entrepreneurship: A proposed policy prescription (a study of	Definition: Green entrepreneurship refers to a commercially oriented company that focuses on technological development "that can help alleviate human impact on the environment, addressing global environmental issues".

	entrepreneurial insights from an emerging economy perspective)" In: Journal of Cleaner Production, 259, 120843. Mrkajic, B., Murtinu, S., & Scalera, V. G. (2019) "Is green the new gold? Venture capital and green entrepreneurship" In: Small business economics, 52, 929-950. Binder, J. K., & Belz, F. M. (2015) "Sustainable entrepreneurship: what it is" In: Handbook of entrepreneurship and sustainable development research, 1, 30-71.	Definition: Green entrepreneurship represents a mechanism through which entrepreneurship can address the need for greener and more environment-friendly business activities. Explanation: While sustainable entrepreneurship examines the process of discovering, evaluating, and exploiting entrepreneurial opportunities addressing the entire triple bottom line, green entrepreneurship only focuses on the environmental aspects of sustainability.
Ecological Entrepreneurship	Gast, J., Gundolf, K., & Cesinger, B. (2017) "Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions" In: Journal of cleaner production, 147, 44-56.	Definition: The process of identifying, evaluating and seizing entrepreneurial opportunities that minimize a venture's impact on the natural environment and therefore create benefits for society as a whole and for local communities.
Green Startups	Bergset, L., & Fichter, K. (2015) "Green start-ups—a new typology for sustainable entrepreneurship and innovation research" In: Journal of innovation management, 3(3), 118-144. Bergset, L. (2015) "The rationality and irrationality of financing green start-ups" In: Administrative Sciences, 5(4), 260-285. Kuckertz, A., Berger, E. S., & Gaudig, A. (2019) "Responding to the greatest challenges? Value creation in ecological startups" In: Journal of Cleaner Production, 230, 1138-1147. Sadma, O. (2021) "The role of environmental-based "green startup" in reducing waste problem and its implication to environmental resilience" In: Research Horizon, 1(3), 106–114. Bhatnagar, M., Taneja, S., & Özen, E. (2022) "A wave of green start-ups in India—the study of green finance as a support system for sustainable entrepreneurship" In: Green Finance, 4, 253–273. Criscuolo, C., & Menon, C. (2015) "Environmental policies and risk finance in the green sector: cross-country evidence" In: Energy Policy, 83, 38–56.	Definition: Young and innovative businesses that create and market goods or services that have a beneficial influence on the environment and help green the economy. They have to meet a triple bottom line; the focus of their business activity, though, is on products or services that have a positive environmental impact and contribute to the environmental goals of a Green Economy. Definition: Green start-ups offer products and services that provide environmental protection or substantially reduce environmental impact compared to other existing products and services. Definition: "Born green" startups, defined as young and innovative ventures that seek opportunities to achieve profitability while reducing environmentally harmful impact. Explanation: They must adhere to a triple bottom line; however, the emphasis of their company operations is on goods and services that benefit the environment and advance the objectives of a green economy. Explanation: When start-ups create green products or services, they seek to discover market-based remedies to ecological issues that, until recently, were mostly the purview of governments and non-profit groups. Explanation: Green startups follow an entrepreneurial path that fulfills the need for a greener and more environmentally friendly approach to business, providing practical and innovative solutions for social and environmental concerns.

Expert Interview - Company A



Interviewer: Tim Nürnberg

Expert Interview - Company A

Date of Interview: 13.02.2024

Headquarter	Munich, Germany
Employees	44
Year of foundation	2022
Mission	First all-in-one green operating system to help SMBs reach their climate goals - Save energy costs & CO ₂ with intelligent energy management

Interviewer:

"As a first step, can you introduce the start-up?"

Founder:

"The founding team consists of two people. Our software operates in the B2B sector and is designed to help companies to map the topic of energy holistically. With our software, you can optimize your consumption - i.e. increase your energy efficiency, you can buy energy smartly and efficiently and you can use the software to understand all the regulatory requirements that you need to map. In the long term, it also helps you to comply with the audits etc. that are required. With the help of this software, a company has the topic of energy completely under control."

Interviewer:

"Do you have a specific target group?"

Founder:

"Over the course of time, we have become increasingly familiar with the market and have realized that our software is very industry-agnostic. We mainly map the classic manufacturing industry (preferably in the 50-200 employee range), and our existing customers include plastics manufacturers, the metalworking industry and steel forges. However, we have also noticed that the subject of energy is relevant for everyone, which is why other customer groups exist in the banking sector or with bakeries or retirement homes. Particularly in the SME sector, in which we mainly operate, customers have little know-how and time to deal with the topic of energy."

Interviewer:

"When you want to enter a new market, do you have a preferred market entry mode?"

Founder:

"The main reason we are currently only operating in Germany is because 1/3 of the companies that are relevant to us are also based in the German market. We think a lot about internationalization, because you have to act proactively and sensibly in order to go abroad. We have three core drivers for our activities on foreign markets to date: on the one hand, a lot happens via customers and their referrals. Companies in our existing customer portfolio also operate in different locations, e.g. in Eastern Europe, and if they become customers in the German market, then it is easier to implement this in their other branches as well. Once you have established yourself in a market, it is easier to expand. On the other hand, there is the question of the partnerships that we maintain. We already have a good network of partners with whom we work successfully. And internationalization can be facilitated through these existing partnerships. You don't have many direct synergies on the customer side, but you can achieve good synergy effects on the product side. Synergies can

also be identified in terms of language, which is why the DACH market is naturally easier to tap into than those that are not German-speaking. Our software is primarily in German, which naturally makes the Austrian and Swiss markets more attractive. The third aspect is general market readiness, as the countries are very different in many respects. For example, access to smart tenant software data varies from country to country, which is an absolute prerequisite for an energy software start-up."

Interviewer:

"What are the biggest challenges facing your start-up in terms of internationalization?"

Founder:

"In addition to customer acquisition, every market is different. For all sustainable start-ups, the environment is quite dynamic and constantly changing. Regulations are changing, the digitalization of grids and the entire energy market is being driven forward, reporting obligations are increasing. The more markets you serve as a small start-up with limited resources, the more challenging it becomes to meet all the necessary requirements and challenges. The question of "how do I translate my software" alone is very extensive (you have to consider factors such as currency, etc.). There are many factors to consider in order to make a software product suitable for many markets. The issue of data security also plays a major role for customers. Our customers really appreciate the fact that their data is secure in the German market, which gives us an advantage. But this can be a challenge for other start-ups."

Interviewer (Explanation of the Green Prison):

"Does the Green Prison also affect your start-up?"

Founder:

"We help our customers, but it's a challenge. The customer doesn't really care what contribution we can make because they are highly capitalistically driven. We are measured by the customer solely on how much money they save with our solution. You have to educate the customer, as you have a prevailing duality because you want to generate impact, but on the other hand you have to argue about money. Our sales department in particular has to deal with this problem. It's not always culturally straightforward as a start-up, as you actually want to generate this impact first and foremost."

Interviewer (Presentation of the strategic alliance):

"Would you join such an alliance?"

Founder:

"Quite possibly, yes, especially on the customer side, there could be synergies. It wouldn't matter to me if it didn't involve other start-ups in the energy sector; I'd even prefer that. We are involved in many partnerships with other players in the energy sector because of the complexity of the industry and the product. But yes, it's definitely very attractive on the customer side."

Interviewer:

"Do you think that, despite the fact that other partners may not operate in the energy sector, you get an insight into the domestic regulations of the respective home market?"

Founder:

"I think so, but I don't know if it would interest me in that sense. You don't have much time as an entrepreneur, so it wouldn't be much use. It would primarily be to be able to access the customer base. But it's also interesting to see whether I can serve the customer."

Interviewer:

"Would you say that the alliance could give you access to more resources?"

Founder:

"I don't think so for us, maybe if you're creative. But if it's not the same industry, then it's rather difficult."

Interviewer:

"What would have to be taken into account for such an alliance to work? What do you consider to be the biggest success factors?"

Founder:

"You need a very clear thematic mission, a common direction that the alliance is pursuing. The motive of sustainability alone is not enough; there has to be a strategic motive that is set in advance. With regard to guidelines, it is important that these are set, especially a kind of structure that is driven forward. There are so many networks or alliances that are not successful due to a lack of accountability."

Interviewer:

"Do you think that such a strategic alliance could facilitate market entry into new markets?"

Founder:

"Definitely, because the respective partner companies can make recommendations to their customers, sort of as a suitable partner for the topic of energy. Then I hope that they don't have another partner in this area already. Of course, you can't take that for granted, but if they don't already, then a strategic alliance could definitely help."

Interviewer:

"Thanks for your time and the insights!"

Expert Interview - Company B

		Interviewer: Tim Nürnberg	
		Expert Interview - Company B	
		Date of Interview: 15.02.2024	
Headquarter		Freiburg, Germany	
Employees		22	
Year of foundation		2020	
Mission		Sophisticated software tool that collects and centralises information & makes it easy to quickly assess packaging recyclability during sales and development processes	

Interviewer:

“As a first step, can you introduce the start-up?”

Founder:

“We have developed a software solution that serves as a sustainability management platform for the packaging value chain. Here's how it works: Companies can enter their use of packaging with us, whether it's manually or via import, and then we match the packaging against any regulatory requirements. Whether it's cost calculations or the evaluation of recyclability, basically everything that has to do with sustainability aspects in an international context. Companies can evaluate and report on this with just a few clicks and can use our digital solution to manage their packaging for sustainability in an international context.”

Interviewer:

“Do you have a specific target group?”

Founder:

“Basically, any company that has anything to do with packaging can work with our solution. Of course, we have a focus group, especially companies that have a lot of packaging in their portfolio, that have complex packaging and that are internationally oriented. Our main focus group at the moment is brand manufacturers such as Beiersdorf, Procter & Gamble (P&G) and Nestlé. This has moved directly to the international market, to Italy, the UK, the Netherlands or France, although we were primarily focused on the German market.”

Interviewer:

“Was it mainly through recommendations that international customers came directly into the portfolio?”

Founder:

“This has to do with our founding history, because we were created as part of an innovation project. That was in 2019 and teams were matched and many companies along the value chain were involved. The idea was brought to our team and so contacts already existed and the solution was developed at their request. We quickly took part in events and were able to build up a reputation through the respective customer recommendations. We are three founders and we all have different backgrounds. I studied culture and economics, my co-founder studied economics, but also environmental sciences, so she has technical and professional expertise. The third founder studied Software Engineering & Systems, so he comes from the software side and also wrote the first codes. So it's a bit of a mixed bag, but still very business-oriented.”

Interviewer:

“If you are entering a new market, what kind of market entry mode would you prefer so far?”

Founder:

“We would work with an agency. France is a good example: We would try to build up two or three big names/brands and then move on using an agency, because language and culture and everything related to it is of course an issue there. In general, we also try to work with many other start-ups. Above all to get recommendations and insights, for example on which events you should be present at. Another aspect is the interaction/collaboration with the systems/institutions in the various countries. In the packaging sector, there is the Green Dot system, where labels have to be listed so that all packaging is put into circulation. There is such a system in every country to which every company must report. We can also help this system to collect data and evaluate it. For example, we collaborate with the French system so that these customers can in principle already report everything appropriately today. In other words, we also try to use such sales distribution channels.”

Interviewer:

“Such regulations can pose a challenge for many sustainable start-ups, is that also the case for you then?”

Founder:

“On the one hand, we have the advantage in our industry that there are still few digital solutions for this, although there is a great need for them. On the other hand, we already have several brands in our portfolio. For example, we are currently considering whether we want to enter the US market. However, one of our reasons would definitely be to fly to the USA and establish connections there, perhaps also with investors who are strongly represented in the market.”

Interviewer:

“What would you say is the biggest challenge in your context?”

Founder:

“Time is a big factor. The sales cycles are incredibly long. There is a lot of regulatory pressure, but also uncertainty in the market. Unfortunately, this leads many companies to wait and see, which is obviously not an advantage for us. And to make the whole thing measurable in order to be able to express what the benefit of our solution is.”

Interviewer (Explanation of the Green Prison):

“Have you also noticed such an effect in your startup environment?”

Founder:

“Basically, our solution is currently seen more as a competitive advantage because the companies themselves also benefit from it. The arguments for this are compliance issues, cost reduction, risk minimization, etc., so this is probably not the case for us.”

Interviewer:

“I have also identified a lack of resources as a problem for sustainable start-ups - is this also a challenge for you?”

Founder:

“Absolutely! We actually need a lot more people, capacity is limited, especially in product development, so we have to weigh things up carefully. In 2021, we decided to no longer grow organically but to bring in investors. This is the right path for us, but it is expensive money. However, investors are becoming more and more hesitant, so the question is always, how much do we need to grow at the moment? We are not yet profitable at the moment.”

Interviewer:

“Even established companies on the market can present challenges - is that a problem?”

Founder:

“In fact, yes. One of the founding partners has tried to replicate our solution, but they continue to work with our solution because they can't do it. But we continue to work with them because we have our USP, especially in the technical and know-how area, which is difficult to imitate. We are also agile and fast and everything is constantly changing. You can't necessarily afford to do that internally in other companies because it doesn't always pay off.”

Interviewer (Presentation of the strategic alliance):

“Could such an alliance be interesting for you?”

Founder:

"Yes, you can't do it alone anyway. It's important not to bring in other competitors, as this means you don't have any overlapping solutions. Ideally, you should have a similar customer base but operate in a completely different area. Because the mutual benefit created also creates trust, which is particularly relevant."

Interviewer:

"What is the biggest opportunity for you from such an alliance?"

Founder:

"Especially in the go-to-market sector, this can generate awareness, trust and credibility. If a partner approaches me with the intention of entering the German market, I can provide insights into which events can be skipped and which should definitely be attended, which contacts can be found at which events and which not. To learn from each other, so to speak, how the respective market works in order to be able to give warm intros."

Interviewer:

"Do you think it also has resource opportunities?"

Founder:

"I don't think you can replace anything, maybe you can save something. Human resources in particular are difficult to replace, as the partners themselves have to go about their everyday business and have limited availability of resources. I believe that no matter what stage you are at as a start-up, you always have too much to do. I believe that a strategic alliance primarily saves time and allows you to deploy staff more efficiently. When it comes to marketing, I believe that there are advantages, especially with regard to word-of-mouth or starting a joint panel discussion at events. I believe that opportunities can be developed in messaging in particular; so that you don't have to hire expensive marketing agencies with their ads and designs. The example of France vs. Germany: The German market is more driven by numbers, while the French market is more driven by sustainability. With such an alliance, the message can be adapted accordingly."

Interviewer:

"In terms of success factors, what do you consider to be most important for the functioning of a strategic alliance?"

Founder:

"Commitment is important, because if you write an email and don't hear back until three weeks later, then the alliance has failed for me. The more concrete, the better. That's why I think it makes sense to set a deadline, because then you can also make the whole thing more measurable. And the basis of trust is extremely important because you share sensitive information with each other. And what is the output of the whole thing? Have customers been acquired, have partnerships been formed? There should be clear contact persons, clear milestones should be set, i.e. a kind of roadmap would be useful."

Interviewer:

"Can such an alliance facilitate market entry into other markets?"

Founder:

"Yes, exactly when it suits the customer target group."

Interviewer:

"As a final question, do you think it would help if we partnered with the local institutions, would that help?"

Founder:

"In principle, that's what we're trying to do, because we think it's very promising. Because where do companies go when they have problems here? To the institutions and if they refer them to our solution, then that's the best possible scenario. It creates an immense amount of trust."

Interviewer:

"Thanks for your time and the insights!"

Expert Interview - Company C

Interviewer: Tim Nürnberg

Expert Interview - Company C

Date of Interview: 19.02.2024

Headquarter

Copenhagen, Denmark

Employees

8

Year of foundation

2020

Mission

Addressing climate change and resource depletion on a societal level by developing and scaling the circular construction sector on market terms

Interviewer:

"Can you please first give a short introduction of your start-up?"

Founder:

"Certainly. In essence, we've been engaged in a three-year research project focused on establishing connections within the circular construction value chain. Our goal is to outsmart the linear construction model, which is currently more cost-effective. Circular construction, on the other hand, presents challenges, including legislative barriers, a lack of demand and supply, and a significant knowledge gap regarding viable practices. To address these hurdles, we've been developing a digital system that not only links the value chain but also serves as a digital support solution for circular construction. Our approach involves transforming existing knowledge on circular construction into a usable digital format. By converting this information into data and repurposing it as knowledge, we aim to provide accessible insights for different stakeholders within the value chain when they need it. This eliminates the need to sift through numerous reports and seek out tacit knowledge, promoting openness and transparency for widespread use. Specifically, we are constructing a tool known as a 'resource mapping tool,' which, despite its label as a 'pre-demolition order tool,' is designed to encourage the refurbishment of buildings instead of demolition. The tool facilitates decision-making by

determining the break-even point between transforming and refurbishing a building versus demolishing it and constructing a new, more energy-efficient one. Embodied carbon is also factored in, addressing an aspect often overlooked. Additionally, we are developing a 'building bank' to help manage building portfolios and facilitate informed decision-making. This centralized platform allows users to collaborate with various service providers, including architects, engineers, demolishers, and contractors. We are also creating a market exchange integrated with existing marketplaces for secondary materials. This exchange provides a comprehensive overview of available materials when designing a new building using reused components. Our collaboration with Autodesk aims to seamlessly integrate this market exchange into existing business workflows. In summary, our platform combines software as a service with transaction fees on materials sold through marketplaces, creating a comprehensive solution for the challenges in the circular construction domain."

Interviewer:

"Do you have a specific target group?"

Founder:

"Yes, building owners are our main target group. So professional building owners, pension funds, developers, public housing, social housing. Everyone who manages a larger portfolio of buildings."

Interviewer:

"So specifically the Danish market at the moment or is it that you are also aiming to enter other international markets?"

Founder:

"Yes, indeed, we are currently in progress with the research project, and we're continuing our efforts. The project is slated for completion in April of this year. Simultaneously, we're actively developing the Minimum Viable Product (MVP) of our digital platform, thanks to recent funding acquisition. Initially, our focus lies on addressing the Danish market's needs. Subsequently, we plan to engage in discussions with other stakeholders to explore entry into additional markets. However, this expansion is a future endeavor. Our aspiration hinges on the potential widespread demand for secondary materials across Europe if our initiative proves successful. Consequently, the market exchange and its integration with design tools hold relevance across various markets. On the other hand, the effectiveness of our decision support relies heavily on local legislation and building practices. Our automated resource mapping draws from an in-depth typology study of Danish building customs. Therefore, replicating this process in each country poses a significant barrier to market entry. Nonetheless, the market exchange concept is adaptable to any market."

Interviewer:

"So it is definitely a challenge to collaborate first with the domestic institutions to align with those policies?"

Founder:

"Certainly. Moreover, we are actively advocating for policy changes within Denmark. Simultaneously, we are aligning with European legislation to ensure compliance on a broader scale. In Denmark specifically, we are leveraging the opportunity to influence legislation in favor of circular construction."

Interviewer:

"Is there a specific market entry mode that you would prefer in other markets then?"

Founder:

"In terms of a strategic alliance, we are adopting a similar methodology in Denmark. Rather than pursuing a one-size-fits-all solution, our strategy involves identifying and addressing specific gaps in the markets. A critical void we are focusing on is the lack of documentation for materials and existing buildings. Our core function revolves around supplying comprehensive data on buildings and materials. In cases where other

entities already possess relevant datasets or contribute specific data segments, they become potential strategic partners in our overarching project."

Interviewer:

"So would you say that the regulatory situation is the biggest challenge of yours?"

Founder:

"In Denmark, our strength lies in our deep market knowledge, coupled with our ability to influence legislation successfully. However, funding remains a significant challenge. In the sustainability impact sector, a majority of funding is directed towards energy-related projects rather than resource-focused initiatives. Securing funding for projects concentrating on resources is notably challenging. The prevailing perception of the circular economy primarily revolves around recycling, making it difficult to promote an alternative perspective centered on preserving existing resources. Unfortunately, this perspective is often viewed as incompatible with business growth, as it implies a form of de-growth. Consequently, attracting funding, especially venture funding, proves to be exceedingly challenging due to the absence of a well-established market for circular economy initiatives. The funding we currently have is philanthropic in nature, reflecting a recognition that societal change is imperative."

Interviewer:

"What I also identified in the literature is a so-called 'Green Prison'. (Short explanation) Have you heard about that?"

Founder:

"Absolutely. Ultimately, the key factor comes down to legislation. The introduction of a CO2 tax, for instance, could redirect financial flows towards activities with lower carbon emissions. Similarly, implementing a resource tax could prompt a shift in focus. Currently, the prevailing mindset favors maintaining the status quo, as it is economically more feasible. Despite operating on idealistic principles, we recognize the necessity for the market to undergo a transformative shift. We acknowledge that, at present, continuing business as usual is the more economical option. However, our commitment to idealistic goals persists, driven by the belief that the market will inevitably evolve. While we remain optimistic that this shift will occur within our lifetime, there are moments when confidence in that timeline wavers."

Interviewer:

"So creating a good marketing strategy to communicate the advantage or the value of this product is also a challenge?"

Founder:

"In Denmark, despite not having the product ready yet, our progress is promising. We've garnered interest from potential clients who recognize the benefits of our solution. There's an ongoing discussion in Denmark about preserving existing buildings, highlighting the need for more information on our current building stock, a knowledge gap that is currently expensive to address. The anticipation is that our product, once developed, will meet a considerable demand, given the market feedback. However, there's a broader challenge to overcome the conventional practice of demolishing buildings to construct larger, better-performing structures, particularly as we transition our energy systems. The focus is shifting from operational carbon to the more pressing issue of embodied carbon. The emerging market is rife with barriers, and in Denmark, we are actively working to identify and address these obstacles. Engaging in various activities, we aim to eliminate barriers while concurrently developing a product that aligns with market needs. It's crucial to note that when expanding to countries like Germany, the UK, or France, we anticipate encountering a distinct set of barriers and market dynamics. Navigating these challenges will undoubtedly be an uphill battle."

Interviewer:

"Returning to the topic of strategic alliances, do you believe it would be advantageous for your initiative to collaborate with diverse international actors, especially those with a strong understanding of local markets? Such partnerships could potentially offer valuable initial market insights and knowledge in different countries."

Founder:

"Indeed, forming strategic partnerships is crucial for venturing into new markets. Drawing from our experience in the Danish market, we've observed that international access is vital. I'm familiar with Modesta from Holland, particularly their Building Bank initiative, which has expanded into 7 or 8 countries. However, their journey reflects the uphill battle of entering each market, necessitating a local foothold and insights. They are actively forming strategic alliances in each market, mirroring the challenges of introducing new technology in emerging markets. It's a commitment driven by belief in the future relevance of such technology, even if it's not currently mandatory. Therefore, based on these insights, it appears that successful market entry often relies on establishing strategic alliances."

Interviewer:

"But more likely partners from the same field or industry you work in, right?"

Founder:

"Absolutely, and the dynamics of the landscape are evolving. While Autodesk is traditionally perceived as a software company, the advent of artificial intelligence has positioned them as a significant player, competing directly with major engineering companies. This shift indicates changing market dynamics, where new entrants have the potential to disrupt established industries. Interestingly, energy companies, with their substantial financial resources, are becoming notable players in this space, particularly in Denmark where the energy market holds significant sway. These companies are well-positioned to invest in and engage with initiatives focused on embodied carbon rather than operational carbon. Therefore, it's not necessarily confined to construction companies; a systemic change is required, and various actors, including energy companies, have the potential to drive this transformation."

Interviewer:

"So on both sides, partnerships with non-competitors and competitors are necessary?"

Founder:

"I can affirm that, at our current stage, our focus is aligned with companies that others might perceive as competitors, as our primary goal is addressing societal challenges. However, I anticipate that if we attract an investor whose main concern is the financial return on investment, the question of collaborating with competitors may arise. Despite this, our current team, driven by a commitment to problem-solving rather than personal enrichment, is open to collaborating with competitors if it serves the greater purpose of solving societal problems. This underscores the belief that a different approach to business is essential for addressing societal challenges, moving beyond a sole focus on financial gains."

Interviewer:

"So, going back to the alliance consisting of non-competitors, would you say that such an alliance would be interesting for your company?"

Founder:

"Definitely, we have actively engaged in collaborative initiatives. For instance, we are part of the EU Circular Build Alliance in Denmark, which brings together policymakers and companies to work towards circular construction goals. Our collaborative efforts extend to the United States, where we have been in

dialogue with a similar alliance. Actively seeking alliances is a core aspect of our strategy. Currently, we are in the process of applying for EU funding for projects, collaborating with the city of Copenhagen, three other cities, and various companies, including one of our competitors in the alliance. This collaborative approach reflects our belief that alliances are crucial for addressing the complex challenges we face. The scope of the issues at hand goes beyond the capacity of a single company or startup to solve.”

Interviewer:

“And what would you say is the most important kind of success factor in such an alliance?”

Founder:

“Absolutely, that provides a comprehensive perspective on the importance of actionable goals within alliances. It's clear that having well-defined objectives is crucial for the success of such collaborations. Establishing a governance or ownership structure within an alliance becomes essential to incentivize active participation and ensure that everyone is committed to achieving common goals. Drawing from the example of the research project, where companies created a shared entity to drive collective efforts, demonstrates the potential impact of a strong business model within an alliance. Your suggestion of integrating a robust business model within an alliance, where all participants can see the shared value and common goal, is insightful. The concept of potentially spinning out a company owned by alliance partners as an exit strategy adds another layer of strategic thinking, providing a tangible outcome from the collaborative efforts. In essence, you highlight the need for action-oriented initiatives within alliances to make a substantial impact, moving beyond discussions and projects to create tangible and sustainable outcomes. This indeed addresses the question and provides valuable insights into the dynamics of successful alliances.”

Interviewer:

“So it would be even better for you to keep an alliance terminated?”

Founder:

“Absolutely, and your perspective underscores a key factor in the success of alliances — the perceived potential outcome. If the envisioned impact is significant and aligns with the objectives of participants, there's a willingness to invest time and effort. On the other hand, when the outcome is less compelling or participants perceive a lack of shared benefits, the level of engagement tends to diminish. The governance structure, as you rightly emphasize, becomes crucial in fostering active participation. Having clear expectations and a framework that ensures commitment ensures that participants are not merely working for individual gains but are genuinely contributing to shared goals. This strategic approach not only motivates active involvement but also establishes a sense of accountability within the alliance.”

Interviewer:

“Thanks for your time and the insights!”

Expert Interview - Company D



Interviewer: Tim Nürnberg

Expert Interview - Company D

Date of Interview: 20.02.2024

Headquarter	<i>Berlin, Germany</i>
Employees	<i>13</i>
Year of foundation	<i>2021</i>
Mission	<i>First employee-inclusive software to reach climate targets while decreasing travel costs. The gamification model motivates travelers to voluntarily reduce their carbon footprint and spending on business trips</i>

Interviewer:

"Can you please first give a short introduction of your start-up?"

Founder:

"With Eco.mio, we have actually built a sustainability plugin for online booking of business trips. This means that large companies have corporate travel booking tools where employees book their trips. These bookings are quite limited, especially in terms of sustainability and because they are old booking tools. So old means that the large companies behind them are not so quick to incorporate elements so flexibly. And that is actually the gap that we are closing. In other words, we are supplementing the booking tools with more transparency, nudging, gamification and incentives to encourage employees to opt for greener travel."

Interviewer:

"Do you have a specific target group?"

Founder:

"The current focus is primarily on management consultancies and service-oriented companies. For example, our first clients were Roland Berger, Carney and BearingPoint - companies that rely heavily on business travel and generate more than 70% of their carbon footprint through travel. This is a result of strict regulations, with McKinsey accounting for around 95% of its footprint from travel. Therefore, these companies need to take targeted action in this area. However, this does not mean that our solution is only suitable for such companies. All companies that are interested can benefit from it. However, it is noticeable that for manufacturing companies, where business travel accounts for only 1% of emissions, other approaches are more important."

Interviewer:

"Understandably, is it then preferably in the DACH market or are you already positioned internationally?"

Founder:

"We initially launched our initiative in German-speaking countries, which remains our main focus. However, this does not mean that business travel takes place exclusively within this geographical framework. Business travel is global, and it doesn't matter if we integrate a customer in the UK tomorrow. The tool supports travel from London to New York as well as from New York to Frankfurt. The focus on the DACH region is for good reason - we started here, understood the local dynamics and captured the market. Now we are expanding our activities to other markets."

Interviewer:

"Is there a particular market entry mode that you would prefer if you were to enter the other market now?"

Founder:

"To be honest, we are still in an experimental phase. This is slightly different in every industry, but there is some overlap. In business travel, it's not a big industry, both in German-speaking countries and globally. If you're a company with a significant travel spend, you sometimes exchange ideas with other companies that have a similar spend. We were able to get in touch with relevant companies that were of interest to us quite quickly through events, association work and conferences. This also applies to new markets. It should be noted that we already cover one of the largest markets in Germany. While there are a few hundred relevant companies in Germany that can be counted on one hand, the situation becomes more complex when you go to Austria or Switzerland."

Interviewer:

"And what would you say is the biggest challenge for your start-up in terms of market entry?"

Founder:

"At the moment, it is probably a question of understanding how advanced the market is and whether companies have already gained a foothold in this topic. The link between travel management and sustainability also varies greatly between companies. Every company has its own structures here. In the UK, I have the impression that they are either not quite there yet or that the topic is prioritized differently. Therefore, we might not be able to simply transfer the strategy we have pursued in Germany one-to-one to another market."

Interviewer (Explanation of green prison):

"Does this also apply to your company?"

Founder:

"Currently, the drivers for companies seem to be different. They are not acting with the direct intention of saving the climate, but rather because of regulations that will force them to act sooner or later. So they're probably not going to say, 'Hey, great, we've saved a few tons of CO2 again, so the air will be better,' or 'The drought in sub-Saharan countries won't be as bad next year.' It seems like they're not necessarily thinking that far into the future, although of course it has an impact on those aspects. Rather, it's the regulations and policies that are putting the pressure on. At the moment, I don't see this perspective being reflected, and that is something we often experience. This applies to both private individuals and companies. You probably know it from your circle of friends - there are certain people who say: 'The plane flies anyway, why should I change anything when everyone else flies to Bali somehow every year?' That's exactly what we experience in companies too. On the traveler's side, we often hear statements like: 'But I have to...', 'I'm expected to...', or 'How am I supposed to do it differently?' Others have a competitive advantage if they fly to the customer and we don't." I see that as more of a problem."

Interviewer:

"In other words, when you communicate your solution, you're more likely to focus on the economic benefits?"

Founder:

"Yes, on the one hand economic benefits, but also employee satisfaction. We often hear that there are bottom-up initiatives in some companies where employees say: 'Hey, what is actually being done here in terms of sustainability?' It's not enough to just introduce a plugin if the management doesn't really support it. So it's a kind of interplay of different factors that need to be taken into account."

Interviewer:

"What about resources? Is that a big challenge for you?"

Founder:

"It is difficult to say whether this is different for impact start-ups than for normal start-ups. At the beginning, you often have little money, have to get a lot going and usually have a kind of junior team. Over time, you try to change this. Whether this is a problem for us is difficult to determine, because it is always a trade-off and depends on the opportunity costs. Where and how do you deploy resources, both financial and human? In my opinion, our advantage lies precisely in the fact that we are an impact startup. This is seen as a plus by many, as there are many in our generation who are looking for a meaningful purpose, both in their work and on the investor side. If you're looking at AI or sustainability right now, those are probably the two industries that are still doing relatively well, even if things are generally not going so well. So I would say that it's probably not a disadvantage at the moment, but rather an advantage."

Interviewer:

"Yes, the topic of institutions and especially regulations play an important role in the literature, as you have already mentioned. The challenge is that they can change constantly, and this can be at different stages in different countries or markets, especially compared to the German market. Does this also apply to your start-up?"

Founder:

"Yes, we have to keep an eye on that all the time. It may or may not play into our hands. If, for example, a flight ban were suddenly introduced in Germany, I would welcome that from a climate perspective, but it would restrict a considerable part of our business model, both in Germany and in other countries. In France, for example, there are almost no more flights within France, or only very few. This means we have to adapt our use case and focus more on international flights. So we are definitely dependent on regulations. But since regulations in our industry don't happen overnight, I believe that as an agile startup we still have enough leeway to adapt accordingly."

Interviewer (Introduction to the Alliance):

"From first impressions, would you say that such an alliance could be relevant for your company?"

Founder:

"Intuitively, I would say yes. Funnily enough, I was at an alliance event today with about ten companies that have come together to do a joint procurement of indirect materials, including travel services. I think that makes a lot of sense if there are real synergies. However, you have to look carefully at where these synergies really exist and where you might be spending time unnecessarily in order to create synergies. For example, you mentioned the know-how about different markets earlier. It could be that this is viewed completely differently from the perspective of an energy company than from the perspective of transportation companies. Or when it comes to incentives, it could also be completely different to issues surrounding canteens. We therefore need to understand where we really need to differentiate ourselves and where this knowledge can be used. Also in relation to purchasing - who are the contacts? Are all these issues with a single stakeholder in the company, or do we end up talking to 15 different people in the company? This means that it may not do us much good if we try to address a single point as a company."

Interviewer:

"Yes, definitely. I think it would bring a clear advantage on the customer side. Especially if the startup already has experience in the Danish market and therefore an understanding of how the market is developing around sustainability and similar topics. This allows the company to tailor its marketing strategy and communicate better in order to hit the sweet spots of customer needs."

Founder:

“Yes, so it's difficult for me to judge, it can definitely be a challenge. Certainly when you're in a market that is characterized by uncertainty, especially in terms of regulations. It seems like you're often called upon to be the go-to person for sustainability, even if it's not directly related to your area of expertise. In this case, it could be very helpful to be part of something bigger to coordinate better and handle requests more efficiently.”

Interviewer:

“And in the area of the regulations themselves and the institutions, do you think it would be advantageous, for example, to gain more insights into the current regulations or perhaps even how the regulations could change, because the companies naturally know better how the domestic government handles things?”

Founder:

“Yes, that can definitely be a challenge. Especially when it comes to regulations, you often come up against limits because some are fixed while others are still open. As an expert on the customer side, you are expected to be able to provide information on this, even though you may not have any clear answers. In such cases, I definitely see a great benefit in gaining more insights and information from companies in order to be able to react better to the uncertainties and possible changes.”

Interviewer:

“Regarding success factors of such an alliance, what do you think should be considered in the respective phases of the alliance life cycle?”

Founder:

“So first and foremost, it is important to know what it costs and what resource commitment you are making with it. For example, with all the accelerator and incubator programs, people often say: “yeah cool, I can take the name or the network with me”. But the moment you have a lot to do and have to think about how to use your time, that's also part of the balancing act. So on the one hand, there's the investment, in terms of time and money. How long does it take? Can you try it out? How committed are you? What do I get out of it? The investment involved is the starting point for me, which I need to know. Can I do a pilot phase somehow, for example? Or just start with half a year and then see? Okay, will that help me or not? Or do I have to make a binding commitment for three years? These are all questions that come to mind.”

Interviewer:

“And do you think that you need very structured governance or that it should be more flexible?”

Founder:

“I wish I could call it the latter. It sounds like in reality it's moving more towards the first scenario, where the startup dreams fade a bit and you become a small corporation as the requirements grow. The transition to more processes and policies can be complex, and more is needed to ensure legal protection and compliance. Price negotiations can also be tricky. Nevertheless, there might be a way to have a more agile start and improve things iteratively, possibly starting with a pilot project and then taking it step by step.”

Interviewer:

“Would you then generally say that a scheduled alliance is perhaps more efficient than one that has no end date set in advance?”

Founder:

“I could imagine that. It seems like the uncertainty around timeframe and commitment could work both ways. A clear deadline could mean that it's not worth investing a lot of time, while too loose a structure could mean

that you don't feel committed to investing time. A balanced commitment and clear agreements could be helpful here.”

Interviewer:

“I can see that the advantage for you would most likely be increased market expertise and greater insight into the regulatory framework of the respective country. In general, would you say that if this alliance could work, the right partners are selected and the right governance structure is developed, that it could facilitate market entry into new markets?”

Founder:

“Yes, I see. The question is how many startups are participating in the alliance that everything is included for each company. It seems important to identify the different scopes of emissions in a company and understand how each of these contributes to the overall emissions. Scope 1, 2 and 3 emissions could play a role in this, including aspects such as business travel and supply chains. This detailed analysis could help companies to take targeted measures in the relevant areas and select suitable solutions from the startups' portfolio. In other words: the company needs more support here, i.e. green. Less elsewhere in the energy sector, i.e. red, etc. However, I could well imagine that this could be exciting from the company's point of view, especially with regard to the customer perspective.”

Interviewer:

“Last question, do you think it would also make sense to enter into a collaboration with the institutions, the respective countries?”

Founder:

“Depending on how you look at it, yes. I can't quite answer that from our area. But I can see, for example, that we are part of an association for German travel management and there are also working groups, for example, which ultimately lobby at EU level. So to say, we want there to be a uniform CO2 standard for travel, because that would make our reporting much easier. And in that respect, I can already imagine it. Because if you have the right people around the table, then of course you also have a much bigger voice to drive such a change.”

Interviewer:

“Thanks for your time and the insights!”

MAXQDA summary table - challenges of green start-ups

	Expert Interview - Company A	Expert Interview - Company B	Expert Interview - Company C	Expert Interview - Company D
Institutional /regulatory challenges	Regulations are constantly changing Regulatory pressure	Regulatory pressure	Legislative barriers in the area Solution relies on local legislation Driving policy changes in their favor/towards sustainability	Regulations are constantly changing, playing into their hands or not Need to adapt to them/be agile Dependence on regulations Necessary knowledge about regulations

Resource constraints	Limited resources Excessive workload, limited time	Excessive workload, limited time & capacity and need for more personnel Necessary trade-off due to limited time & capacity Financial constraints, need to investors But investors are getting more hesitant	Lack of knowhow regarding viable business practices Financial constraints Need for investors: Have different focus, primarily around recycling (more energy-related than resource-oriented projects) If financial return focus, there occur differences Attracting funding challenging due to absence of well-established market	Financial constraints in the founding stage Non-experienced team Excessive workload, limited time
Lack of scalability			Profit-driven investors & companies Need for legislative impulses towards sustainable behavior (CO2 tax, resource tax) Customer inertia (maintaining status quo) -> Need for mindset change Need for market transformation Sometimes crumbling idealistic view that the market will evolve towards sustainability on its own	Sustainability not main driver for companies Forced through regulations & policies Short-term profit-focus, not long-term sustainability-focus Corporate and private issue Need for change in perspective
Market-related barriers	Achieving market readiness (knowledge, product & resources) Changing market conditions (through increasing regulations, digitalization & innovation) Different market conditions (need to adapt with limited resources, also language a barrier) Liability of smallness	Market uncertainty Incumbents, mimicking solutions	Unfavorable market conditions Driving market change/conditions into favor	Market understanding Market diversity (companies see sustainability in a different way) International markets differ
Target group-related barriers	Customer is capitalistically driven, startup's sales needs to be focused on money, what creates a potential mission-drift Customer inertia due to lack of prioritization of sustainable issues	Customer inertia Need for customer education		Need for customer education Characteristics: 1) Lack of prioritization of sustainable issues in combination to travel management) 2) Action only because of regulations that force them 3) No focus & reflection on the future

MAXQDA summary table - opportunities of strategic alliances

	Expert Interview - Company A	Expert Interview - Company B	Expert Interview - Company C	Expert Interview - Company D
Technological opportunities				
Business model opportunities			Integrating a robust business model within the alliance through equity alliance	
Market opportunities	Customer/Target group synergies	Market insights	Changing market dynamics which potential for disruptive innovations Energy companies with substantial financial resources as potential partners to drive systemic change International market access through local foothold & insights	
Resource opportunities		Resource time: Savings Human resource: More efficiency	Resource data: Access/Synergies	
(Green) Marketing opportunities	Word-of-mouth/ Recommendations -> Credibility & Trust	Generate awareness, trust & credibility Potential word-of-mouth & awareness through joint event presence Communication potential (Cost saving) Communication adjustment to other markets Collaboration with institutions: Creating trust & credibility	Legitimacy of a new technology in another market "Successful market entry often relies on strategic alliances"	
Strategic/ Scaling opportunities		Scaling through access to customer base & recommendations	Collaboration with policymakers & companies to work towards sustainable goals can lead to scaling opportunity	
Political/ Institutional opportunities		Collaboration with institutions for win-win-situation		Drive legislative change in favor with start-up's solution through bigger voice
Knowledge/ Learning/ Skills opportunities	Access to legislative knowledge/information	Access to knowledge on which events are important to attend Access to learning to give	Access to knowledge about market gaps	Efficient distribution/provision of expert knowledge Legislative insights and

		warm intros (Market & target group knowledge)		information to be able to react to uncertainties & changes
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MAXQDA summary table - success factors of strategic alliances

	Expert Interview - Company A	Expert Interview - Company B	Expert Interview - Company C	Expert Interview - Company D
Phase 1 - Strategic analysis & decision to collaborate	Derivation of alliance motive from the company strategy			Identification of type of knowledge enrichment Identification of strategic motives from company strategy Identification of own resources Elaboration of expectations regarding time horizon
Phase 2 - Research & Selection of partner		Partner compatibility regarding customer base, but not area Creating trust through mutual benefits Partner commitment, the more concrete, the better		Partner compatibility & partly overlapping knowledge base to create synergies
Phase 3 - Design & Governance of the alliance	Definition of precise goals and tasks Agreement of clear and realistic goals Building trust by unilateral commitments	Building trust by unilateral commitments (sensitive information, clear contact person) Implementing plan with fixed milestones	Definition of precise goals and tasks Agreement of clear and realistic goals Focus on potential of shared value creation Preservation & protection of core competencies Equity vs. non-equity structure Building trust by unilateral commitments	Preservation & protection of core competencies Focus on potential of shared value creation Flexible & adaptable collaboration Agreement of clear and realistic goals
Phase 4 - Post-formation (Implementation & Management)		Continual performance measurement	Immediate implementation with fast results Continual performance measurement	Establishing an information & coordination system Developing & enhancing trust between partners Immediate implementation with fast results (pilot project)
Phase 5 - Termination of alliance		Inclusion of termination in planning phase (to make outcome & performance more measurable)	Inclusion of termination in planning phase (to make outcome & performance more measurable and to adjust or react)	Inclusion of termination in planning phase (to address potential problems/ uncertainties related to time frame &

References

References - Online sources

- New York Times (2024). 'As 'Zombie Fires' Smolder, Canada Braces for Another Season of Flames'. Retrieved from: <https://www.nytimes.com/2024/03/04/canada-zombie-fires-wildfire.html>.
- The Guardian (2024). 'Greenland losing 30m tonnes of ice an hour, study reveals'. Retrieved from: <https://www.theguardian.com/environment/2024/jan/17/greenland-losing-30m-tonnes-of-ice-a-n-hour-study-reveals>.
- BBC (2024). 'Atlantic to get 'extraordinary' hurricane season'. Retrieved from: <https://www.bbc.com/news/articles/cw441ng00wxo>.

References - Academic literature

- Agarwal, Rajshree, Rachel Croson, and Joseph T. Mahoney. 2010. 'The Role of Incentives and Communication in Strategic Alliances: An Experimental Investigation'. *Strategic Management Journal* 31(4): 413–37. doi:10.1002/smj.818.
- Ahuja, Gautam. 2000. 'The Duality of Collaboration: Inducements and Opportunities in the Formation of Interfirm Linkages'. *Strategic Management Journal* 21(3): 317–43. doi:10.1002/(SICI)1097-0266(200003)21:3<317::AID-SMJ90>3.0.CO;2-B.
- Allen, John C., and Stephanie Malin. 2008. 'Green Entrepreneurship: A Method for Managing Natural Resources?' *Society & Natural Resources* 21(9): 828–44. doi:10.1080/08941920701612917.
- Arora, Ashish, Sharon Belenzon, and Andrea Pataconi. 2021. 'Knowledge Sharing in Alliances and Alliance Portfolios'. *Management Science* 67(3): 1569–85. doi:10.1287/mnsc.2020.3614.
- Autio, Erkko, and Ivo Zander. 2016. 'Lean Internationalization'. *Academy of Management Proceedings* 2016(1): 17420. doi:10.5465/ambpp.2016.81.
- Balboni, Bernardo, Gianluca Marchi, and Marina Vignola. 2018. 'The Moderating Effect of Trust on Formal Control Mechanisms in International Alliances'. *European Management Review* 15(4): 541–58. doi:10.1111/emre.12150.
- Ball, Christopher, and Markus Kittler. 2019. 'Removing Environmental Market Failure through Support Mechanisms: Insights from Green Start-Ups in the British, French and German Energy Sectors'. *Small Business Economics* 52(4): 831–44. doi:10.1007/s11187-017-9937-8.
- Baraldi, Enrico, Malena Ingemansson Havensvid, Åse Linné, and Christina Öberg. 2019. 'Start-Ups and Networks: Interactive Perspectives and a Research Agenda'. *Industrial Marketing Management* 80: 58–67. doi:10.1016/j.indmarman.2018.02.002.
- Barney, Jay. 1991. 'Firm Resources and Sustained Competitive Advantage'. *Journal of Management* 17(1): 99–120. doi: <https://doi.org/10.1177/014920639101700108>.
- Baum, Joel A. C., Tony Calabrese, and Brian S. Silverman. 2000. 'Don't Go It Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology'. *Strategic Management Journal* 21(3): 267–94. doi:10.1002/(SICI)1097-0266(200003)21:3<267::AID-SMJ89>3.0.CO;2-8.
- Bergmann, Thorsten, and Hannes Utikal. 2021. 'How to Support Start-Ups in Developing a Sustainable Business Model: The Case of an European Social Impact Accelerator'. *Sustainability* 13(6): 3337. doi:10.3390/su13063337.

- Bergset, Linda. 2015. 'The Rationality and Irrationality of Financing Green Start-Ups'. *Administrative Sciences* 5(4): 260–85. doi:10.3390/admsci5040260.
- Bergset, Linda. 2018. 'Green Start-up Finance – Where Do Particular Challenges Lie?' *International Journal of Entrepreneurial Behavior & Research* 24(2): 451–575. doi:10.1108/IJEBR-11-2015-0260.
- Bergset, Linda, and Klaus Fichter. 2015. 'Green Start-Ups – a New Typology for Sustainable Entrepreneurship and Innovation Research'. *Journal of Innovation Management* 3(3): 118–44. doi:10.24840/2183-0606_003.003_0009.
- Berrone, Pascual, Andrea Fosfuri, Liliana Gelabert, and Luis R. Gomez-Mejia. 2013. 'Necessity as the Mother of "Green" Inventions: Institutional Pressures and Environmental Innovations'. *Strategic Management Journal* 34(8): 891–909. doi:10.1002/smj.2041.
- Beugelsdijk, Sjoerd, Tatiana Kostova, Vincent E. Kunst, Ettore Spadafora, and Marc Van Essen. 2018. 'Cultural Distance and Firm Internationalization: A Meta-Analytical Review and Theoretical Implications'. *Journal of Management* 44(1): 89–130. doi:10.1177/0149206317729027.
- Bhatnagar, Mukul, Sanjay Taneja, and Ercan Özen. 2022. 'A Wave of Green Start-Ups in India—The Study of Green Finance as a Support System for Sustainable Entrepreneurship'. *Green Finance* 4(2): 253–73. doi:10.3934/GF.2022012.
- Binder, Julia Katharina, and Frank-Martin Belz. 2015. 'Sustainable Entrepreneurship: What It Is'. In *Handbook of Entrepreneurship and Sustainable Development Research*, ed. Paula Kyrö. Edward Elgar Publishing. doi:10.4337/9781849808248.00010.
- Bird, Lori, Rolf Wüstenhagen, and Jørn Aabakken. 2002. 'A Review of International Green Power Markets: Recent Experience, Trends, and Market Drivers'. *Renewable and Sustainable Energy Reviews* 6(6): 513–36. doi:10.1016/S1364-0321(02)00033-3.
- Blackburne, Giles D., and Peter J. Buckley. 2019. 'The International Business Incubator as a Foreign Market Entry Mode'. *Long Range Planning* 52(1): 32–50. doi:10.1016/j.lrp.2017.10.005.
- Block, Thomas, and Erik Paredis. 2013. 'Urban Development Projects Catalyst for Sustainable Transformations: The Need for Entrepreneurial Political Leadership'. *Journal of Cleaner Production* 50: 181–88. doi:10.1016/j.jclepro.2012.11.021.
- Blomstermo, Anders, D. Deo Sharma, and James Sallis. 2006. 'Choice of Foreign Market Entry Mode in Service Firms'. *International Marketing Review* 23(2): 211–29. doi:https://doi.org/10.1108/02651330610660092.
- Bocken, Nancy M. P. 2015. 'Sustainable Venture Capital – Catalyst for Sustainable Start-up Success?' *Journal of Cleaner Production* 108: 647–58. doi:10.1016/j.jclepro.2015.05.079.
- Bocken, Nancy M. P., Ingrid De Pauw, Conny Bakker, and Bram Van Der Grinten. 2016. 'Product Design and Business Model Strategies for a Circular Economy'. *Journal of Industrial and Production Engineering* 33(5): 308–20. doi:10.1080/21681015.2016.1172124.
- Boersma, Margreet F., Peter J. Buckley, and Pervez N. Ghauri. 2003. 'Trust in International Joint Venture Relationships'. *Journal of Business Research* 56(12): 1031–42. doi:10.1016/S0148-2963(01)00315-0.
- Bohnsack, René, and Jonatan Pinkse. 2017. 'Reconfiguration Tactics in the Case of Electric Vehicles'. *California Management Review* 59(4): 79–96.
- Boons, Frank, and Florian Lüdeke-Freund. 2013. 'Business Models for Sustainable Innovation: State-of-the-Art and Steps towards a Research Agenda'. *Journal of Cleaner Production* 45: 9–19. doi:10.1016/j.jclepro.2012.07.007.
- Brouthers, Keith D., and Jean-Francois Hennart. 2007. 'Boundaries of the Firm: Insights From International Entry Mode Research'. *Journal of Management* 33(3): 395–425. doi:10.1177/0149206307300817.
- Brouthers, Keith D. and George Nakos. 2004. 'SME Entry Mode Choice and Performance: A Transaction Cost Perspective'. *Entrepreneurship Theory and Practice* 28(3): 229–47. doi:10.1111/j.1540-6520.2004.00041.x.

- Brouthers, Keith D., George Nakos, and Pavlos Dimitratos. 2015. 'SME Entrepreneurial Orientation, International Performance, and the Moderating Role of Strategic Alliances'. *Entrepreneurship theory and practice* 39(5): 1161–87. doi:https://doi.org/10.1111/etap.12101.
- Burgel, Oliver, and Gordon C. Murray. 2000. 'The International Market Entry Choices of Start-Up Companies in High-Technology Industries'. *Journal of International Marketing* 8(2): 33–62. doi:10.1509/jimk.8.2.33.19624.
- Cacciolatti, Luca, Ainurul Rosli, José L. Ruiz-Alba, and Jane Chang. 2020. 'Strategic Alliances and Firm Performance in Startups with a Social Mission'. *Journal of Business Research* 106: 106–17. doi:10.1016/j.jbusres.2019.08.047.
- Calof, Jonathan L. 1993. 'The Impact of Size on Internationalization'. *Journal of Small Business Management* 31(4): 60–69.
- Canabal, Anne, and George O. White. 2008. 'Entry Mode Research: Past and Future'. *International Business Review* 17(3): 267–84. doi:10.1016/j.ibusrev.2008.01.003.
- Chapman, Gary, and Hanna Hottenrott. 2022. 'Green Start-Ups and the Role of Founder Personality'. *Journal of Business Venturing Insights* 17: e00316. doi:10.1016/j.jbvi.2022.e00316.
- Chen, Luyi, Jianhua Xu, and Yuan Zhou. 2017. 'Regulating the Environmental Behavior of Manufacturing SMEs: Interfirm Alliance as a Facilitator'. *Journal of Cleaner Production* 165: 393–404. doi:10.1016/j.jclepro.2017.07.074.
- Chesbrough, Henry. 2010. 'Business Model Innovation: Opportunities and Barriers'. *Long Range Planning* 43(2–3): 354–63. doi:10.1016/j.lrp.2009.07.010.
- Ciulli, Francesca, Ans Kolk, Christina M. Bidmon, Niels Sprong, and Marko P. Hekkert. 2022. 'Sustainable Business Model Innovation and Scaling through Collaboration'. *Environmental Innovation and Societal Transitions* 45: 289–301. doi:10.1016/j.eist.2022.11.003.
- Clayton, Paige, Maryann Feldman, and Nichola Lowe. 2018. 'Behind the Scenes: Intermediary Organizations That Facilitate Science Commercialization Through Entrepreneurship'. *Academy of Management Perspectives* 32(1): 104–24. doi:10.5465/amp.2016.0133.
- Cohen, Wesley M., and Daniel A. Levinthal. 1990. 'Absorptive Capacity: A New Perspective on Learning and Innovation'. *Administrative Science Quarterly* 35(1): 128–52.
- Cohen, Boyd, and Monika I. Winn. 2007. 'Market Imperfections, Opportunity and Sustainable Entrepreneurship'. *Journal of Business Venturing* 22(1): 29–49. doi:10.1016/j.jbusvent.2004.12.001.
- Coviello, Nicole, and Hugh Munro. 1997. 'Network Relationships and the Internationalisation Process of Small Software Firms'. *International Business Review* 6(4): 361–86. doi:10.1016/S0969-5931(97)00010-3.
- Criscuolo, Chiara, and Carlo Menon. 2015. 'Environmental Policies and Risk Finance in the Green Sector: Cross-Country Evidence'. *Energy Policy* 83: 38–56. doi:10.1016/j.enpol.2015.03.023.
- Das, Tushar K., and Bing-Sheng Teng. 2000. 'A Resource-Based Theory of Strategic Alliances. Journal of Management'. *Journal of Management* 26(1): 31–61.
- De Lange, Deborah E. 2017. 'Start-up Sustainability: An Insurmountable Cost or a Life-Giving Investment?' *Journal of Cleaner Production* 156: 838–54. doi:10.1016/j.jclepro.2017.04.108.
- Dean, Thomas J., and Jeffery S. McMullen. 2007. 'Toward a Theory of Sustainable Entrepreneurship: Reducing Environmental Degradation through Entrepreneurial Action'. *Journal of Business Venturing* 22(1): 50–76. doi:10.1016/j.jbusvent.2005.09.003.
- Defee, C. Clifford. 2006. 'Creating Competitive Advantage Using Non-Equity Strategic Alliances: A Small Company Perspective'. *Supply Chain Forum: An International Journal* 7(2): 44–57. doi:10.1080/16258312.2006.11517168.
- Denk, Nikola, Lutz Kaufmann, and Jan-Frederik Roesch. 2012. 'Liabilities of Foreignness Revisited: A Review of Contemporary Studies and Recommendations for Future

- Research'. *Journal of International Management* 18(4): 322–34.
doi:10.1016/j.intman.2012.07.001.
- Dhaundiyal, Mayank, and Joseph Coughlan. 2022. 'Extending Alliance Management Capability in Individual Alliances in the Post-Formation Stage'. *Industrial Marketing Management* 102: 12–23. doi:10.1016/j.indmarman.2021.12.011.
- Doblinger, Claudia, Kavita Surana, and Laura Diaz Anadon. 2019. 'Governments as Partners: The Role of Alliances in U.S. Cleantech Startup Innovation'. *Research Policy* 48(6): 1458–75. doi:10.1016/j.respol.2019.02.006.
- Doz, Yves L. 2007. 'The Evolution of Cooperation in Strategic Alliances: Initial Conditions or Learning Processes?' *Strategic Management Journal* 17(S1): 55–83.
doi:10.1002/smj.4250171006.
- Dunning, John H. 1988. 'The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions'. *Journal of International Business Studies* 19(1): 1–31.
- Elkington, John, and Ian H. Rowlands. 1999. 'Cannibals with Forks: The Triple Bottom Line of 21st Century Business'. *Alternatives Journal* 25(4): 42.
- Elo, Satu, and Helvi Kyngäs. 2008. 'The Qualitative Content Analysis Process'. *Journal of Advanced Nursing* 62(1): 107–15. doi:10.1111/j.1365-2648.2007.04569.x.
- Engelken, Maximilian, Benedikt Römer, Marcus Drescher, Isabell M. Welp, and Arnold Picot. 2016. 'Comparing Drivers, Barriers, and Opportunities of Business Models for Renewable Energies: A Review'. *Renewable and Sustainable Energy Reviews* 60: 795–809. doi:10.1016/j.rser.2015.12.163.
- Fastenrath, Sebastian, and Boris Braun. 2018. 'Ambivalent Urban Sustainability Transitions: Insights from Brisbane's Building Sector'. *Journal of Cleaner Production* 176: 581–89. doi:10.1016/j.jclepro.2017.12.134.
- Ferri, Giovanni, and Francesca Lipari. 2019. 'Sustainable Finance Management'. In *The Rise of Green Finance in Europe*, Cham: Springer International Publishing, 79–93.
doi:10.1007/978-3-030-22510-0_4.
- Galletta, Anne. 2013. 'Mastering the Semi-Structured Interview and beyond: From Research Design to Analysis and Publication'. 18. *NYU press*.
- Gast, Johanna, Katherine Gundolf, and Beate Cesinger. 2017. 'Doing Business in a Green Way: A Systematic Review of the Ecological Sustainability Entrepreneurship Literature and Future Research Directions'. *Journal of Cleaner Production* 147: 44–56. doi:10.1016/j.jclepro.2017.01.065.
- Geissdoerfer, Martin, Nancy M.P. Bocken, and Erik Jan Hultink. 2016. 'Design Thinking to Enhance the Sustainable Business Modelling Process – A Workshop Based on a Value Mapping Process'. *Journal of Cleaner Production* 135: 1218–32.
doi:10.1016/j.jclepro.2016.07.020.
- Geissdoerfer, Martin, Marina P.P. Pieroni, Daniela C.A. Pigosso, and Khaled Soufani. 2020. 'Circular Business Models: A Review'. *Journal of Cleaner Production* 277: 123741.
doi:10.1016/j.jclepro.2020.123741.
- Geissdoerfer, Martin, Doroteya Vladimirova, and Steve Evans. 2018. 'Sustainable Business Model Innovation: A Review'. *Journal of Cleaner Production* 198: 401–16.
doi:10.1016/j.jclepro.2018.06.240.
- Gimenez-Fernandez, Elena M., Francesco D. Sandulli, and Marcel Bogers. 2020. 'Unpacking Liabilities of Newness and Smallness in Innovative Start-Ups: Investigating the Differences in Innovation Performance between New and Older Small Firms'. *Research Policy* 49(10): 104049. doi:10.1016/j.respol.2020.104049.
- Glaister, Keith W., and Peter J. Buckley. 1996. 'Strategic Motives For International Alliance Formation*'. *Journal of Management Studies* 33(3): 301–32.
doi:10.1111/j.1467-6486.1996.tb00804.x.
- Grant, Robert M., and Charles Baden-Fuller. 2004. 'A Knowledge Accessing Theory of Strategic Alliances'. *Journal of Management Studies* 41(1): 61–84.
doi:10.1111/j.1467-6486.2004.00421.x.
- Gudergan, Siegfried P., Timothy Devinney, Nicole Franziska Richter, and R. Susan Ellis.

2012. 'Strategic Implications for (Non-Equity) Alliance Performance'. *Long Range Planning* 45(5–6): 451–76. doi:10.1016/j.lrp.2012.09.002.
- Gundolf, Katherine, Annabelle Jaouen, and Johanna Gast. 2018. 'Motives for Strategic Alliances in Cultural and Creative Industries'. *Creativity and Innovation Management* 27(2): 148–60. doi:10.1111/caim.12255.
- Haase, Heiko, and Mário Franco. 2015. 'When Small Businesses Go International: Alliances as a Key to Entry'. *Journal of Business Strategy* 36(3): 37–45. doi:10.1108/JBS-03-2014-0032.
- Hajdini, Ilir, Helge Klapper, Paulus Rommer, and Josef Windsperger. 2017. 'Control and Performance in Franchising Networks'. In *Management and Governance of Networks, Franchising, Cooperatives, and Strategic Alliances*. Cham: Springer International Publishing, 35–56. doi:10.1007/978-3-319-57276-5_3.
- Handoko, Indria, and Hendro A. Tjaturpriono. 2023. 'The Evolution of Organizational Design: The Case of Digital Startups'. *International Journal of Emerging Markets*.
- Henry, Marvin, Thomas Bauwens, Marko Hekkert, and Julian Kirchherr. 2020. 'A Typology of Circular Start-Ups: An Analysis of 128 Circular Business Models'. *Journal of Cleaner Production* 245: 118528. doi:10.1016/j.jclepro.2019.118528.
- Hill, C. W., P. Hwang, and W. C. Kim. 1990. 'An Eclectic Theory of the Choice of International Entry Mode'. *Strategic Management Journal* 11(2): 117–28.
- Hitt, Michael A, M Tina Dacin, and Edward Levitas. 2024. 'Partner Selection in Emerging and Developed Market Contexts: Resource-Based and Organizational Learning Perspectives'. *Academy of Management Journal*.
- Hockerts, Kai, and Rolf Wüstenhagen. 2010. 'Greening Goliaths versus Emerging Davids — Theorizing about the Role of Incumbents and New Entrants in Sustainable Entrepreneurship'. *Journal of Business Venturing* 25(5): 481–92. doi:10.1016/j.jbusvent.2009.07.005.
- Hoetker, Glenn, and Thomas Mellewigt. 2009. 'Choice and Performance of Governance Mechanisms: Matching Alliance Governance to Asset Type'. *Strategic Management Journal* 30(10): 1025–44. doi:10.1002/smj.775.
- Hoffmann, Werner H., and Roman Schlosser. 2001. 'Success Factors of Strategic Alliances in Small and Medium-Sized Enterprises—An Empirical Survey'. *Long Range Planning* 34(3): 357–81. doi:10.1016/S0024-6301(01)00041-3.
- Hoogendoorn, Brigitte, Peter Van Der Zwan, and Roy Thurik. 2019. 'Sustainable Entrepreneurship: The Role of Perceived Barriers and Risk'. *Journal of Business Ethics* 157(4): 1133–54. doi:10.1007/s10551-017-3646-8.
- Horne, Jannic, and Klaus Fichter. 2022. 'Growing for Sustainability: Enablers for the Growth of Impact Startups – A Conceptual Framework, Taxonomy, and Systematic Literature Review'. *Journal of Cleaner Production* 349: 131163. doi:10.1016/j.jclepro.2022.131163.
- Hübel, Charlott, Ilka Weissbrod, and Stefan Schaltegger. 2022. 'Strategic Alliances for Corporate Sustainability Innovation: The “How” and “When” of Learning Processes'. *Long Range Planning* 55(6): 102200. doi:10.1016/j.lrp.2022.102200.
- Ireland, R Duane, Michael A Hitt, and Deepa Vaidyanath. 2002. 'Alliance Management as a Source of Competitive Advantage'. *Journal of Management*.
- Jiang, Xu, Feifei Jiang, Xinlei Cai, and Heng Liu. 2015. 'How Does Trust Affect Alliance Performance? The Mediating Role of Resource Sharing'. *Industrial Marketing Management* 45: 128–38. doi:10.1016/j.indmarman.2015.02.011.
- Jiang, Xu, Yuan Li, and Shanxing Gao. 2008. 'The Stability of Strategic Alliances: Characteristics, Factors and Stages'. *Journal of International Management* 14(2): 173–89. doi:10.1016/j.intman.2007.09.002.
- Johanson, Jan, and Jan-Erik Vahlne. 1997. 'The Internationalization Process of the Firm: A Model of Knowledge Development and Increasing Foreign Market Commitments'. *Journal of International Business Studies* 8(1): 2332.
- Johnson, Joseph, and Gerard J Tellis. 2008. 'Drivers of Success for Market Entry into China and India'. *Journal of Marketing* 72(3): 1–13.

- Jolink, Albert, and Eva Niesten. 2015. 'Sustainable Development and Business Models of Entrepreneurs in the Organic Food Industry'. *Business Strategy and the Environment* 24(6): 386–401. doi:10.1002/bse.1826.
- Kale, Prashant, Jeffrey H. Dyer, and Harbir Singh. 2002. 'Alliance Capability, Stock Market Response, and Long-term Alliance Success: The Role of the Alliance Function'. *Strategic Management Journal* 23(8): 747–67. doi:10.1002/smj.248.
- Kale, Prashant, Jeffrey Dyer, and Harbir Singh. 2001. 'Value Creation and Success in Strategic Alliances'. *European Management Journal* 19(5): 463–71. doi:10.1016/S0263-2373(01)00062-7.
- Kallio, Hanna, Anna-Maija Pietilä, Martin Johnson, and Mari Kangasniemi. 2016. 'Systematic Methodological Review: Developing a Framework for a Qualitative Semi-structured Interview Guide'. *Journal of Advanced Nursing* 72(12): 2954–65. doi:10.1111/jan.13031.
- Kennedy, Aileen, and Kathy Keeney. 2009. 'Strategic Partnerships and the Internationalisation Process of Software SMEs'. *Service Business* 3(3): 259–73. doi:10.1007/s11628-008-0061-3.
- Khamseh, Hamid, Dominique Jolly, and Laure Morel. 2017. 'The Effect of Learning Approaches on the Utilization of External Knowledge in Strategic Alliances'. *Industrial Marketing Management* 63: 92–104. doi:10.1016/j.indmarman.2016.12.004.
- Khan, Sana Akbar, and René Bohnsack. 2020. 'Influencing the Disruptive Potential of Sustainable Technologies through Value Proposition Design: The Case of Vehicle-to-Grid Technology'. *Journal of Cleaner Production* 254: 120018. doi:10.1016/j.jclepro.2020.120018.
- Kimmel, Courtney E. and R. Bruce Hull. 2012. 'Ecological Entrepreneurship Support Networks: Roles and Functions for Conservation Organizations'. *Geoforum* 43(1): 58–67. doi:10.1016/j.geoforum.2011.07.003.
- Kishna, Maikel, Eva Niesten, Simona Negro, and Marko P. Hekkert. 2017. 'The Role of Alliances in Creating Legitimacy of Sustainable Technologies: A Study on the Field of Bio-Plastics'. *Journal of Cleaner Production* 155: 7–16. doi:10.1016/j.jclepro.2016.06.089.
- Köhler, Jonathan, Frank W. Geels, Florian Kern, Jochen Markard, Elsie Onsongo, Anna Wieczorek, Floortje Alkemade, et al. 2019. 'An Agenda for Sustainability Transitions Research: State of the Art and Future Directions'. *Environmental Innovation and Societal Transitions* 31: 1–32. doi:10.1016/j.eist.2019.01.004.
- Kohtamäki, Marko, Rodrigo Rabetino, and Tuomas Huikkola. 2023. 'Learning in Strategic Alliances: Reviewing the Literature Streams and Crafting the Agenda for Future Research'. *Industrial Marketing Management* 110: 68–84. doi:10.1016/j.indmarman.2023.02.011.
- Koval, Mariia. 2021. 'Whether and When Do Alliance Terminations Pay Off?' *Industrial Marketing Management* 98: 149–60. doi:10.1016/j.indmarman.2021.08.008.
- Kowszyk, Yanina, Adeline Abou-Ali, and Lizbeth Arroyo. 2022. 'Circular Economy and Business Model Innovation: The Key Elements for a Sustainable Transition in Spain Circular Economy 2030'. In *Business Models for the Circular Economy, Sustainability and Innovation*, eds. Viktor Prokop, Jan Stejskal, Jens Horbach, and Wolfgang Gerstlberger. Cham: Springer International Publishing, 169–90. doi:10.1007/978-3-031-08313-6_7.
- Krishnan, Rekha, Inge Geyskens, and Jan-Benedict E. M. Steenkamp. 2016. 'The Effectiveness of Contractual and Trust-Based Governance in Strategic Alliances under Behavioral and Environmental Uncertainty: Effectiveness of Contracts and Trust under Uncertainty'. *Strategic Management Journal* 37(12): 2521–42. doi:10.1002/smj.2469.
- Krishnan, Rekha, Xavier Martin, and Niels G. Noorderhaven. 2006. 'When Does Trust Matter to Alliance Performance?' *Academy of Management Journal* 49(5): 894–917. doi:10.5465/amj.2006.22798171.
- Kuckertz, Andreas, Elisabeth S.C. Berger, and Anja Gaudig. 2019. 'Responding to the

- Greatest Challenges? Value Creation in Ecological Startups'. *Journal of Cleaner Production* 230: 1138–47. doi:10.1016/j.jclepro.2019.05.149.
- Kuckertz, Andreas, and Marcus Wagner. 2010. 'The Influence of Sustainability Orientation on Entrepreneurial Intentions — Investigating the Role of Business Experience'. *Journal of Business Venturing* 25(5): 524–39. doi:10.1016/j.jbusvent.2009.09.001.
- Lambe, C. Jay, Robert E. Spekman, and Shelby D. Hunt. 2002. 'Alliance Competence, Resources, and Alliance Success: Conceptualization, Measurement, and Initial Test'. *Journal of the Academy of Marketing Science* 30(2): 141–58. doi:10.1177/03079459994399.
- Lans, Thomas, Vincent Blok, and Renate Wesselink. 2014. 'Learning Apart and Together: Towards an Integrated Competence Framework for Sustainable Entrepreneurship in Higher Education'. *Journal of Cleaner Production* 62: 37–47. doi:10.1016/j.jclepro.2013.03.036.
- Laufs, Katharina, and Christian Schwens. 2014. 'Foreign Market Entry Mode Choice of Small and Medium-Sized Enterprises: A Systematic Review and Future Research Agenda'. *International Business Review* 23(6): 1109–26. doi:10.1016/j.ibusrev.2014.03.006.
- Laukkanen, Minttu, and Samuli Patala. 2014. 'Analyzing Barriers to sustainable business model innovations: Innovation systems approach'. *International Journal of Innovation Management* 18(06): 1440010. doi:10.1142/S1363919614400106.
- Lauri, S., and H. Kyngas. 2005. *Developing Nursing Theories*. Vantaa, Finland: Werner Söderström, Dark Oy.
- Laursen, Keld and Ammon Salter. 2006. 'Open for Innovation: The Role of Openness in Explaining Innovation Performance among U.K. Manufacturing Firms'. *Strategic Management Journal* 27(2): 131–50. doi:10.1002/smj.507.
- Lindsay, Valerie, Michel Rod, and Nicholas Ashill. 2017. 'Institutional and Resource Configurations Associated with Different SME Foreign Market Entry Modes'. *Industrial Marketing Management* 66: 130–44. doi:10.1016/j.indmarman.2017.07.014.
- Linnanen, Lassi. 2016. 'An Insider's Experiences with Environmental Entrepreneurship'. *Routledge*.
- Lopes Cancela, Beatriz., Arnaldo Coelho, and Maria Elisabete Neves. 2023. 'Lopes Cancela, B., Coelho, A., & Neves, M. E. (2023). The Role of Green Strategic Alliances and Their Impact on Green Organizational Identity and Sustainability. Benchmarking: An International Journal.' *Benchmarking: An International Journal*.
- Lorange, Peter, Johann Roos, and Peggy Simcic Brønn. 1992. 'Building Successful Strategic Alliances'. *Long range planning* 25(6): 10–17.
- Lu, Jane W. 2002. 'Intra-and Inter-Organizational Imitative Behavior: Institutional Influences on Japanese Firms' Entry Mode Choice'. *Journal of International Business Studies* 33: 19–37.
- Lu, Jane W., and Paul W. Beamish. 2001. 'The Internationalization and Performance of SMEs'. *Strategic Management Journal* 22(6–7): 565–86. doi:10.1002/smj.184.
- Lunnan, Randi, and Sven A. Haugland. 2008. 'Predicting and Measuring Alliance Performance: A Multidimensional Analysis'. *Strategic Management Journal* 29(5): 545–56. doi:10.1002/smj.660.
- Ma, Chaoqun, Zhi Yang, Zheng Yao, Greg Fisher, and Eric (Er) Fang. 2012. 'The Effect of Strategic Alliance Resource Accumulation and Process Characteristics on New Product Success: Exploration of International High-Tech Strategic Alliances in China'. *Industrial Marketing Management* 41(3): 469–80. doi:10.1016/j.indmarman.2011.04.001.
- Maekelburger, Birger, Christian Schwens, and Ruediger Kabst. 2012. 'Asset Specificity and Foreign Market Entry Mode Choice of Small and Medium-Sized Enterprises: The Moderating Influence of Knowledge Safeguards and Institutional Safeguards'. *Journal of International Business Studies* 43(5): 458–76. doi:10.1057/jibs.2012.12.
- Mani, Sudha, Bahar Ashnai, and Jeff Jianfeng Wang. 2022. 'Alliance Portfolios and Joint R&D Project Performance'. *Industrial Marketing Management* 107: 238–52.

- doi:10.1016/j.indmarman.2022.10.005.
- Mayring, Philipp 2014. 'Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solution'.
- Meyer, Klaus E., Mike Wright, and Sarika Pruthi. 2009. 'Managing Knowledge in Foreign Entry Strategies: A Resource-based Analysis'. *Strategic Management Journal* 30(5): 557–74. doi:10.1002/smj.756.
- Migendt, Michael, Friedemann Polzin, Florian Schock, Florian A. Täube, and Paschen Von Flotow. 2017. 'Beyond Venture Capital: An Exploratory Study of the Finance-Innovation-Policy Nexus in Cleantech'. *Industrial and Corporate Change* 26(6): 973–96. doi:10.1093/icc/dtx014.
- Montiel, Ivan, and Bryan W. Husted. 2009. 'The Adoption of Voluntary Environmental Management Programs in Mexico: First Movers as Institutional Entrepreneurs'. *Journal of Business Ethics* 88(S2): 349–63. doi:10.1007/s10551-009-0282-y.
- Morschett, Dirk, Hanna Schramm-Klein, and Bernhard Swoboda. 2010. 'Decades of Research on Market Entry Modes: What Do We Really Know about External Antecedents of Entry Mode Choice?' *Journal of International Management* 16(1): 60–77. doi:10.1016/j.intman.2009.09.002.
- Mrkajic, Boris, Samuele Murtinu, and Vittoria G. Scalera. 2019. 'Is Green the New Gold? Venture Capital and Green Entrepreneurship'. *Small Business Economics* 52(4): 929–50. doi:10.1007/s11187-017-9943-x.
- Muñoz, Pablo, and Boyd Cohen. 2018. 'Sustainable Entrepreneurship Research: Taking Stock and Looking Ahead'. *Business Strategy and the Environment* 27(3): 300–322. doi:10.1002/bse.2000.
- Nakos, George, and Keith D Brouthers. 2002. 'Entry Mode Choice of & SMEs in Central and Eastern Europe'. *Entrepreneurship Theory and Practice* 27(1): 47–63.
- Nakos, George, Keith D. Brouthers, and Pavlos Dimitratos. 2014. 'International Alliances with Competitors and Non-Competitors: The Disparate Impact on Sme International Performance: International Alliances with Competitors and Non-Competitors'. *Strategic Entrepreneurship Journal* 8(2): 167–82. doi:10.1002/sej.1169.
- Nielsen, Bo Bernhard. 2007. 'Determining International Strategic Alliance Performance: A Multidimensional Approach'. *International Business Review* 16(3): 337–61. doi:10.1016/j.ibusrev.2007.02.004.
- Nielsen, Eva, and Albert Jolink. 2018. 'Alliance Governance Choices: Disentangling the Effects of Uncertainty and Alliance Experience'. *Long Range Planning* 51(2): 320–33. doi:10.1016/j.lrp.2017.07.004.
- Ning, Yixi, Wei Wang, and Bo Yu. 2015. 'The Driving Forces of Venture Capital Investments'. *Small Business Economics* 44(2): 315–44. doi:10.1007/s11187-014-9591-3.
- Nunes, Andressa Kelly Da Silva, Sandra Naomi Morioka, and Ivan Bolis. 2022. 'Challenges of Business Models for Sustainability in Startups'. *RAUSP Management Journal* 57(4): 382–400. doi:10.1108/RAUSP-10-2021-0216.
- Oberländer, Anna Maria, Maximilian Röglinger, and Michael Rosemann. 2021. 'Digital Opportunities for Incumbents – A Resource-Centric Perspective'. *The Journal of Strategic Information Systems* 30(3): 101670. doi:10.1016/j.jsis.2021.101670.
- O'Dwyer, Michele, Audrey Gilmore, and David Carson. 2011. 'Strategic Alliances as an Element of Innovative Marketing in SMEs'. *Journal of Strategic Marketing* 19(1): 91–104. doi:10.1080/0965254X.2010.537765.
- O'Neill, Kirstie, and David Gibbs. 2016. 'Rethinking Green Entrepreneurship – Fluid Narratives of the Green Economy'. *Environment and Planning A: Economy and Space* 48(9): 1727–49. doi:10.1177/0308518X16650453.
- Pacheco, Desirée F., Thomas J. Dean, and David S. Payne. 2010. 'Escaping the Green Prison: Entrepreneurship and the Creation of Opportunities for Sustainable Development'. *Journal of Business Venturing* 25(5): 464–80. doi:10.1016/j.jbusvent.2009.07.006.
- Pakura, Stefanie. 2020. 'Open Innovation as a Driver for New Organisations: A Qualitative Analysis of Green-Tech Start-Ups'. *International Journal of Entrepreneurial Venturing*

- 12(1): 109–42.
- Palmié, Maximilian, Jonas Boehm, Jonas Friedrich, Vinit Parida, Joakim Wincent, Jonas Kahlert, Oliver Gassmann, and David Sjödin. 2021. 'Startups versus Incumbents in "Green" Industry Transformations: A Comparative Study of Business Model Archetypes in the Electrical Power Sector'. *Industrial Marketing Management* 96: 35–49. doi:10.1016/j.indmarman.2021.04.003.
- Palomares-Aguirre, Itzel, Michael Barnett, Francisco Layrisse, and Bryan W. Husted. 2018. 'Built to Scale? How Sustainable Business Models Can Better Serve the Base of the Pyramid'. *Journal of Cleaner Production* 172: 4506–13. doi:10.1016/j.jclepro.2017.11.084.
- Pan, Yigang, and David K. Tse. 2000. 'The Hierarchical Model of Market Entry Modes'. *Journal of international business studies* 31: 535–54.
- Panico, Claudio. 2017. 'Strategic Interaction in Alliances'. *Strategic Management Journal* 38(8): 1646–67. doi:10.1002/smj.2610.
- Park, Seung Ho, and Gerardo R. Ungson. 2001. 'Interfirm Rivalry and Managerial Complexity: A Conceptual Framework of Alliance Failure'. *Organization Science* 12(1): 37–53. doi:10.1287/orsc.12.1.37.10118.
- Pehrsson, Anders 2008. 'Strategy Antecedents of Modes of Entry into Foreign Markets'. *Journal of business research* 61(2): 132–40.
- Petrou, Andreas P. 2009. 'Foreign Market Entry Strategies in Retail Banking: Choosing an Entry Mode in a Landscape of Constraints'. *Long Range Planning* 42(5–6): 614–32. doi:10.1016/j.lrp.2009.09.001.
- Petzold, Neele, Alexander Lennart Schmidt, and Laurent Scaringella. 2023. 'How to Overcome the Disruptor's Dilemma: Exploring Strategic Alliance Reconfiguration of New Market Entrants'. *Technovation* 126: 102812. doi:10.1016/j.technovation.2023.102812.
- Phene, Anupama, and Stephen Tallman. 2014. 'Knowledge Spillovers and Alliance Formation'. *Journal of Management Studies* 51(7): 1058–90. doi:10.1111/joms.12088.
- Pinkse, Jonatan, and Koen Groot. 2015. 'Sustainable Entrepreneurship and Corporate Political Activity: Overcoming Market Barriers in the Clean Energy Sector'. *Entrepreneurship Theory and Practice* 39(3): 633–54. doi:10.1111/etap.12055.
- Planko, Julia, Jacqueline M. Cramer, Maryse M. H. Chappin, and M. P. Hekkert. 2016. 'Strategic Collective System Building to Commercialize Sustainability Innovations'. *Journal of Cleaner Production* 112: 2328–41.
- Potluri, Seema, and B.V. Phani. 2020. 'Incentivizing Green Entrepreneurship: A Proposed Policy Prescription (a Study of Entrepreneurial Insights from an Emerging Economy Perspective)'. *Journal of Cleaner Production* 259: 120843. doi:10.1016/j.jclepro.2020.120843.
- Prashant, Kale, and Singh Harbir. 2009. 'Managing Strategic Alliances: What Do We Know Now, and Where Do We Go from Here?'. *Academy of management perspectives* 23(3): 45–62. <https://doi.org/10.5465/amp.2009.43479263>.
- Qi, Xiaoguang, Jin Hooi Chan, Junyan Hu, and Yifan Li. 2020. 'Motivations for Selecting Cross-Border e-Commerce as a Foreign Market Entry Mode'. *Industrial Marketing Management* 89: 50–60. doi:10.1016/j.indmarman.2020.01.009.
- Rahman, Noushi, and Helaine J. Korn. 2014. 'Alliance Longevity: Examining Relational and Operational Antecedents'. *Long Range Planning* 47(5): 245–61. doi:10.1016/j.lrp.2012.05.003.
- Rajan, Rishabh, Sanjay Dhir, and Sushil. 2020. 'Alliance Termination Research: A Bibliometric Review and Research Agenda'. *Journal of Strategy and Management* 13(3): 351–75. doi:10.1108/JSMA-10-2019-0184.
- Randjelovic, Jelena, Anastasia R. O'Rourke, and Renato J. Orsato. 2003. 'The Emergence of Green Venture Capital'. *Business Strategy and the Environment* 12(4): 240–53. doi:10.1002/bse.361.
- Rao, Raghunath Singh, Rajesh K. Chandy, and Jaideep C Prabhu. 2008. 'The Fruits of Legitimacy: Why Some New Ventures Gain More from Innovation than Others'.

- Journal of Marketing* 72(4): 58–75.
- Rashid, Amir, Farazee M.A. Asif, Peter Krajnik, and Cornel Mihai Nicolescu. 2013. 'Resource Conservative Manufacturing: An Essential Change in Business and Technology Paradigm for Sustainable Manufacturing'. *Journal of Cleaner Production* 57: 166–77. doi:10.1016/j.jclepro.2013.06.012.
- Reuber, A. Rebecca, Esther Tippmann, and Sinéad Monaghan. 2021. 'Global Scaling as a Logic of Multinationalization'. *Journal of International Business Studies* 52(6): 1031–46. doi:10.1057/s41267-021-00417-2.
- Ribeiro-Soriano, Domingo, and Juan Piñeiro-Chousa. 2021. 'Innovative Strategic Relationships among Sustainable Start-Ups'. *Industrial Marketing Management* 94: 106–14. doi:10.1016/j.indmarman.2021.01.008.
- Richardson, James. 2008. 'The Business Model: An Integrative Framework for Strategy Execution'. *Strategic Change* 17(5–6): 133–44. doi:10.1002/jsc.821.
- Robles, Fernando, Adel El-Ansary, and Franklin R. Root. 1988. 'Entry Strategies for International Markets'. *Journal of Marketing* 52(4): 128. doi:10.2307/1251639.
- Robson, Colin 1993. *Real World Research. A Resource for Social Scientists and Practitioner-Researchers*. Oxford: Blackwell Publishers.
- Rodgers, Cheryl. 2010. 'Sustainable Entrepreneurship in SMEs: A Case Study Analysis'. *Corporate Social Responsibility and Environmental Management* 17(3): 125–32. doi:10.1002/csr.223.
- Rothaermel, Frank T., and Warren Boeker. 2008. 'Old Technology Meets New Technology: Complementarities, Similarities, and Alliance Formation'. *Strategic Management Journal* 29(1): 47–77. doi:10.1002/smj.634.
- Russo, Margherita, and Maurizio Cesarani. 2017. 'Strategic Alliance Success Factors: A Literature Review on Alliance Lifecycle'. *International Journal of Business Administration* 8(3): 1. doi:10.5430/ijba.v8n3p1.
- Sadma, Oki. 2021. 'The Role of Environmental-Based "Green Startup" in Reducing Waste Problem and Its Implication to Environmental Resilience'. *Research Horizon* 1(3): 106–14.
- Salomaa, and Sirkku Juhola. 2020. 'How to Assess Sustainability Transformations: A Review'. *Global Sustainability* 3: e24. doi:10.1017/sus.2020.17.
- Sambasivan, Murali, Loke Siew-Phaik, Zainal Abidin Mohamed, and Yee Choy Leong. 2013. 'Factors Influencing Strategic Alliance Outcomes in a Manufacturing Supply Chain: Role of Alliance Motives, Interdependence, Asset Specificity and Relational Capital'. *International Journal of Production Economics* 141(1): 339–51. doi:10.1016/j.ijpe.2012.08.016.
- Sanchez-Peinado, Esther, Jose Pla-Barber, and Louis Hébert. 2007. 'Strategic Variables That Influence Entry Mode Choice in Service Firms'. *Journal of International Marketing* 15(1): 67–91.
- Schaltegger, Stefan. 2002. 'A Framework for Ecopreneurship'. *Greener Management International* 2002(38): 45–58. doi:10.9774/GLEAF.3062.2002.su.00006.
- Schaltegger, Stefan, and Marcus Wagner. 2011. 'Sustainable Entrepreneurship and Sustainability Innovation: Categories and Interactions'. *Business Strategy and the Environment* 20(4): 222–37. doi:10.1002/bse.682.
- Schellenberg, Michael, Michael John Harker, and Aliakbar Jafari. 2018. 'International Market Entry Mode – a Systematic Literature Review'. *Journal of Strategic Marketing* 26(7): 601–27. doi:10.1080/0965254X.2017.1339114.
- Schick, Hildegard, Sandra Marxen, and Jrgen Freimann. 2002. 'Sustainability Issues for Start-up Entrepreneurs'. *Greener Management International* 2002(38): 56–70. doi:10.9774/GLEAF.3062.2002.su.00007.
- Schwens, Christian, Julia Eiche, and Ruediger Kabst. 2011. 'The Moderating Impact of Informal Institutional Distance and Formal Institutional Risk on SME Entry Mode Choice'. *Journal of Management Studies* 48(2): 330–51. doi:10.1111/j.1467-6486.2010.00970.x.
- Shah, Kalim U. 2011. 'Organizational Legitimacy and the Strategic Bridging Ability of Green

- Alliances'. *Business Strategy and the Environment* 20(8): 498–511. doi:10.1002/bse.706.
- Sharma, Varinder M., and M. Krishna Erramilli. 2004. 'Resource-Based Explanation of Entry Mode Choice'. *Journal of Marketing Theory and Practice* 12(1): 1–18. doi:10.1080/10696679.2004.11658509.
- Sheang Lee, Khai, Guan Hua Lim, and Jiuan Tan. 2000. 'Feasibility of Strategic Alliance as an Entry Strategy into Markets Dominated by Major Competitors'. *Journal of Small Business and Enterprise Development* 7(1): 43–57. doi:10.1108/EUM00000000006804.
- Shepherd, Dean A., and Holger Patzelt. 2011. 'The New Field of Sustainable Entrepreneurship: Studying Entrepreneurial Action Linking "What Is to Be Sustained" with "What Is to Be Developed"'. *Entrepreneurship Theory and Practice* 35(1): 137–63. doi:10.1111/j.1540-6520.2010.00426.x.
- Skala, Agnieszka. 2019. 'Digital Startups in Transition Economies: Challenges for Management, Entrepreneurship and Education'. *Cham: Springer International Publishing*. doi:10.1007/978-3-030-01500-8.
- Slangen, Arjen, and Jean-François Hennart. 2007. 'Greenfield or Acquisition Entry: A Review of the Empirical Foreign Establishment Mode Literature'. *Journal of International Management* 13(4): 403–29. doi:10.1016/j.intman.2007.08.001.
- Sousa-Zomer, Thayla T., and Paulo A. Cauchick Miguel. 2018. 'Sustainable Business Models as an Innovation Strategy in the Water Sector: An Empirical Investigation of a Sustainable Product-Service System'. *Journal of Cleaner Production* 171: S119–29. doi:10.1016/j.jclepro.2016.07.063.
- Sreenivasan, Aswathy, and M. Suresh. 2023. 'Green Start-Ups: Start-Ups Accelerating Sustainability'. *International Journal of Global Business and Competitiveness* 18(1): 80–89. doi:10.1007/s42943-022-00068-6.
- Stinchcombe, Arthur L. 1965. *Organizations and Social Structure*. Handbook of organizations.
- Susteras, Guilherme Luiz, and Eliane Pereira Zamith Brito. 2023. 'Value Proposition Development under Uncertainty: A Theoretical Framework Grounded on the Trajectory of Cleantech Start-up Founders'. *Journal of Cleaner Production* 428: 139254. doi:10.1016/j.jclepro.2023.139254.
- Swoboda, Bernhard, Markus Meierer, Thomas Foscht, and Dirk Morschett. 2011. 'International SME Alliances: The Impact of Alliance Building and Configurational Fit on Success'. *Long Range Planning* 44(4): 271–88. doi:10.1016/j.lrp.2011.04.002.
- Taylor, Andrew. 2005. 'An Operations Perspective on Strategic Alliance Success Factors: An Exploratory Study of Alliance Managers in the Software Industry'. *International Journal of Operations & Production Management* 25(5): 469–90. doi:10.1108/01443570510593157.
- Tjemkes, Brian, Pepijn Vos, and Koen Burgers. 2017. *Strategic Alliance Management*. 2nd Edition. Routledge.
- Todeschini, Bruna Villa, Marcelo Nogueira Cortimiglia, Daniela Callegaro-de-Menezes, and Antonio Ghezzi. 2017. 'Innovative and Sustainable Business Models in the Fashion Industry: Entrepreneurial Drivers, Opportunities, and Challenges'. *Business Horizons* 60(6): 759–70. doi:10.1016/j.bushor.2017.07.003.
- Tziva, M., S.O. Negro, A. Kalfagianni, and M.P. Hekkert. 2021. 'Alliances as System Builders: On the Conditions of Network Formation and System Building in Sustainability Transitions'. *Journal of Cleaner Production* 318: 128616. doi:10.1016/j.jclepro.2021.128616.
- Van Gils, Anita, and Peter S. Zwart. 2009. 'Alliance Formation Motives in SMEs: An Explorative Conjoint Analysis Study'. *International Small Business Journal* 27(1): 5–37.
- Veleva, Vesela, and Gavin Bodkin. 2018. 'Corporate-Entrepreneur Collaborations to Advance a Circular Economy'. *Journal of Cleaner Production* 188: 20–37. doi:10.1016/j.jclepro.2018.03.196.

- Vermunt, Dorith A., Simona O. Negro, Pita A. Verweij, Deborah V. Kuppens, and Marko P. Hekkert. 2019. 'Exploring Barriers to Implementing Different Circular Business Models'. *Journal of Cleaner Production* 222: 891–902. doi:10.1016/j.jclepro.2019.03.052.
- Wassmer, Ulrich, and Pierre Dussauge. 2011. 'Value Creation in Alliance Portfolios: The Benefits and Costs of Network Resource Interdependencies: Value Creation in Alliance Portfolios: The Benefits and Costs of Network Resource Interdependencies'. *European Management Review* 8(1): 47–64. doi:10.1111/j.1740-4762.2011.01003.x.
- Weissbrod, Ilka, and Nancy M.P. Bocken. 2017. 'Developing Sustainable Business Experimentation Capability – A Case Study'. *Journal of Cleaner Production* 142: 2663–76. doi:10.1016/j.jclepro.2016.11.009.
- Welch, Lawrence. 2015. 'International Market Entry (Modes) and Development Operation Strategies'. In *Wiley Encyclopedia of Management*, ed. Cary L Cooper. Wiley, 1–4. doi:10.1002/9781118785317.weom090142.
- Whipple, Judith M., and Robert Frankel. 2000. 'Strategic Alliance Success Factors'. *Journal of Supply Chain Management* 36(2): 21–28. doi:10.1111/j.1745-493X.2000.tb00248.x.
- Williamson, Oliver E. 1985. 'The Economic Institutions of Capitalism'. *Journal of Economic* 17(2): 279–86.
- Windsperger, Josef, Oksana Galak, and Aved Raha. 2023. 'The Structure of Decision Rights in International Joint Ventures: A Property Rights and Transaction Cost View'. *European J. of International Management* 19(3): 338. doi:10.1504/EJIM.2023.128842.
- Wittmann, C. Michael, Shelby D. Hunt, and Dennis B. Arnett. 2009. 'Explaining Alliance Success: Competences, Resources, Relational Factors, and Resource-Advantage Theory'. *Industrial Marketing Management* 38(7): 743–56. doi:10.1016/j.indmarman.2008.02.007.
- Woolthuis, Rosalinde Klein, Fransje Hooimeijer, Bart Bossink, Guus Mulder, and Jeroen Brouwer. 2013. 'Institutional Entrepreneurship in Sustainable Urban Development: Dutch Successes as Inspiration for Transformation'. *Journal of Cleaner Production* 50: 91–100. doi:10.1016/j.jclepro.2012.11.031.
- Yiu, Daphne, and Shige Makino. 2002. 'The Choice Between Joint Venture and Wholly Owned Subsidiary: An Institutional Perspective'. *Organization Science* 13(6): 667–83. doi:10.1287/orsc.13.6.667.494.
- Zahoor, Nadia, Omar Al-Tabbaa, and Zaheer Khan. 2023. 'R&D Alliances and Post-entry Internationalization Speed: The Impact of Alliance Management Capability and Co-innovation Ambidexterity'. *Global Strategy Journal* 13(2): 315–48. doi:10.1002/gsj.1481.
- Zahra, Shaker A, and Michael A Hitt. 2024. 'International Expansion by New Venture Firms: International Diversity, Mode of Market Entry, Technological Learning, and Performance'. *Academy of Management Journal* 43(5): 925–50.
- Zain, Mohamend, and Siew Imm Ng. 2006. 'The Impacts of Network Relationships on SMEs' Internationalization Process'. *Thunderbird International Business Review* 48(2): 183–205. doi:10.1002/tie.20092.
- Zhou, Lianxi, Wei-Ping Wu, and Xueming Luo. 2007. 'Internationalization and the Performance of Born-Global SMEs: The Mediating Role of Social Networks'. *Journal of international business studies* 38: 673–90.
- Zollo, Maurizio, Jeffrey J. Reuer, and Harbir Singh. 2002. 'Interorganizational Routines and Performance in Strategic Alliances'. *Organization Science* 13(6): 701–13. doi:10.1287/orsc.13.6.701.503.