

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

**PLATFORMIZATION AND SUSTAINABILITY –
POTENTIAL AND CHALLENGES OF PLATFORM BUSINESS MODELS
FOR CONSUMERS**

LISA ROSENKRANZ

Work project carried out under the supervision of:

Prof. João Castro

17.12.2021

Abstract

The shift to a sustainable economy implies a radical transformation of businesses and society. This paper investigates whether increasing platformization can accelerate the sustainability transition by outlining the potentials and challenges of platform business models from a consumer and business lens. The research first examines the power of platforms to influence sustainable consumption patterns based on a quantitative survey. Moreover, a multiple-case study is conducted to explore how entrepreneurs can leverage sustainability-oriented platform business models to seize competitive advantage. The results contribute to a better understanding of sustainable platform usage and offer entrepreneurial strategies for sustainable business.

Keywords: *Digital Business, Business Model Transformation, Platform Economy, Sustainable Development, Consumer Behavior, Sustainable Entrepreneurship*

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Grassow, J. & Rosenkranz, L. (2021): Platformization and Sustainability – Potential and Challenges of Platform Business Models for Consumers and Entrepreneurs (Nova School of Business and Economics)

Table of Contents

1	Introduction.....	3
1.1	Relevance of this Research.....	3
1.2	Research Problem and Questions	4
1.3	Research Methods.....	5
1.4	Scope of this Research.....	6
2	Literature Review	6
2.1	Defining Platforms.....	6
2.2	Differentiating Platforms	8
2.3	Advantages of Platform Business Models	10
2.4	Product to Platform Strategy.....	12
2.5	Sustainability and Platforms	13
3	Potential and Challenges of Platform Business Models for Consumers.....	16
3.1	Research Focus	17
3.2	Methodology.....	18
3.3	Results.....	22
3.4	Analysis & Discussion.....	26
3.5	Summary & Implications.....	31
4	Potential and Challenges of Platform Business Models for Entrepreneurs..	32
4.1	Research Focus	32
4.2	Methodology.....	33
4.3	Results.....	36
4.4	Analysis & Discussion.....	43
4.5	Summary & Implications.....	46
5	Conclusion	48
5.1	Limitations	49
5.2	Future Research Opportunities	50
	Appendix	I
	Bibliography	XXXVII

1 Introduction

Digitalization and sustainability are two of the most critical issues of our time (BMU 2020). A profound development in the context of digitalization is the emergence of platform business models (PBM) and companies who try to transition from traditional products to platform ecosystems – a phenomenon understood as “*platformization*” in literature (Poell, Nieborg and van Dijck 2019, Casilli and Posada 2019, Stehlin, Hodson and McMeekin 2020). In fact, most of the business models of the world's largest companies by market capitalization are platform businesses, including Apple, Microsoft, Amazon, Alphabet (Google), or Facebook (Statista 2021).

With the rise of platforms, their growing impact on the economy, society, and environment becomes increasingly important for researchers and practitioners. A particularly interesting field of research lies in emerging digital platform ecosystems that directly address sustainability concerns by tackling social or environmental challenges with their business model, so-called “*sustainability-oriented*” platforms (Kolk and Ciulli 2020, Schaltegger, Hansen and Lüdeke-Freund 2016). While the platform economy and its drivers have been thoroughly studied in the past, little is yet known about the contribution of PBM to sustainability.

1.1 Relevance of this Research

The world has reached a critical tipping point in combating climate change. The recently held United Nations Climate Change Conference (COP26) brought together all major economies to accelerate and commit to urgent climate action (United Nations 2021a). Sustainability has moved to the center of public debate, shaping policy and decision-making across industries. A major outcome of COP26 binds roughly 90% of the world’s economies to carbon-neutral (“*net-zero*”) climate targets by 2030. Societal and organizational transformation to net-zero is considered “the next great industrial revolution” (KPMG 2021), which represents both significant risk and commercial opportunity for business today (Coppola, Blohmke and Krick 2019). It is

becoming increasingly clear that consumers and businesses will play a prominent role in the shift to net-zero, and that those who fail to adjust will fall behind.

Exploring sustainability solutions from a business model perspective is vital for this new era, as it links to an organization's value creation logic (Schaltegger, Hansen and Lüdeke-Freund 2016). The climate crisis has raised fundamental concern about the effects of existing business models on sustainability, and what each business is doing to adjust. The increasing platformization of the economy deserves more research attention in context with sustainability, as it has grown at such a significant rate in the past decade. In a 2018 market analysis by KPMG, the global platform economy represented an estimated combined market value of \$7,176 bn (Hottenhuis, et al. 2018). By 2040, PBM are expected to account for more than 50% of the S&P 500 corporations' combined net income, highlighting their immense significance for the global economy. Additionally, the COVID-19 pandemic and global lockdowns radically accelerated digital transformation, causing a worldwide, cross-generational increase in technology usage. To navigate through the global pandemic, digital platforms have proven to play a crucial role in economic and social resilience (OECD 2021). In the future, platforms are expected to become the prevalent business model of most organizations (Crayen, Hümmer and Wings 2020), explaining the rising interest in understanding and implementing best practice strategies of successful, sustainability-oriented platform companies today.

1.2 Research Problem and Questions

This research aims to give a comprehensive overview of platformization in context with sustainability and helps to answer the following research problem:

Can platformization accelerate the sustainability transition and if so, what are the potentials and challenges of platform business models from a consumer and business lens?

The thesis comprises two individual studies raising the below research questions:

1.2.1 Can platform business models influence sustainable consumer behavior?

Consumers and their behavior are recognized as relevant drivers of sustainability. In 2018, researchers estimated that sustainable consumer behavior might potentially “reduce the EU CO2 footprint by 25%” (Moran, et al. 2018). This study investigates to what extent PBM can influence sustainable consumer behavior positively or negatively. The study critically reflects both opportunities and threats to sustainable consumption of platform users.

1.2.2 How can entrepreneurs leverage sustainability-oriented platform business models in the pursuit of competitive advantage?

The private sector is considered an essential component of the international response to climate change. There is a “clear policy signal for businesses and investors” to transform business strategy to a net-zero impact on the environment, implying a major shift in the current economic model (Wei, et al. 2016). As the search for alternative business models becomes increasingly significant for theory and practice (Schaltegger, et al. 2016), this study investigates the extent to which sustainability-oriented PBM can build for future-proof resilience.

1.3 Research Methods

This thesis applies a mixed-methods research approach that combines qualitative and quantitative primary data with secondary data analysis. The thematic foundation is built upon the literature review (chapter 2) and complemented by two individual empirical studies. The consumer study (chapter 3) collects data from an online survey made available to over 150 participants. This work is conducted by the author *Lisa Rosenkranz* and answers the first research question as outlined in 1.2.1. This research also provides practical evidence from representative platform companies through an exploratory multiple-case study (chapter 4), using a qualitative interview technique. In total, ten in-depth interviews were conducted and analyzed by the author *Julia Grassow* in the context of the second research question as outlined in 1.2.2. The two studies are

designed consecutively and build upon each other to derive a holistic understanding of the research problem and combine the strengths of different research methods.

1.4 Scope of this Research

This research elaborates on platformization in the European context, which is resembled in the data sample. Both consumers and businesses that were surveyed and interviewed, respectively, are situated within Europe (primarily in Germany and Portugal). The research focus is limited to investigating environmental sustainability and platform-native companies. The objective of this study is not to derive statistical generalizations from the data; rather, it is to illustrate trends and best practices that emerge from empirical research. Findings are most relevant to entrepreneurial businesses and consumers that aim to increase adaptation efforts for sustainability.

2 Literature Review

2.1 Defining Platforms

To investigate the connection between platformization and sustainability, it is important to establish a common understanding of what is meant by ‘*platform*’. The following chapter compiles key definitions found in the literature and distinguishes between traditional linear and platform business models (PBM).

The term platform itself comes from the field of software engineering, describing a *technological architecture with “a stable, shared set of core components and a variable set of peripheral components”* (Nambisan, Siegel and Kenney 2018). In simpler terms, a platform from a technical notion consists of a core codebase that other actors can build on. Those additions are called modules and often add additional features to the platform (Nambisan, Siegel and Kenney 2018, Tiwana, Konsynski and Bush 2010, Baldwin and Woodard 2009). One way

to allow collaborations on a technical level are so-called application programming interfaces (API). They allow standardizing and controlling contributions and integrating new modules easily (Ghazawneh and Henfridsson 2012).

Additionally, literature recognizes platforms in the context of product development, delivering *an infrastructure or entire ecosystem to add new functionalities or create additional products for end customers*. Platforms can thereby enable scale and scope and are a source for innovation and co-creation, for example, Apple's iOS product platform (Hagel, et al. 2016, Kelly 2016).

In a broader sense, scholars often refer to 'platform business models' when describing platforms as *bringing together different market actors to exchange products, services, or information*. For example, a marketplace platform offers a digital infrastructure to consumers and producers who were unable to meet and complete transactions before (Rohn, et al. 2021, Barni, et al. 2018, Kelly 2016). In this sense, platforms support connection and collaboration, leading to a higher quantity and more customized products in the market (Hagel, et al. 2016, Kim 2016).

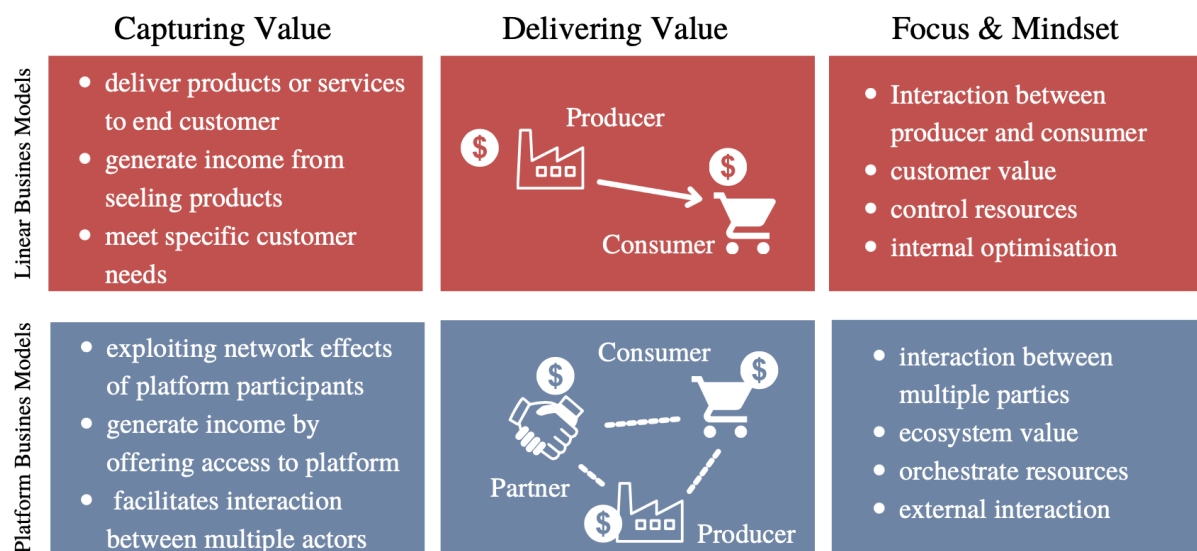


Figure 1: Comparison of Linear and Platform Business Models

(Adopted from Zhu and Furr 2016, Hagel, et al. 2016, Crayen, Hümmer and Wings 2020)

Another way to better understand platforms is by comparing product (linear) business models and PBM (Figure 1). Zhu and Furr (2016) differentiate PBM by how they capture value: The researchers state that whereas products aim to meet specific user needs and generate income through purchases by customers, platforms, in contrast, connect users with third parties. Platforms' revenue streams are payments from any actor who accesses the platform, i.e., users that offer or consume with the platform's help. In general, products rely on differentiation strategies to succeed, whereas platforms rely on the infrastructure that allows differentiated products to be exchanged (Hagel, et al. 2016).

2.2 Differentiating Platforms

When differentiating platforms, there are several approaches. Literature reveals that platforms are differentiated by (i) their number of market sides, (ii) their purpose, and (iii) pricing model.

(i) Most platforms are **multi-sided platforms** as they connect two or more market sides, i.e., different types of customers. The platform regulates their interaction, and therefore, the complexity of multi-sided platforms increases with the number of market sides involved.

(ii) Another common differentiation of platforms is based on their purpose, grouped into **innovation** and **transaction platforms** (Cusumano, Yoffie and Gawer 2020). Innovation platforms offer developers a foundation for adding services or products (for example, operating systems such as Android and iOS), enabling developers to offer their own applications as products built on top of the platform. Managing resources efficiently and offering a reliable base for external developers is critical on innovation platforms (Koskinen, Bonina and Eaton 2020). Gawer (2021) mentions that this classification originates from the platform's innovation potential. In contrast, transaction platforms enable a "matching" of user groups, as in online marketplaces where buyers and sellers exchange goods (Koskinen, Bonina and Eaton 2020).

Another prevalent connotation of platforms leads to the **sharing economy**, where PBM allow multiple actors in a market to share underutilized resources (Kelly 2016). A well-known example of sharing economy platforms is ‘BlaBlaCar’, matching drivers interested to carpool and users that need a ride (BlaBlaCar 2021). Sharing platforms enable to co-use knowledge, products or services and rely on two types of sharing in the platform ecosystem: resource sharing (e.g., Airbnb) or time and skill sharing (e.g., Coursera) (Täuscher und Laudien 2018).

A further differentiation suggests categorizing platforms into **aggregation, social, mobilization, and learning platforms**: Aggregation platforms facilitate transactions and connect users to resources (such as eBay). Social platforms focus on social interactions, connecting individuals and communities (such as Facebook, Twitter). Mobilization platforms enable people to find groups with aligned interests, helping to act towards shared goals together (such as the ‘Fridays for Future’ movement). Lastly, learning platforms support actors in creating and sharing knowledge with each other (such as Udemy, Skillshare) (Hagel, et al. 2016).

(iii) Pricing models are another method to differentiate platforms and define how and which market sides are charged. Crayen, Hümmer and Wings (2020) summarize six approaches:

(1) **Membership** platforms can generate revenue by offering a basic (free) and premium membership with additional features, charging the premium members an extra fee. (2) Another way to keep the platform free for users is through **advertisement**, where the platform income results from advertising space on the platform offered to third parties. (3) Platforms can also charge customers **per-use**. For example, the car-sharing industry charges car rentals by the minute and only when users actively use the service. (4) Instead of charging the consumer as in pay-per-use, platforms can charge producers, offering on the platform, a **commission** fee by keeping a certain percentage of the transaction that is completed via the platform. (5) Independent of their usage, some platforms offer a **subscription** model, generating a regular income from customers. (6) Lastly, platforms can generate income from selling accumulated **data**.

2.3 Advantages of Platform Business Models

To understand the drivers behind platformization, the following chapter highlights the core advantages of PBM. There is wide support in the literature that three key characteristics influence the success of platforms: (i) a high degree of scalability, (ii) powerful network effects, and (iii) low transaction costs.

2.3.1 High degree of scalability

A significant advantage of PBM is based on its ability to scale. Once the digital infrastructure has been created, there are hardly any technological barriers for subsequent duplication as well as minimal costs, given a platform's asset-light nature, which allows it to respond to increased demand extraordinarily quickly and flexibly. In addition, digital data can be easily replicated and retrieved independently of time and place. Apart from cultural, language or legal impediments, platforms can scale without geographical limitations (Hoffmann, Schröder and Pasing 2021, Engelhardt, Wangler and Wischmann 2017).

2.3.2 Direct and indirect network effects

Multi-sided digital platforms enable network effects, or network externalities, which can be separated in direct (same side) and indirect (cross-sided) in nature (Cusumano, Gawer and Yoffie 2019). Direct network effects arise with each additional user on a platform. Indirect network effects happen on transaction platforms and marketplaces connecting multiple market sides, whereas the benefit for buyers (demand side) increases with each additional seller (supply side) on the platform. Conversely, sellers also benefit from other sellers, as they make the platform more attractive and, therefore, attract more potential buyers for their own products (Hoffmann, Schröder and Pasing 2021).

In sum, network effects mutually reinforce each other and lead to the logic of positive feedback loops that enable platforms to grow and generate revenue without creating products or services themselves (Hoffmann, Schröder and Pasing 2021). Suppose a platform operator succeeds in increasing its number of users faster than competitors through a time lead (first-mover advantage) or the right strategic decisions. In that case, this favors the formation of a monopoly (“winner-takes-all”) as is the reality for a few of the largest multinational platform companies today (Engelhardt, Wangler and Wischmann 2017).

2.3.3 Low transaction costs

As previously mentioned, compared to traditional physical markets, digital platform markets are subject to a different value creation logic. A key element of value creation is the low transaction costs on digital platforms (Hoffmann, Schröder and Pasing 2021). First coined by Coase (1973), the transaction cost theory states that many different expenses are linked to selling in markets, including market uncertainty, available information, opportunism, and transaction frequency (Henten and Windekilde 2016). Transaction costs influence whether economic activities are conducted, with low transaction costs leading to a higher volume of transactions.

Platforms leverage digital technologies to reduce transaction costs significantly, often acting as an intermediary between the market players. Standardization of communication, data exchange, and set contractual components significantly increase transparency between platform users and reduce the effort and costs required for coordination. This, in turn, reduces transactional barriers and increases the volume of market transactions (Engelhardt, Wangler and Wischmann, Hoffmann, Schröder and Pasing 2021).

2.4 Product to Platform Strategy

With many companies transitioning from product to platform, the following chapter focuses on catalysts and challenges identified in the literature.

2.4.1 Success Factors of the Transition

There is support in the literature that **digitalization** is a central enabler for a quick transition of business models (Loebbecke and Picot 2015), since PBM need a stable technological infrastructure beyond most traditional product needs. Additionally, past examples have shown that **consumers' active involvement** in customization is a catalyst for companies from recognizing to implementing platform potential (Hagel, et al. 2016). Further drivers of platformization, in general, are **cloud technology**, as it enables companies to scale resources quickly and leverage data connectivity and the Internet of Things (Mack and Veil 2017, Hagel, et al. 2016).

Zhu and Furr (2016) advise that **competitor differentiation** should no longer be based just on the product itself but rather on the entire network of the platform. It is advantageous to have a base number of loyal users to move to platform-based business models. If a company manages to create loyal customers through a **lock-in effect**, meaning that they have a strength within the company or product trait that competitors can hardly replace, they will have won frequent users that attract third parties to become part of the platform's network (Zhu and Furr 2016, Hoffmann, Schröder and Pasing 2021).

Another driver of transitioning to PBM is **value (co)-creation** by making products or platforms more accessible to users. This does not always happen intentionally, as the example of Apple's App Store shows: Apple discovered the potential for **collaboration** through a software weakness in which hackers removed restrictions of the operating system to install their own applications on it to increase the value of the product (Zhu and Furr 2016).

2.4.2 Challenges of the Transition

The platform operator must first overcome the **initialization problem**, also known as the “chicken-and-egg” problem, which describes attracting sufficient users (Stummer, Kundisch and Decker 2018, Trabucchi 2020). Without buyers on the platform, no sellers will be attracted, and vice versa; without sellers, there are no buyers. The following steps are necessary to solve this problem (Hoffmann, Schröder and Pasing 2021): Platforms often have to make high initial investments and pursue a consistent growth strategy. However, **adverse network effects** can occur as the number of users increases. Such adverse effects arise, for example, if an increasing number of products of inferior quality are offered, or the search function of a platform does not provide users with optimal results. Community curation is important for counteracting potential customer dissatisfaction. One instrument of community curation is the algorithm-based evaluation of large volumes of data to provide customers with individualized offers, or a review and rating system for the content on the platform (Hoffmann, Schröder and Pasing 2021).

Another challenge is the **significant costs** associated with moving from product production to offering a digital platform and corresponding cloud infrastructure. It is critical that companies learn to differentiate where to control knowledge or in which cases it is beneficial to allow contributions and collaborations with third parties to avoid becoming imitable or too dependent (Hagel, et al. 2016).

2.5 Sustainability and Platforms

As noted previously, digital platforms globalize value chains by scaling without geographical boundaries and disrupting established industries, making it crucial to assess their long-term influence on sustainability (Zarra, et al. 2019). The following chapters will define the notion of ‘*sustainability*’ and explore its link to the platform economy.

2.5.1 Defining Sustainability

One of the most noted definitions of sustainable development was established by the United Nations (UN) in 1987 as “meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations Brundtland Commission 1987). Another dominant definition differentiates sustainability into three interconnected and reinforcing pillars, encompassing (i) *economic*, (ii) *social*, and (iii) *environmental* sustainability (Purvis, Mao and Robinson 2019).

Economic sustainability is associated with “economic development, growth, productivity [and] profitability” (Zarra, et al. 2019). Its financial efficiency and profit generated mainly determine a company’s economic sustainability it creates for shareholders. Therefore, strategic company decisions are catered “to maximize profits while reducing costs and mitigating risk” (Miller 2020). In 1994, Elkington coined the notion of a ‘*triple bottom line*’ as a new sustainability standard that measures a company’s economic as well as social and environmental impact, as opposed to a traditional single bottom line that only measures economic performance (Elkington 2018). Social sustainability is referred to as ‘people action’, including i.a., equality, inclusion, wellbeing, and health. In contrast, environmental sustainability is referred to as ‘planet action’, including i.a., climate change, natural resources, biodiversity, and renewable energy sources (United Nations 2021b, Zarra, et al. 2019). This research concentrates primarily on environmental sustainability, which will be the focus of the following chapters.

2.5.2 Sustainability Frameworks

Measuring and achieving sustainability goals cannot be done in the context of profit and loss (Elkington 2018). Global sustainability targets and frameworks are needed. In its international Agenda for Sustainable Development, the UN specifies **17 Sustainable Development Goals** (SDG) to achieve by 2030 (Appendix 4). The SDG framework was adopted by all UN members

in 2015 and represents a universal, yet non-binding pursuit of sustainable development (United Nations 2021b). However, policy action on sustainability, particularly the force behind the environmental movement, has a long history. In 1988, the **Intergovernmental Panel on Climate Change (IPCC)** was formed “to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options” (IPCC 2021). The IPCC counts 195 member states today and marks the beginning of environmental government action and assessment (Coppola, Blohmke and Krick 2019). The United Nations Conference on Environment and Development (UNCED), also known as the Rio Earth Summit, reached the first global climate treaty in 1992, representing a “new blueprint for international action on the environment” (United Nations 1992). Climate action was then acknowledged as the most pressing policy of the 21st century (Basiago 1995, Coppola, Blohmke and Krick 2019).

The **2015 Paris Agreement** marks the most important international climate treaty today. It is a global framework for climate action entered into force in 2016 by the UN, with the target to reduce CO₂ emissions by 50% by 2050 and 100% by 2100 to combat global temperature increase to a pre-industrial level of 1.5°C. 195 member countries, including all major economies, have agreed to this global target to reduce greenhouse gas emissions through national climate plans, suggesting a responsibility of the private sector to take action (United Nations 2021c).

2.5.3 Sustainability Transition

Adopting the Paris Agreement targets implies a major shift in the current economic model, which follows a linear approach. Common problems associated with a linear economy or growth economy are that materials are continuously extracted, used, and later discarded instead of being regenerated or restored, inducing the waste of resources and underutilization of products. A shift to a green (sustainability-oriented) economy seems necessary to reduce ecological risks and scarcities (D'Amato and Korhonen 2021).

Arguably, literature and science assume that traditional economic models with linear value chains as well as existing approaches to sustainable development (including corporate social responsibility, philanthropy, technology innovation) are not sufficient to curb climate change and resource depletion. To reach necessary climate targets, a “radical transformation of organizations, industries, and societies” is needed, suggesting concentrating on novel business models that can accelerate the development of holistic and competitive solutions for sustainable development (Schaltegger, Hansen and Lüdeke-Freund 2016, p.6; Stubbs and Cocklin 2008).

The platform economy, in particular sharing platforms, are commonly associated with a positive effect on the environment as they tackle a shift of both internal and external components of a company’s economic model, specifically of its supply and value chain. They also promote a shift to collaborative consumption (Zarra, et al. 2019, Bocken, et al. 2014). A linear economy assumes an infinite availability of resources. In a sharing (circular) approach, resources used are shared, regenerated, or restored, increasing resource efficiency (Plewnia and Guenther 2018) and preventing resource exploitation (Acquier, Daudigeos and Pinkse 2017). However, some have raised concern about the effectiveness of sharing platforms to deliver on their sustainability promise (Frenken and Schor 2017, Martin 2016, Dreyer, et al. 2017), highlighting a need and curiosity for further research.

3 Potential and Challenges of PBM for Consumers

The following individual study focuses on the effect of PBM on sustainability by investigating the consumer behavior of platform users. The research focus (chapter 3.1) specifies the main research question and hypothesis addressed. The methodology (chapter 3.2) outlines the survey structure, data analysis approach, and survey participation. Results are described in chapter 3.3, followed by a thorough analysis and discussion in chapter 3.4, and lastly, key outcomes and implications of the consumer study will be summarized in chapter 3.5.

3.1 Research Focus

This work focuses on the connection between PBM and sustainability, regarding consumer behavior, and attempts to answer the following research question:

Can platform business models influence sustainable consumer behavior?

As such, the following sub-questions will be addressed by the author:

- *What are examples of platform businesses driving or harming sustainable behavior?*
- *Are there key features of platforms that challenge or support sustainable behavior?*

Corresponding to the main research question, the following hypothesis has been formed:

Platform business models can lead to more sustainable behavior of consumers.

While the literature review revealed the advantages and challenges of digital platforms in general, this study dives deeper into the effects on sustainable consumer behavior of platforms. The term ‘consumer’ in this scope refers to platform users who consume a platform’s offering, not the businesses or suppliers producing the offerings. While producers can be seen as consumers of the platform, they are not the focus of this study and are excluded when discussing sustainable consumer behavior. A simple example picturing this differentiation is the car-sharing platform ‘Uber’. The user ordering the ride is the consumer, the driver offering the ride is the producer, and Uber itself is the PBM.

The hypothesis and research questions are used to understand whether platforms are driving or harming sustainable behavior among consumers. Throughout this study, ‘sustainable consumer behavior’ summarizes responsible consumption of products and services in the sense of environmental sustainability. Since platforms are used as a business model in various industries, it is not possible to generalize their effects on sustainability. Therefore, the study’s initial focus

is to solely investigate platform businesses that seem to offer a sincere solution to a sustainability issue, such as sharing platforms. According to the mentioned scope of environmental sustainability, the study investigates both challenges and opportunities of platforms for consumers who want to live sustainably. The key focus shall be users' perception of how commonly used platforms influence them to act more sustainably.

3.2 Methodology

The consumer study uses an online survey to investigate the presented research question based on a quantitative approach. The survey composition, documentation, and data cleaning have been done within the software Qualtrics. Afterward, the analysis of survey data was conducted using Excel and SPSS. All figures presented in Chapter 3 are the author's original work and visually guide the audience. The below chapter outlines the survey structure and its limitations.

3.2.1 Online Survey

This study is based on an online survey to research the connection between PBM and sustainability. The survey participants have been recruited via the network of the researchers and using a snowball sampling technique, meaning that those who filled out the survey recruited other participants. After two weeks of accessibility, 159 participants were recorded as respondents to the survey. Participants who did not complete the survey fully have been removed from the data set, leaving 120 relevant responses to be considered for the analysis.

Survey structure:

The structure of the survey included 28 questions in total, combining multiple-choice and open-ended questions. To build the base for the questionnaire, the authors agreed on nine indicators to measure the sustainable behavior of consumers (Figure 2):

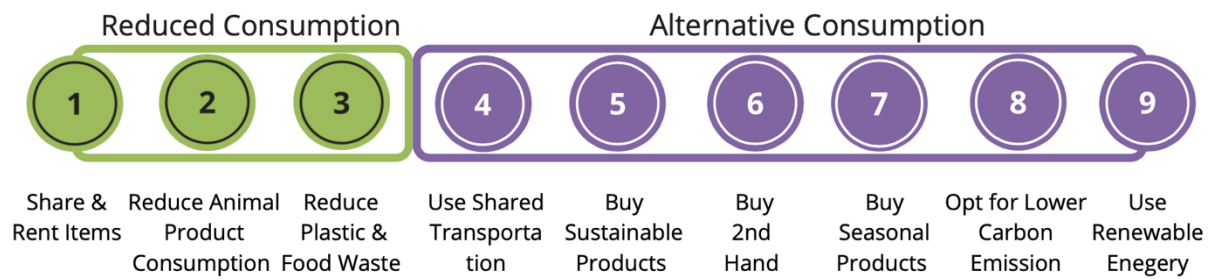


Figure 2: Indicators for Sustainable Consumer Behavior

The two main blocks of the survey – Reduced Consumption and Alternative Consumption – focus on the influence of platforms based on the listed indicators. They have been grouped into actions that lead to (i) reduced consumption and (ii) consuming alternatives that are more sustainable. Each indicator will be explained in more detail below:

(i) Reduced consumption: The **1st indicator** of sustainable consumer behavior is renting and sharing items instead of purchasing and owning. The **2nd indicator** is the reduced consumption of animal products, as a plant-based diet can have a smaller carbon footprint than a diet including meat (Thøgersen 2021). Therefore, an adapted behavior and awareness shown through lifestyle choices are part of sustainable user behavior. The **3rd indicator** is reduced food and plastic waste, one of the most known behaviors associated with sustainability. Food waste has one of the highest impacts on carbon footprint (Thøgersen 2021). Each year, an estimated one-third of all food produced is wasted (United Nations 2021d). Besides being interested in reducing their food waste (GlobeScan 2021), consumers realize the need to reduce waste in the form of plastic to become more sustainable (Deloitte 2021).

As visualized in Figure 2, the actions mentioned above focus on reducing consumption and can be grouped as such. The following are indicators for sustainable consumer behavior, in the sense of consuming alternative products. This includes consumers who actively choose to purchase and use products or services that are more sustainable than others available on the market.

(ii) Alternative Consumption: **Indicator 4** describes the use of shared transportation, such as buses or trains. Transportation is another firm contributor to the carbon footprint, as using public transport is more efficient than owning and using a car individually (Thøgersen 2021). The **5th indicator** is buying sustainable products; one of the outcomes of the surveys conducted by Deloitte and Thøgersen states that choosing brands with ethical standards and sustainable values or generally buying more climate-friendly products (for example, energy-efficient or electrical products) is seen as sustainable and responsible behavior (Deloitte 2021, Thøgersen 2021). The **6th indicator** refers to purchasing sustainably by buying second-hand products, therefore prolonging the life cycle of an otherwise wasted item. In 2021, 39% of Deloitte's survey participants stated that this is an action they have changed within the last year to become more sustainable (Deloitte 2021). When it comes to food, sustainable behavior goes beyond the amount of consumption, also focusing on the origin and potential air miles of the products (Deloitte 2021). Buying seasonal and local produce is **indicator 7** of the nine indicators used within the survey. **Indicator 8** is a special version of alternative consumption for a more sustainable lifestyle, opting for products with lower carbon emissions or that purposefully measure and act to reduce the carbon footprint. This is becoming an increasingly important consideration for business. Other studies show consumers try to switch to products with lower carbon emissions (Thøgersen 2021). **Indicator 9** refers to renewable energy sources (Deloitte 2021), for example, switching to energy-efficient light bulbs (United Nations 2021d).

These nine indicators were used to form the survey questions, testing the connection between sustainability and PBM. The survey uses them without labeling the actions as 'sustainable behavior' to get an unbiased response from participants. Participants were asked to rate the extent of platforms towards helping certain behaviors, related to one of the nine indicators.

In order to gain further insights into specific examples or features of PBM and investigate whether they drive or hinder sustainable user behavior, the survey ends with questions about

anti-food waste, e-commerce, and transportation platform solutions. One open question about less sustainable platforms and the participants' reasoning allows a critical view on the topic.

3.2.2 Limitations

There are several limitations to the study to be considered when analyzing the results. They can be summarized as follows: (i) the survey length, (ii) participant reliability, (iii) participant diversity, and (iv) sampling technique.

(i) To engage participants to complete the entire survey, questions were designed to be 'uncomplicated' to answer and take the least possible time to gather relevant insights. While more factors influence sustainable user behavior, this study focused on a limited number of selected questions to keep the survey completion duration low. This may have led to missing insights and examples for other sustainable user behaviors or types of PBM. Besides the issue of motivating participants to complete the survey fully, there is (ii) the possibility of participants misunderstanding questions. Even though the study included pilot test runs of the survey with independent testers, there is a general risk of misunderstanding questions or different interpretations to those intended. Possibly, answers were given that distorted the survey results. (iii) The diversity of the participants (as outlined in the following chapter) is limited by region, generation, and gender, which may again have influenced the outcome. (iv) Another limitation is identified in the snowball sampling technique, which was chosen to distribute the survey. This technique led to a highly homogeneous group of participants, all of which must be taken into consideration moving forward.

3.3 Results

This chapter focuses on objectively presenting the survey results, building a base for the analysis, interpretation, and discussion of the data later, in chapter 3.4. It covers relevant results for answering the research questions and excludes additional, less relevant information gathered. In alignment with the survey structure, this chapter will be divided into overall results concerning the connection between PBM and sustainable user behavior, then summarizing recorded data about food waste, transportation, and sustainable online shopping. Lastly, it covers an overview of demographics within the survey participant group.

3.3.1 The connection of PBM with sustainable user behavior

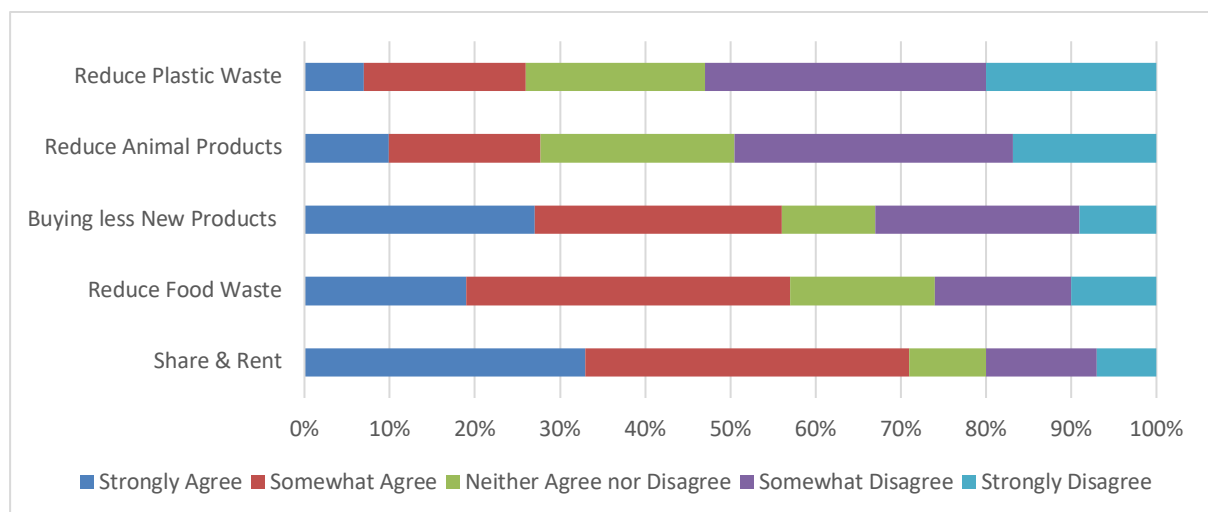


Figure 3: Reduced Consumption with the Support of Platform Business Models

Figure 3 displays the results of the first survey block about reduced consumption, and whether PBM support this reduction. Descending from “Reducing Plastic Waste” to “Share and Rent” items, there is an increasing agreement between participants that the behavior or action can be eased by using PBM. Responding “Somewhat Agree” or “Strongly Agree” within the survey is considered an agreement to the statement and will be analyzed accordingly. Out of the 120 participants, 26% see PMB as supportive in reducing plastic waste, with 53% disagreeing with this statement. From this, PBM can be seen as hindering in reducing plastic waste. Similar

results are recorded for reduced animal product consumption with the help of PBM. Half of the respondents do not see PBMs as beneficial to the reduction. Regarding the reduced purchase of new products, 56% see PBM enabling that behavior, 33% disagree, and 11% are not sure about the influence of PBM. The statement that PBM help to reduce food waste (57%) as well as sharing and renting items instead of buying has greater support (71%) among the participants.

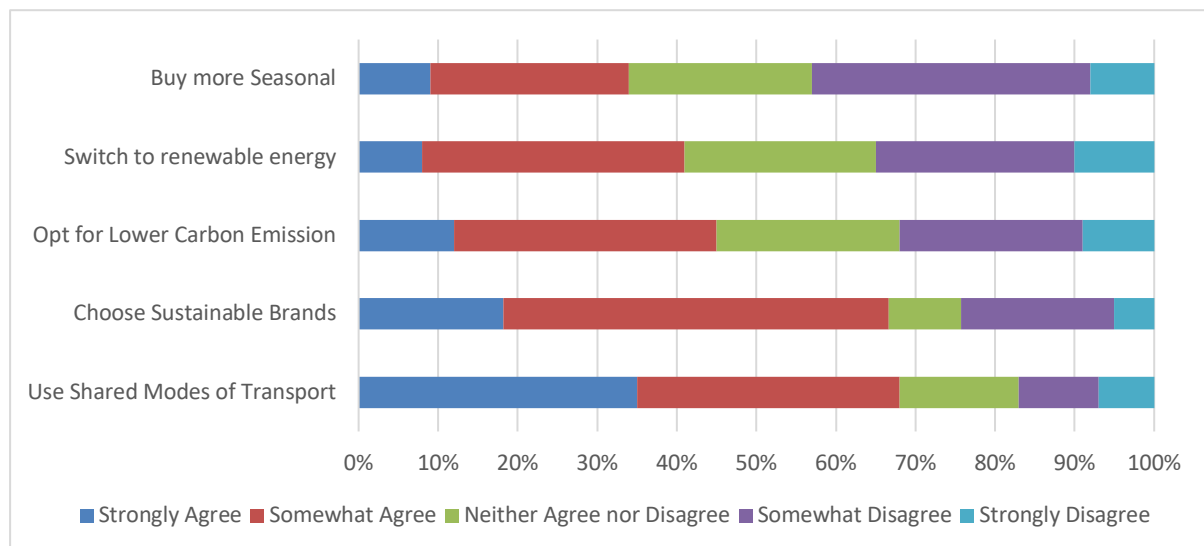


Figure 4: Consuming Sustainable Alternatives with the Support of PBM

Regarding sustainable consumption alternatives and how PBM may facilitate them (Figure 4), two behaviors stand out: (1) Choosing brands with sustainable values (66% agreement) and (2) using shared transportation (68% agreement). Less than half of the participants believe that platforms support purchasing more seasonal products (with 34% agreement), switching to renewable energy sources (41% agreement), or opting for lower carbon emissions (45% agreement).

Given this dispersion, it is interesting to understand the “why”, i.e., potential features of platforms (as identified in the initial literature review) that may affect sustainable behavior. The following Figure 5 presents the degree to which participants agree or disagree that the respective feature adds value to the platform’s ability to influence participants’ behavior.

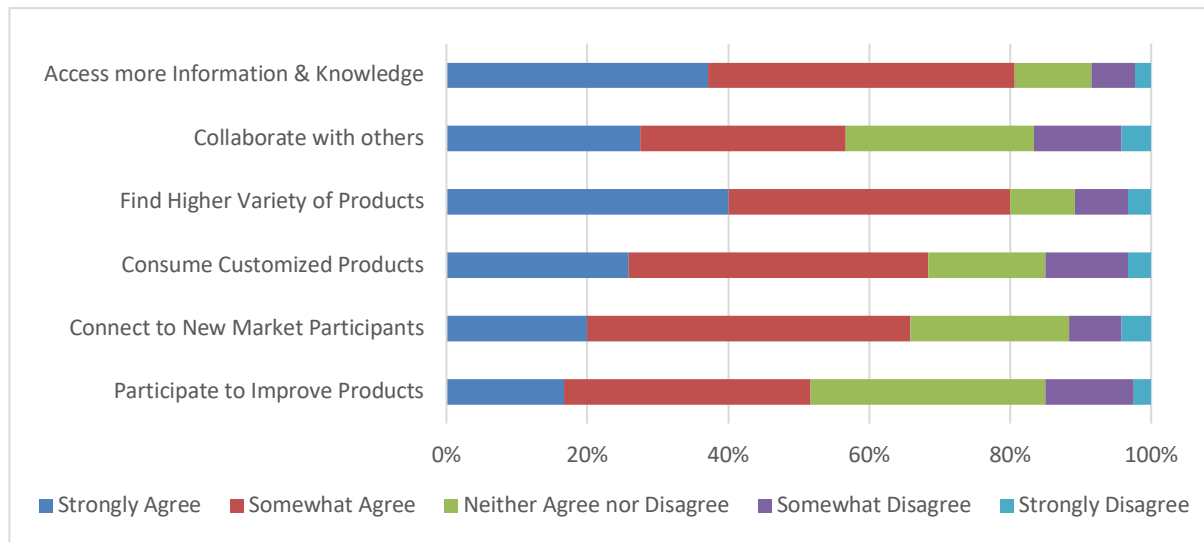


Figure 5: Platform Features Supporting Sustainable User Behavior

79% of the participants believe that the possibility to access more knowledge and transparency about the sustainability of a brand leads to more sustainable user behavior. 57% are convinced that platform features facilitating collaboration foster sustainability. Furthermore, being able to access a higher product variety (80% agreement) and customized products (68% agreement) seem to be relevant features of PBM that support sustainable user behavior. Other potential drivers for sustainability seem to be the following features of PFM, connecting to new market actors (66% agreement) and co-create in product's iterations (52% agreement).

3.3.2 Types of PBM and their influence on consumer behavior

The following results offer more profound insights into how survey participants use specific examples of PBM. 85% of the participants stated that they regularly use *transportation platforms* such as ride-hailing and car-sharing services. Figure 6 visualizes the alternatives that participants see to these services. 87 out of 120 participants specified that they could replace usual commutes with public transport such as buses or trains. 38 participants could also use the bike, and 36 out of 120 stated that they use car-sharing taxis for distances they could walk.

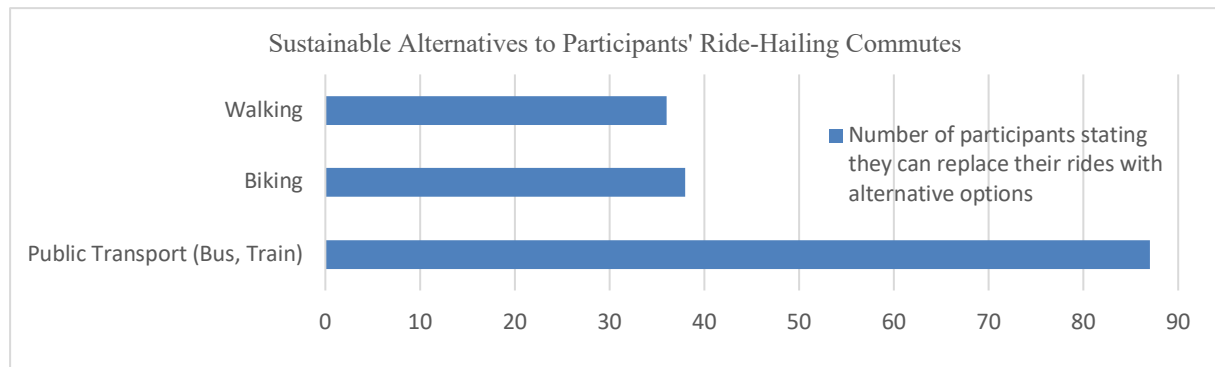


Figure 6: Commuting Alternatives

60% of participants use *anti-food waste platforms* to reduce food waste, for example, the app ‘TooGoodToGo’. Figure 7 displays the gathered data about the consumption behavior of participants after saving food from waste (for example, at supermarkets, restaurants, or bakeries). 59% of those using anti-food waste platforms claim to consume all the items that they saved from being wasted. The rest estimated that they only consume two-thirds of the saved items (28%), or even one-third (12%), throwing out the rest for different reasons (more detailed reasons can be found in Appendix 6).

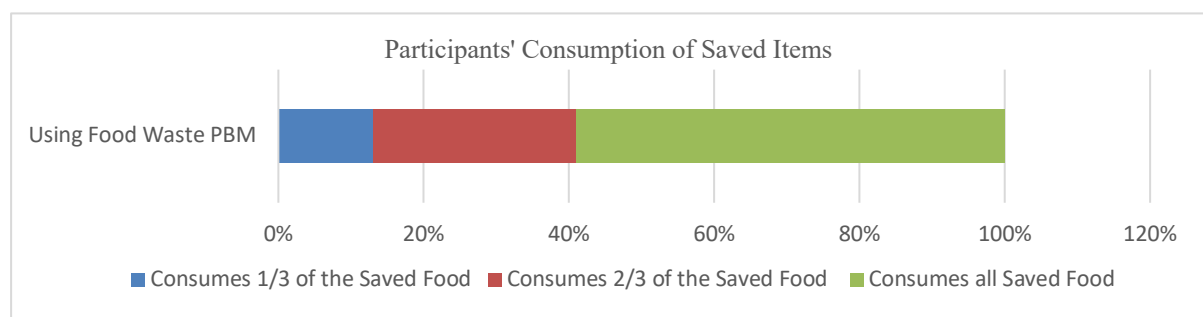


Figure 7: Saved Food Consumption

One way to consume more sustainably is to purchase second-hand instead of buying new items through *e-commerce platforms*. 66% of the participants state that they use second-hand PBM to buy clothing, electronic items, or other goods. By including e-commerce specific statements into the questionnaire, the survey generated further insights that help understand the participants’ attitude towards second-hand shopping, for example, more sustainable online shopping:

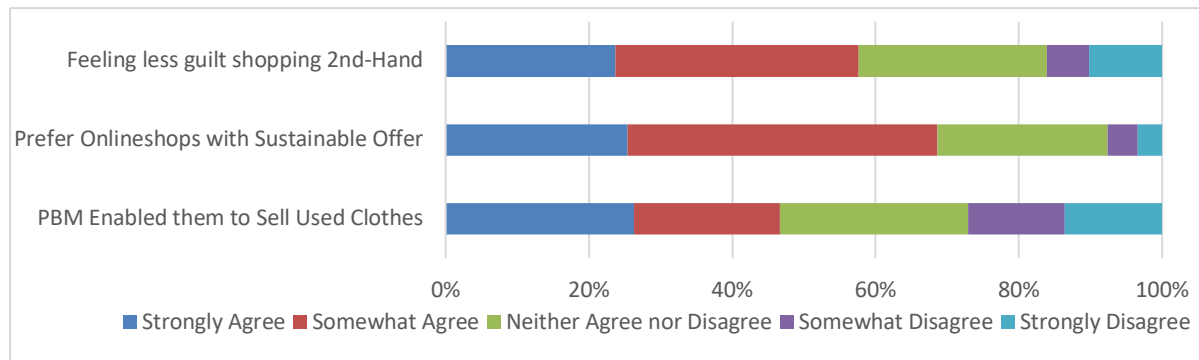


Figure 8: Preferences for Sustainable Online-Shopping

58% agree that they feel less “guilt” when buying something second-hand. 69% prefer online shops with a sustainable offer, for example, environmentally friendly brands. 47% agree that the emergence of PBM such as ‘Vinted’, ‘eBay’, or ‘OLX’ enable them to sell items that they no longer wear or use. 57% of the respondents disagree with the statement that they prefer to shop second-hand online, and 54% do not see themselves as regular second-hand shoppers.

3.3.3 Demographics of participants

The three main nationalities participating in the survey were German (45.83%), Portuguese (24.17%), and Italian (8.33%). Overall, the respondents were mainly European and only partly from North & South America. Two-thirds of the participants were female and occupation-wise, 67% were students, 8% were young professionals, and 25% full-time workers. The majority of the participants were aged between 20-24 years old, and all participants were younger than 34.

3.4 Analysis & Discussion

As mentioned, the results and following interpretations may not be representative of every type of platform user’s sustainable behavior. There is the possibility that the younger age of respondents influenced the survey outcome, as they are known to be more driven to act sustainably in general. Research by Saggau and Connel (2021) revealed that the leading market share in sustainable markets comes from Gen Z and Millennials, which is predicted to grow when these generations fully enter the labor market, making more independent purchase decisions.

Additional studies confirm that younger generations are willing to make environmentally friendly changes (GlobeScan 2021) and pay higher prices for more sustainable offerings (White, Habib and Hardisty 2019). However, this investment and attitude difference may lead to a more critical reflection on their sustainable behavior and, therefore, more genuine responses to the survey. The imbalance of male and female participants does not seem relevant since a correlation analysis revealed no patterns in gender-specific survey responses. In the following, key takeaways are presented and discussed.

3.4.1 PBM can influence sustainable consumer behavior

When analyzing the data, five sustainable behaviors can be primarily supported by PBM: (i) reducing food waste, (ii) buying fewer products, (iii) sharing and renting instead of owning, (iv) choosing sustainable brands, and (v) using shared transportation. PBM can be interpreted as supporting each of these behaviors, as more than 50% of the participants agreed that platforms are helpful to act in the described way. In sum, platforms have shown to influence six out of ten tested behaviors among the participants, suggesting that there is indeed a connection between platformization and sustainable user behavior. However, some findings suggest tension with sustainability goals, once again addressing waste reduction, shared transportation, and sustainable e-commerce platforms.

3.4.2 PBM help fighting food waste but contribute to increasing plastic waste

Starting with anti-food waste platforms and the attempt of consumers to reduce food waste, the survey identified a firm agreement of 60% that platforms help saving more food from being wasted. Considering Figure 5, platforms contribute positively to sustainability by connecting new market participants. In that sense, participants feel able to interact with producers, such as restaurants and supermarkets, who in turn need a solution for overproduction and food waste. In this scenario, the PBM can be a driver of sustainability.

However, there is more to the mere act of saving food: the behavior following that action that the study investigates by asking participants to share what happens once food was saved from restaurants or bars using platforms. Findings reveal that not all participants' food saved is finally consumed. 40% of the participants stated that they waste between one and two-thirds for varying reasons (as outlined in Appendix 6). Moreover, the resources used in the process of saving the food, such as the context provided or the transportation used to exchange the food, diminish the overall positive effect on sustainable behavior. In order to consider PBM a successful driver in reducing food waste, businesses need to consider the lifecycle of the products after the purchase deal. One way to do so would be to track why consumers waste the saved items and offer improved services based on these results. This ideally needs to be done individually per business, depending on specific reasoning and weaknesses in the business model. This consistent evolution will align consumer experience and business sustainability efforts, improving the overall effectiveness of the company. ***Platforms are a valuable tool to deliver this level of customization and data analysis.***

Overall, anti-food waste PBM seem to have a positive influence on sustainability but going forward, there need to be improvements on external and complementary factors leading to the exchange of goods or final consumption, in order to leverage the platform's full advantages. This will ensure that the goal of reducing food waste is met in a genuinely sustainable way.

In contrast, the influence of platforms on reducing plastic waste is seen critically by the survey participants. The majority disagree that platforms help with the reduction of plastic waste. Additional qualitative insights from the open question on harmful effects of platforms indicate that PBM, particularly online marketplace, contribute by nature to increased waste production, mainly through packaging and return handling. Amazon has been frequently named a platform that makes users less sustainable (Appendix 5). Participants refer to media repeatedly reported that the company trashed return products (Gibson 2019).

In August 2021, Amazon announced the introduction of a program that allows their partners to offer returned products as used, second-hand products (Amazon 2021) in attempt to improve resource exploitation and waste. This example highlights how *platforms have the potential to scale sustainable solutions* and use their network to create impact.

Additionally, participants often criticized food delivery platforms as harmful due to the single-use plastic used to transport the food (Appendix 5). Though certain platforms may contribute to plastic waste, some platform characteristics improve standalone delivery options from independent restaurants, connecting actors in the market that would otherwise remain undiscovered. Similarly, platforms could be used to connect restaurants with producers of environmentally friendly packaging (such as 'RECUP'). Using these network effects, platforms can be meaningful support in reducing waste but considering the participants' feedback, improvement is necessary. Considering the two examples of return handling and food delivery shows that the potential of platforms is not yet being fully utilized, and to some degree, exploited. A key differentiator deciding about the influence on sustainable consumer behavior seems to be the individual intention and efforts of the PBM to use given platforms characteristics to create more sustainable solutions.

3.4.3 PBM enable access to shared transportation but replace public transport

Data shows a contradicting view as to whether PBM positively influence sustainable mobility behavior or not. 71% of the participants believe that platforms help them to share more car rides, indicating a sustainable way of commuting. However, not all cases of sharing are directly more sustainable; it is relevant to relate the specific mode of transport to the possible alternatives of commuting. The survey results revealed that car-sharing and ride-hailing are often used to replace public means of transportation considered even more sustainable (e.g., bus) because of their relative carbon emissions per person (Appendix 5, Figure 6). 73% of the participants who use shared transportation services stated that public transportation would have been an

option. The number of participants able to walk or bike instead of using car-sharing shows that PBM are also challenging sustainable consumer behavior in some ways, by offering quick access to goods and services that may harm the environment more than if they did not exist. However, 68% of the participants think that platforms facilitate the use of shared transportation. Thus, the potential to increase public transport usage through PBM cannot be disregarded. The extent to which transportation platforms add value, rather than challenge sustainable consumer behavior, depends on two factors: (i) consumers' intrinsic motivation to act sustainably, and (ii) the platform interface that businesses design and whether these incentivize sustainable actions of users. PBM could, for example, move more sustainable, green products and services to the most prominent positions on their user interface design and thus, promote their purchase.

3.4.4 PBM support overconsumption but provide sustainable alternatives

As discussed earlier, some e-commerce and marketplace platforms (such as Amazon) have a negative connotation regarding sustainability. Regardless, most consumers expect businesses to have digital solutions in place to purchase products or services online. There are, however, certain types of marketplace platforms (such as Vinted or OLX) that are examples of PBM which support users to shop more sustainably. The survey showed that those platforms help consumers buy fewer new products by switching to second-hand alternatives. ***Platforms have the potential to lead consumers to more sustainable purchase decisions*** through a higher product variety and accessibility, including environmentally friendly brands and those that inform the user about the environmental impacts of each product. Furthermore, almost half of the participants state that PBM enable them to sell used clothes online. The convenient access to demand for second-hand and the digitization of the process shows how PBM can make a difference and support sustainable user behavior.

3.4.5 Increased variety and information are key features supporting sustainability

Some features that may support PBM in facilitating sustainable consumer behavior have been named already. An interesting finding from the survey is that consumers believe, all questioned characteristics of platforms influence their sustainability behavior positively (Figure 5). While it can be summarized that transparency and product variety seem to have a significant influence, further research on why and how consumers benefit from particular platform features is needed.

3.5 Summary & Implications

To conclude, the survey analysis supports the idea that there is a connection between PBM and sustainable user behavior. The participants' responses lead to the impression that PBM have a great potential to influence consumer behavior positively. However, the hypothesis that the influence is solely positive cannot be confirmed with the gathered data. Besides possible potentials, the survey also revealed challenges of PBM and therefore required a more complex response to the research question, reviewing and exploring other possible influencing factors.

In summary, half of the identified sustainable consumer behaviors (namely reducing food waste, sharing and renting, buying fewer new products, choosing sustainable brands, using shared transportation) seem to be facilitated by platforms. An identified potential of PBM is the redirection of purchases to more sustainable alternatives. For example, they are enabling consumers to purchase second-hand by creating convenient marketplaces and by ensuring the availability of sustainable products, as well as enabling easy comparisons between products. The dominating challenge of PBM seems to be the convenient access to products and services and therefore, the threat of unnecessary consumption, as well as the increasing plastic waste produced by e-commerce platforms through packaging.

As described during the analysis, many platform examples can both harm and drive sustainable user behavior. However, there is a pattern among those platforms that actively try to solve a

sustainable issue, such as the second-hand marketplace Vinted or anti-food waste platform Too-GoodToGo, as they focus on leveraging the potentials of PBM to bring forth and accelerate sustainable consumer behavior. PBM such as Uber and Amazon possess characteristics that could enable them to drive sustainable user behavior positively. However, they focus primarily on profit rather than sustainable responsibility, prioritizing cost-efficient and convenient consumption over sustainable options. Key influencing features in driving sustainable user behavior include the possibility to increase the variety of products easily and provide access to environmentally conscious information about products. All other researched features have generally supported sustainable user behavior but require further research to understand how and under which conditions they influence users.

4 Potential and Challenges of PBM for Entrepreneurs

The success of platforms in today's changing business environment raises the questions to what extent PBM can be used for sustainability-oriented goals of entrepreneurs, and which companies with environmental impact in the market already use PBM successfully. To generate insight into the role of platforms for sustainable development in business, this study will first guide the reader through the research objectives (chapter 4.1), followed by the methodology to collect and analyze data (chapter 4.2), compile and discuss results (chapters 4.3 and 4.4) and finally, summarize key takeaways (chapter 4.5).

4.1 Research Focus

This exploratory study aims to draw learnings from existing sustainability-oriented platform businesses (SOPB) in the market. The contribution is to develop a comprehensive overview for future leaders and founders that summarizes strategic opportunities and challenges for business in the context of platformization and sustainability.

This work aims to answer the following research question:

How can entrepreneurs leverage sustainability-oriented platform business models in the pursuit of competitive advantage?

The following sub-questions have been formulated to navigate through this study:

- *What are best practices, strategies, and challenges of SOPB to capture economic value and create a positive environmental impact?*
- *Are platforms a competitive business model for sustainable growth and if so, why?*
- *How will platforms change and influence (in) the future of business?*

4.2 Methodology

To answer the research question, a qualitative empirical investigation was conducted to contribute new insights from practical evidence based on multiple-case study research. Case studies allow “in-depth, multi-faceted explorations of complex issues in their real-life settings” and help to connect findings to the wider contextual environment (Crowe, et al. 2011). Researchers adopt a single or multiple-case design, from which theory can be derived inductively. Evidence generated by a multiple-case study increases the generalization of results through replication and identification of patterns across cases (Zainal 2007). The advantages of case study research are seen in its ability to answer the questions of “why” and “how” when the research phenomenon is still rather new (Rebolj 2013, Crowe, et al. 2011). Case studies further provide rich and authentic business insights in addition to existing literature and are recognized as a suitable method for qualitative and exploratory research, particularly when a large sample population is difficult to obtain (Zainal 2007).

4.2.1 Sampling

This work leverages insights of eight representative SOPB in a multiple-case approach. The most important characteristics to define “*sustainability-oriented platform businesses*” are as

follows, shaped by Kolk and Ciulli (2020) and Schaltegger et al. (2016): For one, the organization's purpose and goals aim at social or ecological impact besides capturing economic value. Secondly, they "rely on the digital platform as key resource to enable novel forms of connectivity between users [...]" (Kolk and Ciulli 2020, p.355).

Literature review and market research have shown that SOPB are particularly emerging in the field of impact entrepreneurship. This work, therefore, concentrates on startup businesses, as distinguished by their (1) founding year (no earlier than five years ago), (2) company stage (early to seed), (3) private ownership (as opposed to public), (4) technological nature, and (5) degree of innovation (Ruggieri, et al. 2018). Additionally, the preceding consumer study has identified certain categories of SOPB that indicate a substantial impact on consumers and thus, inspire further research attention (such as shared transportation and commerce). Based on these criteria, desktop research across LinkedIn and public databases (such as Crunchbase) led to contacting 45 representatives of SOPB, out of which 10 participated in the study (see Table 1), resulting in a response rate of 22%.

Considering the scope and time restrictions for this study, a non-probabilistic sampling technique was used. Limitations of a non-random case sampling method are recognized in a purposive selection and potential researcher bias (Berndt 2020). Further disadvantages of case study research are seen in its ability to generalize findings (Crowe, et al. 2011). Within the available resources, only a limited volume of data could be accumulated. To increase the representativeness of the sample population and therefore generalizability of findings, SOPB across different industries, markets, and audiences were incorporated in the sample.

4.2.2 Data Collection and Analysis

Ten one-to-one interviews with founders and managers were conducted virtually to collect data. The in-depth interviews aimed to gain a deeper understanding of SOPB by gathering first-hand

testimonies of decision-makers in the respective business environment. Table 1 indicates the interview participants involved:

	<i>Name</i>	<i>Role</i>	<i>Company</i>
<i>I</i>	Dan Kreibich	Co-Founder & CPO	SQUAKE
<i>II</i>	Julia Köhler	Impact Manager	PLAN3T
<i>III</i>	René Braun	Co-Founder & CEO	RYDES
<i>IV</i>	Fabian Seitz	Co-Founder & CMO	RideBee
<i>V</i>	Francisco Bento	Co-Founder & CPO	RNTERS
<i>VI</i>	Antonio Miguel	Board Member; Founder & Managing Partner	RNTERS; MAZE
<i>VII</i>	Luis Zwick	Co-Founder & Strategy Lead	Rentya
<i>VIII</i>	Andreas Scheffner	Co-Founder & CFO	Rentya
<i>IX</i>	Verena Keller	Founder & Sales, Marketing and Product Lead	know your stuff
<i>X</i>	Inês Branco Lopes	Community and Partnerships Manager	GoParity

Table 1: Overview of Interview Participants
(Author's own representation, 2021, Appendix 9)

The interviews lasted about 30-45 minutes each and were conducted in a semi-structured format with open-ended questions, allowing for flexibility in the scope, length, and order of questions. An interview guide (Appendix 8) was used to outline relevant topics to cover and guide the conversation. The pre-defined topics were inspired by the initial literature review and preliminary data collected through the consumer survey (as explored in chapter 3).

During the interviews, field notes and audio recordings were produced to organize and analyze the collected data. In a second step, interviews were transcribed and translated accordingly. Transcripts and detailed information about all interviewed companies can be consulted in Appendix 9. Following, transcripts were coded to allow raw data to be categorized, compared, and summarized into main patterns and themes used as a basis for analysis. Figure 11 (Appendix 7) summarizes the research process in its entirety.

4.3 Results

4.3.1 Six pivotal forces affect entrepreneurs today

The pursuit of competitive advantage and the external business environment are closely interconnected. Both internal sources of a company and external pressures and market conditions shape competitive business strategy and influence a company's ability to gain competitive advantage. Michael Porter has shaped an economic assumption in which the competitive abilities of a company are deeply rooted in the industry's underlying economics and external forces. In his terms, "knowledge of these underlying sources of competitive pressure provides the groundwork for a strategic agenda of action" (Porter 1979).

The following chapter compiles the changing conditions recognized in today's business environment based on collected data, highlighting six underlying forces that drive the sustainability transition and entrepreneurial decision-making: (1) *Intrinsic motivation* stems from the belief that environmental protection is unlikely without organizational contribution. This has been coined a "responsibility" of entrepreneurs (Scheffner 2021). All interviewed SOPB show intrinsic motivation, recognizing their business model and goals as key initiating elements for organizational sustainability and systemic transformation.

(2) Another driver within an organization seems to be its *employees*: Interviews revealed that particularly recent graduates and young professionals increasingly seem to value purpose-driven employers. Apparently, they prefer to work for employers with a strong sense of purpose (Braun 2021) or turn away from those ignoring the issue (Kreibich 2021). Therefore, the seal as a so-called B-Corporation is desirable to wear as it certifies and promotes a company's intrinsic commitment to sustainability (Miguel 2021).

The following external dynamics have been identified to put competitive pressure on business:

(3) There is significant pressure coming from *consumers* and their respective bargaining power.

Bento (2021) and Lopes (2021) claim there is a “new generation” of sustainability-conscious consumers who believe companies should engage in social and environmental issues. Consumer movements such as “Fridays for Future” or “flight shaming” put companies under intense environmental scrutiny that, if not addressed, results in losing one’s customers. One hypothesis states that the closer businesses seem to be to end consumers, “the more important sustainability becomes and the faster it will be implemented” (Kreibich 2021).

(4) Another external threat is caused by *competitors*. Sustainability seems to be an “omnipresent” (Braun 2021) “trend” (Zwick; Scheffner 2021) across business. The more and the faster rivals can meet consumers’ new sustainability standards (e.g., through offering a differentiated product or reducing their carbon footprint through selected initiatives), the higher seems the risk of losing customers or forgoing a commercial opportunity that results from gaining new, sustainability-conscious customers.

(5) A fifth external force results from *financial investors*. Entrepreneurs in need of funding realize a structural shift in investment flows as venture capital concentrates more and more on impact investing and climate-positive portfolios (Miguel; Kreibich 2021). As an example, Larry Fink, CEO of the world’s largest asset management corporation BlackRock is mentioned. He represents an influential investor who publicly announced to increase assets in sustainability-oriented companies while withdrawing from the ones that are not, stating that “climate risk is investment risk”, thereby setting a clear direction for future capital flows (BlackRock 2021).

(6) An increasingly dominant external force to affect business today seems to be *policy*, e.g., government regulations, interventions, and laws that obligate companies to act upon sustainability. Depending on the industry, certain regulatory frameworks (e.g., the Carbon Offsetting and Reduction Scheme for International Aviation, CORSIA) already govern sustainability commitments (Kreibich 2021). However, many of them are not yet legally binding.

Yet, policy instruments such as tax incentives/ burdens or new regulations increasingly add authoritative force to the sustainability transition and pressure entrepreneurs and companies to react and adjust.

4.3.2 SOPB address climate issues and responsible consumption

As mentioned previously, SOPB tackle an ecological issue by establishing new linkages between multiple market participants. To understand if platforms are a competitive business model for sustainability, this chapter explores how existing SOPB contribute to sustainable development, i.e., which negative effects are reduced and positive effects created for the environment. Table 2 summarizes the main contribution of each SOPB:

<i>SOPB</i>	<i>Key activity</i>	<i>Sustainability concepts</i>
<i>SQUAKE</i>	Giving companies access to climate projects worldwide	Carbon emission reduction and compensation, transition towards greener transportation and travel
<i>PLAN3T</i>	Giving individuals transparency over CO2 footprint	Carbon emission reduction, incentivization of sustainable lifestyle and consumption, climate education
<i>RYDES</i>	Giving employees access to flexible, sustainable transport options	Optimization of mobility utilization, incentivization of shared transportation, carbon emission reduction
<i>RideBee</i>	Connecting drivers and travelers for ride shares among colleagues	Optimization of car utilization, incentivization of shared transportation and mobility habits
<i>RNTERS</i>	Connecting companies with renters for equipment sharing	Optimization of asset use, shared consumption, access over ownership, reducing future resource extraction
<i>Rentya</i>	Connecting product owners and renters to exchange everyday items	Optimization of circular and shared asset use, reducing future resource extraction & carbon emissions produced
<i>know your stuff</i>	Giving customers and companies transparency over supply chain	Fair fashion, incentivization for conscious consumption, transparency, efficient supply chain management
<i>GoParity</i>	Connecting companies with individuals and entities who want to invest in sustainable projects	Democratizing access to sustainable finance, supporting clean energy and sustainable blue economy, carbon emission reduction, job creation, social equality

Table 2: Key Activities and Sustainability Concepts of Interviewed SOPB
(Author's own representation based on collected data and company websites, 2021, Appendix 9)

This overview implies a strong concentration around *SDG 13: Climate Action* and *SDG 12: Responsible Consumption and Production*. Both SDGs are closely related to managing carbon emissions as a critical component of combating climate change. For most SOPB, a sustainable value proposition (also referred to as “impact”) directly or indirectly contributes to the pursuit of climate neutrality or decarbonization (net-zero economy), achieved when carbon emissions equal carbon removals. Entrepreneurs cater to sustainability concepts using different forms of sustainability-oriented platform business models (SO-PBM), which are presented below.

4.3.3 Platform strategy and business model design of SOPB explained

All interviewed SOPB have in common that their business model relies on an infrastructure, defined as their platform, that serves as the asset upon which the company builds their sustainable value proposition to the various stakeholders they serve. Some approaches to SO-PBM are outlined below based on (i) the underlying platform strategy, i.e., how SOPB create and deliver value to customers, and (ii) the monetization strategy, i.e., how SOPB capture economic value besides impact.

(i) One approach to create and deliver value as SOPB is through an ***API-based platform***, a software intermediary or interface that allows extending the platform’s functionalities to third-party users, as is the case for SQUAKE. Through an API, the ecosystem of other partners (customer applications) can access the capabilities of a platform’s unique infrastructure, leveraging the power of network effects to generate and scale impact. Customers, here companies in a Business-to-Business (B2B) approach, benefit from a “seamless integration” into their services: The API allows to calculate carbon emissions for different business activities and select an offsetting option based on a collection of certified global climate projects (Kreibich 2021).

Another B2B approach is a ***Platform-as-a-service (PaaS)*** model that connects single or multi-sided stakeholders through an on-demand, web-based infrastructure, as is the case for RideBee

and RYDES. Users, here employees of participating companies, can access the platform remotely through a mobile application and explore different mobility options for shared transportation. RideBee's PaaS matches colleagues with each other to share a car ride (single-sided) (Seitz 2021), whereas RYDES' PaaS matches employees with third-party mobility providers (multi-sided) to access different modes of shared mobility (Braun 2021). The PaaS enables paying companies to increase employees' use of shared transportation or compensate carbon emissions resulting from necessary travel, thereby significantly reducing their carbon footprint. Evidently, employee mobility often accounts for 20-25% of a company's carbon budget, depending on the industry (Braun 2021).

Another typical PBM adopted is the *transactional marketplace*, as is the case for Rentya, RNTERS, and GoParity, on which one market side is matched with another for a transactional purpose. Customer sides connected can leverage peer-to-peer (P2P) as well as business-to-consumer (B2C) and even B2B concepts. Transactional marketplaces exist in different forms: A rental marketplace connects an owning party (product owner) with a renting party (product renter) to promote access over ownership of everyday items (Bento 2021). A crowdlending marketplace connects a promoting party (project promoter) with an investing party (project investor) to promote access to funds in sustainable projects. The infrastructure on which both parties meet and connect, i.e., the platform, provides due diligence and assurance services besides facilitating the transaction (Zwick; Lopes 2021).

(ii) In the following, different monetization strategies of SOPB are explored. As outlined in chapter 2.2., revenue models give insight into which market sides of the platform are charged and how economic value is captured. Among the most frequently used monetization strategies for SOPB seems to be a *commission-based model* in which a fixed percentage fee is charged on each transaction completed through the platform.

Another common monetization strategy is a ***subscription model*** in which customers pay a fixed monthly or yearly fee, independent of the volume of transactions that occur. Sometimes, both these revenue streams are combined, as is the case for Rentya. In multi-sided PBM, only one market side often bears the heavy price burden, and the other is subsidized to pay less or nothing at all. This seems to correlate with the initial assumption that one market side (A), usually the demand side, is harder to attract and retain than the other (B). A strategy to combat those market dynamics implies a more attractive financial incentivization scheme for A.

A third monetization model is particularly relevant for PaaS providers such as RYDES. They charge a ***monthly fee per active user*** at a rate depending on the “tier” a company is in, i.e., a chosen range of available mobility options provided to its employees (Braun 2021). This allows for a high degree of flexibility and customization of the service.

Data reveals that sustainability and economic growth are not mutually exclusive, although there can be tension. In fact, the most powerful SO-PBM seems to be the ones that mutually reinforce impact and economic value in a so-called ***lockstep model***. This approach is characterized by a positive direct correlation between impact creation and revenue generation, with financial returns expected to scale as impact is created and vice versa (Miguel 2021). For example, there is a difference between following a business model that creates impact on the side (e.g., for every product purchased, a company plants a tree or donates money to a person in need) and a revenue model that *is* the impact model (e.g., with every rental or sale that is facilitated through a platform’s second-hand marketplace, product life is extended, and resources are spared).

4.3.4 How platform entrepreneurs address key challenges

This chapter summarizes the most noted challenges that sustainability-oriented platform entrepreneurs experience and best approaches to solve them. A widely known initial challenge is to

engage demand and supply simultaneously, also named the “*chicken-egg*” *dilemma*. Most interviewed SOPB have mentioned this as a major challenge. Apparently, a key to managing the initialization problem is by attracting the supply side first and ensuring the right quality and volume. This has been identified as a major impediment to growth (Kreibich; Miguel 2021). Another strategy can involve marketing experiments (e.g., no or low initial fees; targeting of niche markets) to identify (i) which acquisition channels and propositions yield the highest response, and (ii) enter strategic partnerships (Zwick; Scheffner 2021).

A second challenge was recognized in *legal and administrative barriers*. For example, to ensure a premium user experience and trust, platforms that facilitate transactions assume responsibility and liability for the safety of their users. This results in increased costs and resources needed for insurance or due diligence processes (Lopes; Zwick 2021). A closely related problem is *data protection and integrity*, which may cause some customers to hesitate in using cloud-based platform solutions and limits adoption (Keller 2021).

Another challenge for platform entrepreneurs seems to be *profitability* (Braun; Keller 2021). A representative example is shared transportation: Traditional car-sharing providers have high costs for acquiring and maintaining a large fleet of vehicles that cannot yet be accrued due to the cost pressure of inexpensive and consumer-friendly offerings. That creates tension for sharing providers to account for increased sustainability (e.g., carbon offsetting schemes), which is why SOPB such as RideBee gain a competitive advantage as they do not incur costs for owning vehicles (Seitz 2021). One way to improve traction and growth is to leverage transactional data to inform *data-driven decisions*, which are limited in the initial stages (Miguel 2021).

Finally, *measuring impact* is identified as both a major difficulty and source for competitive advantage (Köhler 2021). There is strong evidence that sustainability at business level inevitably involves impact measurement standards and appropriate accounting beyond one’s financial performance (Keller; Lopes 2021), following the criteria of the ‘4 R’ to report, reduce, reuse,

or remove one's impact (Kreibich 2021). One way to tackle this issue is by committing to official compliance schemes, such as 'Leaders for Climate Action' (RYDES) or 'B-Lab' (GoParity, PLAN3T). Another is to implement internal frameworks, such as the 'IMP Impact Management Project' (RNTERS), that track impact performance based on certain levers and metrics. Many involve carbon accounting indicators, e.g., *carbon emissions saved per ton per year* or *hectares of biodiversity reinforced*, depending on the degree and scope of the respective SOPB.

4.4 Analysis & Discussion

4.4.1 Are SO-PBM a competitive business model for sustainable growth?

The OECD (2018) defines sustainable or green growth as promoting economic efficiency and development on a sustainable basis, i.e., while being accountable for social and ecological rehabilitation. Green growth is considered a “practical and flexible approach for achieving concrete, measurable progress across [the] economic *and* environmental pillars [of sustainable development]”, leading to increased productivity, investor confidence, the opening of new markets, fiscal consolidation as well as (climate) risk mitigation (OECD 2018). In fact, Keller (2021) claims that pursuing sustainable growth under consideration of triple accounting standards is the only way entrepreneurs will ensure competitiveness in the future.

A recent study by PwC about the German startup landscape supports the finding that environmental protection and social responsibility are central goals of entrepreneurs. The study shows that many startups see sustainability, economic success, and ambitious growth targets as compatible business strategies (Kollmann, et al. 2021). This chapter, therefore, discusses to what extent SO-PBM are fit to meet green growth and have the potential to accelerate a systemic shift in which companies can remain competitive “while maintaining or regenerating natural, social, and economic capital beyond [their] organizational boundaries” (Schaltegger, Hansen and Lüdeke-Freund 2016, p.6).

The author raises the hypothesis that SO-PBM are in fact a competitive business model and driver for sustainability and will present evidence as follows:

(1) Due to the ***high degree of scalability***, a SOPB creates a large ecosystem with a high, cross-dimensional impact on stakeholders. Because the platform is digital, there are no time and geographical constraints (Scheffner 2021), allowing for both 24/7 user access and rapid, exponential growth on a global scale. Once a platform has created a large user base, it can leverage significant market power (Cusumano, Gawer and Yoffie 2019). In contrast to a traditional, linear, single-product business model in which individual stakeholders must deliberately choose to design for sustainability (e.g., through specific initiatives), a SO-PBM “ultimately force[s] all actors on the platform to become more sustainable” (Braun 2021). In that sense, platforms may play an essential role in creating accountability across stakeholders (Miguel 2021).

(2) SOPB create ***economies of scale and scope***. New technologies and innovations designed for carbon neutrality, such as Direct Carbon Air Capture or Sustainable Aviation Fuel, are still very untapped and expensive (Kreibich 2021). SO-PBM at scale can benefit from price reductions and make new technologies more available and accessible to larger audiences. Further, SOPB benefit from knowledge exchange and collaboration, which is recognized as a critical enabler for sustainability at scale (Köhler 2021).

(3) Multi-sided SOPB are a ***data hub***. They centralize and mediate an extensive network of stakeholders, including consumers, suppliers, and complementors from which (transactional) data is accumulated. This allows for rapid, customized, data-driven adaptations to existing services or spin-offs that can leverage the platform’s network externalities (Bento; Miguel 2021).

(4) SOPB are ***asset-light and resource-saving***. The core asset of the platform is its digital infrastructure, which makes platform operations very cost and resource efficient. Successful SO-PBM can strengthen internal efficiency or demand economies of scale by “turning otherwise

non-productive assets into productive assets to unlock[] new capital, labor, and technology in a given market” (Hamouda 2020). By the example of RideBee, the PBM enables private cars and drivers to enter and create new value to the existing transportation market at no to low cost, thereby increasing competitive efficiency significantly.

(5) Due to their *innovative strength*, SOPB are pioneers in introducing environmental innovations to the market. As a young and dynamic startup, they are better positioned to implement innovation and sustainability across all business activities than a large corporation that has grown a lot historically and does not have the means or processes in place to adapt traditional supplier structures. As a native SOPB, however, entrepreneurs start from scratch and manage to set up everything sustainably from the beginning (Braun 2021).

(6) Finally, SOPB increase *transparency* in a market with high uncertainty and opacity. According to Keller (2021), strengthening transparency has the power to create systemic “domino effects”, arguing that the pursuit of visibility over one’s supply chain may inevitably cause an incentive and public pressure for improvement.

4.4.2 How will SO-PBM change and influence (in) the future of business?

The global green technology and sustainability market is forecasted to grow at a 20.3% CAGR between 2021 and 2028 (Fortune Business Insights 2021), representing a meaningful entrepreneurial opportunity for SOPB. This chapter discusses future trends for the role of PBM.

Findings lead to the assumption that the market is headed for a future in which consumers will own and buy less and contract more, suggesting an *access-based consumption* (Lawson, Gleim and Hartline 2021, Rogers 2021, Bento 2021). B2B and P2P PaaS, otherwise referred to as product service systems (Batlles-de-laFuente, et al. 2021), will likely manage the transition from owning to services. SO-PBM have the potential to enable accessibility and availability, and cater to this new paradigm, e.g., through the emphasis on sharing and circular approaches and

subscription-based business models that foster access over ownership. Many businesses will understand that they need to focus on the core of what they do and integrate horizontal platforms that can deliver and centralize services for them. In that sense, more businesses will likely rely on PaaS to provide those services in the future (Miguel 2021).

Likewise, *disruptive technologies* such as web 3.0, artificial intelligence, cloud computing, machine learning, and big data capabilities will accelerate the use of data to power innovation of the platform economy (Miguel 2021, Cusumano, Yoffie and Gawer 2020). For example, automated self-driving cars might affect platform dynamics in the shared transportation sector in various ways, and entrepreneurs should be prepared to adjust.

A third trend is expected in the surge of *hybrid platform models*, in which innovation platforms integrate transactional platforms to their business model and vice versa. This has the potential to foster value co-creation (e.g., through open innovation and collaboration). As digital competition picks up and new technologies become available, more hybrids will exist in the market (Cusumano, Yoffie and Gawer 2020). This evolution can be recognized in interviewed SO-PBM, for example, PLAN3T, RYDES or GoParity, which aim to elevate their transactional purposes with a fintech business model (Köhler; Braun; Lopes 2021).

4.5 Summary & Implications

This study has shown that understanding the external environment and changing market dynamics is critical to developing competitive and future-proof entrepreneurial strategies. Six fundamental forces drive entrepreneurs in designing different forms of PBM for sustainability: (1) A high intrinsic sense of responsibility for the planet, (2) pressure emerging from a purpose-driven workforce, as well as (3) consumers, (4) competitors who already innovate and disrupt, and gain early-adopter advantages, (5) financial investors who are rewarding climate-positive portfolios, and finally, (6) obligatory political reformations. These internal and external pressures reinforce that a system change from single bottom line accounting is necessary to foster

competitiveness in the future. This implies a shift from traditionally linear to circular, collaborative, or hybrid PBM. The digital transformation towards platform-based business models offers opportunities and added value for entrepreneurs in this new era.

Several types of SO-PBM coexist and each contributes differently to the economic and environmental needs for sustainable development. Typically, SO-PBM aim for carbon reduction as ultimate goal to reach a net-zero economy, challenging entrepreneurs to build business models that (i) connect the right market participants, and (ii) measure and reduce the carbon footprint of their platform ecosystem with each new user they serve. If this is done in lockstep, SO-PBM have the unique potential to leverage scalability and network effects to create an entire ecosystem in which capital and impact increase in a self-sustaining and mutually reinforcing manner. In other words, SO-PBM have the potential to harmonize economic success and sustainability.

Further, this work helps platform entrepreneurs and practitioners to understand and navigate platform challenges, particularly in the early stages. The study has found that many founders face similar challenges that begin with overcoming the initialization problem to balance demand and supply. The PBM, particularly its monetization scheme, must be designed to maximize profitability while allocating the cost burden under strategic consideration of the needs for platform growth and each stakeholder served (the cost burden usually lies heavier on one market side). Lastly, platform entrepreneurs need to design a seamless and safe user experience that drives engagement and creates network effects efficiently.

To ensure that the transition to a sustainable economy is a success, the involvement of SO-PBM is critical. Enablers that can support the transition, as recognized through collected data, are (i) more integrity in climate accountability, e.g., through a global reporting body, (ii) vertical and horizontal collaboration for more economies of scale and scope and knowledge transfer, as well as (iii) global policy signals that provide a transparent and legally binding roadmap for corporate sustainability including the right incentive schemes and burdens (e.g., a carbon tax).

5 Conclusion

Platformization is understood as a recent phenomenon in which companies increasingly shift from a product-based to a platform-based strategy with new forms of PBM emerging. A distinct feature of a platform is its vast scaling potential enabled by powerful network externalities, the ease of replication across borders, and low operational costs. As the market seeks more scalable and competitive solutions to *sustainable growth*, this research highlights the role of PBM in the sustainability transition and contributes to answering the following research question:

Can platformization accelerate the sustainability transition and if so, what are the potentials and challenges of platform business models from a consumer and business lens?

From a consumer lens, PBM show potential to inspire more sustainable behavior. Although some may accelerate the transition to sustainability, not all platforms influence consumer habits positively. While all explored platforms show features that have the potential to support consumers to move, consume or purchase more sustainably, not every platform leverages those features to reach that goal. There still exists a tension between economic and environmental motivations, and platforms must actively choose to make sustainability an integral part of their business model in order to drive sustainable consumption. This implies that consumers must critically reflect their everyday engagement with platforms to increase their contribution to sustainable behavior consciously. As platforms offer more choice and convenient access to alternative services and products, this can lead to more sustainable purchase decisions but may also increase, instead of reduce, consumption. Overconsumption is therefore recognized as the main challenge of PBM to drive more sustainable consumer behavior.

From a business lens, this research has demonstrated that a sustainability-oriented design of a PBM has the potential to accelerate sustainable growth and prepare a business for changing market dynamics. This may inspire future founders and investors in strategic decision-making,

emphasizing that economic success and sustainability are not mutually exclusive, in fact they can be compatible business strategies. Moving from a profit-driven bottom line to integrating social and environmental impact (so-called triple bottom line accounting) is a source for competitive advantage and will likely become a requirement in the future.

Platforms further have the potential to contribute to the targets of SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action) to ensure a successful transition to a net-zero economy. However, findings highlight the importance of understanding and distinguishing between different types of platforms since SO-PBM clearly appear to have a more significant contribution to the aims of the SDGs on both consumers and businesses than platforms who have not yet integrated sustainability into their business model.

Additional implications can be derived for theory. This research provides practical evidence to the field of sustainable platform economy and digital business model transformation research. By identifying relevant links between platforms, sustainable consumer behavior, and sustainable entrepreneurship, this research adds to existing literature and helps to close a gap.

5.1 Limitations of this Research

This chapter summarizes and critically reflects limitations that may have impacted the results of this research. The quality criteria of reliability and generalizability serve as a guide. (i) Reliability describes the consistency of a study, or “the extent to which results can be reproduced using the same approach under somewhat different circumstances” (DeWalt and DeWalt 2002). The authors recognize that the instruments for data collection and interpretation may have been influenced by researcher bias and sampling errors, as outlined in previous chapters. Within the available scope and resources, the survey shows strong demographic singularity, whereas only one researcher, subject to biases, conducted the qualitative interviews. This must be taken into account when inferring (ii) generalizability of results, which refers to the degree of statistical

applicability to the larger contextual environment. Given the limited access to sample populations, this thesis derives findings from a small volume of data. Therefore, this study aims to identify trends and best practices emerging from collected data, rather than concluding statistical generalizations.

5.2 Future Research Opportunities

The scope of this research leaves space for further research opportunities, diving deeper into the connection between PBM and sustainability. Complementing additional research could be to investigate the *effects of PBM on the sustainability of the supplier side*. As this study focuses primarily on the consumer side, i.e., users of a platform that consume a product or service, it will be interesting to derive findings for the supply side, i.e., other stakeholders and complementors the platform serves. Especially for e-commerce or mobility platforms, it can be investigated to what extent PBM help suppliers to act more sustainable.

Furthermore, the research focuses on environmental sustainability, specifically addressing planet issues. Aiming to cover different dimensions of sustainability, it is interesting to explore other pillars of sustainable development, e.g., *social sustainability in connection with PBM*.

As the future of platforms will involve continuously *adapting to new market disruptions* (such as Web 3.0 and the “metaverse”), it would be interesting to investigate how PBM need to evolve to cater to the needs of those new realities. Finally, further *research on UI and UX design principles* that incentivize platform users to make more sustainable purchase decisions by default can be a meaningful contribution to entrepreneurs and users.

Appendix

Appendix 1: List of Figures

Appendix 2: List of Tables

Appendix 3: List of Abbreviations

Appendix 4: United Nations Sustainable Development Goals

Appendix 5: Additional Consumer Insights

Appendix 6: Food Waste Insights

Appendix 7: Research Process (Multiple-Case Study)

Appendix 8: Interview Guide

Appendix 9: Interview Transcripts

Appendix 1: List of Figures

Figure 1: Comparison of Linear and Platform Business Models	7
Figure 2: Indicators for Sustainable Consumer Behavior	19
Figure 3: Reduced Consumption with the Support of Platform Business Models.....	22
Figure 4: Consuming Sustainable Alternatives with the Support of PBM	23
Figure 5: Platform Features Supporting Sustainable User Behavior	24
Figure 6: Commuting Alternatives.....	25
Figure 7: Saved Food Consumption.....	25
Figure 8: Preferences for Sustainable Online-Shopping	26
Figure 9: UN Sustainable Development Goals	III
Figure 10: Reasons Why Food Waste PBM Users Waste Parts of the Saved Items.....	V
Figure 11: Entire Research Process: Multiple-Case Study	V

Appendix 2: List of Tables

Table 1: Overview of Interview Participants	35
Table 2: Key Activities and Sustainability Concepts of Interviewed SOPB	38
Table 3: Less Sustainable Platforms & Reasoning by Survey Participants	IV

Appendix 3: List of Abbreviations

PBM	Platform business model(s)
SOPB	Sustainability-oriented platform business(es)
SO-PBM	Sustainability-oriented platform business model(s)
B2B	Business-to-Business
B2C	Business-to-Consumer
P2P	Peer-to-Peer

Appendix 4: United Nations Sustainable Development Goals



Figure 9: UN Sustainable Development Goals
(United Nations 2021e)

Appendix 5: Additional Consumer Insights

Amazon	Convenience to order literally everything
	Some e-commerce sites that have everything because it's convenient and cheap
	Convenient and fast but not sustainable
	The servers need a lot of energy; probably not green energy
	Returned products are not returned properly but destroyed because it is cheaper for them
	I buy stuff I don't necessarily need and wouldn't buy if I had to search for it offline. Online is convenient and I get to see products I am not exposed to offline
	You buy lots of items you don't really need due to high levels of convenience
	Amazon and other multi-brands marketplaces make you shop more often, have items delivered to your home and sent back if not kept, few to none sustainable options available
	Packaging and prices
	Amazon with Amazon prime drives me to buy new products from far away (China)
	Quick and cheap access to junk you don't need
	Amazon, Asos (most e-commerce platform), because I buy cheaper clothes and often do not opt for the sustainable products + delivery is not sustainable
e-commerce	Apps from clothing stores that promote shopping new products every month
	ASOS, Zalando &co, because I tend to order more clothes than necessary. I order clothes just to try them on with a high possibility of returning them.

	Brand clothes websites, online Shopping platforms: carbon footprint
eBay	eBay. Increase total consumption and often not second hand
Instagram	Social media tends to increase the consumption of goods (especially FMCG) which is not so sustainable
	Instagram- such a waste of time
	motivates consumerism
	Instagram, too much advertising
Lieferando	Lieferando, you consume food that could otherwise be cooked at home without additional packaging and underpaid drivers
Uber/Bolt	Probably Uber and Bolt because I take the car instead of public transport
	Uber, because you tend to take a ride instead of using public transport
	uber - because other more sustainable options available
	Car sharing instead of public transport
	Taxi platforms and normal food delivery. Higher emissions and more waste for more comfort.
	Ride services - offer more convenience but are less sustainable

Table 3: Less Sustainable Platforms & Reasoning by Survey Participants

(Author's own representation based on collected data, 2021)

Appendix 6: Food Waste Insights

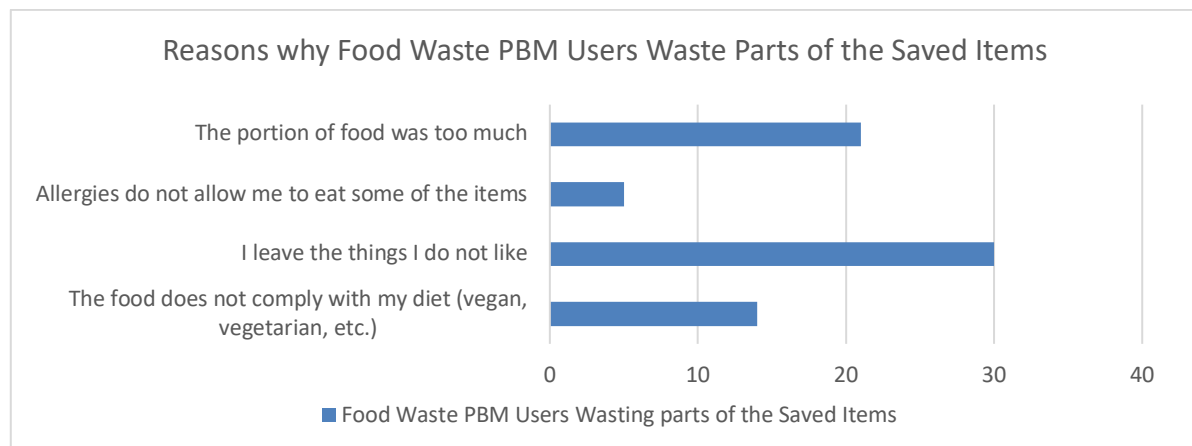


Figure 10: Reasons Why Food Waste PBM Users Waste Parts of the Saved Items

(Author's own representation based on collected data, 2021)

Appendix 7: Research Process (Multiple-Case Study Design)

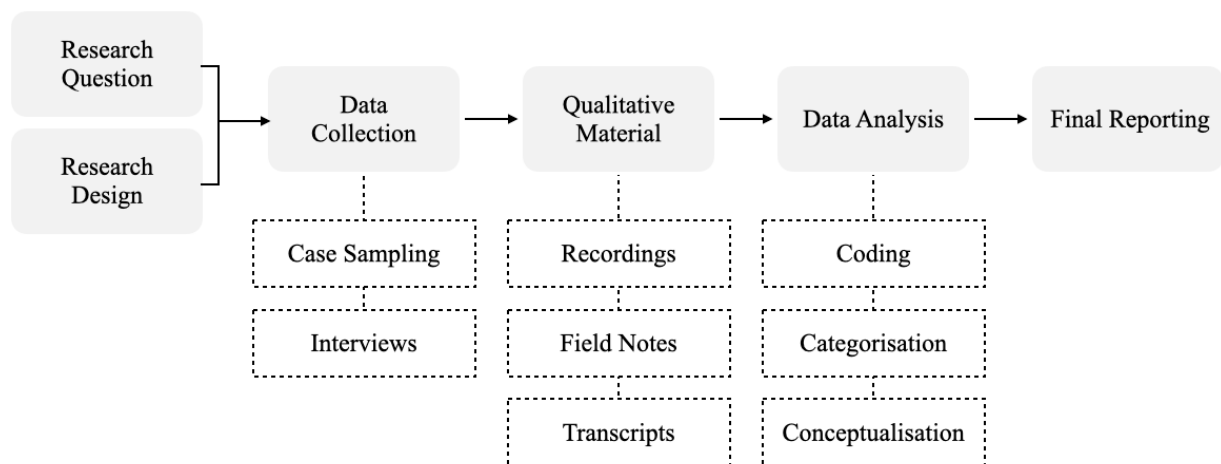


Figure 11: Entire Research Process: Multiple-Case Study

(Author's own representation, 2021)

Appendix 8: Interview Guide

Intro & Company	Why did you start your start-up, which problem(s) do you address and how do you solve it?	Company description, the “why”, definition and classification of platform
	How do you monetize your business model?	Monetization strategies
Sustainability & Ecosystem	What does sustainability mean to you as a company? Where do you play?	Definition of sustainability
	What are the drivers of sustainability that motivate companies to transform?	
	Considering your different market actors involved, what is your contribution to sustainability?	Market sides involved, sustainability Strategy
	How does your business model make you more sustainable as a company? / Do you have certain impact targets or metrics you measure success by?	Impact Model
Platform Strategy	What is special about your platform business model?	USP, differentiation
	What may make platforms better than traditional linear business models to solve the sustainability problem?	Platform advantages and characteristics
	What are success factors that support your growth?	
	What are some of your key challenges (in the industry)?	Chicken-egg, different approaches in different markets, internal and external barriers
Outlook	Where you see your company in 5 years?	Long-term vision
	What needs to change for your industry and/or company to drive the sustainability transition forward?	Enablers
	What would you recommend to other founders?	

Appendix 9: Interview Transcripts

SQUAKE

Interview	Company	Interview Partner	Role
I	Squake	Dan Kreibich	Founder & Chief Product Officer

Description	API and climate marketplace for carbon removal (B2B)
Website	squake.earth
Industry	Climate Tech, Travel, Transportation & Logistics
Founded	2021
Employees	1-10
Location	Berlin, Germany
Company Stage	Pre-Seed

Transcript
Interviewer and Transcriber: Julia Grassow Date: 19 November 2021 Translated from German into English
BEGINNING OF INTERVIEW Q: What is Squake and how does it work? A: With Squake, we effectively help companies to offer sustainable products. We have built an API, an automated interface, that allows companies to calculate and offset their CO2 emissions for all operations at the same time. For example, a passenger flight or a shipment by air, by ship, by truck, you name it, can be offset using different CO2 projects: Our certified and global marketplace of climate projects offers nature-based solutions like forest reforestation, or advanced tech solutions like Sustainable Aviation Fuel or Direct Air Capture that help companies offset their carbon footprint. Q: How did you come up with the idea? A: How I came up with the idea has several backgrounds. On the one hand, I had already built a CO2 compensation solution for Lufthansa's airline passengers some time ago - Compensaid, which helps to calculate the CO2 footprint of one's flight and compensate it afterwards. The special thing about Compensaid is that flight emissions can be reduced with Sustainable Aviation Fuel (SAF), which is still very expensive and untapped, and SAF seemed to be very attractive for customers. As a result, I realized that the impact we can create here can be greater, and must be, in order to bring more momentum to the sustainability turnaround. At that time, we tried to bring in other companies besides Lufthansa, for example online travel agencies. Think of something like Skyscanner, through which large volumes of transactions are booked. Unfortunately, we didn't have a scalable solution at that time, and other companies didn't really find us attractive. Why? Let's take the Skyscanner booking portal as a hypothetical example: Customers would now have the option to offset their CO2 emissions

at the end of their booking process and are taken to a new external page with a link, which may be branded with Skyscanner branding, for example. But of course, those companies don't want that, because it's all about seamless customer experience. So, we needed another solution that companies could easily integrate into their services. And that is an API-based solution.

On the other hand, as a second big point, we noticed that there are of course many more activities beyond flying that are subject to the same dynamics, so to speak. This means that we can use a similar base calculation to calculate CO2 emissions for different routes, for example how much CO2 is produced by a car, bus or ship, and these companies naturally also have a great interest in gaining transparency about their CO2 emissions and compensate for them. This is how Squake came into place.

Q: How do you monetize Squake?

A: We charge a 10% commission on each transaction.

Q: What do you think are the driving forces behind the sustainability movement, and motivators that should drive companies to integrate sustainability strategy into their business model?

A: I think there are several drivers, two that come directly to mind. Firstly, there are regulations, i.e., companies have to reduce their CO2 emissions, for example the aviation industry has committed itself through programs such as CORSIA. They soon have to report carbon emissions and reduce them by certain targets. This is of course one of the strongest arguments driving companies to transition - if you simply have to.

The second thing that comes directly to my mind is the business component. The pressure is simply increasing, and from all directions. From politics, I've already mentioned that. But also, from customers who want sustainable products and no longer use certain services for this reason. A very clear example is Scandinavia, where passenger numbers have dropped sharply because people in Scandinavia are engaging in very extreme, so-called flight shaming. In other words, companies are being forced by the consumer to offer sustainable products in order to retain a customer base.

The pressure also comes from a third direction, namely from competitors. What happens if one of them stands out from a sustainability lens and taps in your market? Take Tesla, for example, against the rest of the automotive world and totally exploits that market for itself. Yes, and then, if we stay with the pressure on companies, that also comes very strongly from financial investors. There are very clear dynamics today, simply that climate risk also means investment risk. How likely is it today to invest in a company like BP, Shell and so on? What kind of risk do you take, financially and reputationally? And you clearly notice that investors like Larry Fink, he states that in his letter to CEOs, will ramp up their assets in companies with a sustainability strategy and dump others that refuse to do so or are lagging behind.

And I think there is now additionally a certain pressure coming from partners in your supply chains. Say, if your biggest customer now wants you to have CO2 transparency over your value chain and compensate everything you do with that, then suddenly you will be able to implement that much faster than maybe 4-5 years ago, when

it was not such a hot and urging topic. Hypothesis would also be here, the closer companies are to end consumers, the more important sustainability becomes and the faster it will be implemented.

Q: When we talk about sustainability, what contribution does Squake make to sustainable mobility and travel in terms of the various market players you serve?

A: Primarily decarbonization in the context of the '4 R' framework and SDG 13 (Climate Action), so that we create an impact through CO2 reporting, reduction, and compensation. That is the overarching goal and part of our vision. And then, of course, there are accompanying and other not unimportant points. Our projects that we support mostly pursue other SGDs besides Climate Action, for example Education or Equality. In addition, we give the companies that use us as an offsetting platform the opportunity to position themselves strongly in the market. For example, they can contribute to climate targets quickly, not to forget that you are currently "en vogue" and competitive if you can offer sustainable, or in other words net-zero services. Many companies also create an impact on their scope 3 emissions through us, namely those of indirect nature that occur in their value chain. In this respect, we provide assurance for the business. Everything that cannot be actively reduced must be compensated. And that is part and parcel of a green strategy and has a positive effect not only on the environment and your customers, but also on your own employees, who would otherwise turn away from you.

Q: How can a platform business drive sustainability forward better than a product business?

A: Scalability. Of course, we need to define what we mean by platform first. Let's say an interface that brings together different market players, suppliers, and customers. Our product is effectively the API. But what's advantageous about our platform is that you have network effects and economies of scale, for example you can benefit from bringing the price down, and you can create more transparency in a non-transparent market. And the more customers you generate, the more demand you have and the better you can control your supply. I think that's a huge argument that you can take advantage of as an impact entrepreneur. So, for example, by working with many companies and with many climate protection organizations, we also know pretty quickly what the problems are from these companies or from the supply chain and can improve based on that and create a more attractive solution to them. It's also about reaching as many as possible. You can also reach many with a product. But the platform creates transparency, for example in CO2 prices and our climate projects. In this way, we can make better use of economies of scale, create better offers and create and integrate other products more easily.

Q: What are your challenges as a platform business?

A: You need high demand to improve supply and vice versa. We first focused on supply, the offer of certified climate projects, and are now moving to increase demand through our sales channels. In addition, the CO2 market is a market that still needs a lot of education. That is also our task. The challenges are that companies are not fully aware of what they actually need. And that there are no proper guidelines. So I would say that if policy clearly defines how much CO2 emissions must be reduced in the next year, and if that is not achieved, you will lose your license to operate - only then will the rethinking begin at scale and then we as a platform can create even more impact, because demand and knowledge is increasing.

Q: What needs to change in the market so that we can accelerate the sustainability transition?

A: More integrity is needed. Details about what has to be done, what is allowed and what is not. And that there is a general reporting body where the companies have to report to, up to now there is total uncertainty in the market. German companies report partly to the Federal Environment Agency, but only a few, others do it somehow in the American Carbon Registry, and all that is very unclear. The sustainability shift is a global problem. And we also need global collaboration to scale platform models globally.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
II	PLAN3T	Julia Köhler	Impact Manager

Description	Gamified CO2 application to help reduce user's personal carbon footprint (B2C)
Website	plan3t.one
Industry	Renewables & Environment, Climate Tech
Founded	2020
Employees	1-10
Location	Hamburg, Germany
Company Stage	Seed

Transcript

Interviewer and Transcriber: Julia Grassow

Date: 8 December 2021

Translated from German into English

BEGINNING OF INTERVIEW**Q: Why did you start your start-up, which problem do you address and how do you solve it?**

A: In general, we developed the company or the app to address two big problems. On the one hand, sustainability is incredibly complex, which means that the individual consumer may not even know what it is - is option A more sustainable or option B. And on the other hand, sustainable options are currently still relatively expensive, i.e., usually more expensive than the mainstream alternative. And especially as a young person, or as a student, it is of course a bit annoying when you realize, okay, I would like to change my behavior or my consumption, but for me it is not only the complexity that is a barrier, but also the financial side of it. And these were just two points that we want to address, in addition to the question of how we can reward sustainable consumption and sustainable behavior. Because I, myself, have noticed that when I take the train from Copenhagen, where I studied, to Stuttgart, no one pats me on the back, instead my friends get on a Ryanair plane for 15 euros and make the same journey faster. So how do we bring in a reward system for sustainable action? And that's exactly what we're trying to solve with the app.

At the moment, we are still in a pivot phase. That's why it's still crystallizing what the app can do. Currently, we give our users the opportunity to calculate and understand their carbon footprint, in a first step, and then the app identifies potential for improvement. That means we have different impact areas, including energy, mobility, food, and consumption. And based on one's footprint, the app then recognizes, okay, here you have potential in your mobility behavior. For example, you drive your own car. Let's suggest car sharing. It then comes to the second step; the app shows you how you can reduce your carbon footprint and improve it with certain challenges. And because we currently can't reduce our carbon footprint completely, we offer carbon offsetting as a third step via gold standards, certified climate projects. And that is the consumer journey that users go through, for which they can also collect so-called coins. In a final step, our users can then collect rewards from our sustainable partners, for example a discounted green electricity tariff.

Q: What different actors are connected and how does each benefit from your sustainability offer?

A: It is primarily a B2C app. But we also have about 60 partner companies on the platform, coming from the various four areas that we address. In terms of the value of our users, we provide an overview of which products and services are available sustainably from which brands and screen our partners. This means that not everyone who labels themselves as green is actually integrated to our app. Our partners first have to go through a screening process. And only when a certain score is reached are they accepted into our network. In the future, we would like to increasingly pass on this value of credibility, i.e., what is actually sustainable, to our customers and consumers. At some point, we want to be a network where every one of our partner brands says hey, I'm proud to be part of this. You know, it just takes a long time to build up these network effects. But in perspective, we want to be a trusted platform and represent a certain reputation for sustainability.

Q: How do you monetize your business model?

A: Right now, we are simply an affiliate partner. That means for every conversion we create for our affiliates; we get a commission. The app is free for users. To cover costs, we take a percentage of the compensation donated. We get that from our compensation partners. So we monetize completely on the B2B level.

Q: What are the drivers for sustainability, in your opinion?

A: A difficult question, and also a code that we are trying to crack. How can we motivate our users to actually buy sustainable products, to buy less, to behave more sustainably? I think peer pressure plays a big role when we talk about consumers. Users have often requested that certain features be introduced for gamification, that you can somehow challenge yourself and compare yourself with your family or friends. So competition is a factor. Moreover, it is simply a topic that moves many people intrinsically. Especially in the younger age group, there is a growing understanding for the relevance of the topic.

On a B2B level it is very different, we see a lot in the area of green washing for better positioning of a brand. Sad, but true. But then of course there are many, many bands that really mean well and are trying their best in the capitalist system to make it a bit more sustainable.

Q: How do you track your impact?

A: Our impact screening is still being developed at the moment. That is, it still needs to be refined, to go even deeper, on the basis of which we can then actually work with our partners and say, hey, you might not have made it just now, but if you do this and that, then you will get through our screening and then you can also become our partner. Another issue is tracking our own impact. We are currently a pending B-Corp, sort of the precursor to the B- Corp seal that exists for companies that have been operating for less than a year, which is the case with us. And soon we will have the real assessment, which will be more about the question: Which KPIs do we use to measure our impact? At the moment, CO2 is very central. That is, how much CO2 have we reduced and compensated for with our app and our users. And then, of course, there are many KPIs, such as what are our scope 2 and 3 emissions? This must all happen step by step. However, the B-Corp assessment itself will be a relatively good guideline that we can orientate ourselves by and implement the right standards.

Q: To what extent are platforms a suitable business model to drive the sustainability transition?

A: That's a big question, but a super important question. What often happens at the moment is that everyone is cooking their own soup. That is, everybody is trying to combine capitalism with social and economic factors. And it's just really hard. There's a lot of value in different companies getting together and saying, hey, we don't all know 100% how it works, but maybe we can share our skills and support and complement each other. And especially when it comes to innovation for sustainability, we find a lot of disruptive small actors that find it easier to enter and influence the market through collaboration. This means that if many small players join forces, I am convinced that we can create a big impact. The necessary communication takes place on a platform.

Q: What are your key challenges?

A: We found out that platform building on the partner side is going great. So it's much easier to acquire the partners than it is to acquire users, which is really difficult - getting users on the platform that download the app but also use it steadily. And we have to use this app as an engagement platform, otherwise it loses its value, because content is constantly being prepared. With users, of course, comes the question of monetization, how do we achieve profitability? I would say that actually the impact app industry is becoming more and more competitive. It's also a reason why we're pulling out of it a little bit and going more in the direction of a fintech in the future. Within the last two years, especially through Corona, the market has changed a lot. We started with a relatively empty market and now we can't keep track at all of how many impact engagement apps there are. So competition is a major challenge.

Q: What is your vision for the future?

A: In the future, we want to move more in the direction of rewarding sustainable consumption. This means that we will use an open banking integration to track how often and when our users have made purchases from our sustainable partners through us and thus, become a kind of Payback for sustainable products. If we actually manage to become a dominant sustainable payback platform, then I see an incredible power and opportunity to really show people with the tool of cashback, hey, we want to steer you in a certain direction and maybe we'll manage to make more and more companies a part of the cashback system and become our partner. I don't see

any way around platforms in the future when it comes to sustainability, especially with regard to knowledge exchange and global collaboration.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
III	RYDES	René Braun	Co-Founder & CEO

Description	PaaS for sustainable mobility options for employees (B2B)
Website	rydes.com
Industry	Mobility, Climate Tech
Founded	2020
Employees	1-10
Location	Berlin, Germany
Company Stage	Pre-Seed

Transcript
Interviewer and Transcriber: Julia Grassow Date: 22 November 2021 Translated from German into English
BEGINNING OF INTERVIEW Q: In a nutshell, what does Rydes do? A: Rydes' vision is to become the driver of the mobility evolution. And we try to do that through a so-called B2B business model approach. So that means our customers are businesses and not individuals to begin with. What we do, we are an employee mobility platform. So that means companies have the opportunity to offer our platform to their employees so that they can move from A to B in a private context or in a business context. And to build the bridge to your topic of sustainability, of course we do that through a very strong sustainability component. That means, through the platform we provide all kinds of mobility and in particular sustainable mobilities. Sustainable, from our perspective, means that we want to incentivize mobilities that are shared. In order to be truly sustainably mobile, we believe that it is not only enough to compensate, but also to generally reduce your carbon footprint, not just neutralize it. And accordingly, sharing mobilities are very much anchored in our business model. Q: How do you monetize Rydes? A: Yes, so there are currently three monetization means in the short and medium term. At the end of the day, a platform stands for supply and demand, which come together on this platform. On the supply side, we have the mobility providers. We receive a so-called kickback from those mobility providers. That means we get a percentage share per transaction, so to speak, per trip. That is one side on the supply side. On the demand side, that

means with companies, we monetize via a so-called software as a service fee. And there, we receive per active employee, depending on which product is used by us, a monthly amount that ranges from €0 to currently €6.99, depending on which tier you're in. Also, we are now transitioning our product beginning of next year and becoming, if you like, a half-fintech. That is, we are implementing what we call the Rydes Mobility Card. That means, together with a German bank from Berlin and Visa, very likely, we will create a mobility card that I can use as an employee for all kinds of mobility services. And we will receive an interchange fee, which means that we will participate in every transaction. With card schemes, so if you use a Visa card in a restaurant, for example, the restaurant has to pay a certain share to Visa, and we also get a share of this share, so to speak. So these are three short-term monetization means. In the long term, we will also tap into the topic of data, but that is not part of the monetization at the moment.

Q: What do you think are the driving forces behind sustainability that make or should make companies integrate sustainability into their business model? What are factors that are relevant for Rydes and its customers?

A: There are several factors, it's an interplay. Let's break it down into intrinsically motivated customers, and customers who just do it because the external pressure is strong. Intrinsically motivated, for us, usually means customers that come from the tech ecosystem, for example, founding teams that really believe that something needs to change. There it's usually top down. So they just say that we have to become more sustainable, and they are convinced of it themselves and then usually give their organization the task of implementing it.

Then there are customers where this is not the case, where external pressure is the driving force. These are the classic medium-sized companies or corporates in Germany. It may be the case that parts of the C-level like the topic, but usually they move because of external pressure. The external pressure comes from different sides: On the one hand, you have the government and simply political circumstances that ensure that companies take up the issue. And then you also have tax components, depending on the country. So that means that there are certain tax incentives or in the other direction, tax burdens, which lead to the fact that one takes up the topic.

And last but not least, the pressure for companies to address the issue is increasing immensely because their own employees are creating this pressure. We are always talking about young professionals, i.e. people who have just come out of university, who are usually purpose-driven and no longer simply choose a job because they think it would be cool to work for McKinsey, but also want the company behind them to make a contribution, because the topic has of course become very omnipresent, especially through movements such as Fridays for Future.

Q: What is Rydes' contribution to sustainability in terms of its market players involved?

A: So first of all, what does sustainability mean to us? I mentioned it very briefly earlier. We have on one side the strong incentivization towards shared mobilities and on the other side the compensation or neutralization, if you like. And we have found out that mobility is ultimately a major problem, or a strong driver of the CO2

footprint of a company. Of course, this very much depends on the industry, for example, there are also companies that consume a lot of energy in production and so on and so forth. But mobility is a huge bucket, often between 20 to 25 percent of the CO₂ footprint of companies.

So what is the problem with current mobility? The problem is that usually, mobilities are used that require an asset to begin with. So you need something that moves. In most cases, this is the so-called company car. And a company car has a huge problem because this asset is manufactured, and this asset is usually only used by one person and otherwise just sits around. So that means, the utilization rate of the vehicle it's extremely low. So on average, 90 percent of the time, the company car is just standing around on the street and is empty. And when it is moved, there is usually only one person in the car. And that leads to an immensely high CO₂ footprint for a very poorly or little used asset. In addition, this vehicle also has to move on an infrastructure. So that means that CO₂ is produced there as well and of course the vehicle has to be manufactured first. And that's where we as Rydes are trying to intensify our efforts to switch to mobility that we don't own ourselves. That means sharing mobility and subscription mobility, for example car subscriptions or bicycle subscriptions like a Swapfiets. And that is exactly the first contribution we make. And that is ultimately also included in the sales pitch to our customers but is not perceived by many as the most important component. That's interesting, because actually the impact that is achieved by it is very, very high.

Then you have a second step we do. You *have to* compensate any remaining CO₂ emission, something we do via the platform Squake. That means that *if* CO₂ is produced, we compensate for it. These are the two components of our sustainability contribution.

Q: Do you think that platform business models can drive sustainability better than traditional linear business models? And if so, what are the reasons behind it?

A: As a platform business, if you position yourself strongly in regard to sustainability and want to convey this in the construct of supply and demand, then I think that, first of all, this has the advantage that we ultimately *force* all actors on this platform to become more sustainable. That's why I think the indirect impact of this is much higher than it would be with a non-platform company. If you have a traditional product business with, as you called it, linear business model, then of course you're in charge of yourself and you do your own thing and then maybe sell your product more sustainably through certain initiatives. But we have created a huge ecosystem that *has to* become more sustainable, namely the customers on the one hand and on the other hand the supply of all sharing mobility providers, they are huge. If you look at all of this globally now, it probably has an extremely high impact.

Another factor beyond platform models, I think you're in a much better position as a new and young startup to implement things like that. Let me give you an example. I once sat next to a guy on a plane who worked for North Face and was on his way to Thailand to check out some material suppliers there. From the ground up, they wanted to become more and more sustainable, similar to Patagonia, but of course they have grown a lot historically and didn't have the opportunity to adapt the traditional supplier structures. As a new startup, however, you start from scratch and can try to set up everything sustainably from the beginning.

Q: What impact does your business model have on you as a company?

A: As a company, we are also committed to acting sustainably. We are part of Leaders for Climate Action and measure our own carbon footprint and have initiatives to reduce it. Accordingly, we have to comply with certain things and will soon be creating a kind of Code of Sustainability that employees who join our company will have to comply with and sign. And if they don't sign it, then they can't start working for us. And these are all things that mean that we can make a much greater contribution both as a platform model and as a startup.

Q: What or how does the mobility industry have to change in order to become more sustainable in the future?

A: That's a complex question. The mobility industry, especially in Germany, but also in many other markets, has a big problem. Or rather not a problem, the mobility industry benefits from it. But the world, the planet has a problem in relation to the topic and that is tax incentives. Especially in Germany you have a huge lobbyism that is driven towards the production of vehicles, because our whole economy is based on it. That means that if you didn't do that, a lot of jobs would be lost. Specifically, you have a 1% tax on leased vehicles, today even on electrified vehicles up to 0.25%. And you just have a huge incentive to buy a leased vehicle from an employer or even privately, because of all the subsidies that happen and that doesn't solve the problem at all. And that's really an issue, because it is marketed by politicians as if it were something nice. But the bottom line is that so many vehicles are being produced, even electrified, doesn't matter, because in the end they are not sustainable if they have to be produced first. That's a huge thing that has to be addressed somehow and that's where we're acting right now and we're even starting to start small lobby activities ourselves to simply create awareness for it. For example, we are campaigning for 0% taxation of a mobility budget in Germany, which already exists in other countries.

The mobility industry has a second big problem and that is profitability. Sharing providers are not profitable and therefore strong pressure on costs. And the question of whether a sharing provider will then try to become more sustainable even faster can be answered with a relatively quick "no", simply because the business case does not allow it. So that is also still a big challenge.

Another huge topic is infrastructure. When it comes to mobility, everyone always talks about vehicles. I also did for a very long time in our conversation. But you also have to provide the infrastructure to make mobility more sustainable. There needs to be a lot more bike lanes, roads that are exclusively for bikers, or where vehicles aren't allowed to move unless they're shared, at least. So those are three huge challenges for mobility.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
IV	RideBee	Fabian Seitz	Co-Founder & Chief Marketing Officer

Description	Carpooling PaaS for employees (B2B)
Website	ridebee.de
Industry	Shared Mobility & Transportation
Founded	2018
Employees	1-10
Location	Munich, Germany
Company Stage	Pre-Seed

Transcript
Interviewer and Transcriber: Julia Grassow Date: 6 December 2021
BEGINNING OF INTERVIEW Q: Why did you start your startup and which problem do you address? A: We started in 2018. I met my co-founder at a university in the US in Pittsburgh. When we got back, we thought about being an entrepreneur and starting a business. And that's what we did. We looked at a daily problem that we had ourselves, which is the problem of congestion and daily mobility, and realized it affects a lot of people. For us, it was the daily university commuting case, especially for my co-founder when going to the Technical University campus, he could either go there via public transport, but then it took him like one and a half hours from a town in the outskirts of Munich. Or he could take a car, and this would be quite fast, like a third of the time. And, of course, not every student has a car, it's quite expensive. And often, it can also be cumbersome in terms of the congestion and sitting alone in the car and wondering why everybody's doing the same. Not to mention the environmental pollution. And this general problem isn't really solved. So we thought, how about we solve it. And that's how we came up with RideBee. Q: What is your business model and how do you monetize it? A: We don't have the typical platform business model. But let me explain. In general, you want to provide people that go to the same point at a similar time an opportunity to have their rides shared and to go back home. And the most prominent case where this is going to work is at work, where a lot of people go to the same place in the morning, or back from the same place in the evening. So it's a little bit smaller time window, and a common destination. And that makes sharing rides quite easier than say, for example, crossing through a city to get groceries or whatever, you don't have a critical mass at an exact time point. But you do have that in the case of commuting to work in the morning and going back home in the evening. This is where we provide value.

But we realized that in Germany, doing this in a simple B2C manner could be quite cumbersome. This has several reasons. First of all, you need a lot of capital. Secondly, you have to have platform dynamics work in a big setting. There are also legal limits in Germany on how much you can earn if you bring someone with you in your car, for which you want to get a cost reimbursement. And those are implemented to protect the taxi lobby in Germany. That's also why the business model of Uber is not the same as it is in the States, for example they have to employ more professional drivers in Germany. And those are reasons why we decided to cater to a B2B market, because we saw that companies will invest in the attractiveness of their locations, and in the attractiveness of themselves as an employer. How you get to work and how easy it is to get to work influences the attractiveness of your employer. That's where our platform offers an infrastructure, I would call it. The transactional value we provide, is bringing people together for their shared rides and helping them to communicate and allocate their costs. We monetize via the companies. So basically, companies will pay a fee like a subscription or membership fee for using our service.

Q: What does sustainability mean to RideBee and what is its role in your business model?

A: I'll start with our stakeholders, which are, mostly companies and the users are the employees of those companies. And actually, when we started in 2018, I thought, the sustainability proposition would be a little bit more prominent in the B2B setting. But to be honest, it really started to get going only in the last one or two years, because now, companies actually think about their emissions and record CO2 in official protocols, etc. And they start to look for measures they can implement to offset or reduce those carbon emissions. And that's when they come to us. You can actually see the change now, a lot more "sustainability officers" than "HR managers" contact us. Sharing car rides can potentially save half of the vehicles going to work. If everyone is going in a carpool by two, you save half your emissions. If everyone has a car full of three people, you already saved two thirds, and so on. So there's quite a lot of potential in how much impact we can create. In terms of personas, you have those early adopters and pioneer users that are often highly motivated because every shared ride saves emissions and it's the right thing to do. But of course, you also have people that are motivated simply by sharing their costs of the ride. They say, if they take someone with them, it can save costs on the ride. So sustainability comes in on different levels. It can be out of pure self-fulfillment, and it can be more enjoyable and more attractive to work for such a company.

Q: What makes your platform business model different from traditional car sharing providers?

A: Yeah, traditional car sharing is very operations heavy, which makes it hard to maintain and get profitable. I think that's not the case in general carpooling, where you just want to encourage people to scatter rides on their vehicles, they already own, or they have already rented. What's more, our challenge is that you have to motivate two sides. In a classical car sharing model, you can take care of the supply by acquiring your fleet of cars, and you only have to generate demand. We have to generate demand and supply. So we need to find drivers that want to offer their ride and we need to find passengers that want to join the ride, this is a little challenge. We try to set the incentives in the right way. So one of the first thing, which I already explained, is not to give them a reason not to join the platform, which would be us earning on it. So we do not charge a commission fee on end users. So the incentive to use us is higher than a platform with conditions because they don't need to pay us, they have no incentive to turn to calling each other or texting on WhatsApp for example. But their company

is paying for us. So our value proposition in itself isn't really the platform business model. It's more of a service business model that we offer through a platform. It's about providing an infrastructure, that we get paid for.

Q: What is the future of the platform economy, and your role in it?

A: Well, I think the general trends are quite obvious, we are seeing less ownership of expensive assets in the daily life of people, with platforms managing that transition in terms of those renting models, etc. But of course, there are still some challenges. And one of them is the change in behavior and external environment, which is also a big challenge for us. It's still very common in Germany to have your own car, just driving it by yourself. It requires a lot of education from our side to really change those people's mindset. And that could be one difficult thing for the future of the sharing economy to really change. But I think there will be less asset ownership in the future, especially in mobility. I think the biggest reason for owning your own car today and for paying for it is the illusion of flexibility. That's a myth. Yeah, you may still be more spontaneous to some degree, but with advances in technologies such as autonomous driving, you can offer a platform model or platform-as-a-service model that is as flexible and as spontaneous, like ordering an autonomous vehicle to your doorstep in a couple of minutes. That's the same value as your own car offers, but you will pay less and that will inspire a lot of people to switch to those platform and service models, I think. And we want to be part of that by bringing people to certain points of interest, most conveniently and flexibly. When they're going towards the same direction or towards the same destination, we want to enable shared mobility through our platform.

Q: What are some critical enablers for that transition?

A: I think incentives that are provided by other stakeholders and the external environment would help us. First of all, businesses need to incentivize their own employees to use shared mobility, and shared models of economy in their daily life and work life. The other one would be the political environment. So having laws in place that help to make a shift towards sharing models easier.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
V	RNTERS	Francisco Bento	Co-Founder & Chief Product Officer

Description	Online rental solution for companies (B2B & B2C)
Website	rnters.com
Industry	Ecommerce, Rental, Second-Hand, Sharing Economy
Founded	2016
Employees	10-15

Location	Lisbon, Portugal
Company Stage	Pre-Seed

Transcript
Interviewer and Transcriber: Julia Grassow Date: 25 November 2021
BEGINNING OF INTERVIEW Q: Why did you start your start-up, which problem do you address and how do you solve it? A: Okay, so I'll start at the beginning, I'll give you a full scope of how we started and what we are actually doing right now, which is a bit different. So we started out as a peer-to-peer rental marketplace, that kind of sexy idea of having people renting stuff to each other in an open market. So our platform follows a long tail strategy, which means that it allows almost every type of item and every type of user to interact. That was strategically relevant at the start to see what type of rentals would be in high demand, which would signal the best categories and way to go forward. What happened was that we naturally figured out that some categories were way more valuable than others, especially in areas related to electronics. But also, even camping gear, which was kind of surprising. At one point, we had this very cool use case around smartphones, which was something that we've never thought. So when your smartphone is in repair, you have to replace it for a short time. So renting another is a super smart and cheap alternative. Those are some examples. So along the way, what started happening was that we were having more and more professional owners instead of private individuals to provide the supply of items. And those professional owners, the range is very broad, can go from a bicycle store in downtown Lisbon for tourists, up to a construction company that rents their equipment to another construction company, and in the middle, you have everything from electronics again, but also events and audio-visual equipment. So there is this way bigger than anticipated activity around all different types of equipment, but also types of renters. So all those different actors started coming to the platform. And we started to understand why. It was mostly because of two reasons: The first was that the platform was completely free. So they could freely upload any item they had available and see what happens. The second and most interesting was that they didn't have any sophisticated alternative or technology to offer their stuff. So basically, the market is filled with tools to manage retail operations, but in rental, a lot of things are more complex. And we saw that gap in the market. So what ended up happening was, we understood that the rental market was very unexplored and that there is an opportunity to provide a solution for all kinds of rental operations or rental businesses out there. So we challenged ourselves to determine exactly what our rental market should look like and which type of renters we wanted to engage. At that time, we joined the acceleration programme Maze X to understand if there was an opportunity for us in the professional rental space. Keeping ourselves bootstrapped in the beginning, we had a high degree of freedom and flexibility to try things out and launch spin-off initiatives that I'm super proud of. One is happening right now. It's called Pinheiro Bombeiro which literally translates to firefighter pine tree. The objective is to give a second life to the pine trees that have to be cut down to clear the forests by renting them to people for Christmas. Once Christmas is over, the pine trees are transformed into biomass. Behind this project, we hope to improve

working conditions for volunteer firefighters and sensitize the population to support an institution that protects us so much. This is a project we've been developing for the past four years, and it's been scaling very well.

Another one is called Lazy Campers. This is a complete spin-off that was inspired by the data we got on our platform, realizing that many people rented camping gear for music festivals. So we've partnered with all the music festivals, we've bought a lot of camping gear and created a platform where attendees can go, select the festival, select the items you want to rent, go to the festival, and everything is there just ready for you to use. At the end of the festival, you return it. So I'm talking a lot about these spin-off projects, because they are at the heart of what RNTERS does in regard to sustainability. And at the same time, we were identifying a huge opportunity in the market to provide a tool for professional rental operations. So we pivoted from the initial idea of peer-to-peer rental to become more of like an entry point, an enabler for sharing economy for any business and product. Almost like a platform as a service created to manage rental operations.

Q: What is RNTERS core target user today?

A: Mainly companies that rent to other companies or to consumers. That's where the market opportunity gets really, really exciting. Everyone realizes that the rental industry and rental activity can be very valuable. You see all the big retailers coming to the same conclusion as we do. They realize that there is this new generation of consumers that would rather have access over ownership and that values sustainability and social and environmental commitment. Now, big retailers are eager to provide rental or new solutions to their customers. And we want to be that provider for them, offering a platform to do that. That market opportunity is really big.

Q: How do you monetize RNTERS?

A: We haven't yet launched the new product. So we are still working on a commission-based model that charges 20% commission per rental, but we intend to lower that fee as we provide access to the new platform. In the future, we will change into a subscription-based model.

Q: What does sustainability mean to you and what is your contribution as a platform?

A: Ultimately, we're providing access to unused items. So sharing over owning is our macro view on sustainability. We lower consumption of items that otherwise would have been bought, thereby maximizing utilization and product life.

Q: Are there any impact measures or sustainability metrics in place that you use to track your success and your impact?

A: There are, and I can provide you our official metrics. First of all, we have to have them in order to be considered for impact funding, for example by MAZE. They have invested in us because we can deliver an impact besides economic performance. So we have to have all those metrics in check. They are mostly based on CO2 consumption, for example measuring how much CO2 was saved by lowering consumption this year and extend utilization of goods. But it's a very challenging thing to track and measure impact, it's a complex formula we use based on proxies.

Q: What were your motivators and drivers to create a sustainable-oriented business?

A: I would say we are more than sustainability; it's actually impact. And that is a growth term for me, because I think what motivated us the most in the beginning was social impact, mostly, like allowing people to get extra money for items that they don't use and at the same time providing access to those that don't have the money for it, for a specific period of time. So it was in our nature from the start, the sustainability and social impact angle and as a startup with that mission, you are able to really drive and embody that change.

Q: What would you say is the main driver behind the companies that want to rent their items?

A: It depends, we have all types of companies. As I told you earlier, we have that small shop owner but also big retailers who try to explore if renting could be interesting for them and for their customers. And what you see is that certain segments or industries that are more modern in a way, for example those that rent technology or work in events, they are more sensible to the impact they can create, versus larger companies in construction, for example, they see a financial opportunity more than an opportunity to create impact.

Q: How will commerce and ownership change in the future?

A: I think the future of commerce will be renting. There is a big opportunity in subscription-based rental models. We wouldn't be investing our time in this platform if we didn't believe in that. And I also believe that, as we gain confidence in these new models of sharing and renting, you'll start to see more and more solutions based on subscription in the same way you now have solutions for ownership, for example having your couch only as long as you want it and then return it. I think commerce will change in that direction. We will see an evolution in rental models. I think that's the key point.

[...]

END OF INTERVIEW



RNTERS **maze**

Interview	Company	Interview Partner	Role
VI	RNTERS; MAZE Impact VC	Antonio Miguel	Board Member of RNTERS, Founder & Managing Partner of MAZE

Description	Impact investment company and venture capital fund
Website	maze-impact.com
Industry	Impact Investing, Venture Capital
Founded	2013
Employees	11-50

Location	Lisbon, Portugal
Company Stage	Early-stage

Transcript
Interviewer and Transcriber: Julia Grassow Date: 4 December 2021
BEGINNING OF INTERVIEW Q: What is your role within RNTERS? A: We are investors. So that means that we are shareholders in the company and have equity ownership, which usually is between five and 10%. We typically are one of the main investors in this company, and in addition I sit on the board of this company. So I become a director of the board as an investor, which means that I have the privilege of attending the board meetings that happen once every quarter and work with the company on strategic initiatives. And then on top of it, the third role that I typically have is a more hands-on role supporting the company on the day-to-day tasks and supporting the leadership team. Q: In what kind of ventures does MAZE invest in? A: We invest in companies that have what we call a lockstep model, where we see that there is a positive direct intrinsic correlation between the amount of revenues that a company creates, and the positive social or environmental impact that they create. So we will not invest in a company that generates a lot of revenues, and then tries to have impact on the side. We seek companies where the revenue model is the impact model. Regardless of whether we're talking about software as a service, platforms, marketplaces, you name it. We are very interested in platforms. And we should not confuse a platform with a marketplace. Because we like the idea of having an infrastructure that you know, can be a marketplace, can be a data hub, can be production, can be a community - we like the idea of platforms, because typically platforms do not have acquisition risk of a specific vertical. I'll give you an example. It's very different to back a company that runs a coding bootcamp, then investing in a company that serves as a platform for coding bootcamps, to find candidates and to find funding for their candidates. Then we've invested in a company that does rental, but not a rental marketplace for electronics but a company like RNTERS that is receiving endless forms for aggregators in an online rental store. It's very different to invest in a company, for referrals, refurbished furniture, it's a vertical thing, then to invest in a company as platform across a range of industries. So, the reason why we like platforms is because they spread the risk more evenly across different use cases. Q: What does sustainability mean to you? A: Well, I mean, we have just received the B-Corp seal. It means the collaboration or the model in which we deeply believe in, right. It is a way for us to tell the world something that we've been doing for a long time but tell the world through a stamp that people can relate to. It's also a way to have a more systematic approach to what we do, like we knew that we were doing good things, but having it with the framework helps us to put the good thing into guidelines, which is very helpful. And then we've actually asked a number of our companies to

turn themselves into B-Corps because we feel that that's an important message that they're conveying to you and to the market.

Q: How is the field of entrepreneurship changing?

A: I think nowadays, more and more new companies that are created are actually created as purpose-driven, impact-oriented companies. It's a trend that we see, for instance, we see a lot of second- and third-time founders that have created successful companies that had nothing to do with impact. And now they're creating companies to solve social or environmental challenges. So I have very little doubt that, you know, new companies should embrace this impact from the start. And actually, if you look at regulations, it's going in that direction to in terms of carbon footprint disclosure, gender diversity disclosure, social inclusion metrics, etc. I definitely think that's a trend that will be accelerated in the coming years.

Q: What are best practice methods to capture and report impact?

A: Most of our companies use the impact management project framework, the IMP. I think that's an important part of it. And then, I think more than whatever framework they use is their diligence in reporting, like the best practices we see are those companies that have a monthly reporting, where they have a business overview that includes impact metrics, for instance, I always like to see companies that tried to tie themselves into some kind of compliance. So whether it's a B-Corp, or B-Lab assessment, whether it's something related to, I don't know, Leaders for climate action - they have their carbon disclosure frameworks and guidelines. It's always good to see when the reporting matches some kind of standard. But for me, the most important thing in terms of best practice is the cadence through which people report, that's really the most important thing. And, you know, doing it monthly for me, it's very important to keep track of the portfolio.

Q: What are best practice methods to capture economic value?

A: Well, I mean, that's why we only invest in lockstep businesses. Because if you remove the impact, you have no company. So they always go hand in hand, we know whether a company is creating economic value. And at the same time, we know whether the company is creating impact value, because the two are tied together. It's our investment strategy, catered to have both at the same time. You have other funds that have different impact strategies, and would be very happy with different models, e.g., TOMS Shoes is a good example of that, right? Like for each pair of shoes they sell, they give one for free. They're not solving any problem by producing shoes. They're trying to solve a problem on the side. So at some point, you might have the question, what is the economic value that they create in selling shoes? And what's the impact value that they create when they give one for free? And what if things go wrong? Will they start, you know, for every two pairs, they give one, or for every five pairs, they give one? Like that's when the tension exists. In our model, you don't have that tension, because you simply don't have a business if the impact case doesn't hold true. So, you know, more than a way to report how we are capturing both economic and impact value. I would say that we try to do that more up-stream, which is by having an investment strategy that doesn't allow that tension to happen.

Q: What are some of the key challenges that platform entrepreneurs experience?

A: I think one is the initial dynamic, right? Bringing supply and demand together, it's typically very difficult, especially in the early days, because you don't want to have over supply, you need to make sure you're meeting the demand, you want to have a curated platform, so that the quality is there. But quality can be a deterrent for scaling, like dealing with this dynamic duo of variables, it's always it's always very difficult. Then the other challenge is like, platform models typically benefit a lot from transactional data. And until you have significant volumes of data, you're really just guessing what your next step should be. Because you cannot be data driven. And I see that as a big challenge as well. And then the challenge upon scaling, rests upon quality control, like how can you make a platform that is self-serving, and that is fully automated and very efficient, but guarantee the same quality of delivery? Whatever the platform is or does when you just started because operating at scale is very different? So I would say those are some of the main challenges.

Q: What is the future of platforms, and how will platforms play a role in the sustainability transition?

A: Well, I think, first, starting with the latter, platforms play a very important role, because platforms can be a tool to decentralize and create more accountability across different parties. And I think that's fundamental, if we want to do a shift towards a more sustainable economy and a more sustainable world. I also think that platforms, we will see platforms in many formats, you know, we'll see platforms in formats of slack communities, whatever forms of marketplaces as I've discussed, and the importance that they have is just like we've been talking about software as a service a lot, I think we will start talking about platform as a service. And in that sense, especially if we think of sustainability, that means a significant rise for shared services, and platform centralization of cornerstone activities, and backends tasks that we need to have, including more sustainable ecommerce and more sustainable data centers etc. We rely on platforms to provide those services. And the question is, in not a very distant future, what will be the role of platforms, what will platforms look like in web 3.0? In the metaverse? How does the platform model need to adapt to cater to these new realities? I think it's a big question that any platform player needs to be answering in the in the following months and years to come.

END OF INTERVIEW

Rentya

Interview	Company	Interview Partner	Role
VII	Rentya	Luis Zwick	Co-Founder & Strategy Lead
VIII		Andreas Scheffner	Co-Founder & CFO

Description	Peer-to-peer online rental marketplace (P2P)
Website	rentya.de
Industry	Ecommerce, Rental, Second-Hand, Sharing Economy
Founded	2021
Employees	1-10

Location	Berlin, Germany
Company Stage	Early-stage

Transcript 1

Participant: Luis Zwick

Interviewer and Transcriber: Julia Grassow

Date: 22 November 2021

BEGINNING OF INTERVIEW

Q: Why did you start your start-up, which problem do you address and how do you solve it?

A: So basically, when looking at the rental market, we saw a huge potential to shape the sharing economy. And to accelerate it. There are so many trends currently, for instance, people want to reduce their own CO2 footprint, and companies want to do the same. So it's not an individual thing anymore, the interest in the sharing economy is growing. And we can also see that by the number of new sharing platforms in the European market. They all target sustainability goals. If you go through their websites and mission statements, you can see that one of the most important aspects of their business model is sustainability. Now, in the end, you need to make money with your idea. So sustainability must meet economic viability. But on the other side, it's really easy to push sustainability thinking with a platform. And not only to raise awareness, but to actively reduce carbon emissions of your users. And that's exactly what we do with each rental transaction on Rentya. We launched a peer-to-peer platform where everyone can exchange everyday items. We are also targeting small business owners that add inventory for rent to the platform. And also for them, sustainability is a motivator.

Q: Which market sides do you connect on Rentya, how does it work?

A: We are connecting two parties, for one product owners like you and me. We have products at home that we don't use very often. And then there are other people who need these products, but only for a short period of time. Or, for instance, they want to try products before they buy them, or they just don't have the money to buy them. Then there's a third party, which are product owners as well, but in form of smaller local shops. We connect these parties to the product, and we basically provide the space or the platform where they can exchange those products. And something which is important to us is the law of direct exchange. So people can actually meet up to exchange products instead of shipping. That's why we target large cities like Berlin and Munich. Because I think starting with this business, we need a lot of people in a fairly small area. And of course, we are looking at the business model, we get a small commission for it.

[...]

Q: What are advantages of the platform business model that help you build and expand Rentya?

A: I think the most important advantage for us is that we don't have any assets. We only have a digital platform, so we can focus completely on marketing and sales right now. Another very important thing is also that, while we facilitate the exchange of products digitally, product owners and renters meet up completely independently of us. Of course, we have to put certain safety measures in place, but in the end, we are not the ones who are responsible for the exchange and that saves resources. The only thing we do is matchmaking, anything else happens outside the platform.

Q: What are some of your challenges?

A: Yeah, now coming to the disadvantages of a platform. It's super difficult in the beginning to gain traction, which is the most important thing when approaching VCs. What we are currently doing is, we perform marketing experiments and testing to see which channels work best for us. We are also looking at competitors and try different strategies. In Germany, currently there is no direct competitor, that makes us unique and gives us flexibility to try things. But we quickly discovered that it makes sense to push the supply side first. So currently, we run a large-scale cold calling campaign to attract small shop owners in Berlin in Munich and increase the supply side. Then afterwards, we target the demand side. Signing up on the platform and uploading products is basically a no brainer. So you can just upload it for free, you don't pay anything for it. Somebody rents it, you make some money. You don't lose anything, right? Our long-term vision is to create a full rental ecosystem in an app. For example, you walk through Berlin, and you realize you need something urgently. And then you check out our app and see, okay, two blocks down the road, someone can rent it to me. So it's immediate exchange of products. [...]

Q: Can you think of any other issues you experienced as an entrepreneur running a platform business?

A: To be honest, ensuring safety on our platform is currently the biggest issue for us. So, do we run an ID check of users? Do we offer insurance? And that's the most important thing, you know, people need to trust. If you rent something out to a stranger, you want it back afterwards. So what happens if anything gets lost? Is that your problem? Or does that responsibility lie with us? Normally, you can say it's their problem. But of course, that's not a great user experience. So what the competitors are doing is, they partner with insurance companies. We currently offer our own rental insurance, which means we cover ourselves in the beginning. As soon as we generate more tractions, we will try to partner with insurance companies as well.

END OF INTERVIEW

Transcript 2

Participant: Andreas Scheffner

Interviewer and Transcriber: Julia Grassow

Date: November 2021

BEGINNING OF INTERVIEW

Q: What's the story behind Rentya, and how does it work?

A: To go back to the roots and how it started, I would separate it in two parts, let's say an opportunity which we saw and responsibility, which we think we all have to take, especially our generation. Let's start first with the responsibility: We believe the generations who live now, we produce so much waste, and we are the first ones who actually realize how much waste that is and what sustainability damages we create in the future. And we can measure them. So I believe that our generation has a responsibility to at least contribute something to the space of sustainability. We've thought about ideas how to do that, we wanted to take on some responsibility, each of us, and I think with Rentya, with the platform we maximize the usage of different articles, we actually contribute something to that because we promote less production and less CO2 emissions. And by that, we minimize our CO2 carbon footprint.

And then of course, we are not only angels who want to save the world, we also think of the economical part. We saw an opportunity in the market where we said, okay, of course, we want to take on responsibility, but it has to be profitable for us to have an incentive. We saw an opportunity in the German market as we don't yet have the centralized, peer to peer renting platform for any kind of item. And yeah, that's how we developed this idea, that's how it was created. What the platform does, basically, we have on the one side owners who own different items, which may be expensive or they don't use it all the time, for example, a GoPro, and we have also a lot of people who may only need it for a short time, but they don't have the financial resources or they don't want to buy it, they want to test it, for example. We basically brought these two needs together on a platform so both sides can meet. It's a marketplace for rental items.

Q: How do you monetize Rentya?

A: We have two revenue streams. One is commission-based, more focused on individuals. So private individuals and peers who are renting to other peers. This means, if you insert a camera for rent for 10 EUR per day, and the person rents it for five days, it's 50 EUR that someone has to pay to you, but you won't receive the full 50 EUR, you will only receive the sum minus 20% commission, which will go to us in this case. So the owner will only get 40 EUR, we will get 10 EUR. And this is one of our revenue streams. And then we have also integrated in our business plan to tap into the B2C market, which means there we will apply a subscription model. To explain, that will be for small-sized businesses so they can rent their stuff to other people. And for them, of course, they can make a lot of money with that. So we additionally add a subscription fee per month, additionally to the 20% commission. And these are our two revenue streams, which we will try to monetize our effort with.

Q: How does Rentya create and deliver value?

A: When we were creating the company, you always think, what is our value, because I believe that in the long term, companies only survive if they add true value, not only in terms of money, but they add value to our society. So I believe that this added value cannot only be achieved by producing new items. I think also by making usage of items more efficiently, you can also create value. Take an easy example, if you produce a drill, it's supposed to live, to work 2000 hours, you know, but what is the average use period of a drill? It's 11 minutes. So that's how I think, even though we don't produce something new, I still think that renting can be to some extent, the future of commerce. Of course, we will always need certain new items in order to be able to rent something so if we don't produce anything, and we start renting everything out, nothing new will be created. But as you can see already in Airbnb, for example, of course, we still build new houses, and we still need new apartments and everything, but we will make them more efficient and we create value, by using them longer. So yeah, I think renting is likely increasing in the future, but it won't ever fully replace the usual nature of commerce.

[...]

Q: You mentioned this notion of responsibility, what we also know as triple bottom line. How do you account for social or environmental impact, besides measuring your economic performance?

A: To be honest, we didn't think about a measure to do that yet. Because we're also at a very early stage and have a lot of other problems to face. You can plan a lot, you know, how you measure whatever, but if you don't generate any customers and no traction, in the end, that won't work. But I think that's a very valid point, which

each startup who has a sustainability aspect to its identity has to consider, because if you don't measure anything, you basically can't tell, how much are you really contributing? Or are you even contributing? Are you CO2 neutral? Or are you maybe even creating more damage than you think, and you still promote everywhere that you're doing better or whatever. So I think we will have to start monitoring it in order to gain transparency and get better at it and to say, okay, where do we save emissions? Or where we can improve even more, if we want to be true to the sustainability identity.

[...]

Q: What in your opinion are the key drivers behind the sustainability transition?

A: I can tell you that I'm not only doing it to serve consumers, who asked for it, so we *have to* do it. And I hope that most of the companies who are doing it are also not only doing it for their customers, but because they truly understand that it's not a problem that we face in terms of economic pressure from the society. It's a problem which we will all face eventually. If everybody wouldn't care about the society, about the environment - it's not that they will only lose customers, it's also that they will face so many problems in a few decades that the company may not survive. And not only the company, but also their children and society. So I hope, or I believe that it's not just a challenge for companies in terms of keeping customers. I also hope sustainability will not be monetized too much. And not approached too capitalistic, let's say. Because in the end, it's something we do for ourselves, too. I can act as a better person, and people will like me more. No, I should think that's the right thing to do. Because I want to think for my children, for next generations. I think that's the biggest needed change of mind, which we will have to face in our generation. To always think capitalistic will not solve the problem, I think. We need more than that.

Q: How do you make your users more sustainable?

A: It's by extending usage of products. With each purchase not made, users save carbon emissions and resources.

Q: Is there a tension between economic and ecological motivation when joining your platform?

A: Well, whenever there's an opportunity to make money, somebody will make use of it. So of course, it's not our true intent to bring on people who only see monetary value in our platform. Because they may, of course, buy things to rent out which they would have otherwise never owned, simply to make money. But if you think about the whole chain, if there is the demand for a certain product, other people would have maybe bought it anyway, you know. So if one person buys it to make money from rental, and indeed, rents it out the whole time to other people, of course, he or she had to buy it in the first place but also creates value for these other people who actually rented it and saved resources. And we are not trying to say we can't produce anymore; we just say we should produce just as much as people need. And in between, you have no other choice than just using products the most efficient way that it is possible. And that's what our marketplace contributes to. And even if some users try to make economical profit out of that, eventually, they don't harm the environment, but they maximize value for other people by making their respective usage of products more efficient.

Q: What makes a platform so attractive?

A: I would say platforms are more or less a mega trend by their own right. It's the digitalization topic. It's just a fact that basically platforms are the thing that's taken off from globalization and digitalization, right? And

what is the biggest advantage there - you reach people in real life, like you have no time and location barrier, it's a different dimension for time and location, you know, you have real-time information with people everywhere all over the world. And these are the two main characteristics of platforms which make them operationally way more efficient, that is being time and location independent. And nowadays you can say, everything moves faster, people try to be more efficient, they try to have everything. So by bringing platforms, to the mix, you cater to those needs. For example, I want a camera and I want to pick it up in say, 300 kilometers away because I'm going there for vacation. You go on the platform, and you can check, hey, is there something available for rent in that location? And if yes, you can even make a contract and say, okay, tomorrow, I'm going to pick it up at nine o'clock. And I'm going to have this fun. So I think, using platforms may likely always be the future option and accelerate whatever trend there is, not only sustainability.

Q: What are some of the key challenges you experienced in setting up your platform?

A: Okay, so, first of all, I think there is no golden strategy. I guess you also know, the biggest problem of each platform is, how do you start? In general, we try to think as a customer, for example, pick one persona, which you think could be representative of who you try to approach, your target group. And we said we first want to focus on the supply side. Our biggest fear we try to avoid was to bring customers on the website, by investing a lot already in marketing, and then they come there, and they see maybe 10 available items. And well, if they see 10 items, and 7 of them are not even in their city, they'll forget about us forever or even share a bad reputation about their experience, which will make us lose not just one potential customer in the future. So we try to solve this chicken-egg problem by saying, okay, we build up the supply side first, by approaching peers to rent things, and also approaching small shops. We set ourselves a certain limit of how many products we want to have, for example, before we start this or that marketing campaign in this city. So if you have, for example, 200 products in this city, or in this area, we can invest our first 500 EUR on SEA to reach the demand side. And we just started with some marketing experiments to see how to approach each side best. And meanwhile, you also do content marketing through our blog. And of course, you have to measure performance and traction weekly.

Q: Where do you see the company and yourself in 5 to 10 years' time?

A: We aim to build up in three stages: First, we want to become the peer-to-peer market or renting market leader in Germany within the next three years. With this B2C traction, we then want to expand to Switzerland and Austria because we think it's a suitable neighborhood market where they have very similar cultural and local circumstances, which will give us confidence for expansion. And after that, in the next five or six years, we want to expand to the key markets in Europe in which we want to disrupt the European sharing economy market and promote more sustainability. So to put it in one sentence, we want to build up our business, become market leader economically to change the sustainability behavior of people in whole Europe. That's the big, big vision and our core mission of course.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
IX	know your stuff	Verena Keller	Founder & MD Sales, Marketing and Product

Description	PaaS for sustainable fashion (B2B)
Website	knowyourstuff.de
Industry	Fashion, Supply Chain
Founded	2020
Employees	1-10
Location	Nuremberg, Germany
Company Stage	Early-Stage

Transcript
Interviewer and Transcriber: Julia Grassow Date: 7 December 2021
BEGINNING OF INTERVIEW Q: What is ‘know your stuff’, and how does it work? A: ‘know your stuff’ is a digital platform that boosts transparency in the textile world, it unpacks the black box of textile manufacturing, which is our philosophy. And concretely, this means that manufacturers along the full textile supply chain can upload their profiles on the platform, including pictures of their working conditions and record themselves, the certificates they earned and a description of the company, and if they follow particular standards, and so on. The platform automatically combines manufacturers to certain products once the brand attaches the two. So the brand defines the different layers below their products. And then the platform generates a QR code that can be downloaded by the brand to be integrated into their marketing materials. Or alternatively, they can also order tags from ‘know your stuff’ directly with the original QR code on it. The QR code then is attached to the clothes in the stores or made accessible online in online stores. And consumers can then easily access the full journey of their clothes with only one skim, they don't need to download an app or need to do any registration process, they can simply access the full journey of their clothes at one glance. So for manufacturers and brands, ‘know your stuff’ is as intuitive to use as a social media platform because they can get their log in data, then they can upload their profile. That's it. And for the consumer, it's also super easy to access this data. And we believe that this is a first but very important step for more sustainability within the fashion industry since transparency is key for genuine sustainable efforts. Q: How do you monetize that business model? A: The monetization strategy is that brands pay a yearly fee, depending on the numbers of clothes they want to trace, and a minor fee comes from manufacturers. Because for them, it's also great possibility to expose yourself to the market and become more visible. The end user, the consumer, does not pay anything.

Q: What does sustainability mean to you, and how does your platform add value in context with sustainability?

A: Sustainability is a triangle for us. So it's a claim of ecological aspects, social aspects, but also economic aspects. And this is quite critical. I'm 100% convinced that in the past decades, it was essential for companies to make money more than they committed to social or ecological sustainability. In future business, success will be based on all three aspects. So only making money won't be enough to create a substantial growth, and to persist in the future, to remain competitive in the future. Every company needs to address all three aspects, also ecological and social ones.

How 'know your stuff' helps to drive sustainability in the market among different players - we believe that it's kind of a domino effect, that if you push transparency and find these companies, which are open to show their suppliers, show manufacturing conditions, to tell the story behind their product openly and honestly, this will generate action, also for other brands, to do so. And also to create an incentive for improvement in supply chain management and say, hey, we've had these discussions, we are not too sure about our supply chain until the very final stage, but we want to be, we want to use this chance, we want to use 'know your stuff', for example, and therefore, talk to our suppliers, check the standards and improve them, as this is needed before we make them visible. So making something visible automatically increases the motivation to make it better.

Q: What are some of the challenges in a traditional linear fast-fashion industry? And how can a platform solve them?

A: In a linear model, the incentives are simply improving margin. So what you need to do in order to increase margins, either raise prices, which is usually no option because consumers don't embrace it or cut costs. The cost of labor in the textile industry is enormous, so here is where many companies cut costs. So, as long as consumers and governments only consider profits, you're practically allowed to do whatever you want. Global supply chains have different levels of regulations, which are usually way less than we have in Western European, or Western society. So this is the most important criteria from my point of view, the wrong incentive setting on profit.

How to improve that: On the one hand, it's the responsibility of all of us, to ask for sustainability really actively. Again, sustainability means socially, but also ecologically fairly produced goods. And the second aspect will be governmental regulations. And I think this is critical and this is what I am absolutely convinced is going to happen soon. We have strong tendencies in politics at the moment that brands will be held responsible for their global supply chains. So it's no longer acceptable to say, I have a nice headquarter here in Germany, I treat my employees very well. And I don't really know about who's manufacturing my products because it's outside my country. It's not my company, it's outside. So this responsibility will be demanded both from consumers, but also from the government and authorities. Now this is closing the loop to what I said before, that getting prepared and set up to address these challenges and regulations in the future will guarantee and ensure your competitiveness because making money alone is no longer sufficient.

Q: What are the challenges you experience as a platform entrepreneur?

A: Number one is that people are still scared of digitalization. And we really put a lot of effort in making our digital platform as simple to use as we can. Still, especially manufacturers only see extra work in changing a running system. Number two is that, still, quite a high number of brands are hesitant to disclose their manufacturers out of fear to give away competitive advantage. We found that this is related to the age group of decision-makers. Younger people, they were very open to it and talking to the board, they are kind of putting a stop sign here. Number three is the argument where people say okay, but you still are not able to guarantee that the information provided is 100% true. So integrity of information. And I like to compare it to a company's website, you also don't know if what's on there is true. So again, this is missing trust in a new technology, or platform technology. These are the three most important challenges we face.

Q: What are the typical company sizes that you usually attract as customers?

A: We found that cooperates, larger companies are very hesitant. They are no pioneers. Then super small startups usually don't have the capacity. So we had very good successes with smaller to midsized companies (SME) And it's also quite critical that the owner is still the decision-maker. So you can talk to them directly because they really have, in my experience, the visions and clear approaches.

Q: What would you recommend to founders, particularly platform entrepreneurs?

A: I absolutely believe that the future will be platform business models. [...] Lots of successful platforms come from the US. They use different approaches and mechanics to do business and run platforms. And this is something that I would really recommend, to look at best practice examples at scale and really understand how they work and what you need to do to make it work and what are the obstacles for platforms and so on. So that's on a more theoretical level. Also, to really make it grow and take off, you must learn from data. Learn how to talk to your customers and understand their needs, and reduce obstacles, because sometimes the big mission is absolutely correct, everybody confirms. And then your platform might be a bit too complicated, and it's all gone. So you really need to make access and user experience super easy. And be aware, keep in mind that profit will only be generated, I think, on average after about eight years for platform business models. So it's a long way to go. Most importantly, besides making profit, think about how you add value socially and environmentally.

Q: What is your vision for the future of platforms?

A: I think it can be compared to the Internet itself. Because platforms bring people together and are designed for particular needs. What platforms will contribute to is, number one, they will increase the efficiency of markets. Number two, increase the efficiency of information exchange and therefore, contribute to the triangle of sustainability. I mean, if you have for example, Uber as a quite classical platform example, you have increased the efficiency of mobility and therefore increased the market itself - so the economic efficiencies are given. When we think about platforms such as 'know your stuff', we increase transparency and access. More and more manufacturers will increase their standards in terms of social and ecological aspects. So, increasing efficiency in all those various aspects will be the key to the future of any business models, not just platforms.

END OF INTERVIEW



Interview	Company	Interview Partner	Role
X	GoParity	Inês Branco Lopes	Community and Partnerships Manager

Description	Impact investment platform
Website	goparity.com
Industry	Impact Investing, Crowdlending, Sustainable Banking
Founded	2017
Employees	11-50
Location	Lisbon, Portugal
Company Stage	Pre-Seed

Transcript
Interviewer and Transcriber: Julia Grassow Date: 24 November 2021
BEGINNING OF INTERVIEW Q: What is GoParity, and how does it work? A: GoParity, technically, is a crowdlending platform. What we do is we match on one side an investor that can either be a person from 18 years old onwards, that is, by law authorized to have ownership of their own money, or a company. On the other side, we have the entity of the promoter. This name is given to companies that are taking a loan through us, and that have-to-have specific requirements to be accepted by us to receive this loan. GoParity is in between these two entities and creates the legal bridge for a transaction and due diligence. In terms of numbers, on the investor side, the minimum to invest is five euros, so no one has a barrier to enter. The idea is to democratize this world of investment, we want that everyone can actually capitalize on their monetary resources. On the promoter side, we usually do tickets between 50,000 to 100,000 euros at a time. On the promoter side, regarding the filters that I already mentioned, we only accept companies that have projects in mind for social or environmental good. So we have the system of due diligence, specifically a triple due diligence, because we're assessing social and ecological impact, and we're assessing financial health at the moment, and also their future prosperity. If the company is able to pass those three screenings, then we can accept and launch their campaign. Today, we have already more than 16,000 people and companies registered in the platform (active users), and almost 10 million euros were funded through us. Q: What are sustainability metrics you measure success by? A: In terms of impact metrics, which are really important for us, we usually look at five metrics: One, the most important one, is the amount of CO2 we're avoiding into the atmosphere in tons per year. And this we can calculate through specific projects that we have in our platform, for example renewable energy production, reforestation. Another one we track is number of jobs generated, and people positively impacted. We are also

counting mega kilo watts of clean energy produced, hectares of biodiversity protected, and women in leadership positions. So if we're giving a loan to a company, and this project is run by a woman, we account for that.

Q: In terms of sustainability, where do you create impact?

A: That's a really interesting question, because sustainability is super like the superpower word that everyone is using. But it's in a good and a bad way. It can be interpreted in different ways. I can already say upfront that we're not fundamentalists, it's not the way that we want to work, where we're trying to push the people that are indifferent to crisis, into thinking about it at least, and to build a superpower group where with the ones that are actually caring and know already a lot to help us to bring these guys that are not into that subject to it. And when we think about sustainability, it's about three pillars, which are social, economic, and environmental. So these are really the ones that were important for us to approach it holistically. The economical is basically our business model, because we want people to spend their money in a good way and to be able to monetize impact. In Portugal, and in the Iberian area, it's not so common to think of money as a way of helping the environment. We normally associate it with volunteering activities or non-remunerated work, which is also very important, but we have seen in the earlier days that specifically Nordic Europe has put a lot of power into the citizen itself, to bring them to spend their money wisely. And it's super important because it's with money that we can actually change a lot. Unfortunately, but we're in a capitalist society. So that's how we work.

And regarding the SDGs, well, in the early days we were really focused on energy, specifically solar energy. And all of our projects were within this sector, because the two co-founders are environmental engineers, and focused on solar energy. So that was where our expertise was. At one point, we decided to have an SDG - focused loan meaning and so every time a company goes into our website and wishes to apply for a loan, they immediately have to say, which are the SDGs that they're focused on through the project that they want to fund. And obviously, we double check that. But we don't have specific ones that we are targeting more than others. In total, we are looking at five main areas: Green and water economy projects, sustainable energy projects, sustainable use of land (reforestation, or regenerative agriculture), and social economy. And businesses in transition are a really exciting category, because we like to say they are the second-chances category, when they were actually not doing the best, they could in terms of sustainability, and are now trying to change their work.

Q: How do you monetize GoParity?

A: Yeah. Okay, so for the investor, we do not charge anything, we don't charge maintenance costs, we don't charge an opening-the-account cost, we really want to make it as smooth as possible. So the way that we earn money is through the promoter. We charge four fees which are aligned with the way things work in a traditional banking system. They're comprised by success fee, ongoing fee, so ongoing fees throughout the whole loan period could be five years or six months. It depends, maintenance costs, and also the marketing costs of building the campaign, a setup fee, which are all of the campaign around and all of the story that we tell our communities built by us, so that's like free marketing for them, basically. And it's already like a really good exposure to at least 16,000 people that go through it.

Q: What are drivers of sustainability?

A: I think there's two approaches: One more pessimistic and one optimistic approach. I think everyone has different agendas. But I would say: Consumers. There is a slice of the population that is a bit younger, I would say 40 and younger, living in cosmopolitan cities. And they care about where the products are coming from, and how you treat stakeholders, why did you choose them... There's a lot of questions coming, and it makes sense, because if you're buying it, you should be able to know. So one of the driving forces, of course, comes from the consumer. And specifically, from this type of sustainability aware consumer, I would say. The second one is law. Well, it depends on the country, I would say Portugal is actually one of the European countries that is taking some strict environmental measures and that's really driving the transition forward. Local municipalities have a lot of power in this. And then the third one is the one that I was thinking is not so positive. It's basically the fear of missing out. Companies that would actually not care much about sustainability but are pressured to do it since they see that the competitor is moving forward and having a better reputation. They think, okay, if I don't move, I would be left behind. I would say that's borderline greenwashing. And we see it a lot in the applications for loans. Of course, we cannot discriminate based on feeling. But sometimes it really gives you a bad aftertaste.

Q: You mentioned you want to create a holistic impact for all types of customers, including the ones that are not yet sustainably involved. How do you do that? How do you reach those?

A: One strategy that helps is, not to maintain inside that sustainability aware groups, but really take a seat on a table that you actually don't identify with, that's an important step. Address the ones that do not want to hear you and try to understand them. Try to build partnerships with not so obvious companies. And step outside of our comfort zone, I would say. And also, there's two motivations why people join our platform. One of them is the impact one, as we mentioned already, but the other one is the financial motivation. So we have users that join us because they expect financial return, which is totally fair! It's actually one of our selling points, that's the way that we're trying to bait them into the green world. Sustainability and financial growth are not mutually exclusive! It can pay off.

Q: What is your biggest challenge?

A: Currently, we are missing an incentive scheme around green investments, which doesn't exist in Portugal. It exists outside, in Nordic Europe, for example. It could help us and the companies that we're trying to fund to receive even more investment, for example in form of a tax reduction in their IRS if they invest in sustainable projects. Government interventions could be a good driver of change.

There's also a lot of bureaucracy we need to comply with and administrative entry barriers, for example when we ever wanted to convert into an ethical bank or fintech. At the moment, we're not a bank. We have to record to a payment service provider that is a bank to be able to have the transactional processes into our platform. That's costly and more work. And sadly, the bureaucratic boundaries take away the creativity, flexibility, and agility as a young startup that we are to move things forward quickly and reinvent ourselves.

END OF INTERVIEW

Bibliography

- Acquier, A., T. Daudigeos, and J. Pinkse. 2017. "Promises and paradoxes of the sharing economy: an organizing framework." *Technol. Forecast. Soc. Change* 125: 1-10.
- Amazon. 2021. *blog.AboutAmazon*. August 4. Accessed December 9, 2021. <https://blog.aboutamazon.co.uk/sustainability/amazons-new-programmes-give-returned-and-unsold-inventory-new-life>.
- Baldwin, Carliss Y., and C. Jason Woodard. 2009. "The architecture of platforms: A unified view." In *Platforms, markets and innovation*, by Annabelle Gawer, 19-44. Cheltenham: Edward Elgar Publishing.
- Barni, Andrea, Elias Montini, Silvia Menato, Marzio Sorlini, Victor Anaya, and Raul Poler. 2018. "Integrating agent based simulation in the design of multi-sided platform business model: a methodological approach." *2018 IEEE International Conference on Engineering, Technology and Innovation*. Manno, Switzerland.
- Basiago, Andrew D. 1995. "Methods of defining 'sustainability'." *Sustainable Development* 3 (3): 109-119.
- Batles-de-laFuente, Ana, Luis J. Belmonte-Ureña, José A. Plaza-Úbeda, and Emilio Abad-Segura. 2021. "Sustainable Business Model in the Product-Service System: Analysis of Global Research and Associated EU Legislation." *International Journal of Environmental Research and Public Health* 18 (19).
- Bento, Francisco. 2021. Interview by Julia Grassow Transcript: Lisbon, November 25.
- Berndt, Andrea E. 2020. "Sampling Methods." *Journal of Human Lactation* 36 (2): 224-226.
- BlaBlaCar. 2021. *BlaBlaCar.com*. Accessed 12 9, 2021. <https://blog.blablacar.com/about-us>.
- BlackRock. 2021. *Larry Fink's 2021 letter to CEOs*. Accessed November 20, 2021. <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.
- BMU Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. 2020. *Chancen und Risiken der Digitalisierung*. Accessed 12 10, 2021. <https://www.bmu.de/themen/nachhaltigkeit-digitalisierung/digitalisierung/chancen-und-risiken-der-digitalisierung>.
- Bocken, N.M.P., S.W. Short, P. Rana, and S. Evans. 2014. "A literature and practice review to develop sustainable business modelarchetypes." *Journal of Cleaner Production* 65: 42-56.
- Braun, René. 2021. Interview by Julia Grassow. Transcript: Lisbon, November 22.

- Casilli, Antonio A., and Julian Posada. 2019. *The Platformization of Labor and Society*. Vol. 2nd Edition, in *Society and the Internet: How Networks of Information and Communication are Changing Our Lives*, by Mark Graham and William H. Dutton. Oxford: Oxford University Press.
- Chan, Daisy, Freek Voortman, and Sarah Rogers. 2018. "The rise of the platform economy." *The rise of the platform economy*. Deloitte, December.
- Clark, W. Creswell and V.L. Plano. 2007. *Designing and conducting mixed methods research*. Thousand Oaks, Calif: SAGE Publications.
- Collins, K.M.T, A.J. Onwuegbuzie, and I.L. Sutton. 2006. "A model incorporating the rationale and purpose for conducting mixed-methods research in special education and beyond." *Learning Disabilities: A Contemporary Journal* 67-100.
- Coppola, Dr. Michela, Dr. Julian Blohmke, and Thomas Krick. 2019. *Feeling the heat? Companies are under pressure on climate change and need to do more*. Deloitte Insights. Accessed November 2021.
<https://www2.deloitte.com/us/en/insights/topics/strategy/impact-and-opportunities-of-climate-change-on-business.html>.
- Crayen, Max, Marc Hümmer, and Desiree Wings. 2020. *The Business Model Playbook - How to align business models with platforms*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).
- Crowe, Sarah, Kathrin Cresswell, Ann Robertson, Guro Huby, Anthony Avery, and Aziz Sheikh. 2011. "The case study approach." *BMC Medical Research Methodology* 11.
- Cusumano, Michael A., Annabelle Gawer, and David B. Yoffie. 2019. *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*. HarperCollins.
- Cusumano, Michael A., David B. Yoffie, and Annabelle Gawer. 2020. *The Future of Platforms*. MIT Sloan Management Review. Accessed 12 4, 2021.
<https://sloanreview.mit.edu/article/the-future-of-platforms/>.
- D'Amato, D., and J. Korhonen. 2021. "Integrating the green economy, circular economy and bioeconomy in a strategic sustainability framework." *Ecological Economics* 188.
- Deloitte. 2021. "Shifting sands: Are consumers still embracing sustainability? Changes and key findings in sustainability and consumer behaviour in 2021." March 8th.
- Denscombe, M. 2008. "Communities of practice: A research paradigm for the mixed methods approach." *Journal of Mixed Methods Research* 270-283.
- DeWalt, K.M., and B.R. DeWalt. 2002. *Participant Observation: A Guide for Fieldworkers*. Second Edition vols. Oxford: AltaMira Press.
- Grassow, J. & Rosenkranz, L. (2021): Platformization and Sustainability – Potential and Challenges of Platform Business Models for Consumers and Entrepreneurs (Nova School of Business and Economics)

- Dreyer, B., F. Lüdeke-Freund, R. Hamann, and K. Faccar. 2017. "Upsides and downsides of the sharing economy: collaborative consumption business models' stakeholder value impacts and their relationship to context." *Technol. Forecast. Soc. Change* 125: 87-104.
- Elkington, John. 2018. "25 Years Ago I Coined the Phrase “Triple Bottom Line.” Here’s Why It’s Time to Rethink It." Accessed 12 3, 2021.
https://edisciplinas.usp.br/pluginfile.php/4898833/mod_resource/content/1/25%20Years%20Ago%20I%20Coined%20the%20Phrase%20%E2%80%9CTriple%20Bottom%20Line.%E2%80%9D%20Here%E2%80%99s%20Why%20It%E2%80%99s%20Time%20to%20Rethink%20It_.pdf.
- Engelhardt, Sebastian von, Leo Wangler, and Steffen Wischmann. 2017. *Characteristics and success factors of digital platforms*. Study, Scientific assistance for AUTONOMICS for Industry 4.0.
- Fortune Business Insights. 2021. *Green Technology and Sustainability Market to Hit USD 41.62 Billion by 2028; Increasing Investment to Promote Sustainable Energy Worldwide to Augment Growth: Fortune Business Insights*. Accessed December 4, 2021. <https://www.globenewswire.com/en/news-release/2021/07/28/2270030/0/en/Green-Technology-and-Sustainability-Market-to-Hit-USD-41-62-Billion-by-2028-Increasing-Investment-to-Promote-Sustainable-Energy-Worldwide-to-Augment-Growth-Fortune-Business-Insight.html>.
- Frenken, K., and J. Schor. 2017. "Putting the sharing economy into perspective." *Environ. Innov. Soc. Trans.* 23: 3-10.
- Gawer, Annabelle. 2021. "Digital platforms’ boundaries: The interplay of firm scope, platform sides, and digital interfaces Author links open overlay panel." *Long Range Planning* 1-16.
- Gawer, Annabelle, and Michael A. Cusumano. 2014. "Industry Platforms and Ecosystem innovation." *Journal of Product Innovation Management* 417-433.
- Ghazawneh, Ahmad, and Ola Henfridsson. 2012. "Balancing Platform control and external contribution in third-party development: the boundary resources model." *Information Systems Journal* 173-192.
- Gibson, Kate. 2019. *CBS News*. May 14. Accessed December 9, 2021.
<https://www.cbsnews.com/news/amazon-warehouses-trash-millions-of-unsold-products-say-media-reports/>.
- GlobeScan. 2021. *healthy & sustainable living - a global consumer insights project*. Survey , GlobeScan Incorporated.

- Hagel, John, John Seely Brown, Maggie Wooll, and Andrew de Maar. 2016. *Turn products into product platforms Providing a foundation for others to build upon*. January. Accessed 10 08, 2021. <https://www2.deloitte.com/us/en/insights/focus/disruptive-strategy-patterns-case-studies/disruptive-strategy-product-platforms.html/#endnote-sup-1>.
- Hamouda, Mahmoud. 2020. *Platforms and Demand-side Economies of scale*. Accessed December 7, 2021. <https://www.linkedin.com/pulse/platforms-demand-side-economies-scale-mahmoud-hamouda/>.
- Henten, Anders Hansen, and Iwona Maria Windekilde. 2016. "Transaction costs and the sharing economy." *info* 18 (1): 1-15.
- Hoffmann, Marina, Christian Schröder, and Philipp Pasing. 2021. *DIGITALE B2B-PLATTFORMEN Status quo und Perspektiven der Industrie in Deutschland*. Friedrich-Ebert-Stiftung, WISO DISKURS, 6-7.
- Hottenhuis, Stephanie, Frans Blom, Roland Boekhout, David Knibbe, Derk Lemstra, Rob Miesen, and Peter Zijlema. 2018. "Unlocking the value of the platform economy." Research Paper.
- IPCC. 2021. *The Intergovernmental Panel on Climate Change*. Accessed November 9, 2021. <https://www.ipcc.ch/>.
- Köhler, Julia. 2021. Interview by Julia Grassow. Transcript: Lisbon, December 8.
- Keller, Verena. 2021. Interview by Julia Grassow. Transcript: Lisbon, December 7.
- Kelly, Eamonn. 2016. "Business ecosystems come of age." *Deloitte University Press*. Accessed November 2021. https://www2.deloitte.com/content/dam/insights/us/articles/platform-strategy-new-level-business-trends/DUP_1048-Business-ecosystems-come-of-age_MASTER_FINAL.pdf.
- Khavarian-Garmsir, A.R., A. Sharifi, and M. Hajian Hossein Abadi. 2021. "The Social, Economic, and Environmental Impacts of Ridesourcing Services: A Literature Review." *Future Transp.* (1): 268-289.
- Kim, Junic. 2016. "The platform business model and business ecosystem: quality management and revenue structures." *European Planning Studies* 1-20.
- Kolk, Ans, and Francesca Ciulli. 2020. "The potential of sustainability-oriented digital platform multinationals: A comment on the transitions research agenda." *Environmental Innovation and Societal Transitions* (Elsevier B.V.) (34): 355-358.
- Kollmann, Prof. Dr. Tobias, Lucas Kleine-Stegemann, Christina Then-Bergh, Michael Harr, Dr. Alexander Hirschfeld, Jannis Gilde, and Vanusch Walk. 2021. *Deutscher Startup*
- Grassow, J. & Rosenkranz, L. (2021): Platformization and Sustainability – Potential and Challenges of Platform Business Models for Consumers and Entrepreneurs (Nova School of Business and Economics)

- Monitor 2021*. Bundesverband Deutsche Startups e.V., Berlin: PricewaterhouseCoopers.
- Koskinen, Kari, Carla Bonina, and Ben Eaton. 2020. *Digital Platforms in the Global South: Foundations and Research Agenda*. London, April 30.
- KPMG. 2021. *COP26 reflections: Implications for businesses*. Accessed December 1, 2021. <https://home.kpmg/xx/en/home/insights/2020/06/kpmg-impact/cop26-reflections-implications-for-business.html>.
- Kreibich, Dan. 2021. Interview by Julia Grassow. Transcript: Lisbon, November 19.
- Lawson, Stephanie J., Mark R. Gleim, and Michael D. Hartline. 2021. "Decisions, decisions: variations in decision-making for access-based consumption." *Journal of Marketing Theory and Practice* 29 (3): 358-374.
- Lopes, Inês Branco. 2021. Interview by Julia Grassow. Transcript: Lisbon, November 24.
- Mack, Oliver, and Peter Veil. 2017. *Platform Business Models and Internet of Things as Complementary Concepts for Digital Disruption*. Springer, Cham.
- Martin, C.J. 2016. "The sharing economy: a pathway to sustainability or a nightmarish form of neoliberal capitalism?" *Ecol. Econ.* 121: 149-159.
- Mi, Zhifu., and D'Maris Coffman. 2019. "The sharing economy promotes sustainable societies." *Nature Communications* 10 (1214).
- Miguel, Antonio. 2021. Interview by Julia Grassow. Transcript: Lisbon, December 4.
- Miller, Kelsey. 2020. *THE TRIPLE BOTTOM LINE: WHAT IT IS & WHY IT'S IMPORTANT*. Accessed November 23, 2021. <https://online.hbs.edu/blog/post/what-is-the-triple-bottom-line#:~:text=The%20triple%20bottom%20line%20is,%3A%20profit%2C%20people%2C%20and%20the>.
- Moran, Daniel, Richard Wood, Edgar Hertwich, Kim Mattson, Joao F. D. Rodriguez, Karin Schanes, and John Barrett. 2018. "Quantifying the potential for consumer-oriented policy to reduce European and foreign carbon emissions." *Climate Policy* (Informa UK Limited) 28-35.
- Nambisan, Satish, Donald Siegel, and Martin Kenney. 2018. "On open innovation, platforms and entrepreneurship." *Strategic Entrepreneurship Journal* 356.
- OECD. 2021. *The role of online platforms in weathering the COVID-19 shock*. Accessed November 2021. <https://www.oecd.org/coronavirus/policy-responses/the-role-of-online-platforms-in-weathering-the-covid-19-shock-2a3b8434/>.

2018. *What is green growth and how can it help deliver sustainable development?* Accessed December 6, 2021.
<https://www.oecd.org/greengrowth/whatisgreengrowthandhowcanithelpdeliversustainabledevelopment.htm>.
- Plewnia, Frederik, and Edeltraud Guenther. 2018. "Mapping the sharing economy for sustainability research." *Management Decision* 56 (3): 570-583.
- Poell, Thomas, David Nieborg, and José van Dijck. 2019. "Platformisation." *Internet Policy Review* (DOI: 10.14763/2019.4.1425) 8 (4): n/a.
- Porter, Michael E. 1979. "How Competitive Forces Shape Strategy." *Harvard Business Review*, March.
- Purvis, Ben, Yong Mao, and Darren Robinson. 2019. "Three pillars of sustainability: in search of conceptual origins." *Sustainability Science* 14: 681–695.
- Rebolj, B. 2013. "The case study as a type of qualitative research." *Journal of Contemporary Educational Studies* 1: 28-43.
- Rogers, Paul. 2021. "Rented But MINE! Application of Psychological Ownership Theory to Access-Based Consumption and the Circular Economy." *Circular Economy and Sustainability* 719–744.
- Rohn, Daniel, Peter M. Bican, Alexander Brem, Sascha Kraus, and Thomas Clauss. 2021. "Digital platform-based business models – An exploration of critical success factors." *Journal of Engineering and Technology Management* 60.
- Ruggieri, R., Savastano, M., A. Scalingi, D. Bala, and F. D'Ascenzo. 2018. "The impact of Digital Platforms on Business Models: an empirical investigation on innovative start-ups." *Management & Marketing. Challenges for the Knowledge Society* 13 (4): 1210-1225.
- Saggau, Charlott, and Molly Connel. 2021. *Gen Z and millenials - the generational gap in sustainable consumption*. Study, Statista.
- Schaltegger, Stefan, Erik G. Hansen, and Florian Lüdeke-Freund. 2016. "Business Models for Sustainability: Origins, Present Research, and Future Avenues." *Organization & Environment* 29 (1): 3-10.
- Scheffner, Andreas. 2021. Interview by Julia Grassow. Transcript: Lisbon, November 22.
- Seitz, Fabian. 2021. Interview by Julia Grassow. Transcript: Lisbon, December 6.
- Statista. 2021. *The 100 largest companies in the world by market capitalization in 2021*.
<https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market->

capitalization/#:~:text=With%20a%20market%20capitalization%20of,and%20Google's%20parent%20company%20Alphabet.

Stehlin, John, Michael Hodson, and Andrew McMeekin. 2020. "Platform mobilities and the production of urban space: Toward a typology of platformization trajectories." *Environment and Planning A: Economy and Space* 52 (7): 1250-1268.

Stubbs, Wendy, and Chris Cocklin. 2008. "Conceptualizing a "Sustainability Business Model"." *Organization & Environment* 21 (2): 103-127.

Stummer, C., D. Kundisch, and R. Decker. 2018. "Platform Launch Strategies." *Business & Information Systems Engineering* 167-173.

Täuscher, Karl, and Sven M. Laudien. 2018. "Understanding platform business models: A mixed methods study of marketplaces." *European Management Journal* 319-329.

Tashakkori, A., & Teddlie, C. 2003. *Handbook of mixed methods in social & behavioral sciences*. Thousand Oaks, Calif: SAGE Publications.

Thøgersen, John. 2021. "Consumer behavior and climate change: consumers need considerable assistance." *Current Opinion in Behavioral Sciences* 9-14.

Tiwana, Amrit, Benn Konsynski, and Ashley A. Bush. 2010. "Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics." *Information System Research* 675-687.

Trabucchi, Daniel. 2020. "Let's Get a Two-Sided Platform Started: Tactics to Solve the Chicken and Egg Paradox." *Business Ecosystems* 15.

United Nations Brundtland Commission. 1987. *Report of the World Commission on Environment and Development: Our Common Future*. United Nations.

United Nations. 2021a. *COP26 Outcomes*. Accessed December 1, 2021.
<https://ukcop26.org/the-conference/cop26-outcomes/>.

United Nations. 2021b. *Transforming our world: the 2030 Agenda for Sustainable Development*. Accessed November 9, 2021.
<https://www.un.org/sustainabledevelopment/development-agenda/>.

United Nations. 1992. *United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992*. Accessed November 9, 2021.
<https://www.un.org/en/conferences/environment/rio1992>.

Wei, D., E. Cameron, S. Harris, E. Prattico, G. Scheerder, and J. Zhou. 2016. *The Paris Agreement: What it Means for Business*. New York: We Mean Business.

- White, Katherine, Rishad Habib, and David J. Hardisty. 2019. "How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework." *Journal of Marketing* 22-49.
- Yin, R.K. 1984. *Case Study Research: Design and Methods*. Beverly Hills: Calif: Sage Publications.
- Zainal, Zaidah. 2007. "Case study as a research method." *Jurnal Kemanusiaan* 9: 1-6. Accessed December 1, 2021.
http://aditi.du.ac.in/uploads/econtent/CASE_STUDY_AS_A_RESEARCH_METHOD.pdf.
- Zarra, Antonella, Felice Simonelli, Karolien Lenaerts, Man Luo, Sara Baiocco, Shenglin Ben, Wenwei Li, William Echikson, and Zachary Kilhoffer. 2019. *Sustainability in the Age of Platforms*. Centre for European Policy Studies (CEPS); Academy of Internet Finance (AIF).
- Zhu, Feng, and Nathan Furr. 2016. "Product to Platforms: Making the Leap." *Harvard Business Review* 72-78.
- Zwick, Luis. 2021. Interview by Julia Grassow. Transcript: Lisbon, November 22.