The potential of sharing economy business models for sustainable value creation

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DOI: 10.1016/j.jclepro.2020.120004

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Abstract:
While the sharing economy is often linked to the discussion on sustainable development, relatively little research has explored the potential of sharing economy business models to create sustainable value. Based on a review of the prior literature on sharing economy business models and sustainable value creation, in addition to exploring the empirical examples of companies under sharing sphere, this study shows that business model choices do matter; it is not self-evident that sharing economy business models advance sustainability. This study contributes to the current literature by introducing a specified categorization of 13 different sharing economy business models and a conceptual framework to help analyze the sustainable value creation potential of different business models. For managers, this study offers insights into the sustainability potential of different sharing economy business models and highlights the most crucial points to be considered in managerial decision-making.

***Keywords*:** business model; sharing economy; sustainable value creation; framework

1 Introduction

In recent years, the number of sharing economy business models (SEBMs) has increased dramatically and there is a great deal of interest in the potential of these models to create sustainable value, i.e. to reduce the environmental load, increase social well-being, and to provide economic benefits (Acquier et al., 2017; Geissinger et al., 2019; Hamari et al., 2016). SEBMs, for example, allow more efficient and sustainable use of underutilized resources (Muñoz and Cohen, 2017), avoid overconsumption (Seegebarth et al., 2016), change consumer habits (Leisman et al., 2013), and create deeper social connections between people (Schor and Fitzmaurice, 2015). Despite that the sharing economy can be seen as a potential new pathway to sustainability (Heinrichs, 2013), the economic, social and environmental effects of SEBMs are still largely unknown (Frenken and Schor, 2017). Furthermore, in contrast to the fairly common perception, not all SEBMs are truly sustainable (Cherry and Pidgeon, 2018), and the sharing economy is even viewed by some to reinforce the current unsustainable economic paradigm (Martin, 2016).

The sharing economy encompasses various practices, activities and industries and includes numerous organizations with varying types of for-profit and non-profit initiatives (Acquier et al., 2017). In addition to positive value creation (i.e. benefits), both the sharing economy as well as sustainable development are linked to value destruction (Yang et al., 2017), involving paradoxes and tensions leading to negative consequences (Richardson, 2015; Tura et al., 2019). For example, home sharing may increase social cohesion (meeting new people), but the increased availability of accommodation may increase environmental emissions related to the additional travelling. On the other hand, ridesharing is argued to help reduce the environmental load and result in the more efficient use of resources (Kriston et al., 2010). Again, however,

this may also increase the overall amount of travelling. Furthermore, SEBM may also have indirect negative effects. For example, the spread of Airbnb has increased rents in popular neighborhoods (Frenken and Schor, 2017). Although some research has been done to estimate the sustainability impacts of SEBMs, the research into sustainable value creation in this context is in its early stages (Ciulli and Kolk, 2019; Ritter and Schanz, 2019).

This study aims to examine *the sustainable value creation potential of different types of sharing economy business models*. To address this question, the study explores the prior literature on SEBMs and sustainable value creation. Based on the literature, which is further completed by assessing the empirical examples of sharing business companies, the study refines the existing understanding of SEBMs by specifying 13 different types of SEBMs and analyzing their potential for sustainable value creation.

This study has three main implications. First, the study addresses the inadequate understanding of different types of SEBMs by providing more detailed categorization of different models and their potential sustainability impacts. Second, the conceptual framework of sustainable value creation provides grounds for more detailed design and creation of specific measures for the analysis of the sustainability impact of sharing (and other types of) business models. Third, this study helps managers to build an understanding of the sustainability potential of different types of SEBMs, highlighting the main aspects to be considered and thus encouraging companies to pursue increased sustainability and value.

2 Literature background

2.1 Sharing economy business models

The sharing economy seems to be a novel and emerging theme for research, lacking a unified definition. There exist various conceptualizations of the sharing economy ranging from narrow definitions (e.g. Belk, 2014; Frenken and Schor, 2017; Kumar et al., 2018) to broader ones (e.g. Acquier et al., 2017; Habibi et al., 2017; Muñoz and Cohen, 2017). According to the existing literature, sharing practices focus on unlocking the value of unused or underutilized assets (Frenken and Schor, 2017), a collaborative form of consumption (Muñoz and Cohen, 2017) and temporary access instead of ownership (Parente et al., 2018). Furthermore, technology reliance and Internet-based platforms (Mair and Reischauer, 2017) operated by organizations, i.e. service enablers or intermediaries (Kumar et al., 2018), peer-to-peer interactions (Frenken and Schor, 2017) and network effects for growth (Parente et al., 2018) are seen as central characteristics.

In this study, the sharing economy is not just limited to interactions between peers and temporary access (Frenken and Schor, 2017), or true sharing (Belk, 2014), but it is understood as "an umbrella" construct including collaborative consumption (Botsman and Rogers, 2011), the platform economy (Täuscher and Laudien, 2018), access-based consumption (Bardhi and Eckhardt, 2012) and redistribution markets (Martin and Upham, 2016). In this broader meaning, SEBMs cover for-profit and non-profit models (Bardhi and Eckhardt, 2012), peer-to-

peer (P2P), business-to-business (B2B), business-to-consumer (B2C) as well as government-to-consumer transactions (Plewnia and Guenther, 2018), and the sharing of physical goods and service delivery (referred to as the on-demand or gig economy). Shared goods and services cover material (recovery and recycling), products (redistribution), product-service systems, space, money, workforce (time, skills), knowledge, education, data and information (Plewnia and Guenther, 2018). Both modes of exchange, access over and transfer of ownership (Hamari et al., 2016), such as selling second-hand goods or giving away goods, are linked to the sharing economy. Various forms of monetary and non-monetary compensation are used in different transactions, such as traditional payment, renting, bartering, swapping and gift giving (Hamari et al., 2016; Mair and Reischauer, 2017).

To make sense to the various types of SEBMs, some scholars have presented frameworks or typologies of activities in the sharing economy. Acquier et al. (2017) position the sharing economy as resting on access, platform and community-based economies. Heinrichs (2013) (following Botsman and Rogers, 2011) positions product-service systems, redistribution markets and collaborative lifestyles under the sharing economy. Habibi et al. (2017) map SEBMs from pure sharing to pure exchange and apply a sharing-exchange continuum. Muñoz and Cohen (2017) present five ideal types of SEBMs. Further, Bardhi and Eckhardt (2012) categorize access-based models and Constantiou et al. (2017) and Täuscher and Laudien (2018) describe sharing platforms in more detail.

2.2. Sustainable value creation potential of sharing economy business models

Traditionally, value creation is understood through monetary trade-offs, i.e. as a flow from costs to revenue (Eisenmann et al., 2006), customer perceived costs vs. benefits (Ulaga and Eggert, 2006) and quality vs. price (Grewal et al., 1998). However, recently the focus has moved increasingly towards environmental and social value elements (Peltola et al., 2016), expanding the concept of value creation to also cover intangible value elements such as psychological, emotional and cognitive factors and experiences (benefits and sacrifices) of various stakeholder groups (Cronin et al., 2000). Business models are closely linked to the concept of value (Yang et al., 2017) as they traditionally define the rationale of how an organization creates, delivers and captures value (Osterwalder and Pigneur, 2010). From the sustainability perspective, it is a question of more than just the delivery of customer value and the realization of economic value (Yang et al., 2017). Sustainable value refers to economic, social and environmental impacts (Hart et al., 2003; Figge and Hahn, 2004) created by the company and its value network (Yang et al., 2017) and perceived by multiple stakeholders (Stubbs and Cocklin, 2008). Following this, in this study sustainable value creation is understood through economic, environmental and social value creation (Evans et al., 2017). Economic value includes the value (or profits) from assets (product, service etc.), i.e. the realization of the use value (Bowman and Ambrosini, 2000). In terms of business models, this means the creation of customer use value (i.e. the customer perceived benefits such as functionality, convenience, and well-being) or socio-economic welfare, and processes of capturing this value through transactions (economic value such as money paid by customers, or the exchange value such as market access) (Bocken et al., 2014). Environmental value means

the business's impacts on the natural environment and natural capital (Stubbs and Cocklin, 2008). Social value includes elements that society in general or individuals consider valuable, including issues related to well-being and happiness, for example. These are often linked to psychological value elements (den Ouden, 2012). In addition to positive value elements and increased benefits, sustainable value creation also requires consideration and prevention of potential negative impacts (e.g. value conflicts, unintended consequences, tensions and trade-offs) (Tura et al., 2019). In practice, some business models may focus on profit creation, while some focus on increasing the well-being of society (Lankoski and Smith, 2018). However, in order for a business model to be categorized as sustainable, the net value should be positive (Dyllick and Rost, 2017). This means that the business model needs to result in potential economic value creation for the firm (or does not create significant negative economic effects, e.g. for non-profit organizations) and has the potential for the creation of wider net-positive benefits from the environmental and social perspective.

Due to increased challenges related to emissions, limited resources and unsustainable consumption, SEBMs have started to be seen as possible means of sustainable value creation (Ciulli and Kolk, 2019). In addition to economic benefits (Kumar et al., 2018), SEBMs are assumed to create environmental and social value (Heinrichs, 2013). By changing consumer habits towards renting, sharing, swapping or lending idle goods (Leismann et al., 2013), SEBMs maximize the utilization of resources and avoid overconsumption. However, little is known about whether SEBMs actually create environmental and/or social value as some SEBMs are also linked to value reducing elements, negative side-effects, trade-offs, paradoxes and tensions (Acquier et al., 2017; Martin, 2016) affecting the net value (Brennan and Tennant, 2018). For example, broader environmental benefits will not be achieved if people choose car-sharing over walking, bicycling or public transport. Neither does redistribution if the acquisition of a used product does not replace a purchase. To sum up, despite that the economic, social and environmental effects of SEBMs are still largely unknown (Frenken and Schor, 2017), they hold great potential for value creation (Heinrichs, 2013).

2.3. Conceptual framework for analyzing sustainable value creation of business models

Based on a review of the existing literature on sustainable value creation and by analyzing sustainability principles and future-fit business goals (Kurucz et al., 2017), a conceptual framework for analyzing sustainable value creation was formed (Table 1). Further, the framework was cross-checked with the 17 sustainable development goals (United Nations, 2019), which widely address global sustainability challenges, to ensure the coverage of the framework. This framework summarizes the different aspects of value creation in different sustainability dimensions providing a starting point for the sustainability assessment of business models.

Table 1. Conceptual framework for analyzing sustainable value creation.

Environmental	Social	Economic
Increasing resource efficiency Reuse of products, by-products and materials. Elimination/reduction of waste. Use of renewables (e.g. energy, raw-materials).	**Safeguarding health and safety** The health and safety of employees/customers/communities are ensured.	**Increasing cost-efficiency** Increases in efficiency and reduced costs compared to alternatives.
Responsible use of resources Responsible use of natural resources (e.g. water, raw-materials), respecting welfare of ecosystems, people and animals. No creation of rebound effects.	**Respecting laws, regulations and rights** Laws, standards and regulations (e.g. taxes, terms of use) and individuals' rights (e.g. privacy) are respected.	**Increasing profits and business opportunities** Increases in profits and/or creation of new business opportunities and markets.
No harmful environmental impacts and emissions No emissions (e.g. greenhouse gases) harming people or the environment. No harm to ecosystems or the environment.	**Respecting employee, stakeholder and individual rights** Employees' and stakeholders' terms are handled fairly (e.g. via paying living wages and non-discrimination). Equal treatment of employees/stakeholders/individuals.	**Operational stability and risk reduction** Increases in long-term stability and risk reductions.
Increasing environmental well-being Increases in biodiversity and environmental wellbeing by repairing previous damage and solving environmental problems (e.g. reducing ozone depletion).	**Ethical principles and no harmful social impacts** Operations, products and services do not harm people or communities. Human rights are respected (e.g. no child labor). Ethical principles are followed (e.g. caring use of resources, honest competition).	**Increasing attractiveness** Increases in reputation and brand value (e.g. attractiveness as an employee/collaborative partner).
	Increasing social well-being Increases in socio-psychological welfare (e.g. happiness, social cohesion).	**Increasing economic well-being** Increases in socio-economic welfare (e.g. employment).

Business models aiming to achieve environmental value creation are often linked to increasing resource efficiency, e.g. through the utilization of renewable resources (Bocken et al., 2014). Environmental value can be created for instance through reuse, recycling or reproducing products and materials, and eliminating waste (Geissdoerfer et al., 2017). Environmental value creation is also linked to the responsible use of resources such as water and raw materials, and respecting the overall welfare of ecosystems, people and animals (Rosca et al., 2017). Products, processes and services linked to sustainable value creation do not create harmful environmental impacts and emissions, such as greenhouse gases, that may harm people or the environment (Bocken et al., 2014). Furthermore, environmental value can be created by seeking solutions that increase environmental well-being by addressing existing environmental problems or increasing biodiversity (den Ouden, 2012; Dyck and Silvestre, 2018).

From a social perspective, sustainable business models consider the health and safety of employee, customers and communities (Bocken et al., 2014; Evans et al., 2017; Dempsey et al, 2011). Laws, regulations and terms of use are followed, and taxes paid in an ethical way. Individuals' rights are respected (e.g. privacy), and fair employment and stakeholder terms are followed including payment of fair wages and through non-discrimination (e.g. related to religion, nationality, gender, age etc.) (United Nations, 2019). In addition, employees and stakeholders are treated equally, and their concerns are considered fairly (Stubbs and Cocklin, 2008). Social value creation is linked to following ethical principles by not harming people or communities (e.g. not using child labor), and engaging in ethical and open communication and competition (United Nations, 2019). Furthermore, resources (such as products) are treated with care. Social value can be created also by focusing on the creation of increased socio-psychological well-being (Rosca et al., 2017), increasing social cohesion and interaction (Dempsey et al, 2011) and through community development (Bocken et al., 2014).

In sustainable business models, economic value creation is linked to increasing cost-efficiency. Business may be designed to increase material and energy efficiency with reduced costs and improve profitability (Ambec and Lanoie, 2008). They may also create new sources of revenue, open new markets and increase firms' competitiveness (Engert et al., 2016). Incorporating sustainability into an organization's long-term strategy, values and in the design of business models could increase operational stability, and reduce risks and future uncertainty (Hockerts, 2015). Sustainable business models can produce public reputational and image benefits and increase attractiveness from the employee or partner perspectives (Branco and Rodriques, 2006). Economic value can be also created at a society level, by increasing the overall economic well-being, e.g. thorough employment (den Ouden, 2012).

3 Methods for analysis

3.1 Categorizing sharing economy business models

The research started by reviewing the academic literature on the sharing economy to create a comprehensive understanding of the characteristics of different types of SEBMs. Based on the review, the framework presented by Acquier et al. (2017) was identified as the most comprehensive categorization of the sharing economy and was selected to be used as a basis for analyzing the relationships and connections between other key literature sources (see Figure 1).

Second, literature-based aspects were combined with the research of empirical examples listed in Honeycomb 3.0. (Owyang, 2016), which is one of the most widely referred framing approaches concerning the sharing sphere (Munoz and Cohen, 2017). The Honeycomb consists of 16 different categories (e.g. goods, food, space and mobility services etc.), further divided into 41 subcategories with various company examples. The analysis continued by examining the websites, publications and other materials related to these examples. Honeycomb 3.0. also includes companies that are part of the sharing sphere (such as supporting services provided by Veridu and Sherpa Share) but are not themselves SEBMs. Thus, these subcategories/companies

were eliminated from the analysis in addition to companies that were found to be out of business. Furthermore, additional empirical examples were identified based on the reviewed literature.

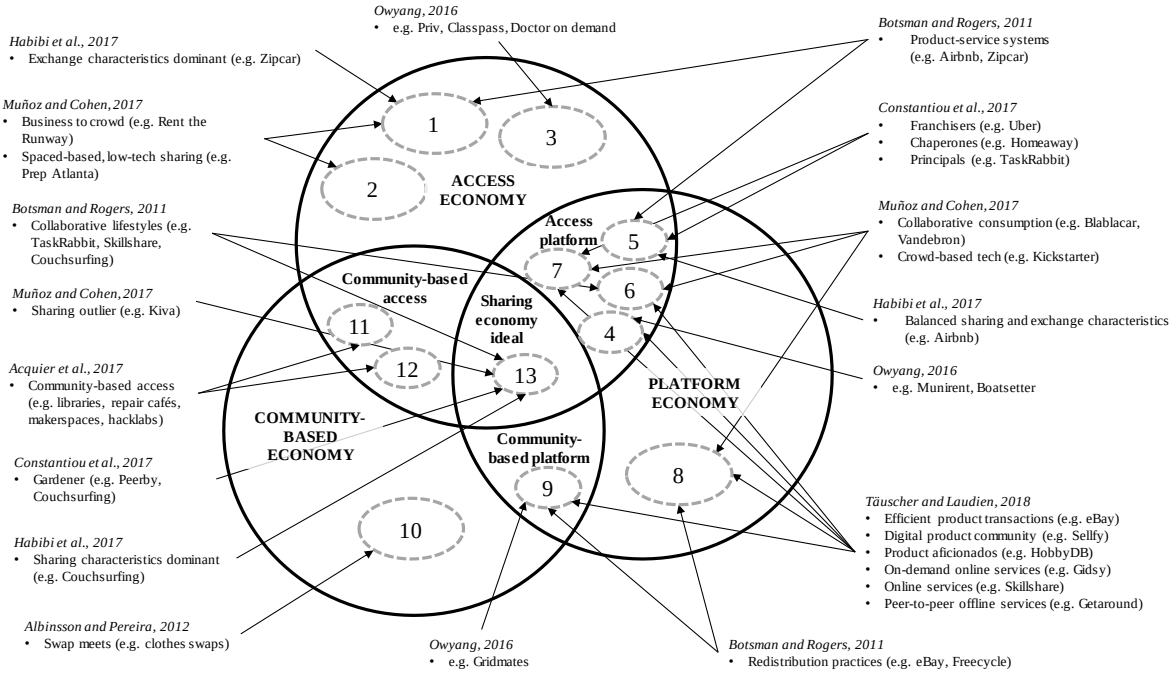

Figure 1. Analysis of the literature categorizations of SEBMs in relation to the framework by Acquier et al. (2017).

3.2 Analyzing sustainable value creation potential

In order to analyze the sustainable value creation potential of different SEBMs, a conceptual model of sustainable value creation was formed (see Table 1). The conceptual model of sustainable value creation consists of environmental, social and economic perspectives that were further divided into 14 areas.

Next, the sustainable value creation areas were cross-checked with the SEBM categories to identify their sustainable value creation potential. The analysis was based on comparing SEBMs to traditional business models (Dreyer et al., 2017). The used scale was positive (P - potential for positive value creation) - negative (N - increased risk of negative value creation). In some categories there is increased potential for either positive or negative value creation (P/N), the realization of which is dependent on specific business model choices and managerial decisions. It must be noted that also the power of the impact can differ depending on the specified business model, product, service type, industry etc. Furthermore, there was also areas that have potential for sustainable value creation but that no SEBMs were seen to take a stand on the matter or that the impact would be neutral (blank) (see also Dreyer et al., 2017).

The analysis included going through the identified company examples and, for example, whether they used resources responsibly, respected employee rights and increased cost-

efficiency. The analysis perspectives varied a bit due to differences between the studied SEBMs and companies. For instance, in models that are based on two or multi-sided markets, communities play a crucial role, and it is important to examine the cost reduction from the community perspective. The impact estimations were done based on insights from the literature and publicly available data on the companies. Several researchers were involved in the iterative analysis process and the interpretation of the findings to increase the trustworthiness and validity of the study (Yin, 2014). The focus of the analysis was not on carrying out an extensive numerical analysis but on estimating the sustainable value creation impact at a high level and to provide a template for further research and development of more accurate measures.

4 Results

4.1 Categorization of sharing economy business models

The proposed SEBM categories elaborates the framework presented by Acquier et al. (2017). The 13 identified SEBM categories are presented in Table 2.

Table 2. Sharing economy business model categories.

Access economy	Platform economy	Community -based economy	**SEBM category**	**Examples**
✓			**1** B2C access to goods - temporal access	Santander cycles (bicycles), Rent the Runway (clothes), Zipcar (cars)
✓			**2** B2C access to physical spaces - temporal access	Liquidspace (work spaces), Stashbee (storage), Prep Atlanta (kitchens), Talent Garden (work spaces)
✓			**3** B2C on-demand services - access to multiple professional services offered through one operator	Priv (beauty), Classpass (wellness), Doctor on demand (health), CloudPeeps (all kinds of services)
✓	✓		**4** P2P access to goods platform - temporal access - intermediated transactions between peers through digital platforms	MuniRent (equipment), PeerbyGo (all kinds of goods), Boatsetter (boats), Getaround (cars)
✓	✓		**5** P2P access to physical spaces platform - temporal access - intermediated transactions between peers through digital platforms	Airbnb (accommodation), HomeAway (accommodation)
✓	✓		**6** P2P access to money, skills and knowledge - temporal access - intermediated transactions between peers through digital platforms	Skillshare (skills), Kickstarter (money), Bitcoin (money), HobbyDB (knowledge)
✓	✓		**7** P2P on-demand services - access to services provided by peers - intermediated transactions between peers through digital platforms	Uber (rides), Twogo (rides), PiggyBee (delivery services), TaskRabbit (everyday tasks), Gidsy (experiences)
	✓		**8** P2P redistribution platforms - intermediated transactions between peers through digital platforms - transfer of ownership	Zookal (books), eBay (all kinds of goods), Vandebron (energy)
	✓	✓	**9** P2P community-based redistribution platforms	Gridmates (energy), Freecycle (all kinds of goods)

			- intermediated transactions between peers through digital platforms - transfer of ownership - social mission, non-profit business	
		✓	**10** Community-based redistribution - transfer of ownership - social mission	Swap meets (e.g. clothes swaps)
✓		✓	**11** Community-based services and knowledge sharing - access to services provided by community members - social mission, based on voluntary work	Voluntary work (e.g. gardening, refurbishing), hacklabs (knowledge)
✓		✓	**12** Community-based access - temporal access - social mission, managed by non-profit organizations	Library (books etc.), repair cafes (tools etc.), makerspaces (machines etc.)
✓	✓	✓	**13** Sharing economy ideal - temporal access - intermediated transactions between peers through digital platforms - social mission, non-profit business	Khan Academy (skills), Kiva (money), Be My Eyes (services and knowledge), Couchsurfing freemium (accommodation), Peerby (all kind of goods)

Categories 1-3 fall under the access economy, covering business models that are built on the idea of optimizing underused assets through access-based transactions instead of a transfer of ownership (Acquier et al., 2017), and represent for-profit B2C models. *Category 1* facilitates access to physical goods, such as clothes and cars, while *category 2* provides access to physical spaces, such as kitchens, workspaces and storage (Muñoz and Cohen, 2017). These categories demonstrate that SEBMs must not rely on technological platforms to operate. *Category 3* includes on-demand services, referring to business models where a service operator connects resources and offers tailored services on-demand. For example, Priv connects a network of beauty professionals and offers everything from hairdressing services to yoga and massage, enabling customers to access a variety of beauty services through one channel. While some scholars (e.g. Heinrichs, 2013; Plewnia and Guenther, 2018) classify these business models as within the sharing economy, others (e.g. Frenken and Schor, 2017; Mair and Reischauer, 2017) see these just other forms of traditional enterprises seeking to profit from increased efficiencies.

Categories 4-7 represent the combination of access and platform economies, referred to also as collaborative consumption (Muñoz and Cohen, 2017) including also sharing economy pioneers, Airbnb and Uber. The platform economy refers to business models that focus on decentralized exchanges between peers through digital platforms (Acquier et al., 2017). These triadic business models (Piscicelli et al., 2018) consist of a service enabler/platform operator, who acts as an intermediary between peers representing two customer groups, the suppliers of a good or a service, and customers. Their success and growth potential are dependent on social interactions and network effects (Parente et al., 2018). *Categories* 4-7 represent for-profit P2P or B2B (referring to "business peers") platform-based business models. *Category 4* focuses on access to physical goods, while *category 5* refers to physical spaces. *Category 6* deals with money, skills and knowledge, and *category 7* provides on-demand services provided by peers, such as rides, delivery services or everyday tasks.

Category 8 falls under the platform economy. In contrast to the previous seven categories, transactions are based on the transfer of ownership. These platforms (Botsman and Rogers, 2011) encourage reusing and reselling by enabling the redistribution of used or pre-owned goods by peers. For example, eBay connects people who have something to sell (the supply side) with people who may be interested in buying (the demand side).

Category 9 combines promises of both the platform and community-based economy. The community-based economy refers to initiatives coordinating through non-contractual, nonhierarchical or non-monetized forms of interaction (Acquier et al., 2017). The primary purpose of these models is to create social bonding, to promote values, or achieve a social mission through a collective project. Community-based platforms harness the scaling power of platforms for the good of the community. Some scholars (e.g. Kumar et al., 2018) prioritize economic incentives and exclude business models that do not involve any monetary transactions from the sharing economy, while some see these as true sharing (Belk, 2014). Examples of this category include, e.g. free exchange sites (Martin and Upham, 2016) such as Freecycle (enabling people to freely give underutilized items to local peers).

Category 10 falls solely under the community-based economy, hence it represents non-contractual and non-monetized models, such as swap meets (Albinsson and Pereira, 2012). In this category participants bring and share goods without any expectation of monetary exchange. These sharing events are organized by voluntary consumers due to various practical and ideological reasons, such as raising awareness about sustainability and overconsumption. Swap organizers often collaborate with churches, libraries and community organizations, e.g. by utilizing their spaces for the sharing events.

Categories 11-12 represents the combination of the community-based and access economy, that refer to affording greater access to underutilized resources and services at the community level. *Category 11* includes services provided voluntarily by community members, i.e. voluntary work (e.g. gardening, refurbishing), and knowledge sharing, such as hacklabs/hackerspaces. *Category 12* includes access-based models managed by non-profit organizations, such as libraries and repair cafes.

Category 13 is positioned at the intersection of all three presented economies. These represent access-based models provided by peers, mediated through digital platforms, whose primary purpose is to create social value or achieve a social mission. For example, Peerby is a platform where people can borrow and share items with their neighbors for free. Be My Eyes connects blind and low vision people with sighted volunteers for visual assistance through a live video call. Kiva is a non-profit P2P micro-lending site that connects micro-lenders and micro-entrepreneurs with a mission to expand financial access to help underserved communities thrive. Although *category 13* represents the “sharing economy ideal”, it faces strong tensions in practice (Acquier et al., 2017). For example, achieving high scalability leading to resource optimization is very challenging through voluntary community-based models without financial incentives.

4.2. The potential of sharing economy business model categories for sustainable value creation

Figure 2 presents a summary of the sustainable value creation potential of different SEBM categories. The main issues identified which affect the environmental, social and economic value creation of different SEBM types, are discussed in following.

	Environmental												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Increasing resource efficiency	P	P		P	P			P	P	P		P	P
Responsible use of resources	P/N	P		P/N	P/N		P/N					P	P
No harmful environmental impacts and emissions	P/N			P/N	P/N		P/N						
Increasing environmental well-being													
	Social												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Safeguarding health and safety				N	N		N	N	N				
Respecting laws, regulations and rights				N	N		N	N					
Respecting employee, stakeholder and individual rights					N		N						
Ethical principles and no harmful social impacts	P/N			N	N		N	N				N	
Increasing social well-being		P			P	P	P		P	P	P	P	P
	Economic												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Increasing cost-efficiency	P	P	P	P	P	P	P	P	P	P	P	P	P
Increasing profits and business opportunities			P	P	P	P	P	P					
Operation stability and risk reduction													
Increasing attractiveness													
Increasing economic well-being			P	P	P	P	P	P					

Figure 2. Sustainable value creation potential of different sharing business model categories.

4.2.1 Environmental value creation potential

The majority of the SEBMs are based on the idea of better utilization of (under-utilized) resources such as products and facilities and thus increased resource efficiency. In general, the transition from products to services (the model represented by many of the SEBMs) aims to achieve more responsible use of resources, but the results are highly case-specific and linked to business field characteristics (e.g. related to material and energy intensity). Although many SEBMs aim at the responsible use of resources by providing access instead of ownership (e.g. underutilized spaces can be offered for collaborative work, *category 2*), many of them (*categories 1,4,5,7*) are linked to rebound effects. For instance, accommodation sharing (*category 5*) instead of staying in hotels, with bedsheets and towels changed every day, may reduce water and energy usage, but may also increase the overall amount of travelling, which is linked to high environmental emissions. In some models such as *categories 1* and *4*, shared

goods do not necessarily replace the purchase of new products and can thus even lead to increased consumption. In addition, in *category 7*, increased offerings and lower prices may also increase the demand, finally resulting in increases in harmful environmental impacts and emissions. Otherwise, the creation of harmful environmental impacts was seen to be linked to the type of the product or service rather than whether the business model was based on sharing or not. In general, SEBMs do not itself directly consider the origin of the products, the original manufacturing processes, or the overall consumer behavior and their environmental impacts. Although increases in environmental well-being were not seen to be directly linked to SEBMs, there are some business examples, such as Chooose, a platform through which individuals can donate money that is used for buying and deleting carbon credits from markets and funding CO2-reducing projects.

4.2.2 Social value creation potential

From the social perspective, the possible effects were identified to be linked especially to P2P sharing in the platform economy (*categories 4,5,7,8,9*). In *categories 5* and *7* negative effects were identified in relation to the threatened health and safety of peers due to direct interaction with another peer. Additionally, in *categories 4,8,9* there is the question of product safety and in *category 5* the safety of the location. For instance, in accommodation sharing (e.g. HomeAway), security relies very much on trust between peers, while hotels have clear security plans and policies. Many SEBMs are also linked to problems of lacking regulations and ignorance of laws, e.g. tax avoidance. For instance, although P2P accommodation services may be required to pay taxes, not all Airbnb hosts do so. In addition, *category 8* may induce the professional selling of new or hand-made products without paying taxes. P2P SEBMs are also linked to unclear practices respecting employee and stakeholder rights. For instance, in the case of Uber, the debate concerning whether Uber drivers are "employees or independent service providers" has been going on for years. Although contractors are supposed to take care of themselves, the platform (company) sets high demands. As the sharing economy is lacking rules, other types of harmful social impacts may occur. For example, huge numbers of sold-out concert tickets are sold at high prices on different platforms. There exist also professional Airbnb hosts and the increasing number of apartments rented by Airbnb in certain areas has also resulted in various residential problems. Thus, the ethical actions of many SEBMs can be questioned. Furthermore, although usually the *category 1* companies have set specific regulations and principles to follow, consumers may not respect these, e.g. by not treating clothes from Rent the Runway as well as they would if they were their own. In *category 12*, library books are usually treated well, but the same is not necessarily true for the available tools provided by RepairCafe. Although the list of problems is long, the increase in social well-being especially through social cohesion was identified as a general benefit that many SEBMs aim for. This is possible with the models that allow social P2P interaction.

4.2.3 Economic value creation potential

Increasing cost-efficiency was identified to be linked to each SEBM but it concretizes differently. For instance, renting a boat through Boatsetter (*category 4)* increases the cost-

efficiency for peers (not the company providing the platform). Thus, in some models the cost-efficiency is realized only from the consumer perspective. As the aim of business in general is to make profits, this is also the starting point for most of the SEBMs except for models *9-13* representing the community-based economy with the primary purpose of creating social value instead of maximizing economic value creation. Operational stability, risk reduction and increased attractiveness are also linked to sustainability, but these aspects were not identified to be linked directly to SEBMs. In some cases, such as in *category 3*, the model can help in securing the future as, e.g. professionals can provide their medical or beauty services beyond their basic work. Although SEBMs do not tend to increase the attractiveness of an image or brand, it may occur on the side. For instance, Kickstarter (*category 6*) can work as a springboard for new businesses and act as a marketing channel to attract new partners (such as investors and customers). *Categories 3-8* were linked to increased profits and business opportunities as well as improved socio-economic well-being for larger groups of people compared to traditional business models. SEBMs for example increase employment and create extra income (*categories 3,4,5,6,7,8*), transfer money to individuals (*categories 4,5,7,8*) and foster new start-ups (*category 6*).

5 Discussion and conclusions

5.1 Implications for theory and practice

This study examined the sustainable value creation potential of different types of SEBMs. This study contributes to the literature in several ways. First, it introduces a specified categorization of SEBMs, contributing especially to the evolving literature on the sharing economy (e.g. Netter et al., 2019; Ritter and Schanz, 2019). This study supports views of the sharing economy as an umbrella construct (Muñoz and Cohen, 2017), but simultaneously highlights the need to consider different types of business models in more detail regarding aspects of sustainability (Geissinger et al., 2019). Based on a sustainable value creation analysis, all 13 SEBM categories were found to differ from sustainability perspectives. Considering only certain types of SEBMs (Constantinou et al., 2017; Täuscher and Laudien, 2018) does not pay enough attention to certain issues relevant to sustainability. Thus, in terms of sustainability impacts, the sharing economy cannot be discussed in general, but a more subtle categorization is needed. This analysis broadens the previously identified economic, environmental and social promises (i.e. value propositions) and tensions linked to the sharing economy (Acquier et al., 2017). For example, relating to platform-based business models' security and safety, the study revealed negative effects such as lack of monitoring concerning product safety, whereas Acquier et al. (2017) link security and safety just to positive impacts, such as controlled transactions through digital technologies.

Second, this study also contributes to the sustainable business model literature (e.g. Bocken et al., 2014; Yang et al., 2017) by summarizing the scattered literature regarding sustainable value creation, bringing different aspects linked to environmental, social and economic dimensions of value creation together and presenting them as an integrative framework. This simple, conceptual framework can be used in analyzing the sustainable value creation potential of

SEBMs (as well as other types of business models) and to estimate the upper level sustainability impacts. The framework was built on the existing literature on sustainable value creation and sustainability principles and future-fit business goals (Kurucz et al., 2017), and was cross-checked with United Nations' (2019) sustainable development goals, which are based on sustainable development research, e.g. of planetary boundaries (Steffen et al., 2015). Although, there already exist some evaluation frameworks and guidelines for sustainable value creation, their focus is either too general (estimating only economic, environmental and social impacts in general) (Evans et al., 2017; Lüdeke-Freund et al., 2017; Yang et al., 2017) or they are focused on specific issues such as life-cycle assessment (Zamani et al., 2017) or product-service systems (Yang and Evans, 2019). The framework introduced in this study is a rough level evaluation framework, and is easy to get started with, which was found to be lacking from the current literature.

Third, the study takes a step further towards the estimation of potentially sustainable value creation of different types of SEBMs (Ciulli and Kolk, 2019; Retamal, 2019). The findings revealed that different SEBM types all have the potential for sustainable value creation with different areas of emphasis. These include areas in which the SEBM type has significant potential for positive value creation, but also carries risks of leading to negative outcomes, as well as areas where the impact could be either negative or positive depending on managerial actions. For instance, business models in *categories 4* and *5*, have high potential for environmental and economic value creation, but are risky in terms of social aspects such as safeguarding safety and respecting people's rights. Instead, within models in *categories 3* and *11* no significantly risky areas were identified, but neither had any clear potential for environmental value creation which would be linked specifically to sharing. Thus, business model choices do matter; it is not self-evident that SEBMs would advance sustainability per se.

From a managerial perspective, this study increases the understanding of the sustainability potential of different SEMBs and highlights the most crucial points to be considered. The sustainable value creation framework acts as check list or qualitative assessment/evaluation tool for designing new sustainable business models and comparing different business model choices and their sustainable value creation potential. Furthermore, the framework guides the management of SEBMs and setting of target areas, e.g. for key performance indicators. For instance, managing P2P business models, special attention to human resources and governance policies are required. As the study does not provide exact guidelines or measures for sustainable value creation, future studies should address the issue of how to create SEBMs with positive sustainability effects in more detail, simultaneously minimizing the possible conflicts and trade-offs.

5.2 Limitations and future research

Naturally this research also has several limitations, which also provide interesting avenues for future research. The analysis of the potential for sustainable value creation is not exact as no actual numeric data was collected. Rather the understanding was created by examining the

literature and empirical examples to form a basis for the high-level assessment of SEBMs. In addition, there is a lack of practical, valid and reliable tools to assess the social and environmental effects of business models (Ciulli and Kolk, 2019; Kurucz et al., 2017). The aim of the study was to show that choosing a SEBM matters from a sustainability perspective, and to create a basis for future research and the creation of more accurate metrics and analyses to measure the actual sustainability impacts of different SEBMs. Furthermore, in this study, the analysis of sustainable value creation was based on comparing SEBMs with traditional ones. Thus, more detailed cross-case studies of different SEBM types are recommended. For instance, it would be interesting to compare the sustainable value creation of different (1) B2C access to goods and (4) P2P access to goods platform business models from the perspective of the final consumer.

The analysis does not consider the power of the impact, i.e. how incremental or radical the change towards sustainability is. Hence only the sustainable value creation potential and risks are discussed. Thus, further case-specific research within different industries (such as car, electronics and clothing) analyzing different business model choices and their effects on sustainable value creation is needed. Additionally, sustainable value creation perspectives on operational stability and risk reduction, increased attractiveness and improved environmental well-being call for further research. Different SEBMs may have sustainable value creation potential also from these perspectives, but their identification requires more long-term, in-depth analysis that focuses for example to the development of individual companies.

The proposed SEBM category consisting of 13 different types is not complete but provides a basis for further research. The sharing economy is still a young and scattered field of research with rapidly evolving theory and practice. Additionally, the discussion regarding which kinds of business models fall under sharing sphere is heated as new SEBMs emerge all the time. This research brings together different typologies and categories presented so far and summarizes current understanding of SEBMs and their sustainability potential which are prerequisites for further development.

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