

## Understanding Collaborative Consumption

Test of a Theoretical Model

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## **Understanding Collaborative Consumption: Empirical Test of a Research Model**

### **Abstract**

The rapid expansion of new businesses based upon collaborative consumption - where people consume together - is paving the way for a 'sharing economy' where the dominant logic of consumers is shifting to using products rather than owning them. This study aims at developing a comprehensive model to explain consumer outcomes for collaborative consumption. It develops and tests a structural equation model using partial least squares path modelling and survey data collected from a car sharing website. The results suggest that consumer intentions to participate are driven primarily by perceived usefulness (in turn driven by perceived economic, environmental and social benefits) and enjoyment (in turn driven by sense of belonging to the sharing community). When making word-of-mouth recommendations, in addition to these factors, consumers also take trust into account, underpinned by the structural assurances of the website. The paper rounds off further implications of the research for theory and practice.

**Keywords:** collaborative consumption; PLS-PM; car sharing; consumer behavior.

### **Introduction**

A recent development in social commerce is the establishment of websites aimed predominantly at sharing real-world assets and resources – referred to as collaborative consumption (Botsman and Rogers 2011). Collaborative consumption websites focus on peer-to-peer marketplaces where unused space, goods, skills, money, or services can be rented, borrowed, bartered, traded, and swapped. Time magazine has suggested collaborative consumption as one of the “10 ideas that will change the world” (Walsh, 2011).

There are, as yet, few accurate and scientifically-informed predictions as to the future growth of collaborative consumption and its economic impact on industries. A recent working paper by Zervas et al. (2015) found that the impact of AirBnB on the hotel industry in Austin, Texas was significant, claiming 8-10% of revenue and pushing down prices of incumbents. Similarly, a report by HVS found that AirBnB's 416,000 guests staying in New York in the 12 months to July 2013 resulted in one million lost room nights (Kurtz, 2014). There is much expectation and uncertainty regarding whether these new business models are powerful enough to provoke a disruptive shift in consumption patterns and activities and industries (e.g., online and offline retailing – see Christensen 2003). Not surprisingly, there is intense commercial interest in the impact of the sharing economy upon industry sectors. In the car industry alone, traditional car rental services, manufacturers, distributors, dealers and suppliers are likely to experience significant impact from collaborative consumption, as are supporting services in car financing, insurance, taxation, servicing, cleaning, retailing of sundries, and petrol supply and retail.

Collaborative consumption through online channels is not well understood and the limited amount of research and anecdotal evidence suggests that the purchase process is being redefined and that individual motivations are likely to be quite different to previous social sharing initiatives such as open source software (Benkler 2011), including, for example, possible new economic and environmental drivers (Hamari et al. 2015; Möhlmann 2015). However, as yet, no model exists to comprehensively explain consumer's engagement in collaborative consumption in terms of online word-of-mouth and intentions to share.

From a marketing standpoint the main issue is how to quickly generate a large enough number of active users that, in turn with online Word-of-Mouth interactions, are able to create a self-sustaining virtual community. Loyal tribe communities have been found to be important for marketers (Arnould and Thomson 2005). Cova and Cova (2002) were one of the first to explore

the nature of consumer tribe characteristics and recent work has attempted to define community concepts more fully (Goulding et al. 2013; Fournier and Lee 2009). Nevertheless, there is still much to learn about how to build and sustain them – which needs further research (Gomez et al. 2005; Michell and Imrie 2011).

Electronic Word-of-mouth (eWoM) (see, e.g., Hennig-Thurau et al. 2004) is now growing in importance in social media and networking sites and is especially critical for start-up ventures (Kumar et al. 2013). Online brand communities, for instance, are effective in influencing sales regardless of ownership with positive information having a stronger moderating influence than negative on purchase behavior (Adjei et al. 2010). Social media use in general, positively contributes to brand performance (Rapp et al. 2013). Certain kinds of online communities such as Massively Multiplayer Online Role Playing Games (MMORPGs) demonstrate characteristics of unique brand tribalism in an anthropological sense as they transcend normal online communities because of the strong cognitive and affective involvement of gamers (Badrinarayanan et al. 2014).

It is the premise of this study that the entrepreneurial effort of building these tribal communities is the core of starting up a social commerce or a collaborative consumption venture (Holzweber et al. 2015). From a marketing perspective this is a classical issue of finding and developing your customer base. Many of these start-ups lack traditional marketing skills [reference blinded for review] and use investor angels, mentors or advertising companies to help. Hence, much of the initial strategic marketing efforts of these new kinds of start-ups is improvisational and aims at reaching a critical numbers of community users.

The core marketing problem is to know how to engage your potential users to your brand or site. Baldus et al. (2015) define brand engagement as “a compelling intrinsic motivation to continue interacting with the brand”, and develop a scale with 11 independent motivations for

brand community engagement across a variety of communities and contexts. In line with this effort our study makes a contribution by further developing a consumer-centric model of “mindful consumption”, i.e. a mindset of caring for self, for community, and for nature with sustainability in focus (Sheth et al. 2011). As community-identity attachment (Fiedler and Sarstedt 2014) and users’ self-benefit (Möhlmann 2015) seem to be primary drivers of online use of collaborative consumption sites the aim of this study is to develop a comprehensive model for explaining participation behavior and electronic word-of-mouth in these sharing platforms on the web. Such a model would help direct start-ups in the collaborative consumption sector in the quest to form an initial tribe through eWoM (Hennig-Thurau et al. 2004) that can grow to a sustainable user community in a short period of time. By tribe we refer to the initial dedicated group of users that subsequently may generate a community (Holtzweber et al. 2015; Badrinarayanan et al. 2014).

The paper is organized as follows. In the next section we provide some background on the phenomenon of collaborative consumption. Subsequently, two sections describe both the underlying theory for our study and develop a research model for investigation of the factors determining consumer behavior (intention to act and to recommend) in collaborative consumption respectively. This is followed by sections explaining the methodology for the research and the results of testing the research model via a car sharing website. Finally, the paper concludes with a discussion of the implications of the study for theory, a consideration of its value to practice, and some notes on the possible limitations of the study and directions for further research.

## **Collaborative consumption**

Belk (2014) defines collaborative consumption as “people coordinating the acquisition or distribution of a resource for a fee or other compensation.” The rapid expansion of websites aimed at collaborative consumption has been said to be leading the way for a “sharing economy” (Buczynski 2013; Gansky 2010; Griffiths 2013; Sacks 2011) where the dominant consumption logic is shifting from product ownership to product usage, i.e. individuals are mainly interested in access to products rather than owning products (Bardhi and Eckhardt 2012; Chen 2009; Rifkin 2000). According to an economic study by Fremstad (2014), the average US household spends \$9090 per annum on shareable goods. It is also estimated that 52% of Americans have rented, borrowed or leased the kind of items usually owned, and 83% would do so if this was easy (Wise 2013). PwC (2015) estimate that five main sharing sectors (car sharing, staffing, music video streaming, accommodation and finance) will increase in global revenues from around \$15 billion in 2013 to \$335 billion by 2025.

The drivers for collaborative consumption websites include those that are political, economic, environmental and social. As the global economy continues to reel after the effects of the financial crisis, many are beginning to question the prevailing Western political and economic models that appear to have created economic disparity and division in society, consumerism and excessive use of resources that have contributed to current and future environmental problems (Agyeman et al. 2013; Botsman and Rogers 2011). Such a trajectory for development is not sustainable, especially as developing nations begin to prosper and emulate this pattern of economic activity (Johnson 2008). This has led some to question whether it is actually necessary for consumers to buy and own so many assets, especially during a time of economic difficulty, or whether a new model in which people share what they have will contribute to better resource efficiency, social benefit and reduced environmental pollution. Thus, unifying these drivers, the

concept of sustainable consumption has risen in perceived significance, defined as “consumption that simultaneously optimizes the environmental, social, and economic consequences of acquisition, use and disposition in order to meet the needs of both current and future generations” (Phipps et al. 2013: p. 1227).

Another key factor underpinning collaborative consumption is information technology, which is seen as both an enabler and a driver of collaborative consumption (John 2013a). A number of technological movements have been considered as laying the foundations for the current wave of resource sharing activities on the Web, including the open source movement, typically motivated by altruism, recognition and community sharing and improvement (Benkler 2011) and peer-to-peer file sharing (Giesler 2006). More recently, a new platform for supporting resource sharing is that of online social networking, the growth of which in one of the most significant technological trends in the last decade. According to Nielsen (2011), social networking technologies are used by around three-quarters of active Internet users in major economies, including the US, UK, Japan, Germany, France and Brazil. Initial research focusing on the economic benefits derived from social commerce suggests that their value to buyers and sellers is derived from both the individual and overall characteristics of the social network involved (Stephen and Toubia 2010). Thus, we would expect the social network to play an important role in online collaborative consumption decisions.

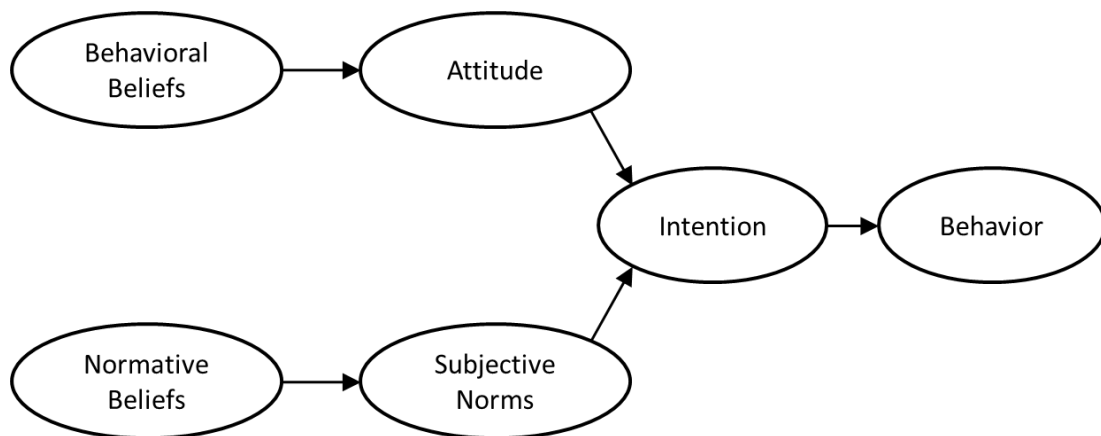
The most active market for collaborative consumption is car-sharing, an area of sharing with potentially high economic and environmental benefits. According to research by Fremstad (2014), the largest gains from collaborative consumption will in fact be in car-sharing, which was calculated to be of the highest economic cost and value to households in the US. The environmental benefits of car sharing are also extremely significant. According to Berners-Lee (2010), a car produces approximately 720kg of CO<sub>2</sub> per £1000 (\$1500) spent on buying it: for

example, running a 1.4 TSI S Volkswagen Golf for 40,000 miles would produce 7.9 tonnes of CO<sub>2</sub>, but manufacturing it would produce 14 tonnes of CO<sub>2</sub>. Indeed, there is not a need to build or run as many cars if they are shared: cars are parked 95% of the time and therefore represent a significant untapped resource (Shoup 2005).

### **Theory background**

The theory of reasoned action (TRA) is an important model for explaining rational human behavior in a plethora of contexts. The model has its roots in social psychology and the work of Fishbein and Ajzen (1975; 1980). It is a predictive model that seeks to examine the relationship between attitudes and behavior based on “principles of compatibility” and “behavioral intentions”. TRA is particularly appropriate in contexts in which an individual has volitional control. Figure 1 shows the basic theoretical model.

**Figure 1. Theory of reasoned action.**



The decisions of the individual in TRA are captured by behavioral intentions, defined by Fishbein and Ajzen (1975) as “people’s expectancies about their own behavior in a given setting”



(p.288) and operationalized as the likelihood of intended actions. This measure is generally operationalized in research as a common sense notion of intentions measuring whether an agent has formulated a plan to act (Bagozzi et al. 2000). An individual's intentions to act determine actual behavior, although this relationship weakens if a significant period of time intervenes. TRA posits that under the right conditions, behavioral intentions will approximate actual behavior (Ajzen 1991; Fishbein and Ajzen 1975). Indeed, a significant body of research has shown that the relationship between intentions and behavior is extremely strong (Sheppard et al. 1988). Thus, for both theoretical and practical reasons, research has tended to focus on behavioral intentions as the key outcome variable.

Intentions to act in TRA are determined by two factors: (1) attitude towards the behavior; and (2) subjective norms. Attitude refers to the degree to which an individual has a favorable or unfavorable evaluation of a behavior in question, resulting from the positive or negative behavioral beliefs that are held about undertaking a particular behavior weighted by the perceived evaluation of associated outcomes from such behavior. Subjective norms refer to the perceived influence of social pressure for a person to perform a particular behavior, whereby significant others approve or disapprove of a behavior in question. Subjective norms are influenced by normative beliefs, which refer to whether a person thinks that significant others – such as a partner, family, friends, work colleagues and so on – think that they should perform a behavior.

The theory of reasoned action has proven to be a robust theory in many contexts. The theory has been applied and adapted to many types of voluntary behaviors, particularly consumer behaviors, including purchasing soft drinks, gasoline, toothpaste, banking, sports tickets, restaurants and food tourism (Bagozzi et al. 2000; Kim et al., 2011; Ryan and Bonfield 1980; Sheppard et al. 1988). More recently, the theory has been applied to online contexts, such as online stock trading (Ramayah et al. 2009), software piracy (Aleassa et al. 2011), and cyberbullying (Doane et al.

2014), and to sustainable purchasing contexts such as buying green products (Ramayah et al. 2010), green information technology products (Mishra et al. 2014) and purchasing green energy brands (Hartmann and Apaolaza-Ibanez 2012).

### **Research model and hypotheses**

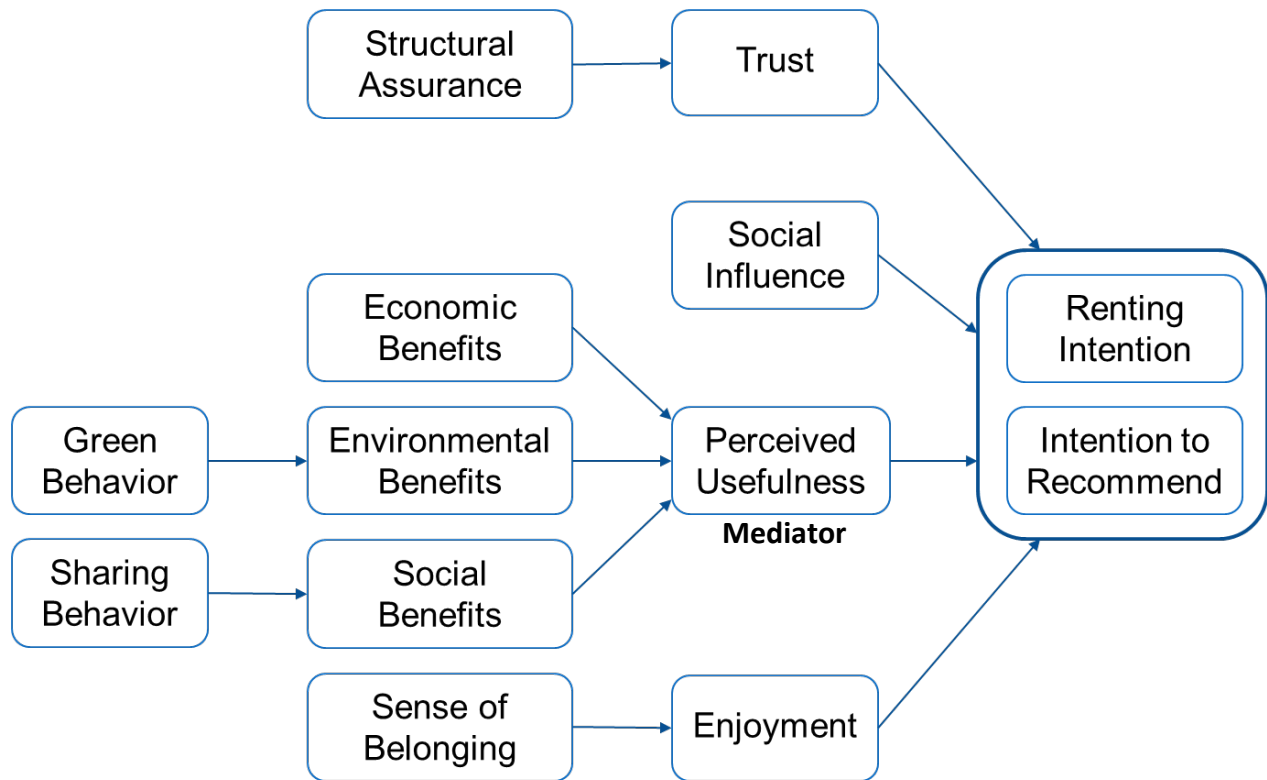
Our research model, shown in Figure 2<sup>[1]</sup>, draws together the sparse literature on collaborative consumption, social commerce and a number of important factors that have gone largely overlooked from additional literature on sustainable consumption, social sharing and Web 2.0. The underlying theory for the research is the theory of planned behavior (Ajzen 1985; 1991<sup>[2]</sup>), extended to provide a comprehensive explanatory model for a consumer's intention to share via a collaborative consumption website and to recommend the website to others. Both outcomes are critical in order to build critical mass and a sustainable, loyal tribe<sup>[3]</sup>.

### ***Economic benefits***

The economic value of collaborative consumption is perhaps the most dominant factor in discussions about its value. Fraiberger and Sundarajan (2015) provide an insightful economic analysis of the car sharing company Getaround using two years of customer data from San Francisco. They found clear evidence that the car sharing industry was creating consumer surplus and substituting rental for ownership, particularly for below-median income users, who were the main users. In another economic study, Fremstad (2014) supports Benkler's (2004) argument that "decentralised sharing among loosely-connected individuals is viable, pervasive and increasingly important," but points to the need for critical mass in sharing networks due to issues of adverse selection from asymmetric information about goods and participants. Put simply, sharing

networks succeed by building trust in the core of participants, and this will typically occur through selection, information and safeguards. Using data from four surveys, including data from the website NeighborGoods, Fremstad demonstrates that collaborative consumption is currently worth around \$774 a year for 8 percent of Americans, but could potentially be worth more than 10 times this amount to a typically US household.

**Figure 2. Research Model.**



Other studies that examine car sharing have found that economic benefits are a clear driver for determining value and behavior. Tussyadiah (2015) found economic benefits to be a key motivation for peer-to-peer accommodation sharing. Bardhi and Eckhardt (2012) conducted a qualitative study of the access economy for cars and found some surprising results, with

consumers largely motivated by self-interest and utilitarianism. A quantitative study of car sharing by May et al. (2008) found that financial savings were important factors in explaining behavioral intention. Hamari et al. (2015) test a simple structural model of online collaborative consumption (n=168) and find that the extrinsic motivation of economic benefits also determines behavioral intention to use. Möhlmann (2015) found that cost savings did not influence continuance behavior for car sharing or accommodation sharing, although it did impact satisfaction. Utility on the other hand was found to impact both. In our model economic benefits are mediated by perceived usefulness which acts as a mediator and processor of perceptions about the values of sharing. The processing effect of perceived usefulness on these benefits has not been tested in previous studies. This is in line with the theory of planned behavior (Ajzen 1991), in which the variable “attitude towards behavior or act” plays this particular role. Both the behavioral intentions to participate in collaborative consumption and to recommend are captured by the theory. Zehrer et al. (2011) found that perceived usefulness was a determinant of willingness to recommend based on blog postings. We therefore posit that:

- H1: Perceptions of economic benefits will be positively associated with perceived usefulness.
- H2a: Perceived usefulness will be positively associated with behavioral intentions to participate in collaborative consumption.
- H2b: Perceived usefulness will be positively associated with intention to recommend.
- H3: Perceived usefulness is a mediator between perceived benefits and intentions to recommend and participate in collaborative consumption.

### ***Environmental benefits and green behavior***

Hamari et al. (2015) find that intrinsic motivations of sustainability influence attitudes towards use, while May et al. (2008) found that environmental savings were important factors in explaining behavioral intentions to car share. Tussyadiah (2015) also found sustainability benefits to be a key motivational factor in her study of accommodation sharing. Surprisingly, Möhlmann (2015) found that cost savings did not influence continuance behavior or satisfaction for car sharing or accommodation sharing. In concert with Hamari et al. (2015) and May et al. (2008), we expect that perceptions of environmental (sustainability) benefits will motivate behavioral intentions in collaborative consumption environments. Several models of generalized sustainable consumption have been proposed by conservationists including values-beliefs-norms, motivation-opportunity-abilities and more recently a social cognitive theory, which suggests that consumers both create their own behaviors and are a product of their environment and past behaviors (Phipps et al. 2013). A consumer's past behaviors with regard to sustainability will determine their understanding and perception of environmental benefits, which in turn will influence their overall perceived usefulness of an initiative. Thus, in our study we capture green (sustainable) behaviors and perceptions of environmental benefits using the following hypotheses:

- H4: The perception of environmental benefits is influenced by an individual's green behavior.
- H5: Perception of environmental benefits determines perceived usefulness.

### ***Social benefits and sharing behavior***

Sharing refers to the "act and process of distributing what is ours to others for their use and/or the act and process of taking from others for our use" (Belk 2007, p. 126). The Internet and more recently the Web have become conduits for the development of social sharing activities that span

far beyond local communities. The open source movement, where software source code is made available to all, typically on a gratis or generalized reciprocity basis, was one initial driver for such activity. Motivations for developers of, for example, Linux and the Apache Web server, included altruism, recognition and community sharing and improvement (Benkler 2011). Web 2.0 and social networking represent an extension of previous social sharing activities, where Internet services such as Facebook, YouTube and Wikipedia are rooted in shared user-generated content (John 2013b). Subsequently, Web 2.0 has contributed to community-building and developing social capital (Ellison et al. 2007). Indeed, Tussyadiah (2015) found that community benefits in peer-to-peer accommodation sharing were a key motivation. We posit that collaborative consumption extends sharing behavior and creates social benefits, generating perceived usefulness for participants:

H6: Sharing behavior positively influences social benefits.

H7: Perception of social benefits determines perceived usefulness.

### ***Enjoyment and sense of belonging***

The nature of the social commerce environment suggests that, as in general online social networks, intrinsic benefits as well as extrinsic benefits will be important in determining behavior (Cheung et al. 2011; Lin and Lu 2011), pointing to the possible importance of perceived enjoyment in determining intentions. Indeed, this has been found in existing research on social shopping (Shen 2012), where humans have a strong and innate desire to form and maintain relationships with others. Similarly, in collaborative consumption environments, Hamari et al. (2015) found that enjoyment influenced attitudes and behavioral intentions. Research also suggests that enjoyment influences word-of-mouth recommendation (Derbaix and Vanhamme

2003; Hosany and Prayag 2013), although as yet this does not appear to have been tested in the online consumer behavior literature.

Like other social networks, members of collaborative consumption networks are likely to feel a sense of belongingness to the community they engage with. Theory suggests that this sense of belongingness is associated with enjoyment (Raghunathan and Corfman 2006). However, this has only been tested in an experimental laboratory setting. Further, this relationship does not appear to have been empirically tested in the online consumer behavior context. Therefore, confirming this relationship using empirical data with genuine consumers could offer a potential contribution of this paper. Thus, we posit:

H8: Sense of belonging is positively associated with feelings of enjoyment.

H9a: Feelings of enjoyment are positively associated with behavioral intentions to participate in collaborative consumption.

H9b: Feelings of enjoyment are positively associated with intention to recommend.

### ***Social influence***

The theory of planned behavior posits that subjective norms about behavior will influence behavioral intentions (Ajzen 1991). Social influence factors are also considered important motivators of behavior in online social networking (Cheung et al. 2011; Jung et al. 2007; Krasnova et al. 2008). Hsu and Lin (2008) identify social norms and community identification as elements of social influence in blog acceptance. Further, they point out that such norms can have normative and informational influences. Such influences are likely to include those from the social support mechanisms of a social commerce sharing network, including recommendation

and referrals, forums and communities, and rating and reviews (as examined by Hajli 2012).

Research examining social influences through social network theory has found that the strength of social ties impacts word-of-mouth referral behavior (Brown and Reingen 1987; Sohn 2009). In concert with the foregoing, we posit:

H10a: Social influence is positively associated with behavioral intention to participate in collaborative consumption.

H10b: Social influence is positively associated with intention to recommend.

### ***Trust and structural assurance***

Several authors have used trust to explain online social commerce purchasing and recommendation (Kim and Park 2013; Ng 2013; See-To and Ho 2014). Word-of-mouth through recommendation, rating and reviews offered by the network (Hajli 2012; See-To and Ho 2014; Wang and Chang 2013) may contribute to building reputation (Kim and Park 2013), a key element in building trust in social commerce (Yang et al. 2012). Teh and Ahmed (2012) develop a model based on TAM (Davis 1989) for explaining social commerce adoption by adding a trust variable to explain behavioral intention and four additional constructs for determining trust perceptions: security, structural assurance, vendor familiarity and situational normality. Structural assurance refers to “‘the goodness’ of online vendors through structural supports, such as legal protection and guarantees” (p. 360). Their results suggest that trust has a very strong influence on behavioral intention, and is strongly influenced by structural assurance, which is further supported by the literature in e-commerce (Gefen et al. 2003; Teo and Jiu 2007). Based on the foregoing we posit:



H11: Structural assurance is positively related to the establishment of trust.

H12a: Trust is positively related with behavioral intention to participate in collaborative consumption.

H12b: Trust is positively related with intention to recommend.

## **Methodology**

The study involved an online survey analyzed using partial least squares path modelling. The following sections outline the main aspects of the method used.

### **Data collection**

The research reported in this paper is explanatory but builds upon exploratory research aimed at determining the scope and research direction of the study.

### ***Exploratory phase***

An exploratory phase of data collection consisted of interviews with a number of CEOs and COOs of collaborative consumption ventures during the period 2014-2015. The following companies were used as exemplars: Airbnb (Denmark), HinnerDu? (Sweden), DenLilleTjenste (Denmark), Urbanfruit (Sweden), Fundedbyme (Sweden), GoCarShare (United Kingdom) and MinBilDinBil (Denmark) and Spacecubed (Australia). A total of eight interviews were conducted and analyzed as to what respondents thought were important drivers of user behaviors. This served as background input to triangulate with the literature for the development of the research model and survey. The data were analyzed using coding of text in NVivo to ascertain key

patterns in the behavior and determinants of consumer behavior. The results of this qualitative phase of research are reported elsewhere [reference blinded for review].

A key element of collaborative consumption business models appeared to be the drivers for development, which became imbued within the eventual models. From our data, an important personal characteristic of the entrepreneurs developing these new businesses was that they all had advanced university degrees but were unhappy with their current work in global business and wanted a way out. These individuals had a passion for the green economy and sustainability that tended to underpin their development as social entrepreneurs, typically without much of background in marketing or strategy. Their actions were taken mostly ad hoc and by inspiration without much knowledge of user behavior.

A key ingredient identified by respondents was need to build an initial “tribe” of loyal sharers who enjoyed being part of a community and who were vocal advocates of the website. Particular issues included trust and assurance. One CEO remembers how he confronted the trust issue: “...you could facilitate trust by using Facebook...to connect likeminded people...really we are based around social networks and shared interest...In this way dedicated followers can be traced quickly.” Thus, linking to major social networks was an importance aspect of reinforcing trust, along with providing robust policies, security and insurance mechanisms. The importance of the community is exemplified by a comment made by another CEO: “... we create a social network ... when it is safe it becomes a social proof ... by spreading the word we create a stable user base.”

Building a sustainable tribe of followers was often achieved by trial and error in the new businesses: early collaborative consumption business models struggled to identify the determinants of consumer behavior with regard to participation and positive word-of-mouth. Our

research model seeks to better understand this behavior and therefore provide guidance to such new collaborative consumption ventures.

### *Explanatory phase*

In this study we focused on a car-sharing website. Data were collected using an online survey in Qualtrics from both drivers and passengers of the car sharing service MinBilDinBil (<https://minbildinbil.dk>). MinBilDinBil, which translates into English as “my car your car”, was established in August 2013 and is one of four vehicle-sharing websites in Denmark (the others are Gomore, Jepti and Lejdet). Denmark is one of the most expensive countries in the world to own a car, with 180% taxation on car purchase and high registration, tax, insurance and fuel costs. It is therefore a very interesting and relevant context in which to examine car sharing initiatives. The MinBilDinBil website and mobile app allows owners to post car rentals for free, along with photos and pricing, and desired user groups, e.g. businessmen aged 30 or over. Owners receive requests for rentals via email and text message and then assess previous reviews and reputation (ratings) of the renter on MinBilBinBil, along with those of associated social media websites (such as Instagram and Facebook). It is then up to the owner to meet the potential car renter. All cars rented are covered by comprehensive insurance policies during rental. MinBilDinBil earns revenue by top-slicing the fees charged for car rental. The overall rental price is approximately 30-40% less than typical car rental services. MinBilDinBil was acquired by Netherlands-based SnappCar in 30<sup>th</sup> April 2015, at which point it was reported to have 20000 users and 2500 cars.

In all, 115 usable responses were received. The characteristics of the final sample is shown in Table 1. Just over half of the sample was female (55.7%). The median age was 35 to 44 years. The respondents were quite educated, with around three-quarters holding a first degree or

equivalent. Social media usage among the sample was moderate, with a median of 6 to 10 hours per week. The users of MinBilDinBil were relatively new, with a median period of patronage of 6 to 12 months, which is perhaps not surprising given the young age of the company, although 34% of respondents had used it for more than a year.

**Table 1. Sample characteristics.**

<b>Characteristic</b>		<b>Number</b>	<b>Frequency (%)</b>
<i>What is your gender?</i>	Male	51	44.3
	Female	64	55.7
<i>Which of the following are you? (Driver and/or Passenger)</i>	Driver only	34	29.6
	Passenger only	79	78.7
	Both	2	1.7
<i>What is your age in years?</i>	18 to 24	4	3.5
	25 to 34	20	17.4
	35 to 44	37	32.2
	45 to 56	28	24.3
	55 to 64	20	17.4
	65 plus	6	5.2
<i>What is your highest level of educational achievement?</i>	High school (non-graduate) or below	20	17.4
	High school graduate or equivalent	24	20.9
	Bachelor's degree or equivalent	40	34.8
	Master's degree or equivalent	30	26.1
	Doctoral degree or equivalent	1	0.9
<i>In an average week, how much time would you say you spend on using online social network sites?</i>	less than 1 hour	9	7.8
	between 1 and 5 hours	43	37.4
	between 6 and 10 hours	34	29.6
	between 11 and 25 hours	14	12.2
	between 26 and 50 hours	12	10.4
	between 51 and 75 hours	2	1.7
	more than 75 hours	1	0.9
<i>How long have you been using MinBilDinBil?</i>	Less than a month	17	14.8
	1 to 3 months	20	17.4
	4 to 6 months	11	9.6
	6 to 12 months	28	24.3
	1 to 2 years	31	27.0
	More than 2 years	8	7.0

## Measurement scales

The survey was delivered to respondents in Danish. The survey content was first created in

English, then translated into Danish by natives and back-translated into English to ensure accuracy and consistency of meaning between languages. The English version of the scale items are shown in the Appendix. Items for constructs within the research model were measured using 5-point Likert scales ranging from 1=strongly disagree to 5=strongly agree, where 3=neutral. Where possible, items for scales were adapted from previous research applications. However, five new constructs and corresponding scale items were required for the study: Green Behavior, Sharing Behavior, Economic Benefits, Environmental Benefits and Social Benefits. These scales were tested and refined using a pilot study with another collaborative consumption website — Hinner Du? in Sweden. A sample of 65 responses was collected and used to examine and refine the scales using the protocol of Churchill (1979). Metrics for the final new scales revealed that the Cronbach’s Alpha scores ranged from 0.765 to 0.891.

Descriptive statistics for the scales is provided in Table 2. Means ranged from 2.748 to 4.296, and standard deviations from 0.753 to 1.071. It is notable that the majority of items had means of between 3 and 4, although the scale items for structural assurance, intention to recommend and perceived usefulness all had means above 4.

**Table 2. Descriptive statistics for the constructs.**

<b>Item</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. deviation</b>
<i>ASSUR1</i>	1.000	5.000	4.096	0.823
<i>ASSUR2</i>	1.000	5.000	4.122	0.759
<i>ASSUR3</i>	1.000	5.000	4.009	0.937
<i>TRUST1</i>	1.000	5.000	4.026	0.785
<i>TRUST2</i>	1.000	5.000	3.913	0.900
<i>TRUST4</i>	1.000	5.000	3.591	0.864
<i>TRUST5</i>	1.000	5.000	3.687	0.868
<i>BI1</i>	1.000	5.000	4.070	1.011
<i>BI2</i>	1.000	5.000	3.957	1.058
<i>BI3</i>	1.000	5.000	3.904	1.047
<i>REC1</i>	1.000	5.000	4.235	0.868

<i>REC2</i>	1.000	5.000	4.252	0.778
<i>REC3</i>	1.000	5.000	4.296	0.780
<i>OTHERS1</i>	1.000	5.000	3.017	0.995
<i>OTHERS2</i>	1.000	5.000	2.748	1.070
<i>PU1</i>	1.000	5.000	4.261	0.824
<i>PU2</i>	1.000	5.000	4.096	0.884
<i>PU3</i>	1.000	5.000	4.183	0.881
<i>ENJOY1</i>	1.000	5.000	3.687	0.858
<i>ENJOY2</i>	1.000	5.000	3.565	0.825
<i>ENVOY3</i>	1.000	5.000	3.417	0.923
<i>ECON1</i>	1.000	5.000	4.026	0.849
<i>ECON2</i>	1.000	5.000	3.948	0.811
<i>ECON3</i>	1.000	5.000	3.983	0.823
<i>ENV1</i>	1.000	5.000	3.678	0.947
<i>ENV2</i>	1.000	5.000	3.730	0.795
<i>ENV3</i>	1.000	5.000	3.626	0.899
<i>SOCIAL1</i>	1.000	5.000	3.791	0.860
<i>SOCIAL3</i>	1.000	5.000	3.765	0.795
<i>SOCIAL4</i>	1.000	5.000	3.417	0.923
<i>BELONG1</i>	1.000	5.000	3.652	0.781
<i>BELONG2</i>	1.000	5.000	2.896	0.917
<i>BELONG4</i>	1.000	5.000	3.104	0.828
<i>GREEN3</i>	1.000	5.000	4.157	0.753
<i>GREEN4</i>	1.000	5.000	3.904	0.913
<i>GREEN5</i>	1.000	5.000	3.652	0.960
<i>SHAR1</i>	1.000	5.000	3.904	0.894
<i>SHAR2</i>	1.000	5.000	3.191	1.071
<i>SHAR4</i>	1.000	5.000	3.957	0.806
<i>SHAR5</i>	1.000	5.000	3.504	0.908

### **Validity and reliability of scales**

The reliability and validity of the constructs were examined using confirmatory factor analysis in the XLSTAT software package. The results are shown in Table 3. The reliability for constructs was assessed using both the traditional Cronbach's Alpha measure and, as recommended by Chin (1998), Dillon-Goldstein's Rho (Wertz et al. 1974), which is considered a better measure since it does not include tau equivalence of manifest variables. Overall, the Cronbach's Alpha reliability for the constructs ranged from 0.695 to 0.970, with all but one above the recommended level of 0.7 (Nunnally 1978), and one construct on the threshold (Sense of Belonging). The more representative measure of Dillon-Goldstein's Rho found that the reliability for constructs ranged

from 0.831 to 0.981, all comfortably well above the recommended level of 0.7 (Esposito Vinzi et al. 2010). A bootstrap analysis reported in Table 3 also found that all items loaded on their expected constructs very strongly at  $p < .001$  (critical ratios ranged from 4.108 to 40.584), supporting convergent validity.

**Table 3. Psychometric analysis of constructs.**

<b>Construct</b>	<b>Items</b>	<b>Standardized Loadings (Bootstrap)</b>	<b>Standard Error</b>	<b>Critical Ratio</b>	<b>Cronbach's Alpha</b>	<b>Dillon-Goldstein's Rho</b>
<b>Structural Assurance</b>	ASSUR1	0.925	0.038	24.373	0.921	0.950
	ASSUR2	0.925	0.033	28.868		
	ASSUR3	0.908	0.034	26.960		
<b>Trust</b>	TRUST1	0.912	0.035	26.778	0.876	0.915
	TRUST2	0.840	0.061	14.083		
	TRUST3	0.740	0.101	7.513		
	TRUST4	0.827	0.067	12.468		
<b>Social Influence</b>	OTHERS1	0.970	0.081	12.349	0.833	0.923
	OTHERS2	0.714	0.175	4.108		
<b>Economic Benefits</b>	ECON1	0.888	0.062	14.580	0.881	0.927
	ECON2	0.812	0.090	9.226		
	ECON3	0.915	0.046	19.946		
<b>Green Behavior</b>	GREEN1	0.684	0.153	4.722	0.796	0.880
	GREEN2	0.761	0.108	7.204		
	GREEN3	0.918	0.046	20.633		
<b>Environmental Benefits</b>	ENV1	0.939	0.036	26.275	0.872	0.921
	ENV2	0.770	0.107	7.366		
	ENV3	0.810	0.077	10.689		
<b>Sharing Behavior</b>	SHAR1	0.859	0.090	9.837	0.837	0.891
	SHAR2	0.683	0.148	4.783		
	SHAR3	0.788	0.134	6.307		
	SHAR4	0.698	0.127	5.801		
<b>Social Benefits</b>	SOCIAL1	0.842	0.088	9.757	0.768	0.867
	SOCIAL2	0.719	0.118	6.283		
	SOCIAL3	0.810	0.083	9.804		
<b>Perceived Usefulness</b>	PU1	0.944	0.037	26.035	0.940	0.961
	PU2	0.925	0.033	28.167		
	PU3	0.939	0.033	28.621		
<b>Sense of Belonging</b>	BELONG1	0.812	0.083	9.939	0.695	0.831
	BELONG2	0.791	0.077	10.428		
	BELONG3	0.686	0.135	5.314		
<b>Enjoyment</b>	ENJOY1	0.874	0.067	13.357	0.883	0.928
	ENJOY2	0.895	0.048	18.552		

	ENVOY3	0.889	0.047	19.222		
<b>Behavioral Intention</b>	BI1	0.964	0.035	28.213		
	BI2	0.960	0.035	27.689	0.970	0.981
	BI3	0.894	0.065	14.040		
<b>Recommendation</b>	REC1	0.948	0.028	34.421		
	REC2	0.965	0.024	40.584	0.950	0.968
	REC3	0.911	0.063	14.638		

Tables 4 and 5 examine the discriminant validity and convergent validity of the constructs.

Table 4 examines cross-loadings of items on constructs. All items loaded more strongly on their own construct than on other constructs, demonstrating discriminant validity (Chin 1998). The discriminant validity of constructs is further examined in Table 5. The AVEs for constructs were considerably larger than the squared intercorrelations of other constructs, again confirming discriminant validity (Fornell and Larcker 1981). Convergent validity was measured by average variance extracted (AVE) and ranged from 0.616 to 0.926, above the recommend level of 0.50 (Fornell and Larcker 1981).

**Table 4. Cross-loadings of items on constructs.**

<i>Items/Constructs</i>	<i>SA</i>	<i>TR</i>	<i>BI</i>	<i>REC</i>	<i>SI</i>	<i>PU</i>	<i>ENJ</i>	<i>ECB</i>	<i>ENB</i>	<i>SOB</i>	<i>BEL</i>	<i>GB</i>	<i>SHB</i>
<b>ASSUR1</b>	<b>0.938</b>	0.747	0.328	0.533	0.349	0.595	0.391	0.482	0.393	0.441	0.508	0.232	0.394
<b>ASSUR2</b>	<b>0.938</b>	0.747	0.293	0.509	0.297	0.594	0.397	0.500	0.418	0.476	0.525	0.240	0.407
<b>ASSUR3</b>	<b>0.909</b>	0.724	0.384	0.613	0.382	0.626	0.496	0.439	0.366	0.454	0.528	0.241	0.392
<b>TRUST1</b>	0.750	<b>0.926</b>	0.381	0.587	0.300	0.576	0.411	0.459	0.399	0.515	0.473	0.173	0.376
<b>TRUST2</b>	0.709	<b>0.856</b>	0.336	0.544	0.342	0.610	0.390	0.420	0.378	0.499	0.521	0.184	0.376
<b>TRUST3</b>	0.605	<b>0.762</b>	0.382	0.426	0.393	0.426	0.242	0.277	0.342	0.439	0.426	0.334	0.323
<b>TRUST4</b>	0.631	<b>0.841</b>	0.348	0.582	0.429	0.643	0.362	0.535	0.455	0.503	0.537	0.270	0.436
<b>BI1</b>	0.362	0.413	<b>0.990</b>	0.565	0.275	0.465	0.548	0.436	0.267	0.403	0.405	0.226	0.298
<b>BI2</b>	0.352	0.422	<b>0.978</b>	0.573	0.273	0.463	0.523	0.428	0.265	0.375	0.322	0.246	0.272
<b>BI3</b>	0.379	0.410	<b>0.919</b>	0.574	0.235	0.409	0.526	0.409	0.226	0.297	0.352	0.192	0.239
<b>REC1</b>	0.577	0.615	0.581	<b>0.954</b>	0.368	0.687	0.597	0.579	0.462	0.522	0.529	0.303	0.415
<b>REC2</b>	0.604	0.619	0.558	<b>0.978</b>	0.365	0.743	0.596	0.617	0.487	0.517	0.540	0.313	0.433
<b>REC3</b>	0.522	0.585	0.512	<b>0.927</b>	0.430	0.664	0.522	0.567	0.476	0.522	0.471	0.334	0.426
<b>OTHERS1</b>	0.373	0.409	0.278	0.402	<b>1.000</b>	0.332	0.482	0.329	0.482	0.530	0.483	0.414	0.492
<b>OTHERS2</b>	0.379	0.331	0.194	0.294	<b>0.718</b>	0.262	0.449	0.317	0.463	0.421	0.431	0.402	0.423
<b>PU1</b>	0.646	0.617	0.437	0.672	0.323	<b>0.951</b>	0.419	0.640	0.500	0.518	0.469	0.220	0.335
<b>PU2</b>	0.562	0.620	0.433	0.710	0.334	<b>0.932</b>	0.384	0.614	0.428	0.524	0.444	0.206	0.360



<i>PU3</i>	0.638	0.631	0.469	0.710	0.274	<b>0.948</b>	0.379	0.638	0.429	0.512	0.468	0.225	0.349
<i>ENJOY1</i>	0.371	0.325	0.516	0.572	0.353	0.372	<b>0.901</b>	0.425	0.312	0.440	0.498	0.319	0.384
<i>ENJOY2</i>	0.474	0.426	0.516	0.503	0.444	0.358	<b>0.899</b>	0.514	0.279	0.491	0.565	0.253	0.447
<i>ENVOY3</i>	0.415	0.402	0.432	0.544	0.532	0.410	<b>0.898</b>	0.454	0.378	0.556	0.606	0.281	0.480
<i>ECON1</i>	0.444	0.445	0.369	0.472	0.268	0.608	0.409	<b>0.910</b>	0.422	0.477	0.419	0.150	0.296
<i>ECON2</i>	0.446	0.466	0.344	0.507	0.346	0.555	0.424	<b>0.830</b>	0.362	0.524	0.512	0.124	0.272
<i>ECON3</i>	0.481	0.473	0.441	0.660	0.319	0.616	0.533	<b>0.921</b>	0.365	0.454	0.516	0.210	0.312
<i>ENV1</i>	0.386	0.386	0.234	0.437	0.440	0.450	0.333	0.394	<b>0.956</b>	0.469	0.441	0.566	0.361
<i>ENV2</i>	0.393	0.444	0.261	0.446	0.425	0.404	0.336	0.432	<b>0.791</b>	0.541	0.496	0.437	0.345
<i>ENV3</i>	0.371	0.484	0.265	0.483	0.436	0.426	0.300	0.375	<b>0.825</b>	0.550	0.503	0.450	0.332
<i>SOCIAL1</i>	0.446	0.507	0.235	0.465	0.391	0.487	0.437	0.508	0.472	<b>0.863</b>	0.522	0.260	0.433
<i>SOCIAL2</i>	0.431	0.463	0.517	0.459	0.390	0.437	0.520	0.405	0.332	<b>0.742</b>	0.512	0.231	0.354
<i>SOCIAL3</i>	0.359	0.445	0.392	0.436	0.513	0.426	0.455	0.350	0.469	<b>0.819</b>	0.554	0.306	0.447
<i>BELONG1</i>	0.560	0.547	0.292	0.562	0.321	0.529	0.508	0.485	0.428	0.567	<b>0.829</b>	0.198	0.293
<i>BELONG2</i>	0.378	0.447	0.302	0.368	0.460	0.255	0.493	0.422	0.457	0.521	<b>0.804</b>	0.284	0.436
<i>BELONG3</i>	0.338	0.284	0.306	0.290	0.389	0.317	0.439	0.286	0.303	0.401	<b>0.716</b>	0.199	0.410
<i>GREEN1</i>	0.291	0.304	0.198	0.353	0.299	0.305	0.186	0.212	0.416	0.210	0.214	<b>0.720</b>	0.504
<i>GREEN2</i>	0.190	0.210	0.106	0.324	0.366	0.164	0.287	0.179	0.449	0.270	0.166	<b>0.777</b>	0.544
<i>GREEN3</i>	0.217	0.214	0.247	0.252	0.371	0.185	0.294	0.149	0.542	0.314	0.289	<b>0.939</b>	0.390
<i>SHAR1</i>	0.388	0.372	0.197	0.388	0.373	0.351	0.421	0.348	0.296	0.459	0.416	0.339	<b>0.886</b>
<i>SHAR2</i>	0.272	0.282	0.225	0.320	0.397	0.223	0.355	0.225	0.363	0.365	0.344	0.358	<b>0.706</b>
<i>SHAR3</i>	0.375	0.426	0.317	0.378	0.435	0.296	0.372	0.213	0.315	0.437	0.389	0.539	<b>0.844</b>
<i>SHAR4</i>	0.274	0.272	0.228	0.337	0.481	0.244	0.433	0.241	0.408	0.383	0.342	0.500	<b>0.740</b>

**Table 5. Test for discriminant validity** (squared correlations < AVE on diagonal).

Construct	SA	TR	SI	ECB	GB	ENB	SHB	SOB	PU	BEL	ENJ	BI	REC
<i>Structural Assurance (SA)</i>	<b>0.862</b>												
<i>Trust (TR)</i>	0.634	<b>0.719</b>											
<i>Social Influence (SI)</i>	0.139	0.167	<b>0.757</b>										
<i>Economic Benefits (ECB)</i>	0.258	0.257	0.108	<b>0.789</b>									
<i>Green Behavior (GB)</i>	0.066	0.069	0.172	0.037	<b>0.668</b>								
<i>Environmental Benefits (ENB)</i>	0.177	0.213	0.233	0.185	0.333	<b>0.740</b>							
<i>Sharing Behavior (SHB)</i>	0.183	0.194	0.243	0.110	0.267	0.150	<b>0.636</b>						
<i>Social Benefits (SOB)</i>	0.242	0.329	0.281	0.270	0.110	0.301	0.268	<b>0.655</b>					
<i>Perceived Usefulness (PU)</i>	0.427	0.434	0.110	0.447	0.053	0.235	0.135	0.301	<b>0.891</b>				
<i>Sense of Belonging (BEL)</i>	0.314	0.316	0.234	0.271	0.081	0.260	0.218	0.412	0.238	<b>0.616</b>			
<i>Enjoyment (ENJ)</i>	0.216	0.179	0.233	0.265	0.101	0.127	0.231	0.297	0.177	0.375	<b>0.809</b>		
<i>Behavioral Intention (BI)</i>	0.133	0.179	0.077	0.193	0.056	0.073	0.085	0.157	0.221	0.143	0.299	<b>0.926</b>	
<i>Recommendation (REC)</i>	0.358	0.405	0.162	0.382	0.109	0.248	0.198	0.296	0.540	0.292	0.362	0.334	<b>0.909</b>

**Note:** AVE on diagonal; squared correlations off diagonal.

The potential threat of common method bias (CMB) was examined via Harman's one-factor test by entering all constructs into an unrotated principal components factor analysis (Podsakoff and

Organ 1986). Nine factors were produced and the first accounted for just 38.3% of the variance. This suggests that there is unlikely to be significant common method bias.

## Results

The results of testing our research model via PLS path modeling in XLSTAT are shown in Table 6. The fit of the model was evaluated using Esposito Vinzi et al.'s (2010) Relative Goodness-of-Fit Index ( $GoF_{rel}$ ), designed and recommended as best practice for PLS path modelling (Henseler and Sarstedt 2013). We find that the fit of the model is above the level of 0.9 recommended by Esposito Vinzi et al. (2010) and is therefore acceptable ( $GoF_{rel}=0.958$ ). The goodness-of-fit of the outer model and inner model were also high (0.980 and 0.978 respectively), providing positive support for the fit of the model.

**Table 6. Test of Research Model.**

Relationship	Path Coeff.	St. Error	t	Pr >  t
Structural Assurance → Trust <b>Trust <math>R^2 = 0.645</math> (F=205.359, Pr &gt; F &lt;.001)</b>	0.803	0.056	14.330	<0.001
Sense of Belonging → Enjoyment <b>Enjoyment: <math>R^2 = 0.375</math> (F=68.862, Pr &gt; F &lt;.001)</b>	0.613	0.074	8.238	<0.001
Green Behavior → Environmental Benefits <b>Environmental Benefits: <math>R^2 = 0.333</math> (F=56.487, Pr &gt; F &lt;.001)</b>	0.577	0.077	7.516	<0.001
Sharing Behavior → Social Benefits <b>Social Benefits: <math>R^2 = 0.268</math> (F=41.322, Pr &gt; F &lt;.001)</b>	0.517	0.080	6.428	<0.001
Economic Benefits → Perceived Usefulness	0.493	0.079	6.266	<0.001
Environmental Benefits → Perceived Usefulness	0.161	0.080	2.004	0.048
Social Benefits → Perceived Usefulness <b>Perceived Usefulness: <math>R^2 = 0.520</math> (F=40.036, Pr &gt; F &lt;.001)</b>	0.205	0.085	2.411	0.018
Trust → Behavioral Intention	0.108	0.105	1.034	0.303

Social Influence → Behavioral Intention	-0.050	0.089	-0.566	0.572
Perceived Usefulness → Behavioral Intention	0.237	0.102	2.314	0.023
Enjoyment → Behavioral Intention	0.426	0.091	4.669	<0.001
<b>Behavioral Intention: R<sup>2</sup>=0.376</b> (F=16.589, Pr > F < .001)				
Trust → Intention to Recommend	0.182	0.077	2.363	0.020
Social Influence → Intention to Recommend	0.017	0.065	0.257	0.797
Perceived Usefulness → Intention to Recommend	0.477	0.075	6.336	<0.001
Enjoyment → Intention to Recommend	0.316	0.067	4.714	<0.001
<b>Intention to Recommend: R<sup>2</sup>=0.663</b> (F=54.076, Pr > F < .001)				

All but three relationships were statistically supported in our research model. The model explains 37.6% of behavioral intention to participate in collaborative consumption using the website ( $R^2=0.376$ ,  $F=16.589$ ,  $p<.001$ ), which was significantly determined by both Enjoyment (H9a:  $\beta=0.426$ ,  $SE=.091$ ,  $t=4.669$ ,  $p<.001$ ) and Perceived Usefulness (H2a:  $\beta=0.237$ ,  $SE=.102$ ,  $t=2.314$ ,  $p=.023$ ), but not by Trust or Social Influence (H10a, H12a). In terms of our other outcome measure, the model explains an impressive 66.3% of variance in Intention to Recommend ( $R^2=0.663$ ,  $F=54.076$ ,  $p<.001$ ), driven by Perceived Usefulness (H2b:  $\beta=0.477$ ,  $SE=.075$ ,  $t=6.336$ ,  $p<.001$ ), Enjoyment (H9b:  $\beta=0.316$ ,  $SE=.067$ ,  $t=4.714$ ,  $p<.001$ ) and Trust (H12b:  $\beta=0.182$ ,  $SE=.077$ ,  $t=2.363$ ,  $p=.020$ ), but again not by Social Influence (H10b). Around 53% of the variance was due to Perceived Usefulness, 29% to Enjoyment and 17% to Trust.

More than half of the variance in Perceived Usefulness in our research model was significantly explained by the three antecedents ( $R^2=0.520$ ,  $F=40.036$ ,  $p<.001$ ), with Economic Benefits accounting for 63% of variance (H1:  $\beta=0.493$ ,  $SE=.079$ ,  $t=6.266$ ,  $p<.001$ ), Social Benefits 22% (H7:  $\beta=0.205$ ,  $SE=.085$ ,  $t=2.411$ ,  $p=.018$ ) and Environmental Benefits 15% (H5:  $\beta=0.161$ ,  $SE=.080$ ,  $t=2.004$ ,  $p=.048$ ).

Nearly two-thirds of the variance in Trust was explained by Structural Assurance ( $R^2=0.645$ ,  $F=205.359$ ,  $p<.001$ ), and the relationship was significant at the  $p<.001$  level (H11:  $\beta=0.803$ ,

SE=.056,  $t=14.330$ ,  $p<.001$ ). Sense of Belonging explained 37.5% of the variance in Enjoyment ( $R^2=0.375$ ,  $F=68.862$ ,  $p<.001$ ), and the path was again significant (H8:  $\beta=0.613$ , SE=.074,  $t=8.238$ ,  $p<.001$ ).

A third of the variance in Environmental Benefits was explained by Green Behavior ( $R^2=0.333$ ,  $F=56.487$ ,  $p<.001$ ), and the path between the two was extremely significant (H4:  $\beta=0.577$ , SE=.077,  $t=7.516$ ,  $p<.001$ ). Similarly, 26.8% of the variance of Social Benefits was explained by Sharing Behavior ( $R^2=0.268$ ,  $F=41.322$ ,  $p<.001$ ), again with a highly significant structural path (H6:  $\beta=0.517$ , SE=.080,  $t=6.428$ ,  $p<.001$ ).

The mediating role of perceived usefulness between the three benefits and two consumer outcomes – intention to act and to recommend – was analyzed using the Sobel test (Baron and Kenny 1986; Sobel 1986). The results are shown in Table 7. Overall, we find only partial support for H3, with three of the six mediated relationships found as significant: between economic benefits and behavioral intention ( $Z=2.175$ ; SE=0.054;  $p=.029$ ), between economic benefits and intention to recommend ( $Z=4.454$ ; SE=0.053;  $p<.001$ ), and between social benefits and intention to recommend ( $Z=2.255$ ; SE=0.043;  $p=.024$ ).

**Table 7. Mediation tests for Perceived Usefulness.**

<b>A→B→C</b>	<b><math>\beta_a</math></b>	<b>SE<sub>a</sub></b>	<b><math>\beta_b</math></b>	<b>SE<sub>b</sub></b>	<b>Z</b>	<b>SE</b>	<b>p</b>
Economic Benefits → Perceived Usefulness → Behavioral Intention	0.493	0.079	0.237	0.102	2.175	0.054	<b>0.029</b>
Environmental Benefits → Perceived Usefulness → Behavioral Intention	0.161	0.080	0.237	0.102	1.521	0.025	0.128
Social Benefits → Perceived Usefulness → Behavioral Intention	0.205	0.085	0.237	0.102	1.673	0.029	0.094
Economic Benefits → Perceived Usefulness → Intention to Recommend	0.493	0.079	0.477	0.073	4.454	0.053	<b>&lt;.001</b>
Environmental Benefits → Perceived Usefulness → Intention to Recommend	0.161	0.080	0.477	0.073	1.919	0.040	0.055
Social Benefits → Perceived Usefulness → Intention to Recommend	0.205	0.085	0.477	0.073	2.255	0.043	<b>0.024</b>

Intention to Recommend							
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**Note:** 'a' refers to the path A→B; 'c' refers to the path B→C; bold p-values are significant at 5% level or more.

## Discussion and conclusions

The growing sharing economy promises to bring about a radical change in consumer purchasing and consumption, both online and offline, potentially presenting a phenomenon as important to economies in the coming decade as e-commerce was during the last decade. However, successful collaborative consumption ventures need loyal tribes of members and often struggle to determine the key features that will help them to survive. In an effort to better understand collaborative consumption on the Web, this paper has developed and tested an original model for explaining consumer outcomes in this new environment. The model has nomological validity, explaining 66.3% of the variance of Intention to Recommend and 37.6% of Behavioral Intention (to participate in collaborative consumption) with respect to the car-sharing website examined. The model also displayed acceptable reliability, validity and goodness of fit using the measures employed.

The motivators for car sharing for consumers are both intrinsic and extrinsic. Enjoyment and perceived usefulness are the key motivators for intentions to participate in collaborative consumption. Consumers feel part of the tribe or community on MinBilDinBil, adding to a feeling of enjoyment and a desire to participate in car sharing and to tell others about it. Concurrently, consumers perceive significant benefits from car sharing activities, spearheaded by economic benefits, with social and environmental benefits playing a significant but less important role (and depending particularly on consumers' disposition regarding sharing and green behavior). Paradoxically, consumers who car share appear very independently-minded and opportunistic, and thus do not feel the impact of social influence upon their activities. This is

perhaps in line with Bardhi and Eckhardt's (2012) finding that car sharing appears to be associated with self-interest and utilitarianism. They also do not consider trust to be a particular consideration for using the website themselves, but think that it is an important requisite for recommending the site to others.

The absence of a significant relationship between trust and behavioral intention to participate in collaborative consumption is an interesting issue. Arguably, MinBilDinBil act as a broker in the relationship between owners and renters. Although reviews, ratings and other reputational content are provided to individuals in order to assist them in the decision to rent, the decision itself is ultimately their own. After the decision is made, safeguards are provided, in that identification and transactions are securely handled by the website and all cars rented are covered by comprehensive insurance as standard. Indeed, items for structural assurance were among the highest in our survey, emphasizing that strong assurance was felt among the sample of respondents, and perhaps a degree of "big-brother governance" (Bardhi and Eckhardt 2012).

Our model makes a significant contribution to understanding consumer behavior in the collaborative consumption context. It unifies a number of components within the basic framework of the theory of planned behavior. Particularly important aspects of the contribution to knowledge are a comprehensive set of measures for understanding key antecedents of the mediating variable, perceived usefulness, and their determinants, and understanding of enjoyment and social belonging in determining a consumer's intention to share via a collaborative consumption website and to recommend it to others. To our knowledge, this is the first study to formally test the relationship between sense of belonging and enjoyment in a non-experimental setting. Our study uses data from real consumers and finds support for this relationship. Our study makes a contribution by discovering the important role of perceived usefulness in carrying forward different types of perceived benefits to determine recommendation intentions and

participation behavior, particularly economic benefits for both dependent variables and social benefits for intention to recommend. Furthermore, we have found that disposition for sharing and green behavior are very important determinants of perceived environmental and social benefits, in line with sustainability theory for the former (Benkler 2011), and studies on previous social sharing initiatives such as the open source movement for the latter (Phipps et al. 2013). The final research model provides a comprehensive coverage of intrinsic and extrinsic factors to understand consumer behavior (in line with Baldus et al., 2015) in a collaborative consumption context.

Our research has implications for practice and points to areas of development for collaborative consumption in order to build tribes of loyal followers via word-of-mouth. Successful tribes can become successful with low-cost marketing techniques that capitalize on the power and wisdom of the crowd via social networks: in this case the loyal tribe of online followers. Our research has identified the pattern of determinants that works for the particular type of business studied: car-sharing. Focusing upon the right factors can provide a cognitive boost in developing loyal tribe members, where enjoyment and utility are key to participation (in that order) and usefulness, enjoyment and trust are key to creating positive word-of-mouth.

In order to create successful collaborative consumption websites developers should build aim to build cohesive communities of consumers that have an affinity with the nature of the sharing activities and each other. Cohesive communities of sharers will not only create social benefits but engender a sense of belonging that contributes to creating an enjoyable experience. In targeting new leads, marketers should also emphasize the economic savings that consumers will obtain from renting and the environmental benefits of sharing rather than buying. If metrics can be provided for sharers to more accurately and clearly assess these benefits then they are likely to be

even stronger. Marketing to the right groups is essential: price-conscious individuals that are active sharers and users of social media, who are also likely to have an environmental conscience.

In order to create word-of-mouth about collaborative consumption websites, managers should also focus upon building mechanisms that create trust. Such structural assurance mechanisms include those that ensure that problems of adverse selection, which inhibit the building of critical mass (Fremstad 2014), do not occur. These include provide the legal framework and policies that fairly manage transactions and resource use, secure payment mechanisms and protection, appropriate insurance policies, helpful and accurate review and reputation systems, user identification and tracking (including audit), and the flagging of problem users.

Our research has some limitations and possible directions for further research. First, we focus on just one type of collaborative consumption website, and testing the model in other online sharing contexts is recommended (and currently in progress). Testing the model in other contexts may surface a different patterns of importance in determinants for building a successful tribe. Second, our sample size, although adequate for PLS-PM, could be considered limited. Socio-demographic features may also be of value in targeting potential consumers, but our sample size was not large enough to test for them. A secondary analysis (not reported above) did, however, find that female users and those with higher social media use had a significantly higher Intention to Recommend score ( $p < .001$  and  $p < .05$  respectively), suggesting that more data and further analysis into respondent characteristics might be fruitful. Future research should aim to collect more data to test the impact of socio-demographic features on the model.

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## **Appendix: Survey items used in the study**

### **Structural Assurance** (Gefen et al. 2003; Teh and Ahmed 2012)

ASSUR1. I feel safe conducting business with MinBilDinBil because the assurances it provides will protect me.

ASSUR2. I feel safe conducting business with MinBilDinBil because of its statements of guarantees.

ASSUR3. I feel safe conducting business with MinBilDinBil because it verifies identities of users.

### **Trust** (adapted from Gefen et al. 2003)

TRUST1. MinBilDinBil is honest.

TRUST2. MinBilDinBil cares about its customers.

TRUST3. MinBilDinBil is predictable.

TRUST4. MinBilDinBil knows its market.

### **Perceived Usefulness** (Limayem et al. 2007; Davis 1989)

PU1. MinBilDinBil is of benefit to me.

PU2. The advantages of MinBilDinBil outweigh the disadvantages.

PU3. Overall, using MinBilDinBil is advantageous.

### **Green Behavior** (created for this study)

GREEN1. I actively recycle items that I am able to.

GREEN2. I try to repair or reuse items rather than throwing them away.

GREEN3. I actively try to reduce my carbon footprint.

**Environmental Benefits** (created for this study)

ENV1. I feel as if I am making a contribution to the environment by using MinBilDinBil.

ENV2. MinBilDinBil's use of resources is environmentally-friendly.

ENV3. MinBilDinBil is an example of a 'green' company.

**Economic Benefits** (created for this study)

ECON1. By using MinBilDinBil I am earning or saving money.

ECON2. MinBilDinBil is a low-cost option.

ECON3. MinBilDinBil represents good value for money.

**Sharing Behavior** (created for this study)

SHAR1. I like to lend items to my friends and family.

SHAR2. I tend to borrow rather than buy.

SHAR3. I often try to share what I have with others.

SHAR4. I prefer to share with others rather than purchase.

**Social Benefits** (created for this study)

SOCIAL1. By using MinBilDinBil I am helping others.

SOCIAL2. Users of MinBilDinBil help each other.

SOCIAL3. Using MinBilDinBil brings people closer together.

**Sense of Belonging** (adapted from Brown and Evans 2002)

BELONG1. I can be myself with MinBilDinBil.

BELONG2. I feel like I belong with MinBilDinBil.

BELONG3. I am comfortable talking to others who use MinBilDinBil about problems.

**Enjoyment** (Hsu and Lin 2008)

ENJOY1. While using MinBilDinBil, I experienced pleasure.

ENJOY2. The process of using MinBilDinBil is enjoyable.

ENJOY3. I have fun using MinBilDinBil.

**Social Influence** (Hsu and Lin 2008; Ventakesh and Davis 2000)

OTHERS1. People who are important to me think that I should use MinBilDinBil.

OTHERS2. People who influence my behavior encourage me to use MinBilDinBil.

**Behavioral Intention to Participate in Collaborative Consumption** (Bhattacharjee and Premkumar 2004; own items)

BI1. I will consider using MinBilDinBil in the future.

BI2. It is very likely that I will use MinBilDinBil in the future.

BI3. I intend to use MinBilDinBil in the future.

**Intention to Recommend** (adapted from Maxham and Netmeyer 2002)

REC1. I would recommend MinBilDinBil to my friends.

REC2. I am likely to spread positive word-of-mouth about MinBilDinBil.

REC3. If my friends were looking to travel, I would tell them to try MinBilDinBil.