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Ponnapureddy, Sindhuri ; Priskin, Julianna ; Ohnmacht, Timo ; Vinzenz, Friederike ; Wirth, Werner

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The influence of trust perceptions on German tourists' intention to book a sustainable hotel: a new approach to analysing marketing information

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ABSTRACT
This study examined the relationship between German tourists' trust perceptions and their intention to book a sustainable hotel, pioneering a new quantitative approach to sustainable tourism marketing. Data came from 300 respondents who participated in an online survey. Respondents were given a digital brochure to read containing information about a "fictitious" three-star beach hotel in Portugal, before completing a questionnaire that measured inter alia their intention to book this sustainable hotel. Both individual "general trust" (perception of others' trustworthiness) and "specific trust" towards the fictitious hotel in the brochure were measured. The survey also evaluated respondents' perceptions about the usefulness of the information in the brochure. Multiple regression analysis of the data indicated that general trust, trusting the hotel and perceived usefulness of the brochure were positively and significantly related to booking intentions. An interaction between general trust and perceived usefulness was also observed. This means that the higher the perception rate about the brochure's usefulness, the higher general trust was for booking intentions and vice versa. The practical implications of the results suggest that tourists could be motivated to book a hotel if its sustainability attributes and amenities were communicated in a trust inspiring way in marketing material.

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Introduction

One way to achieve sustainable tourism development goals through consumer led approaches is for more consumers to book sustainable hotels. Attracting guests to sustainable hotels is challenging, despite general consumer preference shifts towards social and environmental responsibility. The proportion of consumers booking at sustainable hotels remains small (Line & Hanks, 2016). Indeed, the tourism industry has encountered numerous issues relating to consumer trust in its sustainability marketing materials. Often, sustainable hotels are recognisable by a label or certification that reflects their level of sustainable management (Peiró-Signes, Verma, Mondéjar-Jiménez, & Vargas-Vargas, 2014). Various studies suggest that certain markets defined by key socio-demographic characteristics could be considered to be more affinity with, and could be influenced by, specific sustainable hotel

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marketing. This leaves potential for expansion, particularly amongst non-sustainability affinity consumer markets (Company, 2014; Deloitte, 2011). Despite efforts to communicate sustainability attributes to potential guests across different markets to date, it is not clear what the marketing prerequisites are to achieve a successful booking. Yet, from an industry viewpoint this is important, particularly to determine what is useful information to potential guests that can also be trusted.

Some hotels wishing to appeal to new markets are advertised as "more sustainable" than they are in reality, which has negatively impacted on consumer's trust of the establishments' advertised services. This "greenwashing" phenomenon is rather prevalent in the tourism sector and has led to confusion, scepticism and mistrust amongst some consumers of anything that is marketed as eco, green, responsible and so on (Rahman, Park, & Chi, 2015). Not all consumer markets are predisposed to sustainable consumerism, as they have different needs and perceptions of sustainable hotel information and the trustworthiness of that information. It would seem that since mistrust is a clear barrier to booking intentions, hoteliers need to have a better understanding of how to avoid mistrust in sustainable hotel marketing. Their aim should be quite the opposite, to promote sustainably managed establishments so as to induce perceptions of useful and trustworthy information about sustainability, to enable consumers to make informed and conscious booking choices in favour of sustainably managed hotels.

Besides trusting the information consumers receive from marketing materials for sustainable hotels, they also need to perceive that information as useful, particularly if they intend to book into the establishment. Whilst sustainability and corporate social responsibility reports permit detailed accounts of a hotel's management and are considered as trustworthy in reflecting a hotel's actual management efforts, these rational communications are targeted to industry stakeholders and rarely to guests, who might otherwise have a rather poor understanding of sustainability (Miller, Rathouse, Scarles, Holmes, & Tribe, 2010; Parguel, Benoît-Moreau, & Larceneux, 2011). The achievement of higher booking rates at sustainable hotels requires consumer trust in marketing, through a format that is perceived as useful and communicates essential aspects relevant to a consumer who may not fully comprehend the complexity of sustainability. Although various sustainable tourism marketing guidelines offer concepts for hotel marketing (Villarino & Font, 2015), the perceptions of useful information that can actually lead to increased interest in booking a sustainable hotel are not clearly defined. In this context, it is challenging for sustainable hotels to market themselves appropriately, reflecting their management, when it is unclear if the information provided can be considered as useful and in what form consumers consider it as trustworthy marketing.

Besides communicating hotel services to consumers, socio-demographic variables are also relevant influences on booking intentions. The actual demand for sustainably managed tourism products is still considered a niche, restricted to less than 20% of the international travel market according to some researchers (Wehrli et al., 2014; Wehrli, Egli, Lutzenberger, Pfister, & Stettler, 2012). This pro-sustainability tourism market is commonly described as of mature age (Han, Hsu, Lee, & Sheu, 2011), with a higher than average level of both education and disposable income (López-Sánchez & Pulido-Fernández, 2016). One segmentation study based on demographics also found that mainly female, high-income individuals are willing to buy sustainable goods (Laroche, Bergeron, & Barbaro−Forleo, 2001). Other studies to date, however, failed to significantly validate the effects of social demographical variables on sustainable consumption choices (Gilg, Barr, & Ford, 2005). Clearly, the pro-sustainable tourism market is not homogenous (Hedlund, Marell, & Gärling, 2012) and to reach non-sustainability aware consumers is challenging for sustainably managed hotels. The reason for this is that such target marketing requires specific efforts to persuade consumers who may currently perceive sustainably managed hotels to be more expensive than standard alternatives, or have other barriers to booking. These consumers may also mistrust anything that is marketed as sustainable.

This paper sets out how tourist trust perceptions and their socio-demographic characteristics relate and potentially influence sustainable hotel booking intentions. The following research questions were investigated: (1) How do tourists' trust perceptions (in general and towards a sustainable hotel and its marketing brochure) influence intention to book a hotel? (2) To what extent do

socio-demographic characteristics explain the intention to book a sustainable hotel? In addition, the data relating to possible interactions between trust perceptions, perceived usefulness of the information in the brochure and tourist socio-demographics with regard to booking intentions were analysed. These results provide the basis for the discussion of the practical implications of this work for sustainable hotel marketing.

Literature review

A sustainable hotel is an establishment managed with a variety of socio-economic and environmental management attributes (GSTC, 2013). Essentially, sustainable hotel management requires additional responsibility and effort to maintain high-quality guest experiences (Berezan, Millar, & Raab, 2014; ITP, 2008). Some authors also suggest that to increase bookings at sustainable hotels, additional marketing effort is required (Chhabra, 2012; Ye & Tussyadiah, 2011). These efforts are needed to enable perceptions of authenticity, to create a stronger connection to the hotel and to create trust amongst potential guests that the hotel actually performs the communicated sustainability actions (Gössling & Buckley, 2016). Trust is a concept with an established theoretical foundation that plays a key role in sustainability marketing (Belz & Peattie, 2012), where potential consumers always "use" trust to reduce their uncertainty and risk in whatever they purchase. One of the most widely cited definitions of trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust irrespective of the ability to monitor or control that other" (Mayer, Davis, & Schoorman, 1995, p. 712).

Trust can be distinguished as a psychological state encompassing the intention based upon positive expectations of the intentions or behaviour of another party (e.g. to book a sustainable hotel) (Rousseau, Sitkin, Burt, & Camerer, 1998). In this study, trust is referred to as a concept that demonstrates the degree to which tourists believe a hotel's marketing and management actions, which can also be interpreted as guest belief in honesty, fairness or benevolence of the services provided. The roles, attributes and dimensions of trust have been studied extensively in many different fields although to a lesser extent in tourism. Ability, benevolence and integrity are generally considered as the most important dimensions of trust. In the context of a sustainable hotel, ability refers to the hotel's capability to fulfil its communicated promises in its marketing platforms. Benevolence is when the hotel holds consumers' interests ahead of its own self-interest and indicates sincere concern for their welfare, while integrity means the hotel acts in a consistent, reliable manner to meet its promises (Chong, Yang, & Wong, 2003; Schoorman, Mayer, & Davis, 2007).

A trustworthy relationship between a hotel and its customer has to be developed and well maintained. Therefore, trust can also be viewed as a process. Trust can be created and maintained through marketing, thereby enabling tourist's confidence with reference to a specific situation (e.g. booking a sustainable hotel). Tourists relate trust mainly to reliability, quality of the information promoted (Filieri, Alguezaui, & McLeay, 2015), even though it may not transform into bookings every time. During the process of creation, trust also acts as a point of differentiation especially when promoting a hotel to a new customer who is not familiar with its services.

When considering trust as a relevant factor for booking intentions, certain prerequisites such as being uncertain towards a particular situation are required (Doney & Cannon, 1997). In this context, when tourists are considering the process of booking a hotel, a condition exists where they are the only potential guests who need persuasion and trust towards that specific hotel. A growing body of literature dealing with online communication related to sustainable hotels has recently concentrated on examining perceptions of trust towards booking intentions (Filieri et al., 2015; Sparks & Browning, 2011; Sparks, Perkins, & Buckley, 2013). So far, the focus has been directed solely on perceptions of trust without differentiating between specific trust and general trust. Given the important role of trust in consumer behaviour, it is essential to understand the individual roles of general and specific trust.

General trust and Specific trust

General trust refers to "the general willingness to trust that others can be relied upon" Mayer et al. (1995, p. 715). It is a broad concept and acts as a basic antecedent to specific trust and refers to the extent to which a person perceives the world in general, as trustworthy (Chen & Barnes, 2007; Choi & Jin, 2015; Kantsperger & Kunz, 2010). General trust can be considered as a personality trait and an individual's propensity to trust something or someone that is independent of the situation (Kantsperger & Kunz, 2010; Rotter, 1980). For example, individuals with higher general trust believe that most people are basically trustworthy and have fair and good intentions (Mooradian, Renzl, & Matzler, 2006). Specific trust is highly influenced by the marketing activities of a company (Kenning, 2008).

Specific trust is trust towards a specific entity or situation, such as a sustainable hotel. It can be created and facilitated by appropriate marketing and promotion materials containing relevant information that helps potential consumers about a given product or service, because the presence of specific trust towards the hotel reduces the complexity of decision-making and associated perceived risk with the booking (Siegrist, Gutscher, & Earle, 2005). Both general and specific trust are interrelated and research shows that general trust influences specific trust regarding purchasing behaviours (Chughtai & Buckley, 2008; Kenning, 2008). For example, in online transactions general trust acts as an important antecedent and favours specific trust towards a particular website, because risk perceptions towards the products or services to be bought depend on individuals (Kim, Ferrin, & Rao, 2008; Siegrist et al., 2005).

The communication of rational information about product attributes is not entirely sufficient to create or facilitate trust. Therefore, other tools such as labels and certificates can help by presenting complex sets of information about a product in a short and condensed form (Sparks et al., 2013). Not surprisingly, labels often signal quality, proving their key role in creating and facilitating trust amongst some customers, which sometimes results in higher purchase intentions for certain products (Kim & Kim, 2011; Zhang, 2005). This is because certified and labelled products have been shown to have an additional differentiation point compared to standard alternatives (Peiró-Signes et al., 2014), most likely because these signal instant quality without elaborating very specific product attributes (Atkinson & Rosenthal, 2014; Dendler, 2014). To adhere to any certificate or label, product assessment by independent third party organisations are required, although this process is not explicitly documented for consumers per se. In the case of hotels, sustainability labels reflect specific responsible management policies and actions linked to the socio-economic and environmental impacts of the establishment (Grunert, Hieke, & Wills, 2014). Furthermore, few sustainable hotel labels are known to, or recognised by, consumers (James, West, Davis, & Reddick, 2010; Sandve, Marnburg, & Øgaard, 2014). Effective sustainable hotel labels are those which consumers recognise and trust, as proven by purposeful guest booking intentions.

Beside labels and certificates, the website of a hotel, its associated online-offline marketing and promotional material needs to provide additional useful and credible information to increase a likely booking intention. For example, when a hotel communicates sustainability actions as being part of its normal practice, it can facilitate positive guest perceptions towards the hotel (Font, Elgammal, & Lamond, 2016). However, sometimes the actions are not delivered transparently or in the ways suggested in promotional materials and actually overstate real hotel services thereby misleading consumers. The impact of this on consumers is disappointment, perceptions of product uncertainity and vulnerability (in a future buying context). In a sustainable consumerism context, the overstatement of claims is commonly known as "greenwashing" (Chen, 2013; Miller et al., 2010), which has been proven to reduce consumer trust and confidence (Parguel et al., 2011), increase scepticism amongst some (Albayrak, Caber, Moutinho, & Herstein, 2011) and lower specific trust towards the product or the company (Chen, 2013). Consumers in a tourism context who exhibit environmentally sustainable behaviour have been shown to be more sceptical and look for more information before trusting the

environmental claims made in a company's communication (Font et al., 2016). It can take an additional effort for a marketer to convince those consumers who have lower confidence in a product.

Perceived usefulness of the information

Perceived usefulness is understood to be a source of (useful) information for the customer that is intended to increase the belief that the hotel provides what they promise and this may be a primary stage to gain trust. According to the technology accepted model, perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his performance" (Davis, 1989). Perceived usefulness represents a significant antecedent for purchasing behaviour. Providing useful information in line with consumer needs increases familiarity with a product or a service. Additionally, it can help show understanding of consumer expectations and preferences. Offering useful information can raise trust in a product. Thus, companies can promote their attributes even to consumers who may not explicitly need or expect it. Perceived usefulness acts as a strong predictor in developing positive attitudes, which indirectly favours booking intentions (Kucukusta, Law, Besbes, & Legohérel, 2015; Morosan & Jeong, 2008). There is also positive influence between consumer trust from a particular source and perceived usefulness of the information (Lai, Huang, Lu, & Chang, 2013).

Sustainable tourists have been described to be different from the "average tourist", because they may be more prepared to participate in the sustainability actions of the hotel, such as recycling (Millar & Baloglu, 2011), and reusing towels and sheets (Reese, Loew, & Steffgen, 2014), donating funds to heritage conservation and charity funds amongst numerous other actions (Zander, Pang, Jinam, Tuen, & Garnett, 2014). The ability to trust others is highly individual and can vary significantly amongst different demographic groups. For example, trust in a specific hotel may be influenced by gender or age. Indeed, many socio-demographic factors can influence consumer booking intentions (Dolnicar, 2010) including lifestyle preferences (Berezan et al., 2014; Han et al., 2011). Various studies have shown that the German travel market has more affinity with sustainability, having an interest and willingness to book sustainable tourism products (Wehrli et al., 2012), particularly prevalent in middle-aged women, and those with above average education (Mohr & Schlich, 2016).

In this context, this research study set out to answer the following hypotheses:

H1 The higher the level of tourist trust towards the communicated sustainability attributes of a hotel, the higher the level of intention to book the hotel.

H2 The higher general trust, the higher the level of intention to book a given hotel.

H3 The higher the level of perceived usefulness of the information provided about a sustainable hotel, the higher the level of the intention to book the hotel.

H4 Tourists' socio-demographics systematically influence the booking intentions of a sustainable hotel.

It is hypothesised that the following influencing variables are predictors for the increase in booking intentions of a sustainable hotel.

H4.1 The higher the income households the greater the intention to book.

H4.2 Females have a greater intention to book than men.

H4.3 A higher education status leads to greater intention to book.

H4.4 The lower the level of age group the greater the intention to book.

Methodology

The research tested numerous influences on booking intentions with a special focus on trust. The data for this research was collected in January 2016, from an online survey administered in Germany.

The German market was chosen since Germany has a wide range of sustainably managed hotels and is considered it to be one of the most pro-sustainability tourist markets worldwide (FUR, 2014; Robecosam, 2016; Wehrli et al., 2014). Potential survey respondents were contacted by a professional polling company (Respondi AG) using an online access panel, which comprised the sample of German population in relation to age, gender, household size and income. The respondents came from a broad distribution sample in terms of gender, education levels and no mobile phones were used to complete the survey. All respondents had to be over 18 years of age and under 60. All respondents received a financial incentive for participation.

Brochure and questionnaire design

Survey participants were given the task to hypothetically plan a holiday on the Algarve Coast of Portugal. For this, they were provided with a fictitious brochure showing a three star, independent standard hotel. Portugal was chosen for the study as it is one of the preferred destinations for outbound German travellers: they are the second largest hotel users on the Algarve Coast (OECD, 2014; UNWTO, 2016). This survey used the hypothetical scenario planning method, commonly applied to predict future consumer behaviour (Karlsson & Dolnicar, 2016). This method was deemed suitable mainly because it enabled enhanced involvement of the respondents with the target behaviour of booking a specific sustainable hotel, via extensive exposure to a 16-page fictitious digital brochure, with details about standard facilities such as location, room amenities, price, quality, guest services and sustainability features covering socio-economic and environmental aspects of the advertised hotel. This method also facilitated respondents' ability to answer a detailed questionnaire about the hotel.

The digital brochure was designed by the authors using tools offered by Canva (https://www.canva.com/) and Adobe Indesign software. The brochure contained images from Portugal and text (statements) about the fictitious beach hotel named "Lumina". It was created to appear like a standard brochure that people would expect from a three-star hotel in terms of, information, layout, text style and images. The brochure's layout and features were selected from commonly available online digital brochures. To highlight the sustainability features of the hotel, a fictitious label was also developed using an open source logo design platform (https://www.hipsterlogogenerator.com/). The label's design was inspired by frequently used sustainable tourism labels currently available for industry and included a text specifically mentioning "third-party verified" (see brochures below). The label was pre-tested to verify its credible appearance and was inserted as a small logo at the bottom of every double page. In addition, a special page on which an enlarged version of the label was displayed was dedicated to explaining in detail, the hotel's sustainability management brief.

A copy of the brochure in its original German version is available at http://sushotel.github.io/lumina1/. A version translated into English is available at http://sushotel.github.io/lumina10/.

The brochure was validated by industry professionals for credibility and it was pre-tested three times prior to its final online launch. The digital brochure offered a compatible interaction between the website and tablet modus and the respondents were specifically asked not to use a phone to complete the survey. The brochure's length ensured that specific sustainability attributes could be presented in sufficient detail, using specific images. The time it took to read the brochure was also measured. This ensured that survey participants actually read the brochure before they proceeded to answer the survey questions. To avoid respondents just flicking over information, each page had one large image on the left or right side, and only one or two sentences with a heading to make it easy to comprehend and keep the participants' attention.

Once a respondent began participating in the online survey, they were given a brief introduction about the project and practical information about how to read and navigate the brochure. The first specific task the respondents were given was to read the stimuli brochure. Once this task was completed, they were redirected to the online questionnaire that included various scaled questions to assess their opinions and attitudes. The questionnaire had sections relating to trust constructs, perceived usefulness of the brochure, and booking intentions, with standard questions relating to

Table 1. Operationalisation of concepts: survey questions and measurement.

Focus	Measurement level and type
Socio-demographic variables	
Gender	Nominal (male, female)
Age	Nominal – five categories (18–24, 25–35, 36–50, 51–64, 65 and more years)
Gross annual household income	Nominal – three category (low, middle, high)
Education	Nominal – three category (primary, secondary, postsecondary)
Time spent on brochure and questionnaire	Ratio, mean = 22.31 minutes, SD = 10.85 minutes
Latent constructs	
General trust	Ratio (mean-index consisting out of five ordinal seven-point Likert scale treated as equidistant), Cronbach's alpha = 0.89, mean = 4.10, SD = 1.20
Trust (hotel)	Ratio (mean-index consisting out of six ordinal seven-point Likert scale treated as equidistant) Cronbach's alpha = 0.95, mean = 5.48, SD = 1.26
Perceived usefulness	Ratio (mean-index consisting out of four ordinal seven-point Likert scale treated as equidistant) Cronbach's alpha = 0.87, mean = 5.51, SD = 1.25
Intention to book a sustainable hotel (dependent variable)	Ratio (mean-index consisting out of five ordinal seven-point Likert scale treated as equidistant) Cronbach's alpha = 0.96, mean = 4.70, SD = 1.67

demographics such as gender, education, gross annual household income (Table 1). Questionnaire responses were measured on a seven-point Likert scale where 1 = strongly disagree and 7 = strongly agree. It was estimated that the questionnaire would require maximum 20 minutes to complete and the exact time spent reading the stimuli brochure was measured by the polling company. Although 310 respondents completed the questionnaire, only 300 questionnaires were retained for analysis as several respondents did not meet the questionnaire's inbuilt seriousness check.

Table 2. Measurement items, mean and standard deviation (1= strongly disagree, 7= strongly agree).

Constructs and scale items	Mean	Standard deviation
Trust (hotel)		
I suppose the promoted hotel is socially responsible	5.58	1.38
I assume that the promoted hotel is protecting the environment	5.67	1.34
I assume that the promoted hotel is following a long-term and farsighted corporate strategy	5.51	1.32
I assume that the promoted hotel generally acts in a sustainable way	5.26	1.58
In general, I trust that the hotel services are verified by an independent third-party	5.36	1.35
General trust		
Most people are basically honest	3.72	1.51
Most people are trustworthy	3.87	1.47
Most people are basically good and kind	4.13	1.44
Most people are trustful of others	3.80	1.44
Most people will respond in kind manner when they are trusted by others	4.97	1.31
Perceived usefulness		
If I were seriously looking for a hotel, I would like to use such a brochure to inform me	5.44	1.60
I would use a hotel brochure like this one, to inform me of a hotel offer	5.54	1.45
The hotel brochure contains all the important information that you can expect in a brochure like this one	5.25	1.60
Brochures like these are typical for the tourism industry	4.55	1.64
This brochure is professionally done	5.82	1.25
I think the information presented in the brochure is typical for a hotel like this one	4.98	1.51
This particular hotel brochure also contained information which is actually not typical for a standard brochure	5.11	1.55
Intention to book a sustainable hotel (dependent variable)		
I would intend to book the promoted hotel for my next vacation	4.45	1.83
I would plan to book the promoted hotel in the near future	4.73	1.75
I would be willing to book the promoted hotel for my next vacation	4.80	1.78
I can imagine to book the promoted hotel for my next stay in Portugal	5.07	1.74
I would indeed book the promoted hotel for my next vacation	4.43	1.82

The brochure served as the basis for elements of the questionnaire and four scales were created (Tables 1 and 2 in bold). These were: "1. Trust towards the hotel" (e.g. I suppose the promoted hotel is socially responsible), "2. General Trust" (e.g. Most people are basically honest), "3. Perceived Usefulness" (e.g. If I were seriously looking for a hotel, I would like to use such a brochure to inform myself) and 4. "Intention to book a sustainable hotel" (e.g. I would intend to book the promoted hotel for my next vacation). Cronbach's Alpha values of 0.70 or higher were used to estimate construct consistency and reliability. Trust towards the hotel ($\alpha = 0.95$), perceived usefulness ($\alpha = 0.87$) were self-reported items and the construct validity was refined through pre-tests. Booking intentions constructs ($\alpha = 0.96$) were measured using the elements employed by Han, Hsu, and Sheu (2010). General trust ($\alpha = 0.89$) was measured using a scale developed by (Siegrist et al., 2005; Yamagishi & Yamagishi, 1994).

Data analysis

Initial analysis of the data used descriptive statistics to show the mean, the frequencies and the standard deviation (SD) values. Then correlation analysis was applied to the data to determine how constructs related to booking intentions. Multiple regression analysis determined which patterns emerged between booking intentions (the dependent variable) and trust towards the sustainable hotel, general trust, perceived usefulness of the brochure and their demographics (the independent variables).

A multiple ordinary least square (OLS) linear regression was used using *R Studio Statistical Software* (Version 0.99.491). OLS was deemed as most appropriate as the response variable of the mean-index of booking intention was treated as a metric variable. The mean-index consisted of five ordinal seven-point Likert scales treated as equidistant, so the assumption of a metric use of the variable was acceptable. Statistical assumptions for data-set, which included homoscedasticity, normality of the error distribution and no or little multicollinearity of metric variables, were all met. The multivariate linear regression modelling was presented in two stages to test the hypothesis detailed in a previous section of this paper. An initial regression model was generated containing the variables set out in Table 1, the equation is as follows:

$$\begin{aligned}\text{Booking Intention} = \beta_0 & \\ & + \beta_1 \text{female} \\ & + \beta_2 \text{ age}(25-35) + \beta_3 \text{ age}(36-50) + \beta_4 \text{ age}(51-64) + \beta_5 \text{ age}(+65) \\ & + \beta_6 \text{ primary} + \beta_7 \text{ postsecondary (Education)} \\ & + \beta_8 \text{ Income(high)} + \beta_9 \text{ Income(low)} \\ & + \beta_{10} \text{ General Trust} \\ & + \beta_{11} \text{ Trust (Hotel)} \\ & + \beta_{12} \text{ Perceived Usefulness} \\ & + \varepsilon.\end{aligned}$$

The regression formula tested the statistical relationship between the dependent variable of booking intention and several independent variables (e.g. general trust) and was modelled as a linear combination. The betas (β) in the equation are the weights (or slope) that quantified the strength and direction of influence to predict booking intentions. An optimised model was subsequently computed using the regr0 package of the *R software* for a best-fit model with interaction terms (Scheme) to identify those influencing variables that predict to a high extent the dependent variable of sustainable hotel booking intention and to test the research hypotheses. Interaction effect models were applied between general trust, trusting the hotel and perceived usefulness with regard to the brochure. Bayesian information criterion (BIC) was used as an evaluation criterion to quantitatively measure, which model maximised correspondence between the observed and predicted model. The best fit model was represented using BIC, whereby a smaller BIC indicated a better-fitting model (Raftery, 1995).

Findings

On average, the 300 survey respondents spent a total of 22.31 minutes, SD (10.85 minutes), completing the survey. The demographic profile of respondents was 54% females and 46% male: 66% of the sample was between 36 and 64 years old (Table 3). In total, 51% of the respondents were from a middle income group with gross annual household incomes between 20,000 and 55,000 Euros. Another 28% were from a low gross annual household income group and 21% were from a high gross annual household income group (Table 3). Since the regression analysis used variance data for analysis, there was no need to weight the data-set.

Descriptive statistics of the scales generally revealed positive trends (1 = totally agree and 7 = totally disagree). Respondents reported on average a high intention to book the sustainable hotel presented ($M = 4.70$, SD = 1.67). They also exhibited very high average trust towards the hotel ($M = 5.48$, SD = 1.26) even though they had somewhat lower general trust as individuals ($M = 4.10$, SD = 1.20). On average, respondents perceived the information presented in the brochure clearly as useful ($M = 5.51$, SD = 1.25). Correlation analyses indicated that general trust, trust towards the sustainable hotel and perceived usefulness of the brochure were significantly positive (Table 4). The Bravais–Pearson 0.57 correlation was significant indicating there was an association between trusting the hotel and booking intention. Since no high correlations (>0.7) resulted between the constructs, their inclusion into a multiple regression was acceptable. Moreover, the variance inflation factor (VIF) did not exceed a value of 10, which supported the decision in dealing with acceptable multicollinearity.

Table 5 summarises the initial multivariate analysis model and Table 6 illustrates the final best-fit model including interaction terms. In order to identify significant effects, *t*-statistics were used to test the effect of the size of an independent variable was different from zero (the closer *t* is to 0, the more likely that there is not a significant difference stemming from the influencing variable). Given the study's sample size, a *t*-value greater than 2.576 indicates a *p*-value of < 0.01 and 1.96 a *p*-value < 0.05 (e.g. if the two-tailed t-test statistics exceeds the critical value of 1.96, the null-hypothesis can be rejected at a 95% significance level).

Initial model

The variables from the initial model accounted for 45% of the variance in booking intentions where, $R^2 = 0.45$, $F\,(9, 300) = 21.13$, $p < .01$.

Table 3. Description of categorical variables and comparison with German census data.

	Sample			
Variables	*N*	%	German census %	Difference (sample- census)
Gender				
Female	162	54	49	5.0
Male	138	46.0	51	−5.0
Age (years)				
up to 24	22	7.3	9.10	−1.8
25—35	55	18.3	16.5	1.83
36–50	93	31.0	25.5	5.50
51–64	105	35.0	24.10	10.9
65 and more	23	7.67	25.0	−17.3
Education				
Primary	59	19.7	21.2	−1.5
Secondary	138	46.0	57.5	−11.5
Postsecondary	103	34.3	21.2	13.1
Annual gross household income (in 1000 €)				
Low (<20)	86	28.7	18.9	9.8
Middle (20 to 55)	153	51.0	51.5	−0.5
High (<55)	61	20.3	29.6	−9.3
Total	300			

Source: German census, see http://www.datenportal.bmbf.de

Table 4. Correlation coefficients of trust and booking intention.

Variables	*M*	SD	1	2	3	4	5
(1) General trust	4.10	1.2	–				
(2) Trust (hotel)	5.48	1.26	0.30**	–			
(3) Perceived usefulness	5.51	1.25	0.24**	0.61**	–		
(4) Booking intention	4.70	1.67	0.31**	0.57**	0.63**	0.11	–

**$p < 0.01$.

Table 5. Multiple regression analysis results of booking intention of a sustainable hotel (initial model).

Variables	*n*	*F* statistic	Adj. R2	β	*t*-Value
The model	300	21.13**	0.45		
Constant				−0.72	−1.47
Gender (female)				0.19	1.28
Age					
18–24 (Ref)				–	–
25–35				−0.60	−1.88
36–50				−0.76	−2.52*
51–64				−0.91	−2.97**
65 and more				−0.39	−1.02
Education					
Primary (Ref)				–	–
Secondary				0.18	0.89
Postsecondary				−0.01	−0.06
Income (in 1000 €)					
Low (Ref)				–	–
Middle				0.30	1.68
High				0.09	0.41
General trust				0.20	3.05**
Trust (hotel)				0.33	4.34**
Perceived usefulness				0.56	7.49**

**$p < 0.01$; *$p < 0.05$; Ref: reference category, BIC = 1039.256.

Trust towards the hotel also had a positive impact on hotel booking intentions ($\beta = 0.33$, *t*-value = 4.34, $p < .01$). The stronger the tourists' trust towards the hotel, the more likely was their booking intentions. With an increase of 1, the booking intention increased by 0.33. This proves H1 and confirms that higher trust levels about a hotel have a direct positive effect on booking intentions.

Higher general trust levels also had a positive impact and resulted in higher booking intentions ($\beta = 0.20$, *t*-value = 3.05, $p < .01$) which supports H2. With an increase of 1, the booking intentions increased 0.20 points.

Table 6. Multiple regression analysis results of booking intention of a sustainable hotel (final model including interaction terms).

Variables	*N*	*F* statistic	Adj. R2	β	*t*-Value
The model	300	32.43**	0.46		
Constant				5.31	20.09**
Age					
18–24 (Ref)				–	–
25–35				−0.49	−1.59
36–50				−0.71	−2.41*
51–64				−0.88	−2.98**
65 and more				−0.47	−1.26
General trust				0.21	2.78**
Trust (hotel)				0.44	4.69**
Perceived usefulness				0.76	7.97**
General trust * perceived usefulness			0.19	2.76**	

Note: **$p < 0.01$; *$p < 0.05$; Ref: reference category, BIC = 1015.201.

Perceived usefulness of the brochure (information provided) also had a high significant impact on booking intentions ($\beta = 0.56$, t-value $= 7.49$, $p < .01$). The more useful the information provided to respondents, the higher the booking intention of the sustainable hotel, which supports H3. With an increase of 1, the booking intentions increased by 0.56.

Using the same measurement level of the constructs, the effects of constructs were ranked as follows: (1) perceived usefulness, (2) trust (hotel) and (3) general trust.

The results of the initial multiple regression analysis did not confirm H4, i.e. that socio-demographics systematically influence the booking intentions to a sustainable hotel although variable "age" did influence booking intentions. Accordingly, younger respondents had higher booking intentions. For those between 36 and 50 years old (where $\beta = -0.76$, t-value $= -2.52$, $p < .05$) and those between 51 to 64 years old (where $\beta = -2.52$, t-value $= -0.91$, $p < .05$) the booking intentions were significantly lower compared to those of younger respondents aged between 18 to 24 years (Table 5).

Final model

Table 6 summarises those variables that significantly influenced the booking intentions, showing them in terms of two-fold interactions. Interpretation of the values for booking intention was based on the regression formula (Aiken, West, & Reno, 1991). Like the initial model, the variables for the final model accounted for 47% of the variance in booking intentions where, $R^2 = 0.47$, $F = 32.43$, $p < .01$. This is a better-fitting model with a BIC value of 1015.201 compared to the initial model BIC value of 1049.618. This lower BIC value indicates that the final model is better able to handle booking intention variance than the initial model. The final regression model is described by the following equation:

$$\begin{aligned}\text{BookingIntention} = {} & \beta_0 \\ & + \beta_1 \text{ age}(25-35) + \beta_2 \text{ age}(36-50) + \beta_3 \text{ age}(51-64) + \beta_4 \text{ age}(+65) \\ & + \beta_5 \text{ General Trust} \\ & + \beta_6 \text{ Trust Hotel} \\ & + \beta_7 \text{ Perceived Usefulness} \\ & + \beta_8 \text{ (General Trust} * \text{Perceived Usefulness)} \\ & + \varepsilon.\end{aligned}$$

Variables which were not relevant to booking intentions were omitted from the final model's formula. Perceived usefulness (where $\beta = 0.76$, t-value $= 7.97$, $p < .01$), trust towards the hotel (where $\beta = 0.44$, t-value $= 4.69$, $p < .01$) and general trust (where $\beta = 0.21$, t-value $= 2.78$, $p < .01$) all acted as significant predictors of booking intentions. A significant two-way interaction of general trust by perceived usefulness was identified (where $\beta = 0.19$, t-value $= 2.76$, $p < .01$) and this interaction effect was interpreted as follows: the higher the general trust of an individual, the stronger the effect of the perceived usefulness of the brochure has on the booking intentions of that individual and vice versa: The more useful the promotional brochure information is perceived to be by an individual, the greater general trust, which in turn positively impacts the individual's intention to book a sustainable hotel.

Predicting booking intentions

A linear regression model illustrates that together the interactive effects of both perceived brochure usefulness and general trust significantly increased booking intention. Furthermore, trust towards a sustainable hotel was a significant predictor of booking intention and did not impact the other predictors. In addition, the booking intention of respondents within the 36–50 and 51–64 age groups

differed from that of respondents in the 18–24 age group. Booking intention was significantly lower for the two older age groups than for the younger age group.

Figure S1 (available in the online version of this paper, under the Supplemental Data tab) shows the linear effects of the mean centred values of general trust towards booking intentions for different age groups. Perceived usefulness was held constant at the mean (= 0), facilitating the prediction of booking intention in relation to general trust, without the effect of perceived usefulness impacting the result.

Figure S2 (available in the online version of this paper, under the Supplemental Data tab) shows the effect of perceived usefulness on booking intention for different age groups. General trust was held constant at the mean (= 0), facilitating the prediction of booking intention in relation to perceived usefulness.

Figure S3 (available in the online version of this paper, under the Supplemental Data tab) shows the effect of trust (hotel) on booking intention for different age groups. Other influencing variables general trust, perceived usefulness were held constant at the mean (= 0), facilitating the prediction of trust towards the hotel.

Figure S4 (available in the online version of this paper, under the Supplemental Data tab) shows the interaction terms. This specifies focusing on general trust that depending on the value of perceived usefulness, the slope of general trust is different. For that reason, a simulation was made for fixed values of perceived usefulness (−2, 0, +2). Figure S4 (Supplemental Data) also shows the effect of general trust on booking intention for different age groups with the interaction of perceived usefulness for the values of −2, 0, +2. Hence, the effects of general trust towards booking intentions is reflected based on the respondents who perceive the information provided in the brochure as highly useful (+2), the respondents who perceive the information provided on average (0 = mean) and the respondents who perceive the brochure as not useful at all (−2). The higher the perceived usefulness of the brochure, the booking intention increases with a greater slope by higher degrees of general trust.

Figures S1–S3 (Supplemental Data) illustrate that if the interacting variables are held constant at the mean (= 0), the degree to which they influence booking intention can be ranked as follows: perceived usefulness of the information is the most influencing variable; trust in the hotel the next most influencing variable and finally general trust the least influencing variable. Figure S4 (Supplemental Data) illustrates how these main effects change due to the interaction between general trust and perceived usefulness.

Discussion and conclusions

This research contributes to the existing literature both theoretically and empirically, highlighting the relationships between trust, sustainable hotel marketing and booking intentions. It also considers social demographical variables as additional predictors of booking intentions. It provides a better understanding of the direct and interactional roles of specific trust towards a hotel, general trust and perceived usefulness of hotel brochure information on booking intentions.

General findings in the light of sustainable hotel marketing

Sustainable hotel marketing studies are generally conceptual or qualitative: only limited research has assessed the effects of trust and other scales on booking intentions empirically and in the context of a target market with an affinity towards sustainability such as Germany. The general findings of the study seem to indicate that marketers would benefit from greater investment in more effective sustainable hotel promotional material. Most of the previous studies that examined the demand side of sustainable tourism highlight that tourist markets have a limited, though increasing awareness of sustainability. They also suggest that sustainable hotel choice may be unintentional and more likely incidental, since only sustainability aware and committed consumers would deliberately book into such

establishments. Given the findings about the level of booking intention in this study, it would suggest that the average mass consumers in the target market may potentially prefer a sustainable hotel. This therefore, confirms that persuasive sustainability marketing has indeed the potential to drive mass consumer markets where the younger generation are more receptive to sustainable hotels. The topic merits validation and further assessment across different travel markets.

One research question this study sought to answer was whether constructs such as tourists' general trust perceptions, specific trust towards a sustainable hotel and perceived usefulness of the information in the brochure influenced booking intentions. Previous studies on general trust, specific trust towards a hotel and perceived usefulness of marketing materials individually measured the effects on purchase intentions (Kantsperger & Kunz, 2010; Kucukusta et al., 2015). However, for this study the constructs were modelled together with respect to intentions towards booking a sustainable hotel. These factors were also found to be a reliable predictor of booking intentions and empirical analysis confirmed these constructs to be significant in understanding tourist decision-making. Previous studies did not measure the important interactional effects of the constructs on booking intentions that were done in this work.

Trust was facilitated through the use of a fictitious online hotel brochure, which clearly displayed a third party certified label, as well as details about standard hotel amenities and sustainability information relevant to the consumer. All this clearly helped integrate the determinants that show specific trust towards the hotel and the perceived usefulness of the information provided. High levels of detail about sustainability information in a specific context were found to increase trust amongst respondents (Sparks et al., 2013).

Influence of specific trust towards the hotel

The influence of specific trust in a particular state or situation on behavioural intention to execute new target behaviour has been well discussed (Pivato, Misani, & Tencati, 2008). This study supports these previous findings and contributes empirical evidence about the influence of specific trust towards a sustainable hotel on booking intentions. Sustainability information that includes all three dimensions (social, environmental and economic), as well as a label indicating sustainability certification is clearly an important element that engenders specific trust towards a sustainable hotel. As these research findings illustrate, the level of trust towards the hotel makes a difference towards booking intentions. Though all the participants got the same information, few participants trusted the information differently from the others, which clearly show that trust towards the hotel can affect the booking intention.

It would, therefore, be worthwhile for hotel marketers to ensure that they facilitate trust in their sustainable products or services and include sufficient useful information in their communication and promotional materials (Castaldo, Perrini, Misani, & Tencati, 2010). The facilitation of trust reduces the likely interpretation of information by consumers as greenwashing. Previous research also indicates that trust can be conveyed by sustainability certifications, in particular those that explicitly include messages about independent third party verification (Esparon, Gyuris, & Stoeckl, 2014; Sparks et al., 2013). Practically, specific trust towards the hotel may be partially achieved by a high degree of transparency about the sustainable management of a hotel (BSR, 2015).

Influence of general trust

This research suggests that general trust also needs to be considered as an important determinant to influence booking intentions. The findings of the study clearly show that the higher the general trust of a particular individual, the higher the booking intentions of a sustainable hotel. This means, that individuals with a higher general trust are more easily convinced to book a hotel irrespective of the specific trust towards the hotel. Additionally, when consumers have a high propensity to trust in general, it can contribute towards specific trust. A particular individual with a higher general trust

responds relatively favourably to positive actions performed by an organisation, especially when the interaction between the entities is limited (Mooradian et al., 2006; Rotter, 1980). This is also important because an individual's propensity to trust can influence the consumer's product choice especially in selecting a new product or service (Siegrist et al., 2005) and this may be relevant to hotels that have only recently engaged in sustainability actions. This is highly advantageous for marketers, because focussing on specific hotel, trust-building activities would become more effective when consumers have higher levels of general trust.

Influence of perceived usefulness

The results of this research study confirm that hotel sustainability information presented in a general but detailed online brochure can be useful to persuade consumers to trust the marketing of a hotel, inducing a relatively high intention to book the hotel (Sparks & Browning, 2011). In line with commonly known marketing techniques, when consumers perceive that promotion material contains useful information about products or services, they are likely to buy them (Kucukusta et al., 2015; Morosan & Jeong, 2008). Perceived usefulness can improve the marketing effects of value-differentiated services, including sustainable hotels. The results of the study are in line with those of other research findings that suggest, in order to induce customers to book into sustainable hotels, these establishments need to provide more than just the standard marketing information (Villarino & Font, 2015). This study's findings indicate that perceived usefulness of the information in the brochure is a predictor of sustainable hotel booking intentions. Consequently, communicating sustainability in a hotel brochure may be best achieved if the sustainability text is integrated into a brochure that consumers perceive as customary or typical promotional material relevant to them. In turn, this may mean that hotel marketers should invest in attractive integrated and standard looking brochures, rather than producing special ones just focussing on the sustainable attributes. This would mean that microsites detailing the hotel's sustainability efforts are best presented in an integrated fashion along with the standard amenities and services. On a practical note, due to the increase in number of online bookings through booking.com, hotels.com, a 16-page brochure may not be regarded by tourists as a useful decision-making tool for booking decisions. The findings of the study do suggest that providing more useful and trustworthy sustainability information is important to persuade tourists to increase their booking intentions (Tables 4 and 5) but this may need to be condensed to reflect current online marketing trends (Gössling & Lane, 2015).

Interaction effects

Unlike previous studies, the current study also evaluated the significant interaction effects of perceived usefulness of the information and general trust on booking intentions. Indeed, tourists who have higher general trust as a personal trait when confronted with useful information about a sustainable hotel perceive it as valuable. The result is a higher intention to book a sustainable hotel. If the perceived usefulness is rather low, even a person with higher general trust will not have a higher booking intention. In contrast, the booking intentions will be lower with increasing trust, if the perceived usefulness is regarded as poor. The latter can be seen clearly in Figure S4 (Supplemental Data). If perceived usefulness is fixed with – 2 (after we have mean centred the range of values of the construct, indicating that people perceive the usefulness as very low), booking intention drops even with increasing trust.

Hotel marketers rarely identify travellers with high general trust regardless of marketing instruments used. However, by facilitating trust towards the hotel's actions and specifically trust towards the information and communication channels (brochures, websites and others) marketers may achieve desired booking intentions for a sustainable hotel. If these elements of specific trust towards the hotel (effectiveness knowledge) and perceived usefulness information (declarative knowledge)

are aimed at consumers with a high general trust, the intention to book a sustainable hotel is highest and likewise increases the chance of a booking.

Socio-demographic factors

Research into the demand side of sustainable tourism often attempts to explain sustainable hotel booking intentions and relate these to socio-demographic profile characteristics (Han et al., 2011). Socio-demographics were considered important to trust in marketing, because one's individual knowledge and understanding tends to influence trust in sustainability products (Castaldo et al., 2010). In contrast to the literature reviewed, apart from age, the data analysis in this paper results indicate that the relationships between socio-demographic respondents' characteristics and sustainable hotel booking intentions were insignificant. Only Germans were surveyed and the data analysis shows that those respondents within the 18 to 24-year age group had a higher intention to book a sustainable hotel than those in the older age groups. A previous study undertaken in Italy had similar findings (Young, Hwang, McDonald, & Oates, 2010). The results of this study indicate that younger travellers may be more easily persuaded to book a sustainable hotel. Consequently, this younger section of the market may need to be targeted with useful, credible and trustworthy sustainability information and this merits further investigation.

Whilst this study only evaluated the German travel market's booking intentions, it is particularly important since Germany is ranked fourth for its environmental sustainability actions in tourism (Crotti & Misrahi, 2015). Various other studies also highlighted that German travellers tend to voluntarily offset flight emissions, be aware of climate change impacts and generally prefer to follow sustainability actions on vacation (Higham, Cohen, Cavaliere, Reis, & Finkler, 2016). According to the findings here, target marketing of sustainable tourism products is worthwhile, as Germans represent an important source market for many destinations worldwide.

Study limitations and future research

The principal limitations of this study were the relatively small sample size and the focus on the German travel market. Although the German travel market is appropriate when examining sustainable tourism in general, future research needs to examine other markets and identify cross cultural implications for sustainable hotel marketing. Nonetheless, the research findings provide a solid a contribution, which increases the theoretical understanding of sustainable hotel booking intentions. Additionally, the study has not measured how trust towards the hotel can be increased and what kind of information is required by different personality or consumer types to increase the perceived usefulness. Since many hotels utilise promotional flyers and brochures (both online and printed), the use of the 16-page stimuli brochure was not entirely unrealistic. Future research could test consumer booking intentions using a similar method and test trust and information usefulness in an integrated online booking platform. For example, the research could compare a conventional site such as booking.com and a pro sustainability site, such as bookdifferent.com.

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