

Identification of innovative users for new service development in tourism

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Abstract

The integration of customers into the development process of new products and services is crucial for companies regardless of the industry in which they operate. The advent of the Internet and new media applications has transformed the value creation processes of the tourism industry to an extent unseen in other industry sectors. Electronic information mediators, such as information and booking portals of DMOs (destination management organisations) are not only becoming an increasingly dominant source of information and opinions for tourists but also for tourism service providers. The latter motivates our work to identify the innovative users from all visitors of an electronic information platform. In this paper we will therefore present findings from a research project, where we identified innovative users based on lead user characteristics as well as by a virtual idea contest. The paper's findings are controversial with respect to mainstream innovation research as they indicate that scales used in traditional innovation research disappoint in the tourism context.

With our research we contribute to the existing literature in three ways: 1) we explore whether the lead user concept can also be applied for new service development in spa tourism; 2) we investigate the innovative potential of the identified lead users by assessing their creativity through an idea contest; and 3) thereby evaluate whether lead users in spa tourism are really able to substantially contribute to new service development.

Keywords: Open innovation, lead user identification, virtual idea generation, new service development, classification.

1 Introduction

For most services in general, and for most tourism offers in particular, the customer traditionally entails a critical and integral role. The service itself is seen as highly dependent upon the interaction quality between service provider and customer (Bolton and Drew 1991; Grönroos 1993; Parasuraman et al. 1988). Despite the acknowledgement of the customers' central role for tourism offers, it is surprising that customers are rarely integrated into new service development for tourism offers. In sharp contrast, customer integration into new product development has been established on a systematic basis already in the early 1980s for physical goods (Urban and von Hippel 1988; von Hippel 1978). In particular, the most demanding and advanced customers, so called lead users (von Hippel 1986), have been tried to be filtered out and integrated into new product development. Several studies suggest that the integration of users into new product development is an appropriate means for

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companies to come up with faster and more customer-centered innovations (for example Gruner and Homburg 2000). Also for the service industry potential for various stages and modes of user involvement has been highlighted (Alam 2002). With our study we aim at testing whether the concept of lead-user integration is in principle also applicable for new service development in tourism. We invited users of a Web Portal focusing on spa vacations to participate in a virtual idea competition and to submit ideas for new service offers in spa tourism. Furthermore we assessed their lead user characteristics through a web-based questionnaire. Based on creativity theory an independent jury of spa experts evaluated these ideas, which were then correlated with the users' lead user characteristics.

2 Literature review

Lead Users in New product development

Within the literature on innovation management, user integration into new product development has become an important research field. Instead of solely considering users as information providers, the potential of users to actively engage in the new product development process gains more and more attention (Evardsson et al. in press; von Hippel 2005b). Previous research confirms the ability of users to contribute to the NPD (new product development) process (Alam 2006; Füller et al. 2007; Lilien et al. 2002; Oliveira and von Hippel 2011; Skiba and Herstatt 2009). However, only a small proportion of users namely between 10 and 40 percent, has the know-how, creativity and expertise for truly innovative problem solutions that are not restricted to line-extensions or incremental innovations (von Hippel 2005a). Since the value of customer contributions in the development of new products and services varies significantly, it is crucial to carefully select the right users to be integrated into new product or service development (Enkel et al. 2005; Gruner and Homburg 2000). One group of users that has been shown to be able to deliver highly innovative suggestions for new product development are lead users. Lead Users are different from other users because they (a) have needs that will become commonplace in a market before the bulk of the other users encounters them and (b) they expect to benefit significantly from obtaining a solution to those needs (von Hippel 1986). These characteristics are also known as the 'Ahead of Trend' (AT) dimension and the 'High Expected Benefit' (HEB) dimension respectively (Franke et al. 2006). Many scientific contributions and practical experiences have been published, confirming that products developed in cooperation with lead users are appreciated as highly innovative by firms. (Franke et al. 2006; Lilien et al. 2002; Lüthje 2000). The ability to bear innovative solutions is fundamentally linked to a person's individual creativity (Faullant et al. 2009). In psychology creativity is generally defined as "the production of novel, useful ideas or problem solutions" (Amabile et al. 2005, p. 368). The first aspect emphasises the originality or unexpectedness of an idea (Sternberg and Lubart 1999). The second aspect stresses that an idea must be of value, or "appropriate (i.e., useful, adaptive concerning task constraints)" (Sternberg and Lubart 1999) which is especially important for new product development. In the past, many studies confirmed that lead users are able to produce both novel and useful ideas.

Analyzing the markets in which these studies have been conducted, the literature review shows that initial lead user studies concentrated predominantly on industrial goods markets (Franke and von Hippel 2003; Herstatt and von Hippel 1992; Lüthje 2003; Morrison et al. 2000; Olson and Bakke 2001; Urban and von Hippel 1988). Meanwhile a bulk of research confirms that the identification of lead users is also promising for user integration in consumer mass markets such as kite surfing, extreme sporting equipment, technical diving, kitchen appliances (Franke and Shah 2003; Fuller et al. 2006; Fuller et al. 2007; Lüthje 2004; Lüthje et al. 2005; Schwarz et al. 2009). Within new service development systematic lead user identification and their integration for service innovation has been widely neglected (Skiba and Herstatt 2009). In their recent work Edvardson et al. (forthcoming) proposed a conceptual framework of methods of customer integration into new service development. The lead user method was classified as a method being able to generate highly novel service solutions, but at the same time requiring high methodological competences. Indeed, recent empirical evidence confirms the potential of user innovation also for the service sector (Oliveira and von Hippel 2011). In tourism so far, little is known about lead user identification and their involvement in new service development.

Virtual user integration for new product and service development

Recent studies highlight the potential of the Internet to use the creative potential of consumers. The use of the World Wide Web allows companies to reach potential users world-wide for new product development (Hienerth and Fuller 2004; Sawhney et al. 2005). This is accompanied by the development of new tools and methods for virtual user integration (e.g. Dahan and Hauser 2002; Dahan and Srinivasan 2000; Franke and Piller 2004; Fuller et al. 2007; Jeppesen 2005; Verona et al. 2006). Web-based methods such as idea competitions, toolkits for user innovation, virtual worlds, virtual stock markets and virtual communities have already diffused in practice supporting collaborative new product development (Bullinger et al. 2010; Ebner et al. 2009). For the service sector in general Sigala (2010) provided insights from the Starbucks community that virtual user communities are able to generate, shape, and co-create ideas for new service development. The shared interpretation of an idea throughout the community can lead to different cultural interpretations of what a new service might constitute. In tourism, the potential of user communities for the development of new touristic products has been recognized already in the early 2000s (Wang et al. 2002). Recent studies however confirm that the main activities in user communities and blogs are still limited to information exchange such as sharing and documenting travel experiences and ratings of tourism products (Dippelreiter et al. 2008; Waldhör and Rind 2008; Yoo and Gretzel 2008). An empirical study of Greek tourism companies illustrates that companies predominantly use online tools for marketing purposes such as monitoring user reviews and comments, managing complaints as well as for market research and segmentation. For new service development users' feedback or comments are not used. However, even in tourism companies have to shift from product designing for users to co-creation with users (Sigala 2008). With our study we aim at investigating whether users have the potential to substantially contribute to new service development and whether those users can be identified by web-based means.

3 Methodology

Data Collection

An empirical study was executed in the field of spa service offers in collaboration with www.thermencheck.com, a major virtual spa platform in German speaking countries. Visitors of this platform receive information on and can book offers of several hundred different spas in Germany, Austria, and Slovenia. At the front page a banner with the invitation to submit innovative ideas for spa development and new service creation was placed. We assumed to attract lead users as well as ordinary users with this invitation. The banner directly linked to the briefing page of the questionnaire. Among all submitted ideas a jury of tourism experts in the spa domain determined the winning ideas, and as an incentive spa vouchers worth over 1000 Euros were distributed. After describing their idea in a text field as detailed as possible, participants were asked to complete a standardized web-based questionnaire. Data collection took place from 1 January to 30 April 2011. During this period over 74.000 distinct accesses (excluding bots) to the platform were recorded.

Measures and Jury Evaluation

Table 1: Codes of questionnaire items

Code	Scale
AT1	I'm regarded as being well informed in the field of spa offers.
AT2	I usually determine new spa offers earlier than most other people.
AT3	I try to visit just recently opened spas.
HEB1	I have needs and preferences which are not satisfied by spa offers.
HEB2	During my past visits of spa resorts I noticed shortcomings several times.
HEB3	I'm dissatisfied with the existing spa resort offers.
SPA1	How often do you visit spa resorts each year.
SPA2	How many different spa resorts have you visited up to now?
SPA3	Which of the following eight recently opened spa resorts have you already visited?

To assess participants' extent of being a lead user the two hallmark characteristics of being *ahead of trend* (AT) and *high expected benefit* (HEB) were used from existing measures in the literature (Lüthje 2000). The scales were adapted to the spa context and were measured as a continuous variable on a 7-point Likert scale as denoted in Table 1. Furthermore, we collected demographics like gender, age, nationality or education as well as data about the actual spa usage of participants (SPA).

To evaluate and rank the submitted ideas the Consensual Assessment Technique (CAT) (Amabile 1982) was applied. According to this method “a product or response is creative to the extent that appropriate observers independently agree it is creative.” (Amabile 1982, p. 1001). 4 independent experts (managers of spas and spa regions, and responsible persons in spa distribution channels) have been asked to assess the quality of submitted ideas on three dimensions: originality of the idea (short: originality), customer value of the idea (utility), overall impression (overall) (Kristensson et al. 2002; Walcher 2007). The number of jury members is in line with the state-of-practice of CAT in other domains (Piller & Walcher, 2006). These dimensions were presented on a 5-point scale from 1 (very low) to 5 (very high). The experts rated all ideas independently from each other (and in different randomly assigned orders), and based on their evaluation on their own subjective definition of the dimensions. All experts rated some ideas with 0, that is interpreted as *not even very low*. Consequently, ideas are actually rated on a 6-point scale.

4 Analysis and Results

Sample description

In total 161 participants filled out the self-administered questionnaire, and 122 submitted ideas or suggestions for spa service development (i.e. ~0.15% of all unique client accesses during that period participated and submitted their ideas). For the further analysis only fully matching cases have been included, i.e. completed the questionnaire and submitted an idea. After data purification the sample sized resulted in 110 cases (74% females, median age group between 21 and 30, over 50% higher education or university degree, nearly 75% Austrians and the remaining participants, with the exception of one Italian, from Germany).

Collected data

Table 2: Statistics on questionnaire items

Item	Mean	Standard deviation
AT1	4.03	1.87
AT2	4.4	1.89
AT3	4.36	1.78
HEB1	2.53	1.68
HEB2	4.44	1.69
HEB3	2.72	1.66

Scale reliability: Cronbach alpha = 0.74

Descriptive statistics of replies to the adapted questionnaire on AT and HEB items (scale 1-7, 1: I do not agree at all, 7: I fully agree) are given in Table 2. Submitted

ideas have an average length of 555 characters (standard deviation: 1411.5, min: 17, max: 14501) and Figure 1 depicts their length distribution with one extremely long outlier. The most dominant themes for innovation are the different needs of adults and children that should be addressed in separate locations and ideas for designing the relaxation and recreation areas. On average respondents have 7.18 spa visits per year (SPA1), know 6.25 different spa resorts (SPA2) and have already tried 1.4 out of the 8 newly opened spa resorts that were named in the questionnaire (SPA3).

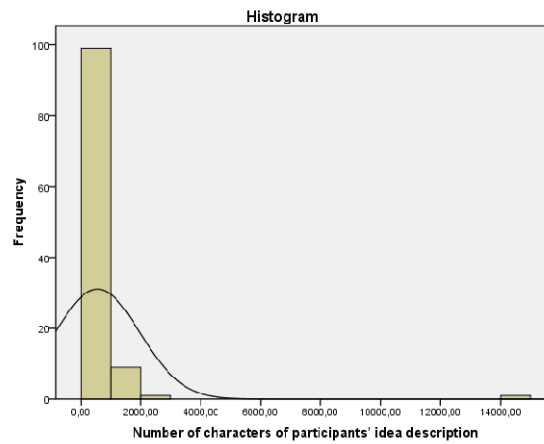


Fig. 1: Distribution of character length of submitted ideas

Table 3: Statistics on idea ratings

Expert	Scale	N	Mean	Std. dev.	Frequency of ratings					
					0	1	2	3	4	5
A	<i>Overall</i>	110	2.26	1.64	25	9	25	28	9	14
	<i>Originality</i>	110	2.31	1.61	24	9	21	34	9	13
	<i>Utility</i>	110	2.7	1.73	23	3	17	29	17	21
B	<i>Overall</i>	108	2.79	0.938	4	2	31	47	24	0
	<i>Originality</i>	108	2.11	1.02	4	26	44	22	12	0
	<i>Utility</i>	108	2.58	1.02	4	11	30	44	19	0
C	<i>Overall</i>	110	1.87	1.23	16	29	29	27	7	2
	<i>Originality</i>	110	1.51	1.48	40	18	25	15	7	5
	<i>Utility</i>	110	1.99	1.3	16	26	26	30	9	3
D	<i>Overall</i>	110	2.15	0.927	1	28	43	31	6	1
	<i>Originality</i>	110	1.95	1.04	1	43	41	13	10	2
	<i>Utility</i>	110	2.43	1.04	0	24	34	35	15	2

Third, we describe the rating feedback that has been collected from the expert panel (see Table 3). Ideas received an overall rating as well as ratings for their originality and their presumed utility for customers. Between 1 and 21 ideas received the highest possible overall rating from at least one domain expert.

In order to adjust ratings for different mean and deviation, we standardized ratings by computing mean-deviation divided by standard deviation leading to standard deviation units. Next, Pearson correlation coefficients between standardized ratings of experts/judges are pairwise computed and Cronbachs alpha for scale reliability is given. Table 4 and Table 5 give details. All correlation coefficients are significant (2-sided) at the $p = 0.01$ level.

Table 4: Interjudge reliability of standardized overall ratings

Overall	A	B	C	D
A	1	0.396**	0.442**	0.428**
B		1	0.348**	0.414**
C			1	0.678**
D				1

Scale reliability: Cronbachs alpha = 0.777

Table 5: Interjudge reliability of standardized originality and utility ratings

Originality	A	B	C	D
A	1	0.424**	0.629**	0.599**
B		1	0.348**	0.414**
C			1	0.775**
D				1

Scale reliability: Cronbachs alpha = 0.833

Utility	A	B	C	D
A	1	0.367**	0.489**	0.389**
B		1	0.320**	0.382**
C			1	0.680**
D				1

Scale reliability: Cronbachs alpha = 0.766

Analysis

The goal of the analysis is to assess how well the two hallmark characteristics for determining lead users (Lüthje 2000), namely being ahead of trend (AT) and high expected benefit (HEB), conform to the opinions (i.e. ratings) of our expert panel on the participants' ideas. For that purpose, we again apply correlation analysis to research how well the idea ratings' variance corresponds to the variance in the participants' answers to the lead user characteristics. In Table 6 we compare the averaged standardized ratings of our judges with each of standardized replies to the AT and HEB scales as well as to the participants' spa experience (SPA1-SPA3).

Table 6: Pearson correlation between standardized questionnaire items and ratings

	Overall	Originality	Utility
HEB1	0.067	0.001	0.058
HEB2	0.277**	0.260**	0.267**
HEB3	-0.050	-0.062	-0.148
AT1	0.229	0.216	0.155
AT2	0.256**	0.261**	0.149
AT3	0.057	0.086	-0.036
SPA1	0.136	0.093	0.131
SPA2	0.097	0.112	0.063
SPA3	0.088	0.075	0.052

With respect to the controlled demographic criteria such as age, gender, nationality or education we can state that none of them had a significant influence on the ratings. However, not unexpectedly, the standardized length of the idea descriptions showed high correlation coefficients with the standardized ratings (length/overall: 0.449**, length/originality: 0.435** and length/utility: 0.421**). Note, that 2-sided statistical significance at the $p=0.01$ level is denoted by **.

To summarize, the results of our analysis indicate that existing scales for determining lead users based on HEB and AT scales do not seem to be appropriate for the tourism domain. Only two questionnaire items (namely HEB2: *During my past visits of spa resorts I noticed shortcomings several times.* and AT2: *I usually determine new spa offers earlier than most other people.*) showed significant Pearson correlation coefficients with experts' judgments on submitted ideas. However, low correlation coefficients of $r \sim 0.25$ indicate that only around 6% of the variance (i.e. r^2) is shared. In contrast, the length of submitted idea descriptions shared around 20% of the variance with the averaged expert ratings. Thus, we can conclude that the utility of the described HEB and AT scales for identifying innovative users in the tourism context is rather low and that further research is needed to develop characteristics and measures that help to predict the degree of innovativeness of online users for new

tourism service development. Furthermore, experts' ratings of participants ideas did not significantly correlate with the standardized participants' experience parameters such as spa visits per year (SPA1) or number of known spa resorts (SPA2). However, average spa experience of our sample was already relatively high, due to respondents' self selection to participate in the idea contest. Furthermore, we have good reasons to reject the conjecture that respondents might have overestimated their own status in terms of being *ahead of the trend*, because participants' experience with different spa resorts (SPA2) did significantly correlate with all questionnaire items of the *ahead of trend* scale.

5 Conclusions

The presented work constitutes one step towards identifying indicators and predictors for determining innovative customers in the tourism domain. We adapted the two hallmark scales (*high expected benefit* and *ahead of trend*) from traditional innovation research and evaluated if they predict participants' high quality ideas in the opinions of expert judges. The findings of our research are that these scales for measuring lead user characteristics are inappropriate for determining lead users in the spa domain. Only few questionnaire items can explain some of the variance in the experts' ratings variance. For these unexpected findings several explanations can be offered: 1) in the classic lead user method users are integrated from the early stage of idea generation throughout the whole process of new product development in several workshops with firm-intern experts. Our users had only limited time (constrained by their own time at disposition) to describe their ideas, and had no possibility to get feedback and improve their suggestions. Therefore the quality of their ideas might be inferior compared to extended workshops; 2) the evaluation of ideas was carried out by 4 experts in the spa domain. This procedure reflects the common practice used to judge the creative potential of solutions (Amabilie 1996; Füller et al. 2011). It is however a judgment based on the opinion of a few, and it might well be, that a bulk of ordinary users would judge the generated ideas differently and lead to diverging results; 3) finally it might be that the scales for screening lead users in mass markets are not thus easily transferable to service markets although initial studies suggested good potential (Skiba and Herstatt 2009; Oliveira and von Hippel 2011).

From a managerial perspective when trying to involve users into new service development a pre-selection of users based on lead-user characteristics cannot be recommended at this stage. Further research towards identifying the characteristics of innovative tourists is required. We will therefore research if the digital traces of participants will help to identify the innovative users in the large online crowds as part of our ongoing work.

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