

# Acceptance as Core Factor for the Success of LBS

**Abstract.** Work in progress paper, which puts emphasis on the users' perspective on location based services (LBS). The empirical framework is a quantitative survey investigating the level of acceptance of LBS within a (related to specific characteristics) representative target group and its influencing factors.

**Keywords.** Technology Acceptance, UTAUT, LBS Usage

## 1. Introduction – LBS and Acceptance of Technology

This contribution focuses on acceptance as a core factor for the success of location based services (LBS), a field of growing research interest. A meanwhile uncountable number of media applications running on different devices integrating geo-based data into its (core) function makes it worthwhile to investigate further.

LBS are understood here as applications generating value through localization (Schnabel 2009, p. 243; Spiekermann 2004, p. 12; Eble 2012, p. 286; Samsioe/Samsioe 2002, p. 423; Masters 2014, p. 1; Authors 2015; cf. Heinemann 2011, 2012, 2014). What could already have been observed are both an increasing acceptance for mobile media usage (to use Germany as a blueprint: cf. Goldhammer et al. 2014, p. 29, 33; G+J Media Research Services 2014) and comparably broad LBS usage (cf. Lopez 2013, pp. 5).

Interesting from a media and communication studies' perspective:

1. a journalism based focus: Especially enterprises with content-driven business models will possibly be forced to integrate LBS to increase the value of communication measured by their recipients. Yet, to date there have only been few services of that kind (Schmitz-Weiss 2013).
2. an advertising market focus: Some commercial services are already operating on LBS (Mak, Nickerson & Sim, 2015; Schulten, Rudiger & Stolz, 2015), „Markt guru“ for instance. The authors of this proposal expect strong growth in this field over the next few years.

But before being able to discuss the economic impact LBS will have on enterprises in the communication industry or the challenges and specialties of production and actual offers, the users' perspective is crucial: How will LBS be accepted by the market? So far, there have been very few studies in this field of research (cf. e.g. Zhou 2013, *Authors* 2017).

This leads to the key question of this research project: How widely will LBS be accepted and what are influencing factors? This will be observed closely regarding a survey that was carried out in the model region „38“. The numbers represent the postcode of an area in northern Lower Saxony (Germany), a region which could be described as quite typical for central Europe – due to both urban and rural areas, including strongly industrialized, economically underdeveloped as well as economically highly potent areas.

## **2. Acceptance and Usage – Theoretical Background**

### **2.1. Following the Mainstream - Technology Acceptance and the Unified Theory**

Acceptance here is defined as a multidimensional concept (Reichwald 1978; Lucke 1995) with cognitive, normative and conative components (Kollmann 2013), and can be seen as a key indicator for success on markets (Wilhelm 2012): if stakeholders – especially customers – are not accepting media innovations, they are unlikely to use or buy them.

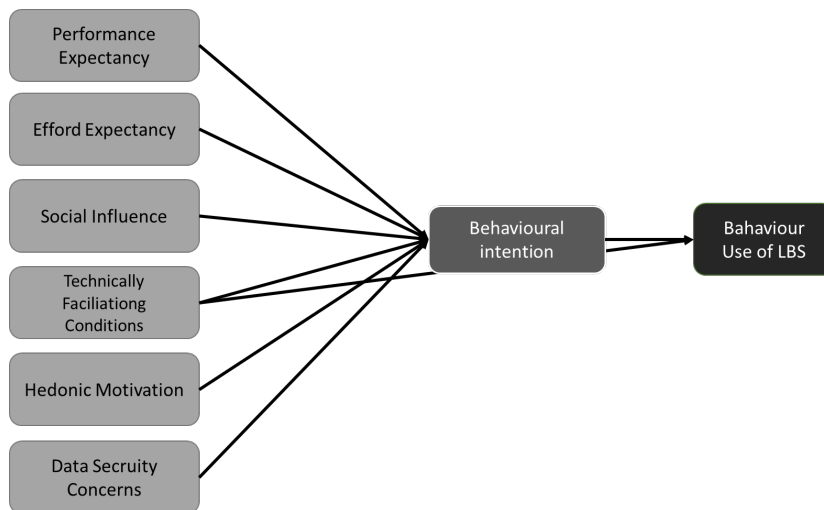
Today, there is a great amount of research on the drivers of behavioural intention, both research in general and research focusing on technology in particular. One of the most prominent models is the “Unified Theory of Acceptance and Use of Technology” (UTAUT). It was developed in 2003, based on several other models explaining general behaviour and intention, motivation and acceptance of technology (Venkatesh et al. 2003, p. 428-436). UTAUT integrates the most significant elements to explain the behavioural intention towards the use of technology and the actual use. The decision on this model can be justified by its probation in various studies (cf. e.g. Williams et al. 2015) and its applicability for technology use in a private setting. Furthermore, it allows issue specific extensions (cf. Yu 2012 and others).

To summarize – acceptance seems to be the key factor for actual usage, and with that for market success. It should therefore be measured and discussed deeply. Our work on progress will re-assess usage (cf. Authors 2017) and will again put the inevitable emphasis on the core topic concerning future applications.

### **2.2. Between Performance Expectancy and Social Influence – chosen Research Model and derived Hypotheses**

UTAUT suggests three main constructs as direct determinants of intention to use: ‘performance expectancy’, ‘effort expectancy’, and ‘social influence’ (Venkatesh et al. 2003). It also contains ‘facilitation conditions’, such as technical equipment (ibid.). In 2012, the model was extended by the factors

'hedonic motivation', 'price value' and 'habit' (Venkatesh et al. 2012). For working on the topic of LBS, the model was modified by adding 'data and privacy protection' as another determinant (Yu 2012), and by excluding the factors 'price value' and 'habit' due to causal logically content related considerations.



**Figure 1.** Research Model: UTAUT 2 adjusted for LBS (Source: Authors).

The model will be tested under the control of the variables “age”, “gender”, “formal education” and “personal income”.

In analogy to the research model, eight hypotheses regarding the behavioural intention as well as the actual use of LBS can be deduced:

**H1:** With higher performance expectancy, the intention to use LBS is increasing.

**H2:** With lower effort expectancy, the intention to use LBS is increasing.

**H3:** With higher influence of the social environment, the intention to use LBS is increasing.

**H4:** The more positive the technically facilitation conditions are perceived, the higher the intention to use LBS.

**H5:** With higher hedonic motivation, the intention to use LBS is increasing.

**H6:** With less data security concerns, the intention to use LBS is increasing.

**H7:** The more positive the technically facilitation conditions are perceived, the higher the actual use of LBS.

**H8:** The higher the intention to use LBS, the higher the actual use of LBS.

The hypotheses are examined using the research and analysis design being described in the following chapter.

### **3. Method of Choice: A Quantitative Online Survey**

As research method, a quantitative online survey was chosen. Each UTAUT-factor is measured by multiple items, which were adapted from extent literature to secure validity.

#### **3.1. Data Collection – Quota Sample in Urban and Rural Areas**

In the quota sample ‘level of education’ and ‘age’ were defined as quota features and those polled, were recruited both from urban and rural areas. The quotation will help creating higher variance in the regressand, and achieving feature specific representativeness for the model region. The survey was conducted in December 2016, after pretesting the online instrument.

#### **3.2. The Sample – Population, Age, Education**

Finally, 243 inhabitants of the “region 38” participated in the survey. The sample contains 48 percent women. The participants have an average age of 37 years (SD=13,1), whereby the youngest is 18 years old, the oldest 76 years.

The levels of education vary among participants. About 30 percent graduated from secondary school, 28 percent from high school and 25 percent have a university degree. The monthly net earnings vary between 1000 – 2500 Euro.

#### **3.3. Data Analysis – Descriptive Statistics and Structural Equation Model**

For the data analysis, firstly the regressors were tested towards internal reliability and unidimensionality. Descriptive statistics are showing first results respectively the intention of use, the actual use as well as information about places, where LBS are mostly used. Also, the variety and the most commonly used services can already be deducted from the data (see *section 4.*). To explain the variance of ‘use intention’ and ‘actual usage’ to answer the hypothesis, a structural equation model will be used. This will be conducted in fall 2017, so that the results will be available by the conference in January 2018.

#### **4. First Findings: Usage “On the Go” and “in Public Transportation”**

The participants' intent to use LBS within the next two weeks reaches an average range of 3,26 (SD = 1,27). The actual use of LBS varies accordingly: 11,5 percent of participants claimed never to have used LBS before. On the other hand, 5,3 percent of participants use LBS on a daily basis, 27,2 percent of which once or twice a week. Hence, a third of participants use LBS on a regular basis.

A lot of participants (60,1 %) did not know the term »Location Based Services« at all, other studies had shown as well (see section 2.1), even if they have already used them on a regular basis. LBS were in use the most commonly on the go (80,7%) – most frequently while using public transportation – about half of participants also use LBS at home (46,5%). Moreover, LBS are used more frequently away on travel (M = 2,8; SD = 0,943) than in everyday life (M = 2,42; SD = 1,04). All in all, it can be said that they are used both at home and on the go.

As already explained, these are only the first findings; the updated analysis based on the structural equation model will be presented at the conference.

#### **5. Conclusion – Theoretical and Practical Implications**

Finally, theoretical and practical implications for media management will be deduced from the examined research model: The empirical results will be discussed with regard on chances for publishing companies and media entrepreneurs in respect of journalistic value creation. The interpretation of the outcomes will show which factors will help to increase the acceptance and use of LBS and which factors would not. This result will be important for to develop new location based media products, and also for to predict the spread of innovative media offerings. Furthermore, chances for (e-)commerce, which could use LBS as a new platform of personalized and localized advertising – and therefore constitute an important part of the LBS business model – will be estimated.

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