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**Pricing and Collection Preferences for Navigation Service  
Offers by Mobile Network Operators:  
A Conjoint Analysis**

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## Work in Progress

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## Abstract

Navigation services based on the infrastructure of mobile network operators (MNO) are among the offerings which many MNO consider promising in order to increase their revenue streams arising from innovative non-voice services. A substantial number of previous studies has found that price levels of actual or hypothetical new mobile data applications such as mobile navigation services (MNS) are significantly negatively related to consumer service adoption. This “insight” is neither intriguing nor helpful as an input to designing MNO pricing and settlement policies. Therefore, the present investigation attempts a closer conceptual and empirical look at pricing approach and collection procedure preferences for potential MNS offers of MNO in a sample of 583 German-speaking mobile communications customers. It applies the conjoint analysis method to assess effects of three pricing approach and four collection procedure attribute levels on consumer preferences in the context of fictitious MNS provided by MNO. The results revealed that the two focal attributes have a rather similar importance in shaping participants’ MNS evaluations. At the aggregate sample level respondents favor MNS accompanied by a flat rate scheme and which incorporated the charges for the services in the invoice which MNO send anyway to their postpaid subscribers. Currently uncommon collection procedures (e.g. credit card or direct debit payment) have no strong positive or even considerable negative impacts on consumers’ appreciation of MNS offers. The sample contains three internally homogeneous segments characterized by diverging pricing and collection preferences. The findings suggest that MNO might be well advised to introduce MNS not only based on flat rate schedules but also with use-frequency or data-transfer volume dependent tariffs because there exists a small but probably affluent group of consumers to whom such pricing schemes are appealing.

**Keywords:** Collection procedure; conjoint analysis; customer preferences; location-based services; mobile network operator; mobile service innovations; navigation services; pricing approach.



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## 1. Study background and purpose

In the recent past service revenues of mobile network operators (MNO) have been stagnating or even decreasing in many industrialized countries. For instance, in Germany turnover generated by mobile communication services fell by 2.5% in 2007 compared to 2006 and by 0.9% in 2008 relative to the previous year (Gerpott, 2009). Therefore, MNO are searching for service innovations which extend their offerings beyond simple voice transfer in order to support them in returning to previous business growth trajectories. Among these potential innovations are location-based services (LBS). LBS aim at generating additional value for mobile users by automatically tying data concerning the current geographical position of a mobile device (and its owner) to location-specific information, commerce and communication offerings (Barnes, 2003; Spiekermann, 2004, Chang et al., 2007). In practice, LBS embrace spatial context-specific advertisements, information on static or moving objects (e.g., automatic teller machine, gas station, friend) within a defined range, rescue/emergency support as well as services which support users by providing instructions on how to move from their present position to a destination complemented by itineraries or other travel-related data such as traffic congestion hints (Spiekermann, 2004; Fritsch and Muntermann, 2005, Lee et al., 2009).

Sales of portable navigation devices which are not connected to 2G or 3G base stations of MNO but to the orbital *NAVSTAR Global Positioning System* (GPS) have climbed substantially over the past few years (Canalys, 2009). This market success may be taken to indicate that consumers perceive a strong benefit from having routing information on-hand while being on the move. As a consequence, MNO may take advantage of this user need by integrating mobile navigation offerings based on technologies embedded in their 2G or 3G network elements (and in customer premises equipment with the ability to process mapping data provided by the MNO infrastructure) into their service portfolio. In fact, the two largest MNO in Germany for instance, *T-Mobile Germany* and *Vodafone D2* have already introduced mobile navigation services (MNS) under the brand names *NaviGate* and *Navigator*.

It is almost tautologic that the commercial success or failure of MNS largely depends on the degree to which potential consumers believe that such services are useful in helping them to master their private and professional life tasks. Therefore, from a

management perspective it is pivotal to identify what attributes MNS need to provide in order to be accepted by mobile subscribers. This logic has triggered quite a number of empirical studies on factors influencing mobile communication customers' willingness to adopt LBS in general and MNS supplied by their MNO in particular. Mostly following the "technology acceptance model" introduced by Davis (1989) these investigations have identified perceived usefulness and ease of use/usability of various LBS variants, individual privacy concerns, perceptions of service-related opinions held by social reference groups and propensity to try out innovative offerings as factors significantly influencing LBS acceptance (Xu and Teo, 2004; Heijden et al., 2005; Pura, 2005; Xu and Teo, 2005; Xu et al., 2005; Chang et al., 2006; Junglas/Spitzmüller, 2006; Chang et al., 2007; Junglas, 2007; Kwon et al., 2007; Bauer et al., 2008; Sheng et al., 2008; Lee et al., 2009; Xu et al., 2009; Xu and Yuan, 2009).

Taking into account that MNO intend to create new revenue streams from MNS it is simply astonishing that extant work has only superficially explored pricing schemes and has almost completely ignored collection issues in the context of MNS offerings of MNO. Previous research indicates that the MNS value-to-price ratio a mobile subscriber perceives is significantly positive and that the price level and cost concerns are significantly negatively affecting consumers' willingness to adopt LBS (Pura, 2005; Bouwman et al., 2007; Chang et al., 2007; Bauer et al., 2008; Lee et al., 2009; Xu and Yuan, 2009). These findings are hardly illuminating to management practitioners because it is obvious that customer acceptance and MNO losses are likely to be maximized by providing mobile communications services for free. Thus, additional empirical research is sorely needed which focuses from a customer perspective on the utility of various MNS pricing and money collection options between which MNO can choose.

The purpose of the present paper is to contribute toward closing this research gap. In the next chapter, I briefly review the sparse mobile LBS pricing and collection literature to specify this study's research questions. Then, I address the methods of my empirical investigation and subsequently present my findings. In the final chapters I discuss managerial implications of the results and draw conclusions for further research.