

Chapter 7

An Integrated SEM– Neural Network Approach for Predicting Mobile Banking Determinants of Adoption in Turkey

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ABSTRACT

Higher penetration of the most widely used mobile technology applications and 3G and 4G mobile networks have led to the higher usage of smartphones for mobile banking activities in recent times. Data were collected from 395 mobile banking users and analyzed using an innovative two-staged regression and neural network (NN) model. In the first stage, structural equation modeling was employed to test the research hypotheses and identify significant antecedents influencing mobile banking acceptance. In the second stage, the significant antecedents obtained from the first stage were input to a neural network model for ranking. The results revealed that autonomous motivation and perceived ease of use are the two main predictors influencing mobile banking acceptance. Theoretical and practical implications of findings are discussed. Policy makers can find significant results in this chapter for implementing future service design. Limitations and future research scope are also discussed.

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INTRODUCTION

With the accelerate speed of Information and Communication Technology and the emergence and the higher penetration of the 3G and the 4G services by telecom companies, mobile technology has become an integral part of our day-to-day life. Mobile services have been introduced in many different sectors including government, banking, healthcare, and commerce (Alalwan et al. 2016; Alalwan et al. 2017; Baptista & Oliveira, 2016; Chong, 2013; Ha, Canedoli, Baur, & Bick, 2012; Hanafizadeh et al. 2014; Kapoor et al. 2015; Laukkanen and Kiviniemi 2010; Luarn and Lin, 2005; O'Connor and O'Reilly 2016). These technologies are increasingly being implemented for achieving competitive advantage through economies of scale resulting from larger customer base, personalization of banking services and reductions in operational cost (Laukkanen, 2016; Sharma et al., 2015). Mobile banking (Mbanking) supports customers to perform various banking activities using mobile devices. The term Mbanking refers to the banking activities conducted through mobile internet technologies (Chong, 2013).

Mobile banking is one of the key latest technological innovations of mobile communication technology. Mobile Banking (or M-Banking) refers to a service provided by banks or other financial institutions that allow its customers to conduct a range of financial (Bill Payments, Peer-to-peer payments, Fund Transfers, Remittance, Shopping and donations, Mobile balance recharge, Dish TV Recharge & Top-up, and M-Commerce) and non-financial transactions (Balance Enquiry, Mini-bank Statement, PIN Change, Cheque book request, Due alerts for payments, Locate ATMs, Enquire Deposit Rates, and Loan calculator). These transactions can be realized remotely using a mobile device such as a mobile phone or tablet on dedicated mobile applications (apps), provided by the financial institutions (Shaikh and Karjaluoto, 2015).

A review of the recent literature on mBanking showed that the majority of the existing researches have generally focused on the technological aspects of mBanking (Aboelmaged and Gebba, 2013; Gu et al., 2009; Hanafizadeh et al., 2014; Hsu et al., 2011; Luarn and Lin, 2005; Wessels and Drennan, 2010). Despite various benefits offered by the banking sector and widespread adoption of mobile devices in the developing countries, the adoption rate of M-Banking across the World is still low (Alalwan et al. 2017; Alalwan et al. 2016; Akturan and Tezcan 2012; Malaquias and Hwang 2016). Examining the latest literature on m-banking, it is revealed that technological aspects are the focus of most of research works (Baptista & Oliveira, 2016; Ha et al., 2012; Hsu, Wang, & Lin, 2011). Majority of m-banking research have adopted technology acceptance model (TAM) as the key to establish causal theories of m-banking adoption (Baptista & Oliveira, 2016). Among others, Chong (2013), Hew, Leong, Ooi, and Chong (2016) and Sharma, Govindaluri, Al-Muharrami, and

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