



# Using competing models to evaluate the role of environmental pressures in ecommerce adoption by small and medium sized travel agents in a developing country



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## HIGHLIGHTS

- Findings enrich TAM constructs by comparing competing models with the proposed extended TAM.
- The paper addresses the gaps in literature of technology adoption in developing countries.
- The measurement model developed could improve future research into SMEs' technology adoption.
- External pressures were found to positively affect the perceived benefits of adoption.
- Environmental pressures significantly influence managers' decision to adopt technology.

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## ABSTRACT

This study investigates the factors that influence e-commerce adoption in SME travel agents in a developing country. The research is based upon a questionnaire survey of travel agents in Egypt and employs advanced statistical techniques to test a conceptual framework that extends the technology acceptance model. Using competing models the study examines the relationship between e-commerce adoption, perceived benefits, perceived barriers and environmental pressures. The results indicate that environmental pressures significantly affect the perceived benefits and barriers of e-commerce adoption, in addition to having an indirect effect on adoption behaviour. Insights are provided into the nature of relationships between the key factors that determine e-commerce adoption and the extent to which they can be used to develop effective strategies for SME travel agent re-intermediation in the global travel market. Implications are identified for practice and government policy in relation to the use of e-commerce in SME travel businesses in developing countries.

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## 1. Introduction

Small and medium size enterprises (SMEs) are regarded as major drivers of economies and a source of employment in developing countries. As a cornerstone of entrepreneurial activity and a force for innovation, SMEs are perceived as an important facilitator of new ways of business operations development (Ongori, 2009). In order to achieve this and remain competitive in the contemporary

global environment, the adoption of e-commerce is regarded as being a crucial part of their development (Ip, Leung, & Law, 2011; Tan, Chong, Lin, & Eze, 2009). There is no doubt that e-commerce adoption in businesses plays an important role for competitiveness and economic sustainability. E-commerce is often perceived as an empowerment tool for SMEs in terms of knowledge management, with further benefits for the creation and delivery of services in global markets (Ongori, 2009). While generally recognising the importance of e-commerce for business competitiveness, SMEs are faced with a variety of challenges when considering e-commerce implementation in their operational activities (Abdullah, Shamsuddin, Wahab, & Hamd, 2012).

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Before businesses make decisions about whether to adopt new technology, they tend to evaluate the benefits they will gain against the costs and risks involved (Nemoto, Vasconcellos, & Nelson, 2010). Weighing the benefits of a new technology versus its drawbacks influences businesses in their adoption decision (Hall & Khan, 2003). In relation to new information technology, this comparison is one of the key criteria in the decision as to whether or not to adopt (Sieber & Valor, 2008). In recent research exploring e-commerce adoption, Ongori (2009) discovered six main barriers that SMEs are facing in developing countries, namely limited funds, a lack of internal and external skills, prohibitive costs of e-commerce tools, managers being unaware of potential benefits, poor infrastructure, and the lack of a legal framework. Many SMEs in developing countries do not have the capacity to accommodate the necessary specialist knowledge for e-commerce adoption. The general technology infrastructure in developing countries is often lacking or still at the development stage, so that the technological framework supporting e-commerce is limited and cost prohibitive (Abid, Rahim, & Scheepers, 2011; Chinn & Fairlie, 2010; Chuang, Nakatani, & Zhou, 2009; Khan, Moon, Rhee, & Rho, 2010). Poor infrastructure further limits the possibilities for making optimal use of e-commerce in businesses operations (Abid et al., 2011; Ahmad, Faziharudeean, & Zaki, 2014; James, 2011), and poorly developed data infrastructure means that there is no guarantee of a reliable internet connection, which is crucial for successful e-commerce adoption and development (Nguyen, 2009). In many developing countries, this infrastructure is still too unreliable to ensure sustainable and effective connections, imposing further barriers to successful technology adoption by SMEs (Alshawi, Missi, & Irani, 2011). Moreover, Chuang et al. (2009) discovered that the executive decision maker's level of education is directly proportional to the extent of IT adoption in the SMEs they run which further supports a barrier to SMEs' adoption of e-commerce related to perceived knowledge, trust and skills within developing economies (Ongori, 2009).

Service-sector companies are often the most intensive users of information technology (Uwizeyemungu & Raymond, 2011). Service sectors such as travel and tourism are generally fragmented and information-oriented industries (Andreu, Aldas, Bigne, & Mattila, 2010). Given the intensely competitive nature of the tourism industry, travel agencies serving as intermediaries in a primarily advisory function have an urgent need to adopt e-commerce to improve their efficiency (Andreu et al., 2010). The internet is clearly a powerful tool within the travel industry, with the sector having witnessed a steady growth in its adoption as a vehicle for e-commerce in the last few decades (Buhalis & Law, 2008). Nevertheless its adoption in travel and tourism SMEs in developing countries has only received relatively limited and fragmented coverage (Andreu et al., 2010; Tsaour, Yung, & Lin, 2009); and although an empirical and theoretical perspective has been provided into e-commerce adoption in tourism firms more generally (El-Gohary, 2012), its investigation specifically within the context of travel agents with the ongoing challenges of their intermediary status in an increasingly uncertain environment has yet to be explored.

Moreover a variety of external pressures have been found to play a significant role in influencing SME decision-makers through the process of technology adoption. These pressures include the environment or environmental characteristics (Grandon & Pearson, 2004; Kuan & Chau, 2001; Lacovou, Benbasat, & Dexter, 1995; Premkumar & Roberts, 1999). It has often been suggested that such pressures drive SMEs to adopt technology to overcome challenges, and this is typically the case for travel agents, who face a serious threat from the disintermediation of the global travel

market as a result of changes in the distribution structure that have been caused by the emergence of online intermediaries (Andreu et al., 2010; Goldmanis, Hortaçsu, Syverson, & Emre, 2010). These pressures can also be seen as compelling travel agents to adopt technology in order to enhance their competitive positions. Effective e-commerce adoption is one of the strategies travel agents can use to re-intermediate themselves into the travel market (Álvarez, Martín, & Casielles, 2007; Patricia, 2008).

The conceptualisation of the relationships between the benefits of and barriers to adopting technology, and the external pressures to do so are included and measured in the Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989). TAM suggests that the perceived usefulness and perceived ease of use of innovation affect firms' attitudes over whether or not to adopt it. Additionally, some antecedents of perceived usefulness and perceived ease of use are expressed through external variables. By developing TAM, this research extends perceived usefulness to cover the benefits of adoption, perceived ease of use, and barriers to adoption; and also includes the environmental pressures driving SMEs to adopt technologies. The study aims to investigate the benefits, barriers, and environmental factors affecting the adoption of e-commerce by travel agents in Egypt, which places the study within the context of a developing country.

In addition to enlarging and enriching the constructs of TAM, the study compares two competing models with the proposed extended TAM. Furthermore, the present research makes a contribution to theory by addressing some gaps in the literature regarding the examination of technology adoption in developing countries (Thomas, Shaw, & Page, 2011; Thulani, Tofara, & Langton, 2010). It provides evidence from developing countries which can help with the rigorous generalisation of findings from developed countries to developing ones (Lawrence & Tar, 2010; MacGregor & Kartiwi, 2010). The study also adds to the existing body of knowledge on e-commerce adoption in the tourism sector, which is highlighted as an emergent area but one where there has been only limited research to date (Thomas et al., 2011). This is particularly the case for the travel agency sector where factors affecting technology adoption have not been thoroughly investigated hitherto (Hung, Yang, Yang, & Chuang, 2011). The study has managerial implications, as the findings provide insights into the potential benefits, barriers and pressures surrounding the adoption of e-commerce. Being aware of these factors could improve managerial decision making, as relevant costs and benefits need to be factored into the technology adoption process. Furthermore, the study has value for policy in two respects: first it will help policy makers to highlight the benefits of technology adoption (and provides incentives for them to enhance these benefits), and it identifies the barriers to adoption and demonstrates how SMEs can be helped to overcome them; and second, the identification of factors affecting e-commerce adoption will be helpful for governmental bodies that have introduced national initiatives to encourage the uptake of technology by SMEs and the launching of operational platforms of e-commerce.

## 2. Literature review

The tourism and travel literature has used many theories and models to interpret how people behave when adopting new technology. The theory of reasoned action has often been employed to ascertain how attitudes towards a given behaviour and subjective norms affect behavioural intention (Fishbein & Ajzen, 1975). The theory of reasoned action was extended to form the theory of planned behaviour, with the addition of a new construct of perceived behaviour control (Ajzen, 1991). These two

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