Chapter 3

Research Hypotheses and Proposed Conceptual Model

3.1 Introduction

This chapter has the objective to draw research hypotheses, develop a proposed conceptual structural model from the literature to deal with the research problem. Section 3.2 provides theoretical support for each of the constructs considered and interrelationships among all of them. Based on the interrelationships, hypotheses are identified. Towards the end of this chapter, the proposed conceptual model is presented with Figure 3.1. The indirect effect, direct effect between constructs of the proposed conceptual model is discussed in Section 3.5.

3.2 Interrelationship among the Constructs

Relative advantage is described as “the degree to which an innovation is perceived better than the other idea it compares” (Rogers, 2003, p. 229). Relative advantage means both regarding tangible and intangible benefits such as an increased market share or reduced cost of operation. Hung, Yang, Yang, & Chuang, (2011) observed that relative advantage has a major influence on e-commerce adoption in the tourism industry. D. Kim, Park, & Morrison, (2008) found that relative advantage is a key determinant in the adoption of mobile technology among travelers. It can be projected that EDS may provide hospitality organization with the benefit of convenience, reduction of transactional time. EDS can help in reduction of operational cost due to the reduction of time and reduced paperwork compared to the room reservation transaction through phone, fax or in person. It is assumed that hospitality organizations have adopted EDS considering that they perceive a relative advantage in perceived usefulness, and perceived ease of use in technology adoption. Accordingly, here following hypotheses are proposed:
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Hypothesis H1a: Relative advantage has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H1b: Relative advantage has a positive effect on perceived ease of use of EDS technology in hospitality organizations.

Rogers (2003, p. 257) described complexity is “the degree to which innovation is perceived to be difficult to understand and use.” Grover, (1993) observed in customer based inter-organizational system (CIOS) complexity of technology negatively affect the adoption of technology at all level in an organization. Leung, Lo, Fong, & Law, (2015) found that complexity in mobile payment discourages travelers to transact conveniently.

In line with these studies, it is expected that hospitality organizations are less likely convinced to adopt the technology if they found it to be complex even it benefits them. It can be inferred that complexity is inversely proportional to perceived ease of use of technology, and perceived usefulness of technology (Y. S. Wang, Li, Li, & Zhang, 2016; Oliveira & Martins, 2011). Accordingly, here following hypotheses are proposed:

Hypothesis H2a: Complexity has a negative effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H2b: Complexity has a negative effect on perceived ease of use of EDS technology in hospitality organizations.

Rogers (2003, p. 240) defines compatibility “the level where the new technological change is perceived as coherent with experience, existing values, and requirement for the prospective adaptors.” Value of norms and existing practices are the two major component of compatibility (Tornatzky and Klein, 1982). But compatibility can also be viewed against the existing work procedure and value system an organization currently has (Premkumar et al., 1994). Grover (1993) researched that when customer centric inter-organizational systems are perceived as being compatible with organizational value, the chances of adoption is very high and most likely to happen. Wang, Park, & Fesenmaier (2012) observed that compatibility influence positively towards the adoption of mobile technology in the tourism industry. Lu, Deng, & Wang (2007) observed that perceived incompatibility of advancement of the newer online payment system might inhibit the business in operation to upgrade their system. The pace of merchants’ adoption of mobile payment may slow down if they perceive it to be incompatible.
This study put forward that hospitality organizations are in all likelihood adopt EDS if they perceive EDS technology is compatible along with their present operational systems, organizational culture, values, and infrastructure. Considering these research inputs, here following hypotheses are proposed:

Hypothesis H3a: Compatibility has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H3b: Compatibility has a positive effect on perceived ease of use of EDS technology in hospitality organizations.

Upper management consists of potential decision makers in an organization. Premkumar & Roberts (1999) found that upper management can create a conducive environment and fine tune the organizational culture to make it technology adoption friendly. Low, Chen, & Wu (2011) found that upper management support affects ICT adoption to a very large extent. Theodosiou & Katsikea (2012) observed that in hospitality organizations, upper management’s support has a direct implication on organizational performance with an adoption of new technology. Leung, Lee, & Law (2011) found that top management’s perceived the benefit of adoption of Web 2.0 technology while creating hospitality organization’s website plays an important role in organizational decision making. Nayar & Beldona, (2013) in their study explain that it the perception and actions of the top management drives the use of technological adoption in creating value for the organization. Support of the top management helps in overcoming the hindrance and opposition to change. It further helps in creating a favorable organizational climate, ensuring long-term commitment of resources, reinforcement of organizational values, etc. Upper management support has been described on among the most important component for technology adoption in hospitality organization (Wang et al., 2016).

This study asserts that hospitality organizations are likely to adopt EDS when the upper management perceives the potential benefit of changes creates the necessary environment and extend backing for the adoption. It is understood that higher management support has been found to be positively affecting perceived ease of use, and perceived usefulness. Accordingly, here following hypotheses are proposed:

Hypothesis H4a: Upper management support has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.
Hypothesis H4b: Upper management support has a positive effect on perceived ease of use of EDS technology in hospitality organizations.

Harris (1995) described training and education as a degree to which a hospitality organization instructs its staff in using technological tools both regarding quality and quantity. As EDS is a complex information and communication technology, a hospitality organization has to train and educate its staff before implementing it (Connor and Frew, 2002). Training helps in reducing staffs’ anxiety and stress about using EDS and also helps employees to understand how it helps them to perform their tasks. It further reduces ambiguity and also helps employees to carry their tasks efficiently and effectively.

Brotherton & Turner (2001) found that those organizations organized regular training and development sessions, perceive a higher level of technological competency than those organizations having lesser training engagement. Davidson et al. (2011) found that organization’s training and education orientation positively associated with its technology adoption. Training and education, positively affect technology adoption in hospitality organizations (Liu, 2005; Çetinel, Yolal, & Emeksiz, 2008; Chand & Katou, 2007). An organization having good training and learning capabilities are likely to adopt newer information technology at a faster pace (Venkatesh and Bala, 2008). In his case study, Xiao (2010) observed that hospitality organizations are most likely adopt newer technology when they have formal and regular training programs are in place. Christodoulidou, Connolly, & Brewer (2010) researched technology adoption in the travel industry and found that good training is a precondition for technology up-gradation.

Considering these prior studies, it is presumed that good training and education shall facilitate EDS technology adoption in hospitality organizations. Thus the following hypotheses have been proposed:

Hypothesis H5a: Training and education have a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H5b: Training and education have a positive effect on perceived ease of use of EDS technology in hospitality organizations.

Zhu, Kraemer, & Xu, (2003); Oliveira, Thomas, & Espadanal (2014) observed that competence in technology represents an organization’s in-house technology competence. They found that competence in technology has two major elements such as technology
infrastructure and technology skills. Y. S. Wang et al. (2016) found that perceived technological competency is a critical factor while hospitality organizations adopt mobile technology. Zhu & Kraemer (2005) found that organizations with a higher degree of technical competency have a better prospect in adoption information technology.

It is understood that hospitality organizations are more likely adopt EDS technology when they perceive their technological competence as reasonable. Accordingly, the following hypotheses have been proposed:

Hypothesis H6a: Technological competence has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H6b: Technological competence has a positive effect on perceived ease of use of EDS technology in hospitality organizations.

Organisation adopts newer technology to reduce the pressure from competition; it seeks to avoid being left out as a non-adopter or late-adopter (Zhu and Kraemer, 2005). Zhu et al. (2003) observed that pressure from the competitors, positively influence e-business adoption by several European firms. Oliveira et al. (2014) found that competitive pressure is a positive probabilistic estimator in favor of cloud computing adoption both in manufacturing, and service sector. Hospitality organizations facing a very high level of pressure from their competitors are more likely opt to adopt mobile technology (Y. S. Wang et al., 2016). Leung et al. (2015) defined competitive pressure as the level of external pressure that the company finds from the competitors from the same business sector. Zhang & Morrison (2007) in their research finding stated that completion among the hospitality organizations are productive and influence adoption and attitude towards using technology positively. Organisations strategically adopt technology when they find newer technology helps them to gain competitive advantages.

From these studies, it may be understood that when hospitality organizations believe that non-adoption may lead to their competitive disadvantages, then they are most likely adopt EDS technology. Hence, the following hypothesis is proposed here:

Hypothesis H7: Competitive pressure has a positive effect on attitude towards using EDS technology in hospitality organizations.
EDS technology service providers are the trading partner for EDS technology. These service providers need to ensure their availability for any technical support round the clock. They may be available virtually through a call center or may visit client’s premises to resolve their problems. Their non-availability and inefficiency to resolve client’s technical problem lead to discontent in the organization (Wang et al., 2016). It is necessary for the trading partner to have adequate numbers of skilled support staff to provide best services to their clients (Ozturk et al., 2012). Security, privacy, and confidentiality are for the organization as a trading partner has all the access to vital information and may breach these (Gangwar and Date, 2016). Sometimes trading partner share one organization’s data with its competitor unauthorized (Salah Hashim et al., 2015). Low et al. (2011) observed that while adopting cloud computing technology, trading partner support increases the value of the technology.

With these findings, it may be inferred that hospitality organizations attitude towards using EDS technology is directly influenced by the trading partner support. The following hypothesis is being proposed:

**Hypothesis H8:** Trading partner support has a positive effect on attitude towards using EDS technology in hospitality organizations.

Davis (1989) described perceived usefulness as technology users perceive that adopting a specific innovative technology may increase an employee’s job performance in an organization. Park, (2009) studied e-learning technology adoption among University students and opined that users measure the pros and cons of adoption and accordingly make up their mind whether to adopt or not. Given these, here a hypothesis is being proposed:

**Hypothesis H9:** Perceived usefulness of technology has a positive effect on attitude towards using EDS technology in hospitality organizations.

Davis (1989) discussed perceived ease of use as the level to which a user perceives technology adoption shall reduce his or her effort to complete his or her task. Technological easy to use may be more useful (Venkatesh and Davis, 2000). So following hypotheses are being proposed:
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Hypothesis H10a: Perceived ease of use of EDS technology has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

Hypothesis H10b: Perceived ease of use of EDS technology has a positive effect on attitude towards using EDS technology in hospitality organizations.

3.3 Hypotheses of the Study

The following research hypotheses (Table 3.1) are framed and tested in the research study.

Table 3.1: Summary of Hypotheses

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Hypotheses</th>
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</thead>
<tbody>
<tr>
<td>H1a:</td>
<td>Relative advantage has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H1b:</td>
<td>Relative advantage has a positive effect on perceived ease of use of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H2a:</td>
<td>Complexity has a negative effect on the perceived usefulness of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H2b:</td>
<td>Complexity has a negative effect on perceived ease of use of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H3a:</td>
<td>Compatibility has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H3b:</td>
<td>Compatibility has a positive effect on perceived ease of use of EDS technology in hospitality organizations.</td>
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<tr>
<td>H4a:</td>
<td>Upper management support has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.</td>
</tr>
<tr>
<td>H4b:</td>
<td>Upper management support has a positive effect on perceived ease of use of EDS technology in hospitality organizations.</td>
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<tr>
<td>H5a:</td>
<td>Training and education have a positive effect on the perceived usefulness of EDS technology in hospitality organizations.</td>
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</tr>
<tr>
<td>H6a:</td>
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</tbody>
</table>
H6b: Technological competence has a positive effect on perceived ease of use of EDS technology in hospitality organizations.

H7: Competitive pressure has a positive effect on attitude towards using EDS technology in hospitality organizations.

H8: Trading partner support has a positive effect on attitude towards using EDS technology in hospitality organizations.

H9: Perceived usefulness has a positive effect on attitude towards using EDS technology in hospitality organizations.

H10a: Perceived ease of use has a positive effect on the perceived usefulness of EDS technology in hospitality organizations.

H10b: Perceived ease of use has a positive effect on attitude towards using EDS technology in hospitality organizations.

3.4 Proposed Conceptual Model of integrated TAM and TOE for EDS Technology Adoption

Based on extensive review of existing literature on the subject of technology adoption in general and information technology adoption in hospitality organization in particular, a conceptual model is proposed. The proposed conceptual model of integrated TAM model and TOE framework for electronic distribution system adoption in hospitality organizations is presented in Figure 3.1. The Conceptual Structural Model includes eleven constructs: relative advantage, complexity, compatibility, upper management support, training and education, technological competence, competitive pressure, trading partner support, perceived usefulness, perceived ease of use, and attitude towards using. All these constructs are being integrated into the proposed model to explain the EDS technology adoption in hospitality organizations.
Figure 3.1: Conceptual Model of integrated TAM and TOE for EDS Technology Adoption

3.5 Direct and Indirect Effects between Constructs in the proposed Conceptual Model

The conceptual model exhibits the indirect effects and direct effects among the constructs as identified from the literature. These constructs are (i) relative advantage (RA), (ii) complexity (CXR), (iii) compatibility (C), (iv) upper management support (UMS), (v) training and education (TE), (vi) technological competence (TC), (vii) competitive pressure (CP), (viii) trading partner support (TPS), (ix) perceived usefulness (PU), (x) perceived ease of use (PEU), and (xi) attitude towards using (ATU). The following direct effects and indirect effects are proposed.
Relative advantage (RA) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Relative advantage (RA) has an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Complexity (CXR) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Complexity (CXR) has an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Compatibility (C) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Compatibility (C) has an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Upper management support (UMS) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Upper management support (UMS) has an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Training and education (TE) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Training and education (TE) have an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Technological competence (TC) had a direct effect on perceived usefulness (PU) and perceived ease of use (PEU). Technological competence (TC) has an indirect effect on perceived usefulness (PU) and attitude towards using (ATU) through the mediating construct perceived ease of use (PEU).

Competitive pressure (CP) has a direct effect on attitude towards using (ATU). Trading partner support (TPS) has a direct effect on attitude towards using (ATU). Perceived usefulness (PU) has a direct effect on attitude towards using (ATU). Perceived ease of use (PEU) has a direct effect on attitude towards using (ATU). Perceived ease of use (PEU) has a direct effect on perceived usefulness (PU). Perceived ease of use (PEU) has an indirect effect on attitude towards using (ATU) through the mediating variable perceived usefulness (PU).

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