As discussed in the Chapter III, a wide range of studies on e-readiness show the fundamental uncertainties and ambiguities in theory and in practice. To date, such studies lack robust foundations and empirical analysis, and provide little guidance for business and government – thus obscuring the realities as well as the opportunities. Furthermore, all the e-readiness studies use country as the unit of measurement. Current e-readiness indices assume a fixed, one-size-fits-all set of requirements, regardless of the characteristics of individual countries or the demands of specific applications. Moreover, most e-readiness studies provide little information on how their indices were constructed, or how they might be tweaked to analyse particular e-business opportunities (Siegel, Haghseta and O’Donnell 2002).

Exhibit 3.1 provides the research framework devised for this study. E-readiness of SMEs is the dependent variable, while infrastructure and technology, human capital, information security and organizational factors are the independent variables. The organizational factors considered in this study are resistance to change and top management commitment.

Exhibit 3.1
Hypotheses
H1: Infrastructure and technology will be positively related to the e-readiness of SMEs.
H2: Human capital (internal staff’s expertise and skills) is positively related to the e-readiness of SMEs.
H3: Information security concerns will be negatively related to the e-readiness of SMEs.
H4: Resistance to change will be negatively related to the e-readiness of SMEs.
H5: Top Management commitment is positively related to e-readiness of a SME.

E-COMMERCE ADOPTION IN SMALL AND MEDIUM-SIZED ENTERPRISES

Gunasekaran and Nagi (2005) reported that the factors influencing acceptance of e-commerce could be divided into perceived benefits, application of e-commerce, usage of the internet and perceived barriers. Though investment in e-commerce is now an industry trend, adoption of e-commerce by SMEs still hovers over a trade-off between the perceived benefits and the costs. However, early in 2000, many companies failed due to high capital investment in Information and Internet technologies with low returns. Reviewing literature on e-commerce models and their impact on business performance gradually helped to understand the key factors for e-commerce success. The problem was thus approached from two sides (1) studying the relationships between the factors and the adoption of e-commerce by the SMEs and (2) studying the relationships between the factors and the business performance in e-commerce environment in SMEs. Finding the key factors that affect e-commerce success is important because SME entrepreneurs and users could invest wisely in e-commerce technology for their business practices in order to receive maximum benefits and avoid technology failures. The researcher first dwelled over factors of e-commerce adoption followed by performance measures.

What needs to be taken into account in assessing the take-up of e-commerce is the differentiated nature of SME businesses; the way business opportunities are identified and developed by them. Besides, how relevant is e-commerce to the firm’s business? How committed are the firm’s owners to growth? Is the firm’s investment in e-commerce proactive or reactive (Martin and Matlay, 2001)? What is the e-commerce knowledge and skills base of firms’ owner managers? Are they enthusiasts with skills and positive attitudes, unconvinced artisans with low IT skills, or pragmatists with low IT skills but with an eye on the prize? What power do they wield in the environment within which they operate, determines the adoption?

Given that the major purpose of this study is to identify factors influencing e-commerce adoption in SMEs, the researcher wanted to get a comprehensive view of factors, both internal and external, that could influence e-commerce adoption for all types of SMEs. The TOE framework provided a place to begin. The TOE is a meta-framework that has been applied in different ways and with varying degrees of specificity in identifying and describing its main constructs. For us
the proof of the pudding in the utility of the model is represented by how the high-level constructs are rationalized or described by the variables that researchers have chosen to test. Some implementations of the TOE model are therefore richer than others. But the fact remains that the model is applied differently from study to study. This renders making direct comparisons between studies difficult. But for the purposes of this study, the TOE model is not being used to compare between firms or countries, rather to frame the perceptions of managers within a sample of firms drawn from across the breadth of sampled area. In this framing, classical TOE studies testing internal and external factors were considered most relevant. Many of these studies employed the TOE framework, developed by Tornatzky and Fleischer (1990) or the diffusion of innovation model (DOI) (Moore and Benbasat, 1996; Rogers, 1983). The later studies included environmental context which referred to the firm’s industry and deals with business partners, competitors and government (Tornatzky & Fleischer, 1990).

Thus, TOE recognizes that the decision to adopt a technological innovation is based on factors in the organizational and external environment, as well as characteristics of the technology itself (Kuan & Chau, 2001; Li, Lai & Wang, 2010).

The most usable TOE framework under e-commerce context over SMEs that emerges is the one presented in Exhibit 3.2. This framework has been conceived basically by merging TOE framework and one suggested by Sila and Dobni (2012) and other variables as they appeared over time in researches.

Gibbs and Kraemer (2004) argued that the TOE framework does not contain interorganizational factors such as trust (e.g. used by Hart and Saunders, 1997) and trading partner readiness (e.g. used by Chwelos et al., 2001) put forth by some interorganizational systems researchers. However the researcher of this study felt that under SMEs context (limiting to B2C platform which is the decided scope of this research), the trust referred to a firm belief in the reliability, truth, or ability of SME on the part of customers. Therefore, trust was added to the e-commerce adoption model, along with other interorganizational factors, including pressure from trading partners (Hadaya and Pellerin, 2010) and pressure from competitors (Zhu and Kraemer, 2005), because at times SMEs work for third party marketers who serve as trading partners and indirectly are always under competitors’ pressure.

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Exhibit 3.2
Technological Factors

While it is well known that e-commerce might bring several advantages to a company, and these advantages serve as catalysts for SMEs to adopt e-commerce, SMEs need to assess the costs needed for setting up and maintaining the necessary technological infrastructure and applications prior to adopting e-commerce, and they need to compare it with the expected benefits. Although the evaluation of alternative solutions might be difficult, it is essential because it reduces some risks associated with e-commerce efforts. This naive catalysts should give us an inkling as to what motivates SMEs to adopt and assimilate ICTs in their business activities and accommodates an understanding of contextual issues and circumstances and the barriers hindering e-commerce adoption by the small and medium firms.

The technological factors include costs related to the implementation of e-commerce technologies (Ghobakhloo et al., 2011), the complexity of these technologies (Tan et al., 2009), the reliability of the networks over which transactions are conducted (Soliman and Janz, 2004), the extent to which these technologies ensure data security (Tanetal., 2009), and the degree of scalability (i.e. economies of scale and scope) (Lee, 2003) that the technology provides. Previous small business and technology research concentrated on the impact of technology on internal computing applications and systems. However the implementation of e-commerce extends beyond the application of technology in internal systems (Poon & Swatman, 1999). In this context, the application of existing IT and small business theory provides only a limited basis for examining the intricacies of SME e-commerce. E-commerce has the capacity to transform not only internal practices, but also, the methods SMEs use to interact with their trading partners, associates and customers.

Companies increasingly prefer outsourcing their information system developments due to the need for lower costs, faster implementation, easier-to-use applications and effective use of company resources (Ward and Peppard, 2002). This trend enables companies with limited IT resources to access the latest technological developments easily. Positive association is observed between level of vendor support and successful adoption of Information Systems (IS) (Yap et al., 1992). This can be attributable to the vendors important role in selecting the appropriate information system for the company and their after sale support and training. In addition, vendors can assist e-commerce adoption by providing simple explanations and recommendations about the IT systems (Scupola, 2003).

External IT support is indicated as a significant factor effecting adoption of new information system (Thong, 2001), enterprise systems (Ramdani and Kawalek, 2007; Guinea et al., 2005) and e-commerce adoption decisions (Al-Qirim, 2007) positively.
Organizational Factors
Similar to the technological factors responsible for e-commerce adoption amongst SMEs, the organizational factors included in the framework for this study have been derived from a multiple of studies as reported henceforth. Recent studies suggest that external factors are not as important as internal factors (Teo et al., 1997; Teo and Tan, 1998); some researchers focus their analysis only on the organizational factors (Lin and Lee, 2005; Aguila-Obra and Padilla-MeÁldez, 2006). An explanation for the interest in organizational factors is that, although e-commerce has technical components, management issues are even more important because of the changes in organizational processes the firm has to address (Ash and Burn, 2003).

Mehrtens, Cragg and Mills (2001) developed a model of internet adoption by SMEs by specifying 1) perceived benefits in terms of efficiency benefits, effective information gathering, and a business tool to build the firm's image, 2) organizational readiness in terms of the level of IT knowledge among non-IT professionals, and 3) external pressure as arising from customers, suppliers, and potential employees for the firm to be an Internet user, and to communicate electronically.

Previous studies indicate that top management support has been an important factor in IS/IT adoption (Caldeira and Ward, 2002; Tsao and Koong, 2004) and it is a significant factor in differentiating adopters and non-adopters of e-commerce in small businesses (Mirchandani and Motwani, 2001). Since behaviours and subjective norms have strong influence on adoption intentions, managers’ attitudes must change and “social referents surrounding the adoption” must be stressed upon to motivate managers to adopt e-commerce (Nasco et al., 2008). Furthermore, Kutlu and Ozturan (2008) indicated that business owners and managers with positive attitude towards IT tend to be more successful in adoption and implementation of new technology with the evidence from SMEs.

Accordingly, we see that the attitude of managers towards the use of information technology, their knowledge of information technologies, the size of the enterprise, the structure and culture of the organization, and the economy and infrastructure as important factors combine with the internal characteristics of the firm and the external environment of that firm. Grandon and Pearson (2004) examined the determinant factors in the adoption of electronic commerce as perceived by top managers in SME. They argue that those who perceive e-commerce as adding strategic value to the firm have a positive attitude toward its adoption.

In addition, studies also identified the characteristics of managers as influencing e-commerce adoption (Rashid & Al-Qirim, 2001; Seyal & Rahman, 2003); Cragg and King, 1993 and Thong, 1999). While Palvia and Palvia (1999) and Sparling et al. (2007) indicated that age and experience of owner are very important factors in the success of IT adoption, Thong (1999) identified CEO characteristics, the characteristics of the information systems, organizational characteristics and environmental characteristics as factors affecting adoption of
e-commerce and manager’s innovation and risk taking characteristics. Thus support provided by top management for adoption (e.g. through its vision and allocation of resources) (Premkumar and Ramamurthy, 1995) is utmost important in e-commerce adoption. Another factor of relevance is the level of trust between trading partners than can either help or hinder adoption (Nadler and Kros, 2010), and external pressure exerted by trading partners and competitors (Gil-Saura et al., 2009; Johnson, 2010; Ghobakhloo et al., 2011). Managing process innovation and increasing the learning capacity of workers have become a source of competitive advantage (Nonaka and Takeuchi, 1995). Moreover, developing organizational learning and knowledge management strategies have been considered key factors for the successful adoption of a technological innovation (Martin and Matlay, 2003).

E-commerce adoption can also be influenced by trading partners depending on the small firm’s reliance on specific partners, the number of partners and transaction volumes (Zheng et al., 2004). Some owner-managers value their personal relationships with trading partners and will not adopt e-commerce so they can maintain these relations (Beck et al., 2005; Castleman, 2004; Zheng et al., 2004). In addition, the influence of competitors depends on the intensity of e-business use within the industry, whether e-business is the norm (Kaynak et al., 2005; Khazanchi, 2005; McAdam et al., 2004; Simmons et al., 2008; Xu et al., 2007), and the extent of globalisation in the industry (Fillis et al., 2003). Competitors, suppliers and customers may force small businesses to engage in e-commerce activities (Scupola, 2003). External pressure from competitors, government and industry are of great importance in the adoption decision (Grandon and Pearson, 2004), adoption and implementation (Scupola, 2003) of e-commerce in SMEs and it is an important influencing factor in corporate website adoption (Beatty et al., 2001).

Existence of intense competition is a motivating factor for companies in order to differentiate and stay at least one step ahead of their competitors. As the number of competitors adopting innovation increases, small firms have more tendencies to adopt the innovation for sustaining their competitive position (Sparling et al., 2007). A positive association between the competition intensity and e-commerce adoption decisions (Al-Qirim, 2007; Zhu et al., 2003; Wongpinunwatana and Lertwongsatien, 2003) has been identified in the literature. However, findings of Jeon et al. (2006) did not provide support for competitive pressure of the industry as a critical factor affecting the e-business implementation success.

**Internal Factors (including manager related)**

Different empirical studies have addressed the technological, organizational factors and environmental factors influencing the level of e-commerce adoption associating them with either one or two internal factors. Here in this study the researcher has tried to comprehend all such internal factors (as available in literature) influencing the e-commerce adoption and analysis has been made to have a conceptual view of resultant influence.
In the past, organizational theorists believed that small businesses were similar to large businesses and, therefore, the application of organizational theory should be equally as relevant to small businesses. However subsequent research has highlighted differences between large and small organizations (Dandridge, 1979; Welsh and White, 1981; Delone, 1988; Thong, 1999) that have challenged these beliefs. Size is an important determinant facilitator of e-business adoption (Wu et al., 2003; Nicholls and Watson, 2005; Teo and Pian, 2003; Lee and Xia, 2006). Larger firms are more likely to achieve economies of scale that would bring faster returns on their investment (Zhu et al., 2003). Larger firms have more resources with which to bear the risks associated with the uncertainty of e-business investment (Wu et al., 2003). Larger firms are found to have greater resources and can more easily allocate resources to try innovations (Palvia et al., 1994; Bell, 1995; Knight, 2001).

The e-commerce age refers to the number of years that companies have been using the e-commerce. Companies having earlier online presence are likely to enjoy first mover’s advantage (Auger, 2005). However, in their study of determinants of e-commerce website development, Kowtha and Ip Choon (2001) didn’t support the effect of website age on e-commerce website success.

Although some reporting is there about a positive relationship between size and the adoption of new technologies (Teo and Pian, 2004; Al-Qirim, 2007), other research has found the opposite effect (Fuentelsaz et al., 2003) and still others have concluded that size does not have a significant effect (Mehrtens et al., 2001; Hollenstein and Woerter, 2008). Studies suggest that SMEs small in size are more willing to innovate and experiment with new business processes than hierarchical large firms (Jutla et al., 2002).

Along with the size of the firm, two main characteristics - the limited resources and the lack of skills and knowledge, differentiate small and large firms in conducting e-business (Longenecker et al., 2003; O’Toole, 2003; Gutierrez et al., 2009). It has been found that the level of skill and knowledge of the owner is related to the firm’s capabilities (Colombo and Grilli, 2010). In studies of the attitude towards technological innovations in SMEs, it has been acknowledged that SMEs were more likely to avoid sophisticated software and applications due to lack of necessary specialists and the limited level of human, financial and technological resources within the firm (Begin and Boisvert, 2002; Seyal et al., 2004). Size and human capital are the organizational factors that are repeatedly significant in the literature.

IT experience of owner is also an important factor in success of IT adoption (Palvia and Palvia, 1999) and e-commerce adoption (Sparling et al., 2007). When a company owner who actually has great influential power on top management explains the role of IT in achieving his/her vision, attitudes of managers will be affected and the level of priority of IT related issues in all decisions will increase.

IT skills and experience of its employees are critical knowledge assets of the companies (Bharadwaj, 2000). When these assets are insufficient an organization has to arrange training
programs for creating new IT skills or new employees with IT skills and experience are employed. Even with new employees having IT skills and experience, time is needed to gain organizational experience which is unique to each and every organization due to its distinctive characteristics such as organizational culture, organizational climate, interpersonal relations, rights, privileges and norms.

Previous empirical studies illustrated that financial resources (Zhu et al., 2003), organizational size (Lun and Quaddus, 2011), top management support (Caldeira and Ward, 2002), previous IT experience (Palvia and Palvia, 1999), perceived benefits (Baldwin et al., 2000), industry characteristic, external pressure (Grandon and Pearson, 2004), compatibility (Sparling et al., 2007), external IT support (Yap et al., 1992) are significant factors effecting adoption and usage of e-commerce by SMEs.

Sagi and Thomas (2004) conducted a three-country study which included Germany, Britain, and the USA wherein they found that culture and attitudes towards ICT have an effect on the way people use e-commerce. However, they did not find any gender-related effect on e-commerce use. Ein-Dor, Myers, and Raman (2004) conducted a four-country study that included Finland, Israel, New Zealand, and Singapore. Their study indicates that differences in culture, gender, attitude towards ICT, and socioeconomic status (SES) impact the use of e-commerce.

IT knowledge is another factor in the adoption of new technologies and increases the levels of a firm’s technology adoption (McGowan and Madey, 1998; Thong, 1999; Robey et al., 2002). Moreover, Tiessen et al. (2001) found that technical capability facilitated firms’ e-commerce. By contrast, firms that do not have IT expertise may be unaware of new technologies or may not want to risk adopting them. Cragg and Zinatelli (1995) identified the lack of technical expertise as a key factor inhibiting information systems (IS) evolution and sophistication.

The level of IT knowledge among employees is also a key factor that drives the adoption of e-technology (Mehrtens et al., 2001). Firms that have an e-business specialists are more likely to adopt IT innovations such as e-commerce because they could develop their own website or use specific technologies for a better management of the value chain (Lin and Lee, 2005).

IT skills and experience of its employees are key knowledge assets of a company (Bharadwaj, 2000). IT experience can be in the form of previous experience of owner or employees with computers and previous technology implementations. Lack of internal expertise can be a factor delaying the innovation (Thong, 1999). In the literature, previous IT experience has been observed to be an important factor effecting success of the IT adoption.

Individuals who have greater educational attainments and greater work experience are likely to have better specialized knowledge than other individuals (Colombo and Grilli, 2010). Specialized IT employees can be a resource used by large companies to increase their IT expertise. However, SMEs that have a lower level of resources are less likely to hire these employees (we expect that large firms will have more specialized employees than SMEs).
The level of education of employees has been used as a metric for human infrastructure and skills (Jutla et al., 2002). This characteristic makes a firm more innovative (Rogers, 1995; Bayo-Moriones and Lera-Lopez, 2007). Because the adoption of e-commerce is a complex process, having highly educated employees makes it easier to train them for the use of these new systems and would increase their awareness of benefits of e-commerce. Some studies have found a complementary relationship between the level of firm innovation and the level of workers’ education (Bresnahan et al., 2002). It was found that the educational level of employees played an important role in the adoption of IT systems and technical skills are integrated by hiring both IT employees and educated non-IT employees (Lucchetti and Sterlacchini, 2004). Moreover, Bertschek and Fryges (2002) found that a firm’s B2B use is positively influenced by the proportion of a firm’s workforce that have a university degree. It has been well-documented that small firm owner-managers have disparate business goals. Some have economically rational goals such as competitive advantage and growth (Al-Qirim, 2005; Chong, 2006; MacGregor and Vrazalic, 2007). Others, by contrast, choose to keep their firm small to focus on family or their preference for lifestyle, enjoyment, socialising, autonomy, survival and stability (Castleman, 2004; Galloway and Mochrie, 2005). Family members can influence these business goals and e-business adoption decisions if they hold managerial positions (Butler et al., 2007; McAdam et al., 2004) or are trusted sources of advice (Butler et al., 2007; Gibbs et al., 2007; Shaw, 2006). E-business knowledge and home use of the internet by family has been found to provide the impetus for adoption in some small firms (Galloway and Mochrie, 2005; Martin and Matlay, 2003; Simpson and Docherty, 2004; Zheng et al., 2004). Similarly, employees can influence adoption decisions depending on their e-business knowledge (Al-Qirim, 2005; Beck et al., 2005 as Wymer and Regan, (2005) reported that their perceived value is great as contributors to decision-making by senior managers (McAdam et al., 2004), and their power and trust relationship with senior managers (Martin, 2005). Some small firm decision-makers prefer to get their e-business adoption and general business advice via informal, often highly social, business networks (Beckinsale et al., 2006; Brown and Lockett, 2004; Gibbs et al., 2007; MacGregor and Vrazalic, 2007; Simmons et al., 2008). E-commerce specialists and advisory services can have a positive or negative influence on adoption depending on their e-business capability and knowledge (Martin and Matlay, 2003) and their understanding of the small firm’s business goals and needs (Brown and Lockett, 2004; Lawson et al., 2003; Martin and Matlay, 2003; Simpson and Docherty, 2004). These external parties’ influence also depends on whether they are prepared to help small firms learn about e-business (Kelliher and Henderson, 2006) and to develop their e-business capabilities (Xu et al., 2007; Zhu et al., 2003). Failure by external parties to fulfil these roles often results in frustration and dissatisfaction with specialists and with e-business itself (Al-Qirim, 2005; Kyobe, 2004).
Financial resources have been a significant factor effecting operations of firms due to the high investment requirements in hardware, software and employee training. Adequacy of financial resources enables firms to make necessary investments for developing superior e-commerce functionalities and e-business value. Zhu et al. (2003) indicated financial resources as significant facilitators of e-business value creation in their empirical study of analyzing e-business value drivers. On the other hand, Mehrtens et al. (2001) showed that financial resources are not a major factor effecting internet adoption by firms. Similarly, Scupola (2003) illustrated that although financial resources are an important factor in IT adoption, it is not a determinant in e-commerce adoption.

Environmental Factors

Every organization is influenced by its environment - social, economic and political environment constitute an institutional structure of such an environment. In order to survive, organizations must conform to the rules and belief systems prevailing in the environment, because institutional isomorphism, both structural and procedural, will earn organizational legitimacy (DiMaggio et al. 1991; Scott 2001). There is substantial evidence in economics that firms in different institutional environments react differently to similar challenges and that companies can perform efficiently if they receive the institutional support.

Environmental factors such as dynamism, complexity, and hostility can also play a role in firms’ e-commerce adoption decisions. Environmental complexity can be defined as the extent to which an industry or firm’s activities are heterogeneous in terms of inputs and outputs needed for its operations and the mix of suppliers, customers, and competitors (industrial pressure) it has. Firms operating in highly complex environments require reliable and efficient IT resources to manage the abundant information they exchange with their supply chain partners (Wade and Hulland, 2004). Firms that operate in diverse markets are also susceptible to various ideas from competitors and customers and are more likely to adopt innovations (Miller and Friesen, 1983). Governmental support, legal adequacy, and national cultural compatibility cannot be ignored while considering the e-commerce adoption.

Environmental hostility is concerned with the extent of threat that firms face from competition in terms of price, product, technology, and distribution (Ozsomer et al., 1997). Some previous studies (Chwelos et al., 2001) reported that firms in competitive environments are more likely to adopt EDI.

Attention to the institutional environment has essentially been long represented as “contextualization” in traditional management and organizational studies (Tsui 2006). Organizations are open systems and the institutional context is a major source of influence on organizational behavior. It must not be ignored or dismissed as researchers attempt to understand and explain the actions or behavior of organizations (Tsui 2006). Tsui further indicates that the institutional context includes the industrial, political, legal and cultural
systems; it also includes the stage of economic development, the geography, the history, etc. Contextualization in organizational study means incorporating the institutional context in describing, understanding and theorizing about phenomena within it. Within MIS research, scholars have suggested that organizational change with respect to the use of information technology could be profitably analyzed drawing on socio-economic and political (i.e., external contextual) levels of analysis (Pettigrew 1985). The theoretical assumption here is that organizational decision-making is based on differential perception and understanding of the institutional environment context. Furthermore, pioneer researchers Ives, Hamilton and Davis included external environment in their proposed MIS research model. They argued that this environment included industrial, political, legal, economic, social and cultural environments within which organizations were embedded (Ives et al., 1980).

Applied specifically to e-commerce adoption, institutionalism lays an important theoretical foundation for studies of external environments for organizational e-commerce decisions. Institutional theory guides the reasoning through the research question to a number of more specific variables and hypotheses. These hypotheses about the expected impact and effect of the institutional environment on e-commerce adoption are then tested through empirical analysis. Without the conceptual reasoning provided by the theory, the later empirical analysis constitutes only association, not causation (Ethridge, 2004).

Previous research about the diffusion of IT has argued that the organizational environment has a strong influence on decisions about IT (Premkumar and Ramamurthy, 1995; Thong, 1999; Zhu et al., 2003). The factors which constitute the environment of an organization comprise two categories; internal and external. Generally, the internal environment, the organizational characteristics, can be described as the infrastructure, top management support and IT employees. Fathian et al. (2008) study identified critical internal factors, described as resource barriers, such as ICT infrastructures and staff knowledge.

The presence of these factors in the internal environment of organization is often usefully described as “e-readiness” (Grandon and Pearson, 2004; Molla and Licker, 2001; Tan et al., 2007; Bayo-Moriones and Lera-Lopez, 2007). Molla and Licker (2001) argued that such organizational factors affect e-commerce adoption. Interestingly, they dwell over the perceived organizational e-readiness and perceived external e-readiness. Fathian et al., (2008) discuss external issues as ICT availability, security and the legal environment. Tan et al. (2007) describe external e-readiness as market forces and supporting industries. Their study finds that the external environment plays a major positive role in e-commerce adoption whilst internal organizational factors inhibit e-commerce adoption and diffusion.

The literature shows that small firms are idiosyncratic and often highly social formations with varying orientations (e.g. entrepreneurial firms, those with modest business goals, life-stylers). There are many permutations of array of influences on each small firm (each varying on a
continuum from no effect to considerable impact), and small firm decision-making is highly contextualised. The literature therefore indicates that theory which aims to explain the e-commerce adoption decisions of small firms needs to:

- account for the complex network and interplay of the varying interpersonal relationships which can influence the decisions of small firm owner-managers;
- recognise the characteristics of the relationships among owner-managers, employees, family and various external parties (such as trust and the level of dependency);
- treat small firm decision-makers as heterogeneous individuals, rather than assuming there are a set of adoption factors which apply to every small firm; and
- assist researchers in identifying potential patterns of idiosyncrasy among small firms in terms of their social context and their business and interpersonal goals, so that various (predictive) research models can be formulated with each corresponding to a particular group of small firms exhibiting the same or similar adoption patterns, contexts and goals.

Miscellaneous Factors

Literature suggests that some more constructs are believed to affect the use of e-commerce: computer self-efficacy (CSE), perceived usefulness/benefits of e-commerce (Ajzen, 2002; Hsu & Chin, 2004; Hu, Chau, Sheng, & Tam, 1999) and barriers to e-commerce. Perceived benefits are the benefits that are offered by e-commerce in comparison to the traditional way of doing business. Previous studies indicate perceived benefit as a significant factor effecting e-commerce adoption by SMEs (Grandon and Pearson, 2004; Al-Qirim, 2007; Beatty et al., 2001).

The question of which of the above constructs has the greatest influence on the intention to use e-commerce is still under debate (Barzilai-Nahon & Barzilai, 2005; Dashgupta, Agarwal, Ioannidis, & Gopalakrishnan, 1999; Kaye & Little, 2000). Moreover, very little attention has been given to the inclusion of all the aforementioned constructs (culture, gender, attitude towards ICT, SES, CSE, and perceived usefulness of e-commerce) and their effects on intention to use e-commerce among SMEs in India.

Another miscellaneous consideration is that companies that have earlier online presence are likely to enjoy first mover’s advantage (Auger, 2005). However, Kowtha and Ip Choon (2001) could not find additional evidence for the effect of website age on e-commerce website success. Competition has been found to be a motivator factor for Small and Medium Enterprises to adopt e-commerce (Al-Qirim, 2007; Wongpinunwatana and Lertwongsatien, 2003) and IS innovations (Zhu et al., 2003b).

The empirical evidence from previous studies indicates a positive relationship between the level of interactivity of a website and its performance (Auger, 2005). Interactivity which is the communication between the individual and the web site improves customers satisfaction of online shopping (Agarwal and Venkatesh, 2002), enhances customer loyalty (Watson et al., 1998), provides better perceived value that customer places on a transaction (Srinivasan et al., 2002) and has critical role in online buying activities regardless of the shopping orientation (Kim and LaRose, 2004).
Convenience refers to the capacity for letting individuals to get in and out of the web site as quickly as possible for the purpose for which it was designed such as to assist buying or selling or to find information (Feindt et al., 2002). Convenient features such as short response time enables customers to have a more satisfying experience (Srinivasan et al., 2002).

Another e-commerce property, content/information involves presentation of various messages about products and services offered on a web site. Palmer (2002) indicates that not only download delay, navigation and interactivity but also content significantly affect the success of website. Information access and simplicity are important factors for successful completion of transactions (Srinivasan et al., 2002).

Also the usage of a number of e-commerce applications which may influence the success of e-commerce activities. Zhu and Kraemer (2002) indicated positive effect of transaction related aspects of e-commerce competencies by using 5 indicators: buy capabilities, online order tracking, account management, return information and security.

E-COMMERCE PERFORMANCE MEASURES

In their investigation of technological, organizational and environmental factors effecting e-business use and value, Zhu and Kraemer (2005) measured firm performance by the changes in downstream sales, upstream procurement and internal operations. Similarly, Zhu et al., (2003) used three dimensions of e-business value in terms of its impact on firm performance: impact on commerce, impact on internal efficiency and impact on coordination. In present research, different dimensions were chosen as creators of e-commerce value viz. impact on sales, impact on competition, impact on procurement and impact on overall performance. This study conceptualized e-commerce success in SMEs as a combination of increased sales, better competitive position, improved procurement and higher overall performance driven by critical success factors such as technical, organizational and environmental.

The following paragraphs show the strong base provided by the literature for building a research model with these variables.

Impact on overall performance: Companies can improve their overall performance by utilizing the benefits of e-commerce. These benefits include lower transaction costs, better information management, wider geographical coverage, better coordination between suppliers and company (Damanpour and Damanpour, 2001). In addition, e-commerce allows companies to develop direct relationship, gather strategic information about these individuals/businesses, reducing costs by bypassing the intermediaries in the traditional value chain (Sutanonpaiboon and Pearson, 2006). For these reasons, e-commerce improves the overall performance of the companies.
**Impact on sales:** The impact of e-commerce on sales can be in various ways such as increasing sales, improving customer services or widening the sales area (Zhu and Kraemer, 2002). The internet enables small companies to expand their geographical reach, to access new customers who were formerly only within the reach of larger firms (Chong, 2008), to market their products, to launch new products in a cost-effective way (van Akkeren and Cavaye, 1999). In addition, e-commerce offers direct link between customers, suppliers and distributors which reduces the costs of companies (Kaynak et al., 2005; Sutanonpaiboon and Pearson, 2006). Hence, e-commerce applications are expected to have positive impact on sales.

**Impact on competition:** E-commerce and the internet improve the competitive position of the SMEs by enabling them to extend their geographical reach and bring new customers who previously patronized only larger firms (Chong, 2008; van Akkeren and Cavaye, 1999; Nasco et al., 2008).

**Impact on procurement:** E-commerce enables companies to lower their procurement and inventory costs. Zhu and Kraemer (2002) indicated that the impact of e-commerce on procurement can be in different forms such as reducing inventory and procurement costs and improving coordination with suppliers. In addition, e-commerce enables companies to receive better support from suppliers and improves efficiency in information gathering (Poon and Swatman, 1999).

Exhibit 3.3 shows the research model which is the exact replica of the model given by Volkan Cosgun and Ozgur Dogerlioglu in their study Critical Success Factors affecting E-commerce Activities of Small and Medium Enterprises, reported in Science Alert².

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Exhibit 3.3

The hypotheses of the study stand on the strong basement of the literature review. Based on the literature findings mentioned above the following hypotheses originally developed and have been retested here are.

H$_1$: Performances of companies using e-commerce applications are higher than non-users of these applications.

H$_2$: Technological, organizational, environmental factors and e-commerce properties determine the level of e-commerce performance.

The questions that need answers thus include - does performances of companies using e-commerce applications are higher than non-users of these applications, and does technological, organizational, environmental factors and e-commerce properties determine the level of e-commerce performance.