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Factors affecting e-business successful implementation

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Abstract

Purpose – The present study aims to investigate the impact of organizational capabilities in the successful implementation of e-business. More specifically, the study proposes a three-dimensional conceptual framework, including "organizational learning capabilities", "knowledge management capabilities" and "organizational readiness". Such a multidimensional approach has randomly been explored in the existing literature, making the examination of the proposed conceptual framework an interesting research topic.

Design/methodology/approach – The proposed conceptual framework was tested on a sample of Greek companies with an online involvement. Information System executives were used as key respondents. The final sample consisted of 213 companies. The reliability and the validity of the newly developed questionnaire were thoroughly examined. Empirical data were analyzed using the "structural equation modeling" technique.

Findings – The results of the study reveal that "training availability", "knowledge level" and "knowledge sharing" are the most significant factors for successfully implementing e-business. Moreover, "firm size" seems to be another important determinant. On the other hand, "technical expertise", "knowledge accumulation" and "knowledge application" were not found to have a statistically significant impact on the implementation of e-business.

Research limitations/implications – A limitation stemming from the implemented methodology is the use of self-report scales to measure the constructs of the proposed model. Moreover, the present paper lacks a longitudinal approach, as it is cross-sectional and provides a static picture of e-business implementation.

Practical implications – The paper makes an analytical effort to point out areas that companies should emphasize to successfully implement e-business and, therefore, harvest its potential benefits. Certain practical implications are offered in the final part of the paper.

Originality/value – The paper proposes an enhanced conceptual framework that examines vital issues concerning the successful implementation of e-business, thus providing valuable outcomes for decision-makers and academics. Moreover, the results of the study may be generalized in other developed countries whose economy faces similar significant challenges as Greece (e.g. Spain, Italy, Portugal, Ireland, etc.).

Keywords E-business implementation, Organizational learning, Knowledge management, Empirical research, Structural equation modeling, Greece

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1. Introduction

The immense development of technology has brought dramatic changes to business structure. More specifically, the Internet has become an important alternative distribution channel for goods and services (Babbar *et al.*, 2008; DeYoung *et al.*, 2007;

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Mainetti *et al.*, 2012). E-business is defined as the procedure of conducting business through the use of the Internet and computerized technology (Dubelaar *et al.*, 2005; Hertwig, 2012). It is an online activity that brings together employees, collaborators, suppliers and customers, whilst having the creation of value as its primary goal (DuPlessis and Boon, 2004; Lai *et al.*, 2012). Moreover, e-business improves operation efficiency and increases the reach of organizations (Ash and Burn, 2003; Bordonaba-Juste *et al.*, 2012a).

However, the establishment and the successful implementation of e-business is a really challenging matter. Thus, one has to take under serious consideration issues like strategy making and cooperating with partners that are involved in the e-business operation (Sauer and Willcocks, 2003; Lee *et al.*, 2003). Moreover, security matters related to data access have to be taken care of, as data exchange among e-business partners has to be controlled (Davidson, 2001). Additionally, knowledge creation and customer satisfaction are important matters for an e-business implementation process (Huang *et al.*, 2008; Lai *et al.*, 2012; Yeh *et al.*, 2012).

The present study investigates the role of certain "organizational capabilities" in the successful implementation of e-business. According to Lee *et al.* (2007), organizational capabilities are constituted by "organizational learning capabilities" and "knowledge management capabilities". The first include "training availability", "technical expertise" and "knowledge level", while the latter include "knowledge accumulation", "knowledge application" and "knowledge sharing". Moreover, other significant organizational factors are incorporated in the research model of the study (firm size, chief executive officer [CEO]'s knowledge). Such a multidimensional approach has randomly been explored in the existing literature, thus, making such an examination a futile field of research.

The proposed conceptual framework (research model) was empirically tested with the use of a structured questionnaire. The structural equation modeling (SEM) technique was used for testing the hypotheses of the study, while various other techniques were utilized for the verification of the validity and the reliability of the questionnaire.

The proposed conceptual framework was tested on a sample of Greek companies from various economic sectors. The only criterion for participating in the empirical study was the online involvement of the sample company (use of e-business practices). Certain characteristics of the Greek economy make its investigation valuable for international readers:

- Greece is a country that has yet to reach its full potential considering the implementation of e-business practices (therefore, results could be generalized and could prove interesting for other countries with the same characteristics).
- Greece is a country in the European Union that faces serious fiscal and economic problems, similar to Ireland, Spain, Portugal and Italy (therefore, Greek companies are forced to use e-business as a tool for reducing costs).
- Not many studies adopting such a conceptual framework have been conducted in Greece, or other countries with similar characteristics (once again, the conclusions and practical implications of the study may be of value for companies of other economies).

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Finally, as a further step, other similar studies may be conducted in European, or other, countries, so a comparison of the results may be possible.

2. Literature review

E-business competitiveness is closely related to managerial capabilities and decisions (Harbone and Johne, 2003). Hence, leadership has been introduced as an essential component of e-business successful implementation (Horner-Long and Schoenberg, 2002). Managers are obliged to act accurately, make strategic decisions and succeed in creating loyal customers (Aragon-Correa *et al.*, 2007). Additionally, e-business managers have to be capable of acquiring information regarding market needs, analyze this information thoroughly and utilize it by producing innovative goods and services (Bordonaba-Juste *et al.*, 2012b; Clark and Fincham, 2002; Whittle, 2006; Heusinkveld *et al.*, 2009). Furthermore, the existence of ethical leadership, mostly known as e-ethical, becomes day by day a matter of great importance for successful e-business implementation (Flanes, 2001; Fernback, 1997; Pastoriza, 2008).

E-business collaboration and interaction with partners and other companies is a crucial factor determining successful implementation in the highly competitive market environment (Bhakoo and Chan, 2011; Lee *et al.*, 2003; Wiengarten *et al.*, 2012). Online collaboration among e-businesses is a major factor that helps companies respond quickly to customer needs and, thus, contribute to the offering of high-quality goods and services (Kervenoael *et al.*, 2009; Harris, 2008).

Additionally, another important factor for successful e-business implementation is the characteristics and the behavior of its employees (Lai and Ong, 2010; Nelson, 1996). Therefore, an e-company needs to focus on employee training to properly valuate and enhance employee productivity and, thus, affect e-business productivity process and operation (Lee *et al.*, 2007). According to Pfeffer (1994), Human Resources is the most important element of an effective e-business implementation.

According to Baker and Sinkula (2005), an e-business has to be market oriented to succeed in creating and maintaining a competitive advantage. Market orientation is indeed closely related to customers' behavior (Kohli and Jaworski, 1990). Constant changes occurring in the overall social and financial sectors influence customer behavior significantly. A system that understands and predicts these changes is a successful component of e-business (Dennis *et al.*, 2009; Dittmar and Drury, 2000; Kacen and Lee, 2002; Rook, 1987).

Additionally, security is being recognized as an important element for successful e-business implementation. The tremendous expansion of information sharing through electronic channels has made online customers very skeptical regarding security matters for their data privacy (Bhakoo and Chan, 2011; Davidson, 2001). Customers' confidence when using online channels is a crucial factor that contributes to successful e-business implementation (Kervenoael *et al.*, 2009). E-business continuity and readiness to provide services in a proper way, coming as a result of a well established organizational environment, assists in minimizing or avoiding operational faults (Avizienis *et al.*, 2000).

Moreover, innovation has been introduced as an important element for the successful implementation of e-business and its competitive strength (Hamel, 2001; Christensen, 1997, Tseng *et al.*, 2007; Bello *et al.*, 2004). Particularly, innovation consists of the inventions an e-business can make, R&D and its ability to develop effectively the

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productive procedure. E-business capability of inventiveness composes a basic and critical measure for its creative ability (Lai *et al.*, 2012; Laitinen, 2002; Chang, 2001).

According to Hsu and Fang (2009), the basis for the creation of a competitive advantage for an e-business is closely related with intellectual capital. Intellectual capital includes all the characteristics that define the structure of an e-business, such as capabilities, working conditions, technology and processes. Intellectual capital, when related with organizational capabilities, contributes to the creation of a competitive advantage (Harris, 2008; Tsai *et al.*, 2011).

A market-oriented e-business has to be innovative and constantly ready to breakthrough and deal with constant market challenges. Therefore, the implementation of e-business has to be supported by qualified technology experts. Thus, new technology is very important for enabling an e-business to achieve its goals (Onetti *et al.*, 2012; Day, 1999; Lee and Kim, 2009). The introduction of new and advanced technology systems affects the evolution of the activities of an e-business, its internal structure and its information management process (Borges *et al.*, 2009).

However, due to existing competition of online markets, an e-business is forced to be innovative and flexible in response to the continuously changeable and unstable electronic environment. Therefore, strategy making is observed as an important factor for success of an effective e-business operation (Onetti *et al.*, 2012; Sauer and Willcocks, 2003; Yeh *et al.*, 2012).

All the above described factors have been introduced by various scholars to predict successful e-business implementation. Despite that these studies are analytical and extensive, the current literature has failed to thoroughly examine organizational and knowledge management capabilities that have an effect on e-business implementation (Bordonaba-Juste *et al.*, 2012a, 2012b; Huang *et al.*, 2008; Lai and Ong, 2010; Lai *et al.*, 2012; Lee and Kim, 2009; Wu *et al.*, 2011). The present study focuses on these two dimensions, broadening the scope of the stream of research. Moreover, the present study incorporates other important organizational factors in its proposed conceptual framework (Wu *et al.*, 2003; Jeon *et al.*, 2006; Chang, 2009; Wu *et al.*, 2011; Yeh *et al.*, 2012).

E-business successful implementation is used as the dependent factor of the present study (Figure 1). The mainstream of recent research has also adopted such an approach (Bradford and Florin, 2003; Chong *et al.*, 2009; Lee *et al.*, 2007; Lin, 2008). Additionally, various other studies have examined factors such as "intention to use e-business" (Lai and Yang, 2009), "likelihood of e-business adoption" (Hertwig, 2012), "e-business diffusion" (Lin and Lin, 2008), "e-business satisfaction" (Lai *et al.*, 2012), "organizational performance" (Wu *et al.*, 2011), "collaboration with suppliers" (Andreu *et al.*, 2010; Zhao *et al.*, 2008) and "organizational change" (Bordonaba-Juste *et al.*, 2012b).

The successful implementation of e-business has a significant impact on firm performance in terms of downstream markets (suppliers), internal operations (inter-organizational cooperation) and upstream procurement (customers) (Zhu, 2004). Hence, this factor has been chosen as the dependent factor of the present study. Moreover, the ambiguous measurement of various other performance measures, such as growth and customer satisfaction, underline the necessity to use a dependent factor that would be easy to measure, thus, avoid creating any confusion among the participants of the study.

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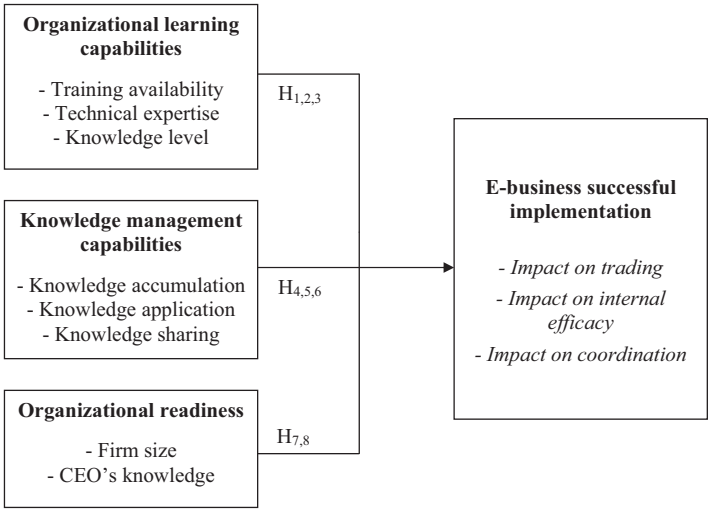

Figure 1.
The proposed conceptual framework of the study

3. Conceptual framework

The research model (conceptual framework) of the present study is based on organizational capabilities theory (incorporating the dimensions of organizational learning capabilities and knowledge management capabilities) and organizational readiness (incorporating factors such as firm size and CEOs knowledge). The proposed conceptual framework is based on the studies of Lee *et al.* (2007), Huang *et al.*, 2008; Wu *et al.* (2003), Jeon *et al.* (2006), and Chang (2009).

The model that was created examines eight independent factors that are classified in three main categories (or dimensions):

(1) organizational learning capabilities;
(2) knowledge management capabilities; and
(3) organizational readiness.

These eight factors are:

(1) training availability;
(2) technical expertise;
(3) knowledge level;
(4) knowledge accumulation;
(5) knowledge application;
(6) knowledge sharing;
(7) firm size; and
(8) CEO's knowledge.

3.1 Organizational learning capabilities

Organizational learning is defined as the process by which an organization gains new knowledge about its environment, goals and processes (Schulz, 2006). According to

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Harris (2008), organizational learning leads to the better implementation of e-business operations, achieved through the optimum use of knowledge. The ability of an e-company to be flexible and correspond to the continuously changing electronic environment depends largely on organizational learning. Argyris and Schoen (1996), Huber (1991) and Zahay and Handfield (2004) underline the existence of a positive relationship between organizational learning and successful e-business implication. More specifically, organizational learning contributes to the employees' productivity and the development of the necessary capabilities for success in the new electronic trading environment (Cegarra-Navarro *et al.*, 2007).

Moreover, technology is a crucial factor contributing to organizational learning, as the development of online communication channels is of great assistance to e-businesses operations (Harris, 2008). Additionally, intellectual capital is highly correlated with organizational learning (Lynn, 1999). According to Bozbura (2004) and Johnson (1999), intellectual capital consists of three dimensions related to human, structural and relational capital, which are closely related to each other.

3.1.1 Training availability and e-business implementation. Training is suggested to be a crucial organizational learning factor that has an influence on e-business structural integration and efficacy (Gerwin and Kolodny, 1992). As suggested by Glass (1998), people nowadays cannot solely rely on their existing educational level. The continuous and rapid development of the Internet, and technology in general, forces employees to be constantly educated and acquire new knowledge related to their operational tasks (Park and Wentling, 2007). Therefore, the more training employees get, the more successfully e-business is utilized.

According to various authors, training programs should include members of all organizational levels (Zhao *et al.*, 2008). Moreover, e-business vendors should be encouraged to assist their employees in using e-business technologies, creating a stronger link between cooperating companies (Hertwig, 2012; Lai *et al.*, 2012; Lin and Lin, 2008). Training availability should be easily accessible and clearly structured, so that employees are aware of what they need to learn (Harris, 2008).

Furthermore, training should be organized and provided centrally by the Human Resource department (if any) and aim at increasing employee familiarity with new technologies. Such training and education does not necessarily need to be formal, but may be undertaken in numerous forms (e.g. workshops, seminars, meetings, etc.) (Lai and Ong, 2010). More specifically, training should include the enhancement of skills that are necessary to interact with the e-business environment. These skills include the use of the available hardware and software of the organization (e.g. Internet, information systems, e-mails, etc.) (Lin, 2008; Zhao *et al.*, 2008):

H1. Training availability leads to successful e-business implementation.

3.1.2 Technical expertise and e-business implementation. Technical expertise within an e-business environment is defined as the degree of technical capabilities that are possessed by specialized employees. Thus, the contribution of this factor to e-business successful implementation is of great importance (Melville *et al.*, 2004). Nowadays, an increasing number of e-businesses employ experts and make research investments to collect and interpret information related to customers' needs and behavior (Helms *et al.*, 2008). This practice enables an e-business to become more flexible and interact effectively with its clients (Helms *et al.*, 2008). Specifically, technology development

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within an e-business has a great effect on organizational learning and contributes to its process and innovation (Lee *et al.*, 2000):

H2. Technical expertise leads to successful e-business implementation.

3.1.3 Knowledge level and e-business implementation. In the present study, knowledge level is defined as the sum of the technical and procedural e-capabilities that are inherent within an organization (DuPlessis and Boon, 2004; Lin and Lin, 2008). These integrated capabilities include Internet and communication skills, e-business diffusion skills, e-business know-how, collaboration with other e-business entities (suppliers and/or customers), etc.

Hence, knowledge level is closely related with the degree of employees' familiarity with e-business technology (Lee *et al.*, 2007). Moreover, their ability to comprehend and be involved with innovated Internet technologies is closely related to surpassing geographical boundaries and cooperating in a global environment (Lee and Kim, 2009). Furthermore, the attitude toward computers and Internet technology reflects the employees' ability to further develop the results of their work (Ash and Burn, 2003). This ability has a simultaneous effect on learning procedure (Horton *et al.*, 2001). Gibbs and Kraemer (2004) suggest that the know-how of an organization provides the ability to implement e-business successfully. Finally, familiarity with the Internet technology is a significant factor for coordination amongst e-companies (Lee and Kim, 2009):

H3. Knowledge level leads to successful e-business implementation.

3.2 Knowledge management capabilities

According to Davenport and Prusak (1998) and Schreiber *et al.* (1999), knowledge is a crucial organizational factor that has to be managed on a continuous basis. Knowledge management is an important factor for the creation of a competitive advantage, which is the desirable outcome of a successful e-company (DeLong and Fahey, 2000). Knowledge management is defined as the ability to collect, use and share information and is closely related to the profitability of an e-business (Xu and Ma, 2008). According to Harris (2008), interaction and knowledge sharing among e-business partners is an element that promotes their mutual experiential learning process and, thus, is a very important asset for every company.

3.2.1 Knowledge accumulation and e-business implementation. Knowledge accumulation is recognized as the collection and the distribution of existing knowledge to the organizational context (Armbrecht *et al.*, 2001). The ability of an e-business to accumulate, preserve and continually develop knowledge contributes to the successful implementation of electronic systems (Xu and Ma, 2008). According to Dubelaar *et al.* (2005), the accumulated knowledge has to be valuable and relevant to e-business operations to have a positive impact on the organization. Moreover, knowledge acquisition is claimed to produce intelligence and innovation and, thus, positively affects the trading success of e-businesses (Cegarra-Navarro *et al.*, 2007):

H4. Knowledge accumulation leads to successful e-business implementation.

3.2.2 Knowledge application and e-business implementation. Argote *et al.* (2003) define knowledge application as the procedure through which accumulated knowledge is effectively utilized within the context of an organization. When it comes to the successful operation of an organization, knowledge application seems to be a factor with

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even greater importance than knowledge creation (Grant, 1996). According to Lee *et al.* (2007), an organization that enhances organizational knowledge application is more likely to implement e-business successfully:

H5. Knowledge application leads to successful e-business implementation.

3.2.3 Knowledge sharing and e-business implementation. Knowledge sharing can be defined as the collaboration among e-business units and entities in a manner that enhances productivity and profitability (DuPlessis and Boon, 2004). Knowledge sharing increases the company's agility and contributes to its adjustment to the changeable online trading environment (Harris, 2008; DuPlessis and Boon, 2004). According to Lee *et al.* (2003), knowledge sharing is the vehicle through which organizations learn to abandon the traditional, old-fashioned philosophies and make drastic changes in their structure. Information has to be constantly available to all e-business entities so as to serve organizational needs and, thus, contribute to successful and profitable e-business implementation (Rajagopal, 2002):

H6. Knowledge sharing leads to successful e-business implementation.

3.3 Organizational readiness

According to Kwon and Zmud (1987), the implementation of an Information System (IS) can only be successful when sufficient resources exist and are managed wisely. These resources include sufficient numbers of employees, sufficient funding, sufficient technical skills, etc. Chang (2009) defines organizational readiness as the availability of financial and human resources. According to Molla and Licker (2005), such availability leads to successful e-business adoption. Based on these findings, the elements of organizational readiness that will be adopted by the current research are firm size and CEO's knowledge.

3.3.1 Firm size. Firm size has been suggested as a factor that has a significant impact on the implementation of e-business practices. Densmore (1998) reports various reasons that explain the superiority of larger firms in the e-business implementation process:

- they have more resources;
- they can easily achieve economies of scale and scope;
- they can accept and bear the risk of a possible failure; and
- they have a greater bargaining power.

Thus, it is hypothesized:

H7. Larger firm size leads to successful e-business implementation.

3.3.2 CEO's knowledge. According to Harrison *et al.* (1997), CEO characteristics are significant drivers of a successful e-business implementation process. Jeon *et al.* (2006) used two sub-factors to examine CEO characteristics that might have an influence on e-business implementation, CEO's knowledge of IT and CEO's attitudes toward innovation. They concluded that CEO characteristics do, indeed, have an influence on the implementation of e-business:

H8. Advanced CEO IT skills lead to successful e-business implementation.

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Figure 1 summarizes all the above hypotheses, thus, presenting the proposed conceptual framework of the study.

4. Research methodology

4.1 Sample of the study

The proposed conceptual framework of the study was tested with the use of a newly developed questionnaire on a sample of Greek companies that have online involvement. The companies were selected randomly from a directory provided by the Greek Chamber of Commerce. The questionnaire was sent to the IS managers of these companies because of their relation to the subject and their extensive knowledge of e-business processes. Moreover, the selection of IS executives as key respondents ensured the validity of the results.

The questionnaire was sent by e-mail to a sample of 820 organizations. A reminder was sent two weeks later to those that failed to reply in the first place. The initial e-mail included an extensive cover letter explaining the objectives of the study and certifying data confidentiality. The final sample consisted of 213 companies (response rate of 26 per cent). The companies of the final sample operated in various industries. This differential helped avoid single-respondent bias.

The majority (27.3 per cent) of the companies of the sample belong to the "Electronics" industry (sector), while 16.5 per cent belong to the "Informatics" and 14.9 per cent to the "Food" industry. Moreover, 23.1 per cent of the companies employ fewer than 100 employees, 37.8 per cent of the companies of the sample employ 101- 250 employees, while 39.1 per cent employ more than 250 employees. Accordingly, the results indicate that the annual sales of 32.6 per cent of the companies of the sample are between €10,000,000 and 50,000,000, while the second larger category (29.2 per cent) includes companies with annual sales between €1,000,000 and 10,000,000.

4.2 Measures

The questionnaire was based on items (questions) that have been used by various previous researchers (Bradford and Florin, 2003; Gold *et al.*, 2001; Bozbura, 2004; Jeon *et al.*, 2006; Lee *et al.*, 2000; Lee *et al.*, 2007). All questions were translated to Greek and then back to English by another person, so the detection and consequent improvement of any discrepancies was possible. A 5-point Likert scale was used for the measurement of all factors (1 = "strongly disagree" to 5 = "strongly agree"), except for the factor "firm size", that was measured with the use of two questions (number of employees and turnover for the last fiscal year). Table I demonstrates the factors of the study, the number of items used and the studies from which they were adapted.

The measurement of the only dependent factor of the present study (e-business successful implementation) included three dimensions:

(1) impact on trading;

(2) impact on internal efficacy; and

(3) impact on coordination (Lee *et al.*, 2007).

Three items were used of the measurement of each of these three dimensions.

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Factors	Items	Adapted from
Training availability	3	Bradford and Florin (2003)
Technical expertise	3	McGowan and Madey (1998)
Knowledge level	3	Thong (1999)
Knowledge accumulation	4	Gold *et al.* (2001)
Knowledge application	5	Gold *et al.* (2001); Bozbura (2004)
Knowledge sharing	4	Gold *et al.* (2001); Lee *et al.* (2000)
Firm size	2	Steinfield *et al.* (2002)
CEO's knowledge	3	Jeon *et al.* (2006)
Successful E-business implementation	9	Lee *et al.* (2007)
Total	*36*	

Table I.
The measurement of the factors of the study

4.3 Reliability and validity

The measurement instrument that was utilized in the present study was tested for both its content and construct validity. The test for the content validity included:

- consultation with academics in the field;
- consultation with experienced practitioners; and
- pilot testing of the questionnaire.

The control for the construct validity was conducted in two steps. Each of the seven research factors was evaluated for its unidimensionality and reliability and for the goodness of fit to the proposed research model.

The examination of the unidimensionality of each of the research factors was conducted using explanatory factor analysis with the method of principal component analysis. Moreover, for the estimation of the reliability of these factors, the statistical measure "Cronbach alpha" was used. All tests concluded that the scales used were valid and reliable (see Table II below for the main results). For the appropriate statistical analysis, the following measures were examined (Hair *et al.*, 1995):

- For determining the appropriateness of the factor analysis, the following measures were examined: "Bartlett's test of Sphericity" (it should be statistically significant at the 0.05 level) and the statistical "Kaiser–Meyer–Olkin" test (values over 0.8 were satisfactory, while values over 0.6 were acceptable).
- For determining the number of the extracted factors, the criterion of "eigenvalue" was used. Factors whose "eigenvalue" was over one were selected.
- For testing the significance of the items, their factor loadings were examined. For a sample size of more than 150 observations, a loading over 0.45 was considered significant.
- For testing the reliability of the factors, the "Cronbach alpha" measure was used. Values greater than 0.7 were considered to be valid.

Furthermore, the evaluation of the goodness of fit of each of the research factors to the proposed model was conducted using confirmatory factor analysis (CFA). All tests conducted produced satisfactory results (see Table III above for the main results). More specifically, the following measures were examined (Schumacker and Lomax, 2010):

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Variables	KMO	Bartlett's test of sphericity	Eigen-value	Total variance explained (%)	Cronbach's alpha
Training availability	0.678	103.56*	1.654	78.12	0.694
Technical expertise	0.756	78.12*	1.542	69.47	0.795
Knowledge level	0.659	81.34*	2.023	71.73	0.758
Knowledge accumulation	0.832	75.12*	1.862	66.76	0.803
Knowledge application	0.753	58.67*	1.112	61.78	0.827
Knowledge sharing	0.723	121.54*	2.124	75.55	0.762
CEO's knowledge	0.845	77.34*	2.564	72.49	0.842
Impact on trading	0.753	89.65*	2.981	79.32	0.793
Impact on internal efficiency	0.712	101.61*	1.546	66.19	0.657
Impact on coordination	0.697	66.91*	1.782	69.98	0.712

Note: $*p < 0.01$

Table II.
Estimation of unidimensionality and reliability

Variables	χ^2	*df*	Normed χ^2	CR	VE (%)	RMSEA	CFI	GFI
Training availability	25.54*	8	3.19	0.72	68.6	0.096	0.96	0.97
Technical expertise	19.63*	6	3.27	0.71	69.3	0.097	0.98	0.94
Knowledge level	39.54*	7	5.65	0.66	65.3	0.092	0.98	0.98
Knowledge accumulation	12.68*	5	2.54	0.81	77.9	0.096	0.96	0.95
Knowledge application	7.81*	3	2.60	0.74	73.5	0.096	0.96	0.96
Knowledge sharing	29.15*	6	4.86	0.71	63.1	0.097	0.97	0.94
CEO's knowledge	9.84*	4	2.46	0.67	68.9	0.093	0.99	0.91
Impact on trading	14.75*	5	2.95	0.72	69.12	0.091	0.98	0.90
Impact on internal efficiency	17.65*	8	2.21	0.68	58.76	0.989	0.98	0.97
Impact on coordination	24.56*	5	4.91	0.83	76.82	0.995	0.96	0.94

Note: $*p > 0.05$

Table III.
Estimation of the GFI

- χ^2: It should be statistically insignificant ($p > 0.05$) and exceed the value of df (degrees of freedom).
- *Normed* χ^2: Values between 1 and 3 were desirable, while values between 1 and 5 were acceptable;
- *Construct reliability (CR)*: It should exceed the value of 0.7;
- *Variance extracted (VE)*: It should exceed 50 per cent;
- *Root mean square error of approximation (RMSEA)*: It should be less than 0.1; and
- *Comparative fit index (CFI)/goodness of fit index (GFI)*: These should be more than 0.9.

Moreover, second-order CFA was conducted for the three dimensions (impact on trading, impact on internal efficiency and impact on coordination) measuring the only dependent factor of the present study (e-business successful implementation). All statistical measures extracted from this analysis were within satisfactory levels.

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5. Results

The examination of the Conceptual Framework was conducted with the use of the "SEM Technique" (Hair *et al.*, 1995; Kelloway, 1998). For conducting the appropriate analysis, the statistical package LISREL 8.74 was used.

The estimation of the structural model was conducted with the maximum likelihood estimation method, which is the most widespread method of estimation (Kelloway, 1998). The covariance matrix was used as the table of entry, and the extraction of the standardized completely solution was requested.

To evaluate the fit of the overall model, $\chi^2 = 78.11$ with 16 df) and $p = 0.0412$ were estimated. These values indicate a satisfactory fit of the data to the overall model. However, the sensitivity of the χ^2 statistic to the sample size enforces the control of other supplementary measures of evaluating the overall model, such as the "Normed-χ^2" index (4.88), the RSMEA index (0.088), the CFI (0.96) and the GFI (0.95), that all indicate a very good fit. For the control of the measurement model, the significance of the factor loadings, the CR and the VE were estimated. Results indicated that all loadings are significant at the $p < 0.05$ level. Additionally, the CR and the VE measures for all constructs were satisfactory.

Table IV illustrates all relations between research factors, as they have been determined by the hypotheses of the study. A hypothesis is accepted when it has a *t*-value less than −1.96 or larger than +1.96. Finally, the correlation coefficient (effect) takes values between −1 and 1, with 1 or −1 indicating perfect (positive or negative) correlation. A correlation value close to 0 indicates no association between the research factors. In the present study, the correlation coefficients of the significant paths are quite satisfactory.

In summary, four hypotheses were supported by the empirical data, while four hypotheses were rejected. It seems that the most important factors that have an impact on the successfulness of e-business implementation are "knowledge level" (impact = 0.86), "firm size" (0.65), "training availability" (0.55), and "knowledge sharing" (0.34) (Figure 2). On the other had, despite the theoretical support, "technical expertise",

Hypotheses	Path	Effect	*t*-value	Result
H1	Training availability → e-business successful implementation	0.55	5.96	Accepted
H2	Technical expertise → e-business successful implementation	0.10	0.80	Rejected
H3	Knowledge level → e-business successful implementation	0.86	10.85	Accepted
H4	Knowledge accumulation → e-business successful implementation	0.27	1.56	Rejected
H5	Knowledge application → e-business successful implementation	0.24	1.34	Rejected
H6	Knowledge sharing → e-business successful implementation	0.34	3.24	Accepted
H7	Firm size → e-business successful implementation	0.65	2.65	Accepted
H8	CEOs knowledge → e-business successful implementation	0.24	0.99	Rejected

Table IV.
Hypotheses testing

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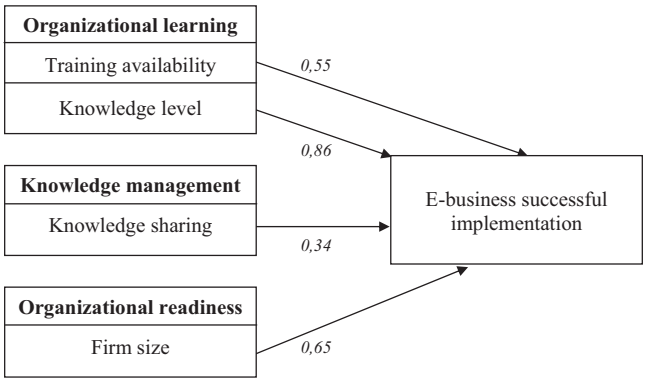

Figure 2.
The revised conceptual framework of the study

"knowledge accumulation", "knowledge application" and "CEO's knowledge" were not found to be statistically related with successful e-business implementation.

6. Conclusions

The present study developed a model that examines the organizational capabilities that contribute to the successful implementation of e-business. The research model was based on the synthesis of previous studies, and the results of the statistical analysis revealed that "knowledge level", "training availability" and "knowledge sharing" are the most significant factors for successful e-business implementation. Moreover, the role of "firm size" was underlined by the empirical data. This finding technically means that as the number of employees' increase, the company has the ability to better adopt innovative technologies, such as e-business. From a managerial standpoint, this suggests that managers should support their efforts for growth and profit maximization along with e-business adoption and implementation.

The study investigated organizational capabilities using two dimensions ("organizational learning capabilities" and "knowledge management capabilities"), measured by three sub-factors each. The empirical analysis revealed that between these two dimensions, "organizational learning capabilities" seemed to be the most important for e-business implementing companies. More specifically, "knowledge level" and "training availability" were found to have a statistically significant impact on successful e-business implementation, while "technical expertise" failed to do so.

Therefore, it can be concluded that an organization that provides its employees with training has increased possibilities to accomplish a successful implementation of e-business processes. Moreover, an organization with knowledgeable employees that are familiar with the technology that supports e-business is more likely to compete successfully in an online environment. These findings are in line with previous studies, suggesting that employees have to be constantly trained to acquire knowledge and, therefore, be capable of successfully accomplishing their duties and contributing to e-business performance (Gibbs and Kraemer, 2004; Lee *et al.*, 2007; Park and Wentling, 2007). Consequently, an adequate degree of training availability and e-business knowledge levels are absolutely necessary for successful e-business implementation and performance.

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On the other hand, results regarding the dimension of "knowledge management capabilities" revealed that only "knowledge sharing" has a statistically significant impact on successful e-business implementation, while "knowledge accumulation" and "knowledge application" do not. "Knowledge sharing" enables an e-business to succeed in managing internal and external organizational procedures and, hence, has a positive impact on the development of new effective solutions of e-business practices. Therefore, "knowledge sharing" is a significant capability that can help employees utilize knowledge effectively, organize knowledge and improve interactions and supply chain relationships among trading partners. Using "knowledge sharing" as a vehicle of transformation, organizations should reform their structure, so as to allow information to be disseminated freely among different departments and business partners.

6.1 Discussion

The results of the present study indicate that an e-business has to be capable of functioning within and beyond its organizational framework and not solely focusing on technological considerations. Toward that direction, factors of organizational learning (training availability and knowledge level) and knowledge management (knowledge sharing) should be of great importance regarding the successful implementation of e-business principles.

Hence, managers should bear in mind that focusing on technology is not the only critical success factor for e-business implementation. The empirical results indicate that the human factor (human capital) has a central role in successfully transforming every company into a modern digital organization. After all, the technology may be there, but employees of all organizational levels are the ones responsible for exploiting its advantages and developing a competitive advantage.

Therefore, managers should fully understand that a successful e-company is, first of all, a learning organization. Employees in such an organization should be trained on a continuous basis, so they can acquire additional knowledge and technical skills. Employee development should not only be pursued with traditional forms (e.g. seminars), but should also take other forms that significantly improve organizational cooperation and enhance organizational knowledge (e.g. workshops, meetings, focus groups, etc.). Such an approach would improve both technical skills and cooperation between employees, as the present study indicated that both are needed for successful e-business implementation.

Additionally, empirical results highlight the significance of knowledge sharing in the e-business implementation process. Such a finding indicates that managing intellectual and social organizational capital is crucial in meeting the objectives and requirements of e-business. Managers should build a coherent knowledge management infrastructure, so as to improve office efficiency (internal cooperation and knowledge sharing) and enhance the coordination with business partners (external cooperation and knowledge sharing).

More specifically, managers should implement incentive systems based on the sharing of organizational knowledge and make sure that all internal knowledge sharing barriers have been removed. If applied successfully, employees will feel comfortable to discuss and share their personal and organizational knowledge with their peers, hence, improving e-business implementation. Moreover, managers should establish long-term relationships with existing external partners to ensure that the sharing of knowledge

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and information is constant. Furthermore, new external partners should be selected on the basis of their intention and capability to cooperate within a knowledge sharing environment. All the above will, eventually, reform the traditional business structure, creating an open system that collectively collects and manages knowledge.

Considering the critical factors for successful e-business implementation emphasized in the present study, the following suggestions are made:

(1) organizational learning:
- organizations should view employee training as an investment, not as an expense; and
- organizations should provide extensive training related to e-business practices.

Continuous training will improve the level of technical and managerial expertise, empowering employees to interact successfully within the e-business environment. Only by constantly updating the existing pool of employee knowledge will the company be able to maintain a personnel that is dedicated to providing added value e-business services (internally and externally).

(2) knowledge management:
- organizations should have a standardized reward system for sharing knowledge; and
- organizations should design processes to facilitate knowledge sharing across functional boundaries and among business partners.

First, sharing of internal and external knowledge will improve the capability of an organization to adjust itself to the rapidly changing needs of the external environment. Second, knowledge sharing will improve the decision-making process, as decisions will be based on enhanced knowledge (valuable, updated, constantly available). Because knowledge is a vital part of e-business activities (it is the main data input), the better the quality of the information, the better the performance of the system.

6.2 Limitations and future research

A first limitation is the use of self reported scales to measure the constructs of the proposed conceptual framework. Self-reported answers may be exaggerated or respondents may be too embarrassed (or skeptical) to reveal certain information and may also forget pertinent details. Despite these disadvantages, the use of self-reported scales has been strongly defended by the literature, as it is the only available method for certain categories of research (John and Robins, 1994; McDonald, 2008; Paulhus and Vazire, 2007).

Moreover, the present study provides a static picture of e-business implementation in Greece, lacking a longitudinal and international approach. It would be interesting to examine the proposed conceptual framework in different time periods and countries so as to further validate its findings. The comparison between various European countries would be an interesting direction for future research, as such an approach would be able to detect differences between countries with different economic realities and cultures (e.g. countries of the North vs countries of the South). Finally, a future study might include more organizational factors in its research model, as the present study only examined learning capacity and knowledge capability factors.

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References

Andreu, L., Aldas, J., Bigne, J.E. and Mattila, A.S. (2010), "An analysis of e-business adoption and its impact on relational quality in travel agency–supplier relationships", *Tourism Management*, Vol. 31 No. 3, pp. 777-787.

Aragon-Correa, J.A., Garcia-Morales, V.J. and Cordon-Pozo, E. (2007), "Leadership and organisational learning's role on innovation and performance: lessons from Spain", *Industrial Marketing Management*, Vol. 36 No. 3, pp. 349-359.

Argote, L., McEvily, B. and Reagans, R. (2003), "Managing knowledge in organisations: an interactive framework and review of emerging themes", *Management Science*, Vol. 49 No. 4, pp. 571-582.

Argyris, C. and Schoen, D.A. (1996), *Organisational Learning II: Theory, Method, and Practice*, Addison-Wesley, Reading, MA.

Armbrecht, F.M.R., Jr., Chapas, R.B., Chappelow, C.C., Farris, G.F., Friga, P.N., Hartz, C.A., Mciivaine, M.E., Postle, S.R. and Whitwell, G.E. (2001), "Knowledge management in research and development", *Research Technology Management*, Vol. 44 No. 4, pp. 28-41.

Ash, C.G. and Burn, J.M. (2003), "A strategic framework for the management of ERP enabled e-business change", *European Journal of Operational Research*, Vol. 146 No. 2, pp. 374-387.

Avizienis, A., Laprie, J.-C. and Randell, B. (2000), "Fundamental concepts of dependability", *Third Information Survibility Workshops (ISW)*, Boston, MA.

Babbar, S., Addae, H., Gosen, J. and Prasad, S. (2008), "Organizational factors affecting supply chains in developing countries", *International Journal of Commerce and Management*, Vol. 18 No. 3, pp. 234-251.

Baker, W.E. and Sinkula, J.M. (2005), "Market orientation and the new product paradox", *Journal of Product Innovation Management*, Vol. 22 No. 6, pp. 483-502.

Bello, D.C., Lohtia, R. and Sangtani, V. (2004), "An institutional analysis of supply chain innovations in global marketing channels", *Industrial Marketing Management*, Vol. 33 No. 1, pp. 57-64.

Bhakoo, V. and Chan, C. (2011), "Collaborative implementation of e-business processes within the health-care supply chain: the Monash pharmacy project", *Supply Chain Management: An International Journal*, Vol. 16 No. 3, pp. 184-193.

Bordonaba-Juste, V., Lucia-Palacios, L. and Polo-Redondo, Y. (2012a), "The influence of organizational factors on e-business use: analysis of firm size", *Marketing Intelligence and Planning*, Vol. 30 No. 2, pp. 212-229.

Bordonaba-Juste, V., Lucia-Palacios, L. and Polo-Redondo, Y. (2012b), "Antecedents and consequences of e-business adoption for European retailers", *Internet Research*, Vol. 22 No. 5, pp. 532-550.

Borges, M., Hoppen, N. and Luce, B.F. (2009), "Information technology impact on market orientation in e-business", *Journal of Business Research*, Vol. 62 No. 9, pp. 883-890.

Bozbura, F.T. (2004), "Measurement and application of intellectual capital in Turkey", *Learning Organisation*, Vol. 11 Nos 4/5, pp. 357-367.

Bradford, M. and Florin, J. (2003), "Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems", *International Journal of Accounting Information Systems*, Vol. 4 No. 3, pp. 205-225.

Cegarra-Navarro, J.G., Jimenez, D.J. and Martinez, C.E.A. (2007), "Implementing e-business through organisational learning: an empirical investigation in SMEs", *International Journal of Information Management*, Vol. 27 No. 3, pp. 173-186.

المنارة للاستشارات

www.manara

Chang, C.L. (2001), "A study on the core competences and competitive advantages of Taiwan's TFT-LCD industry", *Master's thesis*, Department of Business Administration and Technology Management, National Chiao Tung University.

Chang, H.-L. (2009), "A roadmap to adopting emerging technology in e-business: an empirical study", *Information Systems and E-Business Management*, Vol. 12 No. 3, pp. 124-132.

Chong, A.Y.-L., Ooi, K.-B., Lin, B. and Tang, S.Y. (2009), "Influence of interorganizational relationships on SMEs' e-business adoption", *Internet Research*, Vol. 19 No. 3, pp. 313-331.

Christensen, C.M. (1997), *The Innovator's Dilemma*, HPS Press, Boston, MA.

Clark, T. and Fincham, R. (2002), *Critical Consulting: New Perspectives on the Management Advice Industry*, Blackwell Publishers, Oxford.

Davenport, T.H. and Prusak, L. (1998), *Working Knowledge: How Organisations Manage What They Know*, Harvard Business School Press, Boston, MA.

Davidson, M.A. (2001), "Security for eBusiness", *Information Security Technical Report*, Vol. 6 No. 2, pp. 80-94.

Day, G.S. (1999), "Misconceptions about market orientation", *Journal of Marketing Focused Management*, Vol. 4 No. 1, pp. 5-16.

DeLong, D.W. and Fahey, L. (2000), "Diagnosing cultural barriers to knowledge management", *Academy of Management Executive*, Vol. 14 No. 4, pp. 113-127.

Dennis, C., Merrilees, B., Jayawardhena, C. and Wright, L.T. (2009), "E-consumer behaviour", *European Journal of Marketing*, Vol. 43 Nos 9/10, pp. 1121-1139.

Densmore, B. (1998), "EDI vs. the new kids", Computerworld Emmerce, available at: www.computerworld.com/home/emmerce.nsf//all/980406edi (accessed 21 March 2010).

DeYoung, R., Lang, W.W. and Nolle, D.L. (2007), "How the internet affects output and performance at community banks", *Journal of Banking and Finance*, Vol. 31 No. 4, pp. 1033-1060.

Dittmar, H. and Drury, J. (2000), "Self-image – is it in the bag? A qualitative comparison between "ordinary" and "excessive" consumers", *Journal of Economic Psychology*, Vol. 21 No. 2, pp. 109-142.

Dubelaar, C., Sohal, A. and Savic, V. (2005), "Benefits, impediments and critical success factors in B2C e-business adoption", *Technovation*, Vol. 25 No. 11, pp. 1251-1262.

DuPlessis, M. and Boon, J.A. (2004), "Knowledge management in eBusiness and customer relationship management: South African case study findings", *International Journal of Information Management*, Vol. 24 No. 1, pp. 73-86.

Fernback, J. (1997), "The individual within the collective: virtual ideology and the realization of collective principles", in *Virtual Culture*, Sage, London, pp. 36-54.

Flanes, L.G. (2001), *People Skills For Project Managers*, Management Concepts, Vienna, VA.

Gerwin, D. and Kolodny, H. (1992), *Management of Advanced Manufacturing Technology: Strategy, Organisation, and Innovation*, John Wiley and Sons, New York, NY.

Gibbs, J.L. and Kraemer, K. (2004), "Cross-country investigation of the determinants of scope of e-commerce use: an institutional approach", *Electronic Markets*, Vol. 14 No. 2, pp. 124-137.

Glass, N. (1998), *Management Masterclass: A Practical Guide to the New Realities of Business*, Nicholas Brealey, Sonoma, CA.

Gold, A.H., Malhotra, A. and Segars, A.H. (2001), "Knowledge management: an organisational capabilities perspective", *Journal of Management Information Systems*, Vol. 18 No. 1, pp. 185-214.

Grant, R.M. (1996), "Toward a knowledge-based theory of the firm", *Strategic Management Journal*, Vol. 17 No. 2, pp. 109-122.

المنارة للاستشارات

www.manara

Hair, F., Anderson, R., Tatham, R. and Black, W. (1995), *Multivariate Data Analysis with Readings*, 4th ed., Prentice-Hall International, London.

Hamel, G. (2001), "Bringing silicon valley inside", *Harvard Business Review*, Vol. 77 No. 5, pp. 71-86.

Harbone, P. and Johne, A. (2003), "Creating project climate for successful product innovation", *European Journal of Innovation Management*, Vol. 6 No. 2, pp. 118-132.

Harris, R.J. (2008), "Improving tacit knowledge transfer within SMEs through e-collaboration", *Journal of European Industrial Training*, Vol. 33 No. 3, pp. 215-231.

Harrison, D.A., Mykytyn, P. and Riemenschneider, C. (1997), "Executive decisions about adoption of information technology in small business: theory and empirical tests", *Information Systems Research*, Vol. 8 No. 2, pp. 171-195.

Helms, M.M., Ahmadi, M., Jih, W.J.K. and Ettkin, L.P. (2008), "Technologies in support of mass customization strategy: exploring the linkages between e-commerce and knowledge", *Computers in Industry*, Vol. 59 No. 4, pp. 351-363.

Hertwig, M. (2012), "Institutional effects in the adoption of e-business-technology: evidence from the German automotive supplier industry", *Information and Organization*, Vol. 22 No. 14, pp. 252-272.

Heusinkveld, S., Benders, J. and Van den Berg, R. (2009), "From market sensing to new concept development in consultancies: the role of information processing and organisational capabilities", *Technovation*, Vol. 29 No. 8, pp. 509-516.

Horner-Long, P. and Schoenberg, R. (2002), "Does e-business require different leadership characteristics? An empirical investigation", *European Management Journal*, Vol. 20 No. 6, pp. 611-619.

Horton, R.P., Buck, T., Waterson, P.E. and Clegg, C.W. (2001), "Explaining intranet use with the technology acceptance model", *Journal of information technology*, Vol. 16 No. 4, pp. 237-249.

Hsu, Y.H. and Fang, W. (2009), "Intellectual capital and new product development performance: the mediating role of organisational learning capability", *Technological Forecasting and Social Change*, Vol. 76 No. 5, pp. 664-677.

Huang, X., Kristal, M.M. and Schroeder, R.G. (2008), "Linking learning and effective process implementation to mass customisation capability", *Journal of Operations Managemen*, Vol. 26 No. 6, pp. 714-729.

Huber, G.P. (1991), "Organisational learning: the contributing processes and the literatures", *Organisational Science*, Vol. 2 No. 1, pp. 88-115.

Jeon, B., Han, K. and Lee, M. (2006), "Determining factors for the adoption of e-business: the case of SMEs in Korea", *Applied Economics*, Vol. 38 No. 3, pp. 1905-1916.

John, O.P. and Robins, R.W. (1994), "Accuracy and bias in self-perception: individual differences in self-enhancement and the role of narcissism", *Journal of Personality and Social Psychology*, Vol. 66 No. 1, pp. 206-219.

Johnson, W.H.A. (1999), "An integrative taxonomy of intellectual capital: measuring the stock and flow of intellectual capital components in the firm", *International Journal of Technology Management*, Vol. 18 Nos 5/6/7/8, pp. 562-575.

Kacen, J.J. and Lee, J.A. (2002), "The influence of culture on consumer impulsive buying behavior", *Journal of Consumer Psychology*, Vol. 12 No. 2, pp. 163-176.

Kelloway, E.K. (1998), *Using LISREL for Structural Equation Modeling: A Researcher's Guide*, Sage, Thousand Oaks, CA.

المنارة للاستشارات

www.manara

Kervenoael, R., Selcen, D., Aykac, O. and Palmer, M. (2009), "Online social capital: understanding e-impulse buying in practise", *Journal of Retailing and Consumer Services*, Vol. 16 No. 4, pp. 320-328.

Kohli, A.K. and Jaworski, B.J. (1990), "Market orientation: the construct, research propositions, and managerial implications", *Journal of Marketing*, Vol. 54 No. 2, pp. 1-18.

Kwon, T. and Zmud, R. (1987), "Unifying the fragmented models of information systems implementation", *Critical issues in Information Systems Research*, Vol. 4 No. 2, pp. 227-251.

Lai, J.-Y. and Ong, C.-S. (2010), "Assessing and managing employees for embracing change: a multiple-item scale to measure employee readiness for e-business", *Technovation*, Vol. 30 No. 1, pp. 76-85.

Lai, J.-Y. and Yang, C.-C. (2009), "Effects of employees' perceived dependability on success of enterprise applications in e-business", *Industrial Marketing Management*, Vol. 38 No. 3, pp. 263-274.

Lai, J.-Y., Kan, C.-W. and Ulhas, K.R. (2012), "Impacts of employee participation and trust on e-business readiness, benefits, and satisfaction", *Information Systems and e-Business Management*, Vol. 11 No. 2, pp. 265-285.

Laitinen, E.K. (2002), "A dynamic performance measurement system: evidence from small Finnish technology companies", *Scandinavian Journal of Management*, Vol. 18 No. 1, pp. 65-99.

Lee, C., Lee, G. and Lin, H.F. (2007), "The role of organisational capabilities in successful e-business implementation", *Business Process Management Journal*, Vol. 13 No. 5, pp. 677-693.

Lee, H.L., So, K.C. and Tang, C.S. (2000), "The value of information sharing in a two-level supply chain", *Management Science*, Vol. 46 No. 5, pp. 626-643.

Lee, S. and Kim, B.G. (2009), "Factors affecting the usage of intranet: a confirmatory study", *Computers in Human Behaviour*, Vol. 25 No. 1, pp. 191-201.

Lee, S.C., Pak, B.Y. and Lee, H.G. (2003), "Business value of B2B electronic commerce: the critical role of inter-firm collaboration", *Electronic Commerce Research and Applications*, Vol. 2 No. 4, pp. 350-361.

Lin, H.-F. (2008), "Empirically testing innovation characteristics and organizational learning capabilities in e-business implementation success", *Internet Research*, Vol. 18 No. 1, pp. 60-78.

Lin, H.-F. and Lin, S.-M. (2008), "Determinants of e-business diffusion: a test of the technology diffusion perspective", *Technovation*, Vol. 28 No. 3, pp. 135-145.

Lynn, B.E. (1999), "Culture and intellectual capital management: a key factor in successful ICM implementation", *International Journal of Technology Management*, Vol. 18 Nos 5/6/7/8, pp. 591-603.

McDonald, J.D. (2008), "Measuring personality constructs: the advantages and disadvantages of self-reports, informant reports and behavioural assessments", *Enquire*, Vol. 1 No. 1, pp. 1-19.

McGowan, M.K. and Madey, G.R. (1998), "The influence of organisational structure and organisational learning factors on the extent of EDI implementation in US firms", *Information Resource Management Journal*, Vol. 11 No. 3, pp. 17-27.

Mainetti, L., Paiano, R., Bolchini, D. and Pandurino, A. (2012), "Dialogue-based modeling of rich Internet applications: the Rich-IDM approach", *International Journal of Web Information Systems*, Vol. 8 No. 2, pp. 157-180.

Melville, N., Kraemer, K. and Gurbaxani, V. (2004), "Information technology and organisational performance: an integrative model of IT business value", *MIS Quarterly*, Vol. 28 No. 2, pp. 283-322.

المنارة للاستشارات

www.manara

Molla, A. and Licker, P.S. (2005), "eCommerce adoption in developing countries: a model and instrument", *Information and Management*, Vol. 42 No. 6, pp. 877-899.

Nelson, D.L. and Quick, J.C. (1996), *Organisational Behavior: The Essentials*, West Publishing, St. Paul, MN.

Onetti, A., Zucchella, A., Jones, M.V. and McDougall-Covin, P.P. (2012), "Internationalization, innovation and entrepreneurship: business models for new technology-based firms", *Journal of Management and Governance*, Vol. 16 No. 3, pp. 337-368.

Park, J.H. and Wentling, T. (2007), "Factors associated with transfer of training in workplace e-learning", *Journal of Workplace Learning*, Vol. 19 No. 5, pp. 311-329.

Pastoriza, D., Arino, M.A. and Ricart, J.E. (2008), "Ethical managerial behaviour as an antecedent of organisational social capital", *Journal of Business Ethics*, Vol. 78 No. 3, pp. 329-342.

Paulhus, D.L. and Vazire, S. (2007), "The self-report method", in Robins, R.W., Fraley, R.C. and Krueger, R.F. (Eds), *Handbook of Research Methods in Personality Psychology*, The Guilford Press, London, pp. 224-239.

Pfeffer, J. (1994), *Competitive Advantage through People: Unleashing the Power of the Work Force*, Harvard Business School Press, Boston, MA.

Rajagopal, R. (2002), "An innovation-diffusion view of implementation of enterprise resource planning (ERP) systems and development of a research model", *Information and Management*, Vol. 40 No. 2, pp. 87-114.

Rook, D.W. (1987), "The buying impulse", *Journal of Consumer Research*, Vol. 14 No. 2, pp. 189-199.

Sauer, C. and Willcocks, L. (2003), "Establishing the business of the future: the role of organisational architecture and information technologies", *European Management Journal*, Vol. 21 No. 4, pp. 497-508.

Schreiber, G., Akkermans, H., Anjewierden, Hoog, A., Shadbolt, P. and De Velde, N.W.V. (1999), *Knowledge Engineering and Management: The Commonkads Methodology*, MIT Press, MA.

Schulz, A. and Hoegl, M. (2006), "Knowledge creation in new product development projects", *Journal of Management*, Vol. 32 No. 2, pp. 1-27.

Schumacker, R.E. and Lomax, R.G. (2010), *A Beginner's Guide to Structural Equation Modeling*, Routledge Academic, New York, NY.

Steinfield, C., Adelaar, T. and Lai, Y.-J. (2002), "Integrating brick and mortar locations with e-commerce: understanding synergy opportunities", *Hawaii International Conference on Systems Sciences*, *Big Island, HI*, 7-10 January.

Thong, J.Y.L. (1999), "An integrated model of information systems adoption in small business", *Journal of Management Information Systems*, Vol. 15 No. 4, pp. 187-214.

Tsai, M.-T., Li, E.Y., Lee, K.-W. and Tung, W.-H. (2011), "Beyond ERP implementation: the moderating effect of knowledge management on business performance", *Total Quality Management*, Vol. 22 No. 2, pp. 131-144.

Tseng, F.-M., Chiu, Y. and Chen, J. (2007), "Measuring business performance in the high-tech industry: a case study of Taiwan's large-sized TFT-LCD panel companies", *Omega*, Vol. 37 No. 3, pp. 686-697.

Whittle, A. (2006), "The paradoxical repertoires of management consultancy", *Journal of Organisational Change Management*, Vol. 19 No. 4, pp. 424-436.

Wiengarten, F., Humphreys, P., McKittrick, A. and Fynes, B. (2012), "Investigating the impact of E-business applications on supply chain collaboration in the German automotive

المنارة للاستشارات

www.manara

industry", *International Journal of Operations & Production Management*, Vol. 33 No. 1, pp. 25-48.

Wu, F., Mahajan, V. and Balasubramanian, S. (2003), "An analysis of e-business adoption and its impact on business performance", *Journal of the Academy of Marketing Science*, Vol. 31 No. 4, pp. 425-447.

Wu, J.-N., Zhong, W.-J. and Mei, S.-E. (2011), "Application capability of e-business, e-business success, and organizational performance: empirical evidence from China", *Technological Forecasting & Social Change*, Vol. 78 No. 8, pp. 1412-1425.

Xu, Q. and Ma, Q. (2008), "Determinants of ERP implementation knowledge transfer", *Information and Management*, Vol. 45 No. 8, pp. 528-539.

Yeh, C.-H., Lee, G.-G. and Pai, J.-C. (2012), "How information system capability affects e-business information technology strategy implementation: an empirical study in Taiwan", *Business Process Management Journal*, Vol. 18 No. 2, pp. 197-218.

Zahay, D.L. and Handfield, R.B. (2004), "The role of learning and technical capabilities in predicting adoption B2B technologies", *Industrial Marketing and Management*, Vol. 33 No. 7, pp. 627-641.

Zhao, J., Huang, W.V. and Zhu, Z. (2008), "An empirical study of e-business implementation process in China", *IEEE Transactions on Engineering Management*, Vol. 55 No. 1, pp. 134-147.

Zhu, K. (2004), "The complementarily of information technology infrastructure and e-commerce capability: a resource-based assessment of their business value", *Journal of Management Information Systems*, Vol. 21 No. 1, pp. 167-202.

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