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Information technology and e-business marketing strategy

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Abstract
The advancement of information technology and its benefits for organizations have made the field of e-business marketing competitive and successful although there have been failures as well. Failure happens due to the use of constant strategies while the e-business environment is dynamic and in such a context, strategy formulation and implementation is a challenge for e-business organization. In this research a questionnaire was designed by reviewing the literature and interviewing experts. Analyzing the collected data, the e-business key strategy factors such as technology, information systems, risk management and compliance were extracted. In the next stage, these key factors were presented as the e-business marketing strategy model. The results suggested that dissimilar dimensions of e-business strategy factors may not be equally conducive to different marketing strategies. In particular, risk management has an insignificant relationship with any of the marketing strategies; while high level of compliance is positively associated only with a focus strategy. IT governance is positively associated with price leadership and differentiation strategies but linked negatively with focus strategy.

Keywords e-business · Information system · Marketing strategy · Compliance

1 Introduction

Due to business dynamics and complexities, aligning information systems to the e-business marketing strategy has appeared to be a concern for researchers and practitioners over the last decade. The challenge of achieving this alignment becomes even more severe and demanding day after day.

The strategic use of information technology is a matter of concern for managers and researchers [56]. Firms require making decisions regarding IT use in response to technological evolution and changes in business activity. Prior studies show that without an information system (IS) strategy, IT contribution to organizational performance may fall short of expectations [17].

Most study in the field of the strategic use of IT focuses on business and IT alignment [16]. This approach omits an IT/IS strategy viewpoint and accordingly ignores the alignment's dynamic nature. Existing research fails to answer basic questions such as what are the advantages and problems for IT innovators and how does the IT/IS strategy interacts with the business marketing strategy. The linkage and alignment of technology and overall strategies have been profoundly studied in strategy and technology management literature and scholars have introduced diverse frameworks, models, and decision tools for this purpose considering positioning [19, 20, 67, 79]. Such a linkage at the corporate is a prerequisite for achieving growth goals [6, 8, 20, 38, 40, 50, 52, 72, 84]. However, few research studies have investigated the relationship between businesses and technologies [34]. To the best of the researcher's knowledge, there is no structure or model which has explicitly recognized technology strategy at the corporate level and marketing strategy although many scholars have confirmed this concept explicitly [13, 35, 58] or implicitly [9, 28, 38, 49, 62].

Despite the fact that IS is significant for organizations, the literature lacks a consistent definition and quantitative method for the concept of the IS strategy. A narrow concept

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of the IS strategy focuses on the IS unit and technology [16] to achieve the IT alignment with the business strategy. Other researchers [18] conceptualize the IS strategy construct as the organizational perception of the investment, deployment, use, and management of information systems. This description unifies aspects such as human, technology business processes, and resources, adopting a broad perspective.

Firms that implement a conservative IS approach (i.e., organization that pursue their industry managers' best practices) limit their ability to give a flexible and quick response to the markets [26]. This safe approach does not entail obtaining a competitive advantage via information systems [18]. Adopting an innovative IS approach by assessing competitors' action, firms can estimate the success and failure of IS leaders. Thus, according to the resource-based view, the decision to select for an innovative or a conservative IS approach depends upon the IT characteristics of the firm's activities and the IS limitations [26].

While most authors acknowledge that a firm's relationship with others in the network influences implementation of marketing programs and strategy [39, 71], to the best of our knowledge no one has empirically investigated the relationship between e-business strategy factors and the strategic dimension of marketing as a blueprint of how a firm competes in the marketplace (e.g., [68, 75, 76]). To this end, this study investigates the relationship between e-business strategy factors and the firm's marketing strategy (i.e., [68]).

Specifically, this descriptive study empirically examines the relationships between, the e-business key strategy factors such as technology, information systems, risk management and compliance, and different marketing strategies (cost leadership, differentiation, and focus strategies).

2 Review of the literature

The subject of market strategy making in highly dynamic competitive contexts is well-established in the academic literature. Most of the researches in this regard can be traced back to the developing approach to strategy making. Besides, the impact of ICT in business, especially with the Internet diffusion of the early 90s, a new style of strategic management emerged being related to emergent strategy making. With the advances in wireless communication, smartphone, and sensor network technologies, more networked things or smart objects are being involved in Internet of Things. As a result, these IoT-related technologies have also made a large impact on new information and communications technology (ICT) and enterprise systems technologies [23]. To provide high-quality services to end users, Internet of Things technical standards need to be designed to define the specification for information exchange, processing, and communications between things. The success of IoT depends on standardization, which provides interoperability, compatibility, reliability, and effective operations on a global scale. Many countries and organizations are interested in the development of IoT standards because it can bring tremendous economic benefits in the future [23].

While the importance of matching strategy and structure for the success of any organization is amply acknowledged in strategy literature (cf. [25, 33, 61, 70, 75, 76, 81, 83, 85]), most authors examined this relationship within an intra-organizational context. The development of information technology and the technological advances in ES have provided a viable solution to the growing needs of information integration in both manufacturing and service industries. In the past decade, ES has emerged as a promising tool used for integrating and extending business processes across the boundaries of business functions at both intra-organizational and inter-organizational levels. This emergence of ES has been fueled by the global economy and the development of information technology including industrial informatics. The development of information technology and the technological advances in ES have provided a viable solution to the growing needs of information integration in both manufacturing and service industries. ES provides an IT platform that enables industrial organizations to integrate and coordinate their business processes; it is considered a revolutionary advance in the continuous evolution of computer applications in business and industry [22].

However, most authors take the stance that strategy influences channel governance Some exceptions include [41, 51, 53, 55, 59];. While, this directionality—i.e., first planning a strategy and then designing and implementing an appropriate inter-organizational structure—may hold true for firms starting with no preexisting channel network structure, this may be problematic for firms operating in or entering an ongoing marketing channel network with a pre-existing inter-organizational structure.

Due to business dynamics and complexities, aligning information systems to the organizational goals and marketing has been appeared to be a concern for researchers and practitioners over the last decade. The challenge of achieving this alignment becomes even more severe and demanding day after day [47]. Enterprise Information Systems (EIS) are the key IT assets for industrial enterprises to organize, plan, schedule, and control their business processes [64].

Alignment can be defined as the extent to which information systems support and have a positive relationship with the organization's objectives and strategies as defined in the business plan in an appropriate and timely way [1, 14, 56,].

2.1 Technology strategy (TS) and corporate strategy (CS)

Scholars have pointed out the linkage between TS and CS [5, 6, 27, 50, 62, 78]. They believe this linkage is bidirectional, interactive, and dynamic [6, 8, 9, 40, 43, 52, 58, 78, 84]. Here we focus on the necessity of planning technology strategy in alignment and integrated with corporate and marketing strategy [8, 67, 69, 78]. Some of the main reasons stated in the literature are:

- The important role of technology in creating synergy between BUs [31, 38]
- The Impacts of CS and TS relationship on different performance measurements of the firm [10, 72]
- The Impacts of CS and TS linkage in making opportunities for vertical integration [31]
- The Impacts of CS and TS integration in earning advantages from technological changes [38, 46]

Although, integrating technology management into corporate strategic planning is widespread and complicated [8], there are few studies that have regarded the issue [38, 74]. The most important paths of TS and CS linkage reported in the literature are as follows:

- The Impact of corporate's strategic technology portfolio on corporate's strategy and corporate's marketing in order to synergy making and parenting value creation and vice versa [12, 13, 21, 30, 36, 57, 62].
- Corporate vertical integration strategy's impact on corporate's strategic technology portfolio and vice versa [13, 21, 30].

2.2 Risk and compliance

More than ever before, in the current context of market globalization, companies face many and varied risks which cannot be ignore when making a decision, whether strategic or operational. In fact, dealing with so many economic, political, technological and ecological mutations, companies face a vast array of risks which must be identified and managed to ensure their survival. The concepts of strategy and risk are linked—linked both in theory and practice. They both make up the cornerstone of decisions within companies. But where establishing a strategy involves choices to be made by senior executives, Caldwell [15] posits that risks are inherent to any strategic option. The company's management and its board of directors should analyze the links between various strategic options and the risks they entail when entering into a strategic planning process [77]. Business and management research on technology decisions normally takes a technical/objective view of risk, particularly surrounding Enterprise Resource Planning, (ERP) and Customer Relationship Management (CRM) and IT Security (see [45, 82]). Risk management includes technological requirements, markets, scenarios, current and future competition, financial projections, current laws and regulatory processes, socioeconomic environment, and political interference [12]. In their paper risk focused on IT Security, Nocco and Stulz [65] argue that risk management can create a long-run competitive advantage for a firm by creating value both on the macro level, by helping the firm maintain access to the capital markets and other resources, and the micro level, by creating a ''way of life'' for managers and employees at all levels of the company.

Business process compliance emerged as a hot topic in research during the last few years. Several approaches have been developed to formally and (semi-) automatically prove that business processes comply with relevant constraints such as regulations, laws, or guidelines. Compliance requirements on business processes stem from different sources such as laws, regulations, or guidelines that are often available as textual descriptions [57].

A study on the managing standards proved standards to be a growing interest by researchers in scientific literature [36]. The scientific community is trying to expand standard to business opportunities and many researchers in agreement that compliance of the business processes and operations are based on a set of standards. Organizations recognize that laws are compatible with the commonly used audit process.

2.3 Marketing strategy

Two dominant typologies have emerged in the strategy literature namely Miles and Snow's [60] typology [Prospector, Defender, Analyzer, and Reactor] and Porter's [68] typology [Cost leadership, Differentiation, and Focus]. While both typologies have been used extensively and found to be robust (cf. [48, 73, 75, 76]). Porter's [68] typology has found greater acceptance in marketing literature because it captures how the firm creates value—i.e., differentiation or low cost and how firms define their scope of market coverage i.e., focused or market-wide [76]. However, Slater and Olson [76] state that little work has been done to develop a comprehensive marketing strategy typology (except for [63]). Slater and Olson [76] develop a taxonomy of marketing strategy aggressive marketers, mass marketers, marketing minimizers, and value marketers.

This study investigates the exact nature of the relationship between IS and different e-business marketing strategies.

2.4 The framework for strategy decision making in dynamic contexts

The proposed framework is based on a comprehensive literature analysis on the topics of strategy making, particularly regarding deliberate and emergent strategy formation mechanisms.

2.5 IT governance and strategy types

The literature on strategy proposes that both differentiation and price leadership strategies require a high level of market orientation and member participation [3]. Jaworski and Kohli [44] find a positive relationship between connectedness and market orientation [38].

Lassar and Kerr [51] find a positive relationship between a differentiated strategy and a highly involved relationship among network partners. They also find cost leaders to be lowest on behavioral orientation, contractual restriction, and manufacturer coordination; and with medium levels of manufacturer support [42].

IT governance among members is likely to create a strong sense of openness and a feeling of 'we' rather than 'us versus them' with centralization. We argue that a closer and more open participative relationship among marketing channel members is likely to help with differentiation and price leadership strategies. Both strategies require significant market and customer orientation.

A highly participative channel may not be conducive to a focus strategy because channel members may see this as detrimental to their interest. Too much participation by channel members may, in fact, create decision making and implementation inefficiencies which might be detrimental to the focus strategy being, essentially, an efficiency-driven strategy. Hence:

H1 IT Governance will be negatively associated with a focus strategy.
H2 IT Governance will be positively associated with a differentiation strategy.
H3 IT Governance will be positively associated with a price leadership strategy.

The hypothesized relationships are presented in Fig. 1. The research method used for testing these hypotheses, analyses and the results are presented in Sect. 4 and it is followed by the discussion of the results (Sect. 5).

2.6 Compliance and strategy types

Compliance is likely to have well laid out regulations, rules, and procedures for almost all aspects of channel management, containing strategy formulation and implementation [3, 38]. Obviously, a highly formalized compliance makes things somewhat transparent. The literature on strategy [40] shows that in firms with high levels of decentralization, explicit articulation of strategy is essential for successful implementation, thus alluding to the importance of formal rules and regulations in strategy implementation. Similarly, it has been argued that firms with a focus strategy have high behavioral control and low contractual restrictions, while cost leaders have the lowest behavioral control and lower contractual restriction [42].

Based on this result, we discuss that compliance articulates strategy application, and hence clarifies everyone's roles, behaviors, expectations, and decreases some of the interpersonal misunderstandings and conflicts. Networks with some degree of compliance may actually enjoy the established policies and procedures and thus can lead to the development and implementing strategies in an efficient and effective way. Since all strategies are blueprints for how

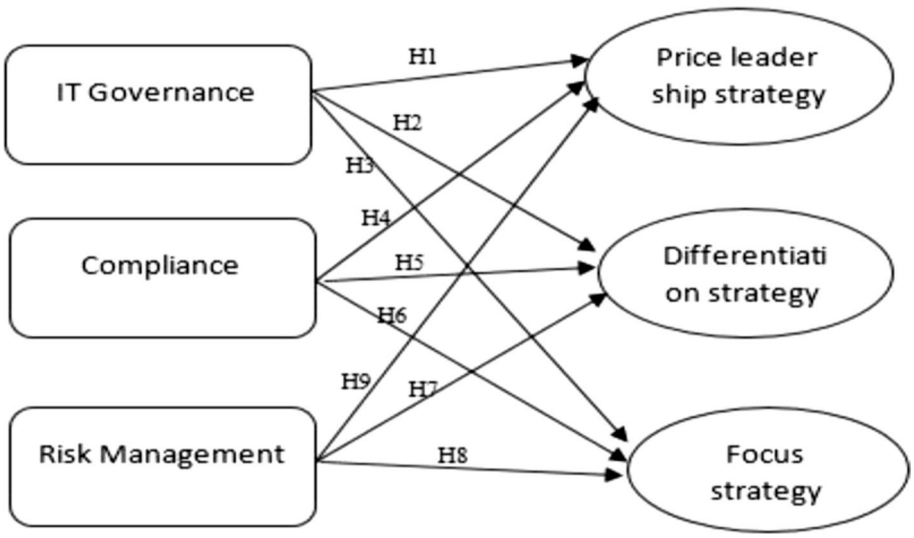

Fig. 1 Conceptual model

firms compete in the marketplace, existing governance and behavioral control policies and procedures can go a long way in strategy formulation and implementation. Thus, the existence of compliance in the channel network is likely to help in the formulation and implementation of all three strategy types:

H4 Compliance will be positively associated with a focus strategy.
H5 Compliance will be positively associated with a differentiation strategy.
H6 Compliance will be positively associated with a price leadership strategy.

2.7 Risk management and strategy types

To reinforce the importance of risk management, a study by Deloitte [24] regarding the largest global public companies, from 2003 to 2012, points out that 73% of the root causes for dramatic losses were derived from strategic risks. According to a study by Deloitte [24], strategic risks are risks that affect or are created by an organization's business strategy and strategic marketing types.

Regarding risk management, Frigo and Anderson [32] defined it as: "a process for identifying, assessing and managing risks and uncertainties, affected by internal and external events or scenarios that could inhibit an organization's ability to achieve its strategy and strategic objectives with the ultimate goal of creating and protecting shareholder and stakeholder value".

Leadership strategies require a high level of risk management activities [3]. Jaworski and Kohli [44] find a positive relationship between strategy and risk management. In another study, Lassar and Kerr [51] find a positive relationship between a differentiated strategy and risk management. Li and Dant [54] also found that differentiators are associated with higher levels of risk. Reukert et al. [71] argue that a risk management is highly adaptive and effective for non-routine tasks. We argue that a closer and more open participative relationship among risk management is likely to help differentiation and price leadership strategies. Both strategies require significant market and risk orientation. A highly risky environment may not be conducive to a focus strategy because people may see this as detrimental to their interest (cf. [80]). The too much risky environment may, in fact, create decision making and implementation inefficiencies which might be detrimental to the focus strategy, essentially, an efficiency-driven strategy. Hence:

H7 Risk management will be positively associated with a focus strategy.
H8 Risk management will be negatively associated with a differentiation strategy.
H9 Risk management will be negatively associated with a price leadership strategy.

3 Method and measurements

This study employed a qualitative–quantitative (mixed-method) research design and it was carried out in two phases as follows.

3.1 The first phase: basic knowledge reviews and design model

A meta-analysis survey was conducted reviewing 130 articles published between 2010 and 2015 and collecting expert opinions. Through this process, all indicators having an impact on the e-business marketing strategy were characterized and finally a questionnaire was designed to collect the opinion of selected e-business experts (Delphi method). The final questionnaire and related issues consisting of 17 questions on the Likert scale were designed and administered in English. The questionnaire was submitted to business managers of 1600 e-business Companies (cluster sampling) (Table 1).

Table 1 Companies field of activity

Field	Number	%
Media and entertainment	640	2.46
Fashion	1140	4.38
Electronics: e-business, e-commerce, IT, e-governance	8800	33.8
Sports and recreation	400	1.53
Toys	420	1.61
Home and garden	7000	26.9
Food/near food/health	3600	13.8
Other: products	40,000	15.3

This resulted in a total of 1470 completed questionnaires, finally 310 questionnaires were selected randomly. The target respondents were managers responsible for e-business marketing. The data were next subjected to a confirmatory factor analysis using a structural equation modeling procedure (LISREL) using a variance–covariance matrix. The results are shown in Table 2.

Table 2 Participants profile

Sex	Man: 54.1%	Woman: 45.9%			
Age	20–30: 6.8%	31–40: 20.9%	41–50: 37.8%	51–60: 29.1%	61–70:5.4%
Education	Bachelor: 77.7%	M.A: 18.2%	PHD: 4.1		

3.2 Second phase: measurement

In this step e-business marketing strategy model designed and by using LISREL software (structural equation modeling) and confirmatory factor, the relationship between the variables shown better and the final version have been extracted. Responses to all the marketing strategy scale items were measured on a 5- point Likert scale anchored between always (1) and never (5).

Measures for focus, price, differentiation, and leadership strategies are motivated by Frambach et al. [30]. Respondents were asked to answer the scale items keeping in mind the statement "Please react to the following statements about your organization's marketing strategies." Responses to the marketing strategy scale items were measured on a 5-point Likert type scale anchored between strongly agree (1) and strongly disagree (5). Here it is worth mentioning that differentiation could have involved both products and markets [61]. However, the measures for differentiation strategy used in this study do not distinguish between products and markets and include items that reflect both (e.g., new product development, new market development, dynamic and aggressive marketing policies, and quick reaction to the competitor's actions).

The scale items for the dimensions of three factors and the three strategic typologies were examined for internal consistency using Alpha scores, and convergent and discriminate validity using inter-item correlation scores (see Table 3). All inter-factor correlations within factors were higher than the correlations across factors. This satisfies the essential criteria for discriminate validity [21]. All the Alpha scores were above 0.75 indicating acceptable levels of internal consistency [66].

The data were next subjected to confirmatory factor analysis using a structural equation modeling procedure (LISREL) using a variance–covariance matrix [4, 11] The fit indices for the six-factor structures ($\chi^2 = 168.30$, df = 1470, p value = 0.036; NFI = 0.90, NNFI = 0.97, CFI = 0.98, IFI = 0.98, RMR = 0.062, and RMSEA = 0.042) were acceptable [4, 11]. The critical N for this analysis was 310, which is below the sample size of 1470 used in this study. Construct validity for the scale items measuring all six focal constructs were assessed using ø2, AVE (average variance extracted), and construct reliability (CR). All the AVE estimates were higher than 0.53, and the square root of all AVEs were higher than the inter-construct correlations (ø) while all the CRs were above 0.76 [29, 37]. This result provides an indication of acceptable internal consistency, discriminate validity and convergent, and construct validity for the scale items used in this study (see Table 4). The CFA path estimates (using SEM) along with global fit indices are presented in Table 5.

3.3 Hypotheses testing

The hypothesized relationships were tested using a structural equation modeling (LISREL) procedure using variance–covariance matrix [2, 4, 7, 11]. Figure 2 presents the SEM model tested without the error terms (ε and δ). The estimates of structural relationships using the SEM analysis are presented in Table 5.

First the model was tested (Fig. 2). The results are presented in Table 6. On the measurement side of the model, all the λs were significant and they were above 0.58. The global fit indices of the model [2, 4, 7] were within acceptable range ($\chi^2 = 177.73$, df = 1470, p value = 0.017; RMSEA = 0.046; RMR = 0.07; NFI = 0.89; NNFI = 0.97; CFI = 0.97; IFI = 0.97). Thus, the structural path estimates (γ) provided support for H4, H7, H8, and H9, but not for H1, H2, H3, H5, and H6.

H1 Therefore, it was concluded that risk management was positively associated with a focus strategy. Not supported.
H2 Risk Management will be negatively associated with a differentiation strategy. Not supported.
H3 Risk Management will be negatively associated with a price leadership strategy. Not supported.
H4 Compliance will be positively associated with a focus strategy. Supported.
H5 Compliance will be positively associated with a differentiation strategy. Not supported.
H6 Compliance will be positively associated with a price leadership strategy. Not supported.
H7 IT Governance will be negatively associated with a focus strategy. Supported.
H8 IT Governance will be positively associated with a differentiation strategy. Supported.
H9 IT Governance will be positively associated with a price leadership strategy. Supported.

4 Conclusion

This research aimed to empirically investigate the effect of e-business strategy factors and marketing strategy typologies. The results suggest that different success factors of e-business may not be equally matching different marketing strategies.

Particularly, the results imply that a risk management has no significant relationship with any of the marketing strategies studied in this research, while compliance has a possible effect only on focus strategy. In contrast, IT governance had a negative effect on focus strategy and a positive effect on both differentiation and price leadership marketing strategies. Finally, IT governance was positively

Table 3 Inter-item correlation

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
Q1	1.0	0.6	−0.1	0.0	0.0	−0.2	−0.2	−0.2	0.1	0.2	0.1	−0.1	0.1	0.2	−0.1	−0.1	−0.1
Q2	**0.8**	1.0	−0.1	−0.2	−0.2	−0.3	−0.1	−0.5	0.2	0.1	0.1	−0.3	−0.3	−0.1	0.0	0.1	0.0
Q3	−0.1	−0.1	1.0	0.3	0.5	−0.2	−0.2	−0.4	0.2	0.1	0.2	0.2	0.2	−0.3	−0.1	0.2	−0.2
Q4	0.0	−0.2	**0.4**	1.0	0.4	0.1	0.4	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	−0.2	−0.1
Q5	0.0	−0.3	**0.7**	**0.4**	1.0	0.2	0.2	0.3	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Q6	**−0.4**	**−0.4**	0.1	0.2	0.2	**1.0**	0.2	0.7	−0.1	−0.2	−0.2	0.1	0.1	0.2	0.1	0.4	0.2
Q7	**−.02**	**−0.4**	0.2	0.1	0.2	**0.6**	**1.0**	0.9	−0.2	−0.2	−0.2	0.1	0.2	0.1	0.4	0.3	0.1
Q8	**−0.1**	**−0.1**	0.2	0.1	0.3	**0.5**	**0.8**	1.0	−0.2	−0.2	0.6	0.3	0.2	0.0	−0.1	0.0	0.0
Q9	0.1	0.0	0.1	0.1	0.0	−0.3	−0.2	**−0.2**	1.0	0.5	0.6	−0.1	−0.1	−0.1	−0.2	−0.2	−0.1
Q10	0.1	0.1	0.3	0.1	0.1	0.1	−0.1	**−0.3**	0.4	1.0	−0.1	−0.4	−0.1	−0.2	−0.3	−0.1	−0.1
Q11	0.2	0.1	0.3	0.2	0.1	0.2	−0.3	−0.1	0.5	0.7	1.0	−0.1	−0.3	0.4	0.3	0.1	−0.3
Q12	−0.1	−0.3	0.1	0.0	0.1	0.1	0.2	0.2	−0.1	**−0.3**	0.0	1.0	0.7	0.6	0.5	0.1	0.1
Q13	**−0.2**	**−0.1**	0.1	0.0	0.1	0.1	0.2	0.2	−0.3	**−0.3**	0.0	0.5	1.0	0.2	0.5	0.2	0.1
Q14	−01	−0.1	0.1	0.1	0.3	0.2	0.4	0.4	−0.1	−0.1	**−0.1**	0.5	0.6	1.0	0.5	0.1	0.0
Q15	−0.1	−0.2	0.2	0.1	0.2	0.2	0.2	0.2	−0.3	−0.1	−0.2	0.7	0.5	0.2	1.0	0.1	0.0
Q16	−0.2	−0.3	0.2	0.2	0.1	0.2	0.2	0.1	−0.3	−0.2	−0.1	0.1	0.0	**0.2**	0.1	1.0	0.5
Q17	**−0.2**	**−0.1**	**−0.2**	0.3	0.0	0.0	0.2	0.3	**−0.2**	**−0.1**	**−0.2**	0.2	0.1	**0.1**	**0.1**	0.3	1.0
Mean	3.0	2.8	1.9	1.9	1.9	2.5	3.0	3.1	3.1	3.0	3.2	2.8	2.6	2.3	2.2	2.1	2.9
SD	0.9	1.0	0.9	0.8	1.1	1.1	0.9	1.0	0.9	1.0	1.1	1.0	1.0	0.9	0.8	0.8	1.1

Bold numbers are significant at p values < 0.05. Lower diagonal contain correlation and upper diagonal covariance estimates

associated with both price leadership strategies and differentiation but negatively associated with a focus strategy. It was found that the three success factors of e-business were not equally beneficial to diverse strategic typologies. In fact, the relationships seem to be incompatible, especially for a focus strategy.

A possible explanation for the insignificant relationship between compliance and differentiation and price leadership strategies could be the fact that both strategies may benefit from high levels of IT governance.

This study revealed that IT governance was positively associated with both differentiation and price leadership strategies. Finally, the negative relationship between IT governance and a focus strategy may be explained by the fact that IT governance creates confusion and may eliminate the positive effect of compliance on a focus strategy. The findings of this research suggest that IT governance plays a significant role in e-business marketing strategy formulation and implementation. The results indicated that the direct effects found in the unmediated model also hold true in the

Table 4 Assessment of construct validity: correlation among latent constructs (Φ); AVE and CR

	Risk	Comp	IT	FOCUS	DIFF	PRICE	TR	AVE
Risk management	0.75						0.82	0.69
Compliance	−0.10	0.65					0.81	0.59
IT governance	**−0.50**	**0.20**	0.50				0.88	0.64
Focus	**0.44**	0.10	**−0.38**	0.36			0.76	0.52
Differentiation	−0.15	0.12	**0.30**	−0.21	0.74		0.82	0.54
Price leadership	**−0.20**	0.30	**0.55**	**−0.30**	**0.32**	0.73	0.77	0.53

The numbers in diagonal cells are $\sqrt{\text{AVE}}$; lower diagonal numbers are inter factor correlation (Φ) [37]

Risk risk management, *comp* compliance, *IT* IT governance, *FOCUS* focus strategy, *DIFF* differentiation strategy, *PRICE* price leadership strategy

Figures in bold are significant at p values < 0.05

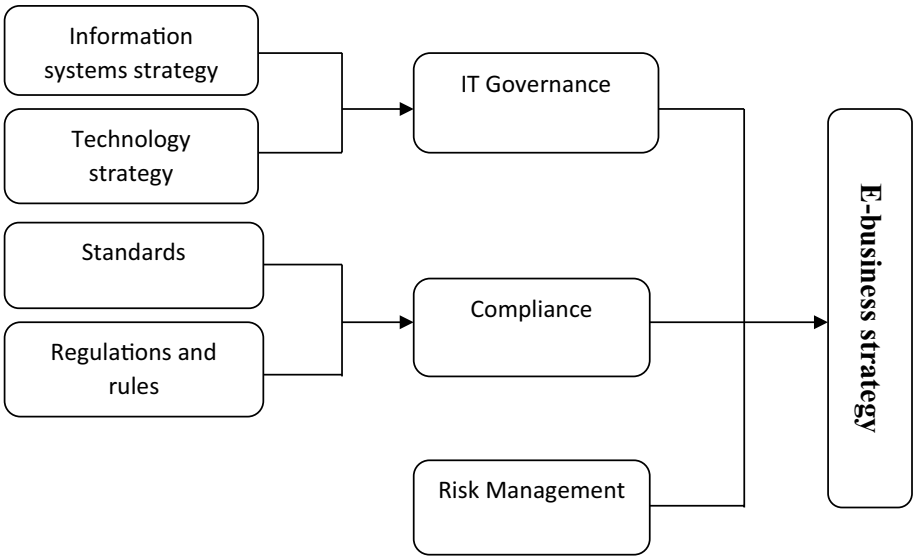

Fig. 2 Factors of e-business strategy

Table 5 CFA-measurement model: structural equation model (LISREL) estimates

CFA-six factor model		
Std. λ estimates. t-stats		t-stats
Focus		
Q1	0.60	6.60
Q2	0.75	λ set to 1
Q3	0.70	6.50
Differentiation		
Q4	0.80	λ set to 1
Q5	0.75	7.80
Q6	0.70	7.50
Price leadership		
Q7	0.80	7.40
Q8	0.76	8.10
Q9	0.60	λ set to 1
Risk management		
Q10	0.75	7.2
Q11	0.88	λ set to 1
Compliance		
Q12	0.72	6.60
Q13	0.85	8.10
Q14	0.76	λ set to 1
IT governance		
Q15	0.72	8.50
Q16	0.75	9.90
Q17	0.84	λ set to 1

Global fit indices: $\chi^2 = 168.30$, df = 1470, p value = 0.036; NFI = 0.90, NNFI = 0.97, CFI = 0.98, IFI = 0.98, RMR = 0.062, and RMSEA = 0.042

mediated model. However, the indirect relationship between risk management and a focus strategy and a price leadership strategy was significant at p value < 0.05; and the negative relationship between risk management and differentiation was significant at p valueb0.10. Finally, the indirect effect of compliance on a focus strategy was negative compared to the positive direct effect—while the indirect effect of compliance on a price Leadership strategy was significant—compared to the insignificant direct effect. This finding revealed that IT governance enhanced the positive effect of compliance on a price leadership strategy, but nullified the positive effect of compliance on a focus strategy. The findings of this study provide direction to managers facing the responsibility of managing e-business marketing network as well as developing and implementing a marketing strategy. However, the results indicate that managers must be cognizant of the fact that these e-business success factors dimensions have very different effects on the adoption of different marketing strategies; they may have positive synergies with one marketing strategy and negative with another.

More importantly, the findings of this study indicate that different strategic typologies focus, differentiation, and price leadership call for different e-business factors in terms of compliance, risk management and IT governance. In other words, while the compliance dimension may aid in implementing a focus strategy, a high level of risk management in the e-business structure is likely to hinder the implementation of a focus strategy.

In contrast, a high-risk management may aid with the implementation of both differentiation and price leadership strategies. Moreover, the presence of risk management may

Table 6 Test of hypotheses–structural paths: structural equation model (LISREL) estimates

Model 1			Model 2		
γ estimates			γ estimates		
Risk management → Focus	0.01	0.17	Risk management → focus	0.01	0.17
Risk management → differentiation	−0.10	−0.25	Risk management → differentiation	−0.10	−0.25
Risk management → price leadership	0.35	−0.43	Risk management → price leadership	0.35	−0.43
			Risk management → IT governance	**−0.50**	**−3.90**
Compliance → focus	**0.31**	**3.50**	Compliance → focus	**0.31**	**3.50**
Compliance → differentiation	0.09	0.70	Compliance → differentiation	0.09	0.70
Compliance → price leadership	0.05	0.65	Compliance → price leadership	0.05	0.65
			Compliance → IT governance	**0.41**	**3.50**
			β estimates		
IT governance → focus	**−0.54**	**−2.77**	IT governance → focus	**−0.54**	**−2.77**
IT governance → differentiation	**0.31**	**3.01**	IT governance → differentiation	**0.31**	**3.01**
IT governance → price leadership	**0.42**	**2.75**	IT governance → price leadership	**0.42**	**2.75**
			Indirect (mediated) effects		
			Risk management → focus	0.36	2.80
			Risk management → differentiation	−0.15	−1.85
			Risk management → price leadership	**−0.18**	**−2.66**
			Compliance → focus	**−0.18**	**−2.69**
			Compliance → differentiation	0.09	1.90
			Compliance → price leadership	**0.14**	**2.25**

Global fit indices: $\chi^2 = 177.73$, df = 1470, p value = 0.017; RMSEA = 0.046; RMR = 0.07; NFI = 0.89; NNFI = 0.97; CFI = 0.97; IFI = 0.97. Tests for mediation (Sobel tests) were consistent with the effects reflected in the LISREL estimates of indirect effects in terms of significance. Figures in bold are significant at p values < 0.05

enhance the effect of IT governance on focus and price leadership strategies, and the effect of compliance on a price leadership strategy; but completely counter the positive effect of compliance on a focus strategy. The findings of this study provide direction to managers facing the responsibility of managing e-business factors as well as developing and implementing an e-business marketing strategy. Obviously, it is tempting to lean towards a highly IT governance for greater control over the channel, high levels of compliance to reduce the impact of individual quirks, and/or institute a governance structure that encourages high levels of risk management among members. However, this study indicates that managers must be cognizant of the fact that these e-business factors structure dimensions have very different effects on the adoption of different marketing strategies. They may have positive synergies with one marketing strategy and negative with another.

5 Limitations and future research directions

This research focused on small and medium organization so future studies may be conducted in a large organization. The model tested in this study was descriptive in nature. To obtain a true assessment of cause and effect relationship between e-business factors and marketing strategy, future researchers may use longitudinal data. The third limitation deals with the conceptualization of the key constructs and the relationship amongst them. Future studies may delineate the differentiation strategy on the basis of products and markets. In addition, due to the time limitations against the large scope associated, each of the factors were considered of equal weights. Nevertheless, each of these factors needs further investigation. Finally, in the presented model the relation between concepts was linear, future researchers may want to examine nonlinear approaches.

Appendix

See Table 7 Questionnaire.

Table 7 Rotated factor structure

	3	1	5	2	4
Your wholesalers/dealers are not involved in marketing decisions					
Decisions are made without consulting your wholesalers/dealers					
You follow strict operating procedures					
You have high regard for existing rules and procedures					
There are standard procedures to be followed in marketing products in your organization					
Your member of the board play an active part in risk management					
You participate in e-business risk management					
You refer marketing matters to your wholesaler/dealer					
You rely on your wholesaler/dealer for an answer					
We deal with only specialized products					
We're more of a specialty manufacturing company					
Our product range is limited					
We put a lot of emphasis on new product development					
We always try to develop new markets					
Our marketing policies are very dynamic/aggressive					
We respond to our competitor's actions fairly quickly					
We're the discount price leader					
We will not be under priced					
We give a lot of attention to buying to give our customers the lowest price					

Scale items for measuring factors of e-business strategy (*IT* governance, risk management and compliance) were anchored by always (1) and never (5). Scale items for measuring strategy (differentiation, focus, and price leadership) were anchored by strongly agree (1) and strongly disagree (5)

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