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Toward An E-business Governance Model Based on GRC Concept

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Abstract

E-business Governance is the decision-making framework within which decisions about relationship, accountability, compliance, direction, and control in e-business activities are made. This structure make the e-commerce organization manage itself more effectively and prevent failure that take place by having not adequate attention to governing elements, risk of e-business, dynamic of standards, and rules. In this research by using literature review and interviews with experts, a questionnaire was designed and by analyzing the gathered data through surveys, the e-business key success factors such as e-business enablers, corporate and IT governance, the best practices, management and strategy were extracted. Then these key factors were presented as the e-business governance models. The results of statistical analysis confirm that the model might be helpful in handling the process of e-business in Iran.

Keywords: E-business; E-Commerce; Strategy; Corporate Governance; Risk, IT Governance.

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1. Introduction

Modern business environments are characterized by high volatility and uncertainty. This is mainly due to competitive circumstances and technological developments. In this context, creating a competitive advantage for sustainable value creation has become increasingly complex (Lombardi et al., 2016). In this competitive environment we cannot use static methods of strategy, management and leadership and we need to have agile organization. Business agility is the ability to answer to internal and external changes (Couto et al., 2016). An agile model that leads to drive maximum value out of the business model is GRC (Governance, Risk and Compliance) (Shahim and et al., 2012).

One of the main factors motivating the GRC is the laws and regulations. The other significant factor is the operations of integrated GRC which improves the efficiency and effectiveness of many internal organization activities such as disposition strategy, decision making, monitoring risk, increase performance, and internal controls (Llalaj, 2010; Anderson 2009) while COBIT is about Governance of Information Technology (Grembergen et al., 2015). A whole inquisitive and systematic approach to governance, risk, and compliance leads the managements to a deeper understanding of what is happening in the business. GRC is becoming one of the most important requirements of an organization's business activities (ECSA, 2014). This is particularly due to the high speed of globalization, increased number of regulations, and the need for transparency that make organizations to face new risks and challenges (Tarantino, 2008; Adina and Tudor, 2012). Globalization can include activities such as cross trade, communications, legislations, travel and protocol compliance to be considered (Wagner and Dittmar, 2006). Thus, the need for improved governance, compliance, and risk levels are the reason to increase the companies' chances in the international markets.

The term governance is specially used by managers, and has a specific definition as follow: the distribution of power allocation between the board of directors and shareholders (Richard et al., 2006; Richard et al., 2011). Governance means rules, organizational procedures, supervision, monitoring and control (Couto et al., 2016). Another definition of governance would be the management of processes and systems. Latin root of the word refers to a specific command and rule of law enforcement and regulatory powers in the use of institutional resources to manage the organization. Governance includes the structure and rules, and the ways in which the board uses its own responsibility and does justice in the organization.

The term risk refers to the risk management and is used in many different ways; from a simple risk assessment to a fully-fledged risk management processes. Risk specially refers to injury or loss of some assets. Risk management seeks to evaluate and measure the risks, and countermeasures to manage and reduce them to ideally the complete elimination of risks (COSO, 2009). It should be noted that a risk factor not inherently evil, since every opportunity is associated with some degree of risk. The definition of risk particularly refers to deficiencies and damage that is caused by an activity or an individual (Wagner and Dittmar, 2006). Risk management seeks to identify, assess and

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measure risk, and then take countermeasures to handle it.

Compliance term means Acceptance of rules and regulations by the user; for instance, compliance with the organization's policy (Richard et al., 2006; George, 2011). In this sense, compliance is the process of joining the set of guidelines or rules established by the government, provider groups, standard or internal policy of the company. In other hand Strategic planning plays a key role in the success of e-business organizations in today's turbulent and changeable environment and a true development strategy and its implementation process, organizations will be able to compete to lead and succeed. In the process of strategic planning, time and uncertainty play an important role (Baricelli et al., 1996). Classical approaches to strategy have not ability to respond quickly to organizations need in changing environment and by rapidly internal and external changing environment organizations lose their effectiveness. All classical approaches based on forecasts of future interruptions to their strategy. Forecasts and analysis of the current situation and past experiences used to draw the path of events and future trends if the rate of change is faster than the turbulent environment, the probability of the realization of these projections is higher. The provision and use of a method that can solve this problem is essential.

2. Statement of the Problem

Information technology (IT) plays an important role in e-Business management. It enables the development of e-Business information systems and affects the way of how the e-Business is conducted. One of the significant areas, commercial areas with the help of information technology, the past decade has experienced fast growth and introduces e-business as one of the most efficient and effective approaches to economic development and to the world (Fei and Chung, 2015).

In 2011, the market share of e-commerce in the field of Internet businesses, amounting to 763 billion dollars. For the first time in 2012, this figure exceeded 1 trillion dollars, which is a growth of about 21.1 percent over the previous year. These statistics show an upward growth trend of online shopping and more fortunate consumers to meet their needs by using the Internet platform. The BCG[4] group studies in 2012 showed that the share of e-commerce is about 5 percent of gross domestic product, the number in the United Kingdom 8.3% South Korea 7.3%, China 5.5% and Japan 4.7 percent, respectively.

Despite the success, many e-commerce companies have b2c model since 1999 have failed. This means that e-commerce is not just a word and concept. Towards B2C e-commerce is full of failed companies that have failed to fulfill their obligations. Failure takes place due to Business pressures that include market and economic, social and environmental and technological pressures. In addition B2C commerce has limitations, including the national and international standards and regulations are important factors (Turban and King, 2003).

The result of these pressures are uncertainty and stability that faced the organization by various risks and has one message for the organization that following the old answers in today's competitive and

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turbulent business environment not responsive and we need new answers (Zeghal et al., 2002).One of these responses is strategy that enables organizations to increase their market share, negotiate better with your suppliers or prevent entry into their territory. To have a successful retail trade needs to have a successful strategy and proper. In this changing environment, has a consistent strategy with these conditions is also very important. Classical approaches to strategy do not have ability to respond quickly and appropriately to the organizations needs (Katsanakis and Kossyva, 2012) and in the field of strategic planning process, uncertainty plays an important role (Baricelli et al., 1996). Internal and external environment changing eliminates efficiency of the approaches. Risk analysis as part of a strategy formation is very important and necessary. First we force the risk where the threats are identified and then when the strategies are formed and arrangements for identification, risk analysis can be done traditionally and it is consist of identifying all potential hazards of company, risks and costs of protect measures against its benefits (Turban and King, 2003).

On the other hand the risk management and compliance with laws and standards must be observed (walker et al., 2006). The relationship between standards and business is also an important factor that cannot be realized by high-level managers. Enter the new factors in these models seem to be considered in the models and strategies will change. A complex problem that affecting e-business organizations in the uncertain environment is compliance with comprehensive business strategies because these strategies do not achieve desired results and become quickly obsolete. However, understanding the impact on the organization's standards and controls is critical today. With regard to the problem described above, the purpose of this study is providing union model that help managing and controlling of e-business organization and help organizations achieve their goals and ultimately prevent failure.

In some studies, researchers focused on standards and regulations and their compliance with business processes (Guido and Shazia, 2009) and some specifically on security standards (Bamberger, 2010), some way to assess compliance with the rules of trade have developed business processes and the group also has studied challenges of the standards. In all studies, strategy, risk, standards and rules cannot be seen integrity or that there is little integration that must interact and be considered (Bresfelean et al., 2012).

Start of the second millennium has been accompanied by unprecedented changes and the nature of trade has changed. Within a few years, the industry has evolved greatly and hundreds of thousands of new businesses have been created by digital technologies. These developments, to the extent that many have called the e-business revolution and delay the course of the evolution of the global economy will have no outcome other than isolation. The growth of these businesses and use of it due to attention this area and make it more competitive. On the other hand, we continue to see a high volume of business failures in electronics. B2C trade is the most common is where the breakdown occurs and needs to be focused on it and in particular to address. Since the e-commerce technology is based on IT, standards of it should consider having

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successful business. Unofficial statistics show to be the fifth development plan at least 40% of Iran's foreign trade is done electronically so using of the strategy that includes e-business standards and rules and apply mechanisms of risk management is critical. The proposed model in this study can consider risk management and e-business standards and rules and can be used as a useful model in the managing of Iranian companies which active in the field of e-commerce.

3. Research in the Field of E-Business Governance

The results are divided in two groups, first group are the research that examine e-business governance elements separately and second examine this concept in integrated model. John (2013), considering the security of e-business standards, provided an effective control level for business to customer (b2c) standards by using data envelop analysis and decision tree method (Miller and Bromiley, 1990). In Other research in this area, researchers have focused on e-business strategies. In previous studies, the scientists investigated the effectiveness of standards and controls levels, however, their impact on risk is not considered. The relationship between the risk and b2c standards to reduce risk and increase the understanding of governance and e-business standards should be studied. Governance, risk management and compliance as independent subjects are studied separately by different researchers, although, in some research the integrated consideration is highly recommended (OCEG, 2009). The results of an extensive literature review of this group show that although most of the this researchers recommended a comprehensive research on e-business, two major factors are yet to be considered in an integrated study: 1) a problem that affects e-business organizations in this unstable environment is that they may be subject to an integrated business strategies that do not get desirable results. This might be because of obsolete strategies which have vital impacts on such organizations .2) one of the uncertainties is the change in rules, regulations, and standards that organizations face, which make them prone to high risks. Such risks lead us toward a new approach to find the answers in this competitive business environment (Quon and Maingot, 2012).

The results of researches that consider e-business governance as a model are shown in below table.

Model or Framework/ Year	Indicators
Molla, 2005	Management, Technical Requirements, Financial infrastructure, organization, Products and Services
Gide, 2006	Leadership and Management, Legal infrastructure, Financial infrastructure, Type of organization, Technical Requirements, Suppliers, competitors and partners
ITGI, 2007	Strategy, Risk, Performance evaluation, IT Governance, Resource management
John, 2007	Strategy, IT Governance, Operating model, Organization governance
Xiaowen, 2012	Stakeholders, Goals, Best practices, Corporate governance, Decision domain

In summary, the criticisms to these models are problems that related to conceptual studies and provided developed models using the methodology that is not accurate, some aspects

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have not dynamic dimension and are not perfect to their intended Indicators; some of them cannot reply to all research questions. Sometimes are emphasized on the issue of information and communication technologies and sometimes more attention on ICT.

In order to solve the noted problem we presented an integrated model consist of risk, strategy and compliance and keys factors of others mentioned model.

3-1. Necessity of Research

The two major explicated reasons lead the authors to conduct this research proposing and developing the e-business governance model for Iranian market expecting the coming goals to be achieved:

(1) Define the responsibilities, roles and accountabilities for e-business activities.

(2) Describe the relationship between all internal and external stakeholders involved in e-business.

(3) Ensure that required supervision and control for e-business is achieved.

(4) Ensure e-business processes are of compliance with technical, legal and policies particularly (Xiaowen, 2011).

4. The Model Concept

4-1.The Conceptual Model

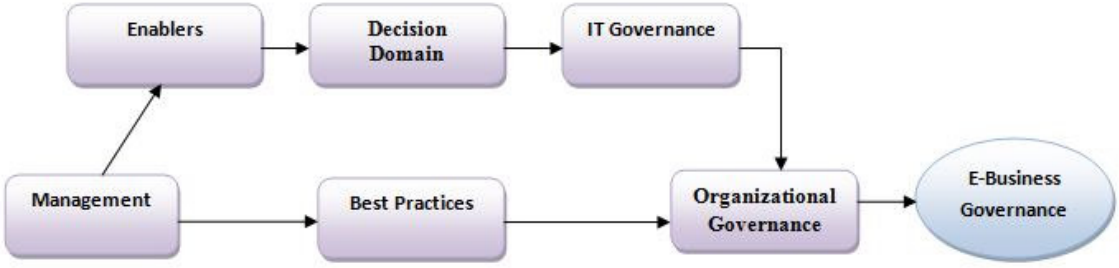


Fig1. A conceptual E-business Governance Model Based on GRC

4-1-1. Decision Domain

This segment describes the key decision-making areas in e-business governance. The e-business decision domain refers to what decision should be making and what should be governed in e-business projects and operation. This includes services, customers and partners, marketing, strategy, technology, with risk and compliance (Bamberger, 2010).

4-1-2. E-Business Critical Success Factors

The e-business critical success factors will help to identify focus decision domains of e-business governance model. There have been many studies explicitly examining critical success factors (CSFs) for e-business that are presented in Table 1.

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Table2 E-business critical success factors

Row	Researcher	E-Business Critical Success Factors
1	Galanis, 2016	Add value in terms of convenience, Information value, disintermediation, price, and choice; to focus on a niche market and then expand; maintain flexibility; segment geographically; get the technology right; manage critical perceptions; provide exceptional customer services; create effective connectedness; Understand the Internet culture.
2	Solic,et al,, 2015	security of information and systems; privacy of customer information; stability of systems; cost of operations; web design and metrics for web sites; ease of use; customer orientation; EC strategy; EC expertise in both technical and managerial perspectives; payment; delivery; competitive price; speed; variety of goods and services; marketing; Trust and loyalty of customers.
3	Tom R.E et al., 2007	Strategic planning, IT-business process, IT-management, Systems and infrastructure, Sourcing and Alignment.
4	Pietro et al., 2011	information security and privacy
5	Kim et al., 2010	trust of customers to a specific e-business company
6	Haes et al., 2015	System integration, customer orientation of IT, and supply orientation of IT, international operation of IT, customer-related processes, supplier-related processes, customer e-business readiness, and supplier e-business readiness.

4-1-3. Management

It consists of all organizational management and in this field policy and plans, processes; standards, metrics and goals are designed.

4-1-4. Enablers

This concept consists of Formulating appropriate policies, control objectives, design scale and measures, and accountability.

4-1-5. IT Governance

IT governance, including strategy and policy of using IT in an organization's and this governance provide a legal framework for decision-making and encourage desirable behavior in the use of IT (LLANAJ, 2010). IT governance is primarily responsible for optimizing the use of IT resources and managing the risks of IT projects and practices. In addition, it can provide good solutions for all organizations, whether they are government or private, to optimize IT's investments and practices and balance the associated risks (Zyad et al., 2016).

4-1-6. Organizational Governance

E-Business Governance requires an organizational governance entity on the organizational level. It is in charge of defining and enforcing guidelines and policies valid throughout the company. Members of the organizational governance entity come from every section and department related to e-business projects and operation, i.e. representatives of the top management, representatives of business department as well as from the IT department and the internal control section.

Hypotheses

H1: The management has a positive effect on best practices.

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H2: The management has positive effect on Focus Decision Domain.
H3: Best practices have positive effect on Focus Decision Domain.
H4: Best practices have a positive effect on corporate governance.
H5: Focus Decision Domain has a positive effect on IT governance.
H6: corporate governance has a positive effect on e-business governance
H7: IT governance has a positive effect on E-business governance.

Table 2. Indicators for measuring variable

Criteria	variable	source
Focus Decision Domain	Stratgy, services, customers and partners, marketing, compliance, risk management.	XiaowenLiu,2012; Kotha,1995; Ward,2007; Haghighi et al.,2010
IT Governance	IT Management, appropriate policies, empowerment, recognition, fit, formulation of policies, control objectives, design and use of scales and measures, accountability.	Haes et al,2015 ; Tom R.E et al,2007
Organizational Governance	Policy and programs, guidance and evaluation (top management support), set key performance indicators and implementation, control and evaluation of services and infrastructure and applications.	Carcello et al,2002; Ferris et al,2003, Fich and Shivdasani 2005
Enablers	Organizational structure, culture and ethics, procedures and structures, resource management and information systems.	El-Gohary, 2009; Al-Qirim, 2007; Lal, 2005
Management	Physical and financial resources management, development and training and human resource management.	Barba-Sanchez et al.,2007; Talebpour et al.,2010
Best Practices	Formulation of appropriate policies, control objectives, design scale and measures, accountability.	Miller and Hobbs, 2005; Weill and Vitale 2001

5. Method and Measurements

This study is qualitative-quantitative (mixed - method) research and carried out in two phases as follows.

First Phase: basic knowledge review an design model

Conducted a qualitative study, first, by using library studies and expert opinion all indicators which have impact on the e-business management characterized and at the end a questionnaire was designed to collect the opinion of selected e-business experts (Delphi method). In this phase, the constituent of each concept extended and Indicators that quorum has won deleted. The final questionnaire that consists of 17 questions based on LIKERT scale was designed and submitted to 260 Iranian e-business companies through email (post) as a sample of information technology who selected randomly these organization classified in two groups according their field of activity, 150 Product providers and 110 Service Providers. Number of 210 questionnaires were completed correctly and collected (Anticipated effect size: 0.1, desired statistical power level: 0.8, Number of latent variables: 1, Number of observed variables: 6, Probability level: 0.05, sample size for model structure: 200). All incomplete no and responses to the survey eliminated and the response rate were 80%.

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***Second Phase*: Measurement**

E-business governance model consist the elements that known before design and by using LISREL software and confirmatory factor analysis, after extracting patterns using structural equation modeling (SEM), the relationship between the variables shown better and the final version have been extracted.

Responses to all e-business management scale items were measured on a 5- point LIKERT type scale anchored between always (1) and never (5).

Respondents were asked to respond to the scale items keeping in mind the statement—"Please react to the following statements about your organization's management." 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).

The scale items for the dimensions of six factors 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 (Churchill 1979). All the Alpha scores were above 0.75 indicating acceptable levels of internal consistency (Nunnally 1978).

The data were next subjected to confirmatory factor analysis using a structural equation modeling procedure (LISREL) using a variance–covariance matrix (Bagozzi 1988; Bollen 1989). The fit indices for the six factor structures ($\chi 2$=168.30, DF=1845, p-value=0.066; NFI=0.90, NNFI=0.97, CFI=0.98, IFI=0.98, RMR=0.062, and RMSEA=0.042) were acceptable (Bagozzi 1988; Bollen 1989). The critical N for this analysis was 200, which is below the sample size of 210 used in this study. Construct validity for the scale items measuring all six factors 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 are higher than the inter-construct correlations (ø)while all the CRs were above 0.76 (Fornell, 1981 and Babin et al., 2006). This result provides indication of acceptable internal consistency, discriminate validity and convergent, and construct validity for the scale items used in this study (see Table 4).

The scale items for GRC e_business management model were next 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 (Churchill, 1979). All the Alpha scores were above 0.75 indicating acceptable levels of internal consistency (Nunnally, 1978).

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Table 3 Inter-item correlation.Figures in brown color are significant at p-valuesb0.05. Lower diagonal contain correlation and upper diagonal covariance estimates.

	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	-01	-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	-04	-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	-04	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	01	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	-01	-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

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 are higher than the inter-construct correlations (ø) While all the CRs were above 0.76 (Fornell and Larcker, 1981, Anderson, and Tatham, 2006).

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

	MAN	**COM**	**BES**	**DIC**	**IT**	**ORG**	**TR**	**AVE**
Management	0.75						0.82	0.69
Compliance	-0.10	0.65					0.81	0.59
Best practices	**–0.50**	**0.20**	0.50				0.88	0.64
Decision Domain	**0.44**	0.10	**–0.38**	0.36			0.76	0.52
IT Governance	–0.15	0.12	**0.30**	–0.21	0.74		0.82	0.54
Organizational Governance	**0.20**	0.30	**0.55**	**–0.30**	**0.32**	0.73	0.77	0.53

Notes: The numbers in diagonal cells are √AVE; lower diagonal numbers are Inter factor Correlation (Φ) (Hair et al., 2006). Risk=risk management, COM=compliance, IT=IT Governance, BES=best practices, DIC=decision domain, ORG=organization governance and MAN= management. Figures in bold are significant at p-valuesb0.05

All the Alpha scores were above 0.75 indicating acceptable levels of internal consistency (Nunnally, 1978). The negative number show negative association between subjects whiles the positive number show strong relational norm among subjects.

In order to get a better picture of the critical role played by these factors we conducted a post hoc analysis with The results of the SEM analysis are presented in Table 5 the CFA path estimates (using SEM) along with global fit indices are presented in Table 5.

Table5. CFA–measurement model: structural equation model (LISREL) estimates.

CFA-six factor model		
	Std. λ estimates. t-stats	t-stats
management		
Q1	0.60	6.60
Q2	0.75	6.80
Q3	0.70	6.50
Decision domain		
Q4	0.80	7.20
Q5	0.75	7.80
Q6	0.70	7.50
Organization governance		
Q7	0.80	7.40
Q8	0.76	8.10
Q9	0.60	7.10
Best practices		
Q10	0.75	7.2
Q11	0.88	7.70
Compliance		
Q12	0.72	6.60
Q13	0.85	8.10
Q14	0.76	7.20
IT Governance		
Q15	0.72	8.50
Q16	0.75	9.90
Q17	0.84	8.40

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Global fit indices: $\chi 2$=168.30, df =1845, p-value=0.066; NFI=0.90, NNFI=0.97, CFI=0.98, IFI=0.98, RMR=0.062, RMSEA=0.042, GFI= 0.92 and AGFI=0.94.

6. Results and Discussion

In order to measure the variables relations, structural equation modeling (SEM) was applied. Verification and validation make possible testing the relationships between all the variables within the structure.

Normality Test and Reliability

Before analyzing the data, the following notation for the variables considered is:
A1: management; A2: Focus decision domain**;** A3: enablers; A4: best practices; A5: organizational governance; A6: IT governance; A7: e-business governance.

Table 6. Mean, standard deviation, skewness, kurtosis and Cronbach's alpha variables.

Symbol	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach's Alpha
A1: management	3.42	0.903	-0.52	0.78	0.783
A2: enablers	3.01	0.869	-0.37	0.45	0.893
A3: best practice	3.04	0.860	-0.28	0.50	0.784
A4: decision domain	3.00	0.815	-0.18	-0.42	0.795
A5: IT governance	3.64	0.800	-0.20	-0.67	0.833
A6: organizational governance	3.71	0.770	-0.31	-0.59	0.840
A7: e-business governance	3.98	0.820	-0.42	0.52	0.733

Absolute values less than 3 for skewness and less than 10 for kurtosis provide evidence for normal distribution of data (Zahediasl, 2012). Based on the findings in the table above, normal distribution of data is confirmed. Also according to the Cronbach's alpha reliability of the scale is confirmed at an acceptable level. Validity of course been confirmed by experts.

Path Coefficient and Significance Test Value

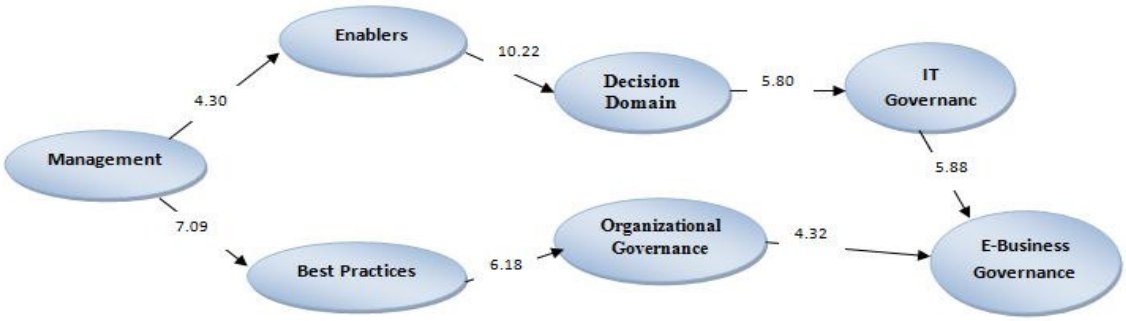


Figure 2.Path analyze **GFI= 0.95 and AGFI=0.93**

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The goodness of fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix. The adjusted goodness of fit index (AGFI) corrects the GFI, which is affected by the number of indicators of each latent variable. The GFI and AGFI have a value over 0.9 which indicating acceptable model fit.

Hypothesis Testing `

The hypothesized relationships were tested using a structural equation modeling (LISREL) procedure using variance–covariance matrix (Anderson and Gerbing, 1988; Bagozzi and Yi, 1988; Bentler and Chou, 1987; Bollen, 1989).Fig. 1 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 7.

First, we tested the model (Fig. 1) and the results are presented in Table 7. On the measurement side of the model, all the λs are significant and above 0.58. The global fit indices of the model are within acceptable range (Anderson and Gerbing, 1988; Bagozzi and Yi, 1988; Bentler and Chou, 1987; Bollen, 1989). (χ2=177.73, df=1845, pvalue= 0.20; RMSEA=0.042; RMR=0.02; NFI=0.94; NNFI=0.91; CFI=0.92; IFI=0.94). Thus, the structural path estimates (γ) provide support for H1, H2, H3,H4,H5,H6 and H7.

For hypotheses testing, a structural model is used to calculate path coefficients. We evaluate the

The statistical significance of the proposed hypotheses was tested by using the path coefficients. Table 7 demonstrates the results of the measurement model including path coefficients and T test.

Table7. Path and testing for differences

Hypothesis	Path	Coefficient	T statistics	P-value	Supported
H1	A1 ⟶ A2	0.40	4.30	< 0.05	YES
H2	A1 ⟶ A3	0.65	7.09	< 0.05	YES
H3	A2 ⟶ A4	0.35	10.22	< 0.05	YES
H4	A3 ⟶ A6	0.55	6.18	< 0.05	YES
H5	A4 ⟶ A5	0.11	5.80	< 0.05	YES
H6	A6 ⟶ A7	0.34	4.32	< 0.05	YES
H7	A5 ⟶ A7	0.86	5.88	< 0.05	YES

7. Conclusion

It may be noted that this combination of factors (in the presented model) affects e-business organizations management and leads to improve these businesses more efficiently. Based on the proposed model, management identifies the organizational capabilities including services, hardware, software, people, and skills of human resources. Such management imposes positive impacts on the design of organizational structures and develops business conducting procedures and methods. It has a direct impact on the design of e-business processes and determines the key indicators that are responsible for process control. In addition, the model defines the necessary activities to adopt the organizations to internal and external legal infrastructure. E-business enablers, best practices, and focus decision

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domain making a positive impact on corporate and IT governance, as two elements necessary to achieve the organization's e-business governance. Statistical analysis results obtained from the introduced model proves the claimed capabilities of the proposed model. Regarding the numerous sub-factors for each variable in the model, the organization applying the model must consider such variable parameters to optimize the investment. In order to reach the maximum compatibility with the laws and regulations of the e-business, the organizations have to consider, implement, and update the IT governance variable. One of the main factors in successfully implementing the model is the commitment of the board and their dedication to the e-business governance. In the presented model, the correspondence amongst the parameters is considered linearly. The model rather presents the horizontal relationship between the variables. Thus, a broader research is highly recommended to closely evaluate the non-linearity of the model. Such research might result in discovering more variables and combinations of the vertical elements interconnections. It is believed that the qualitative research approach would enrich the capacity of the model.

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ارائه مدل حاکمیت کسب و کار الکترونیک بر اساس مفهوم GRC

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تاریخ دریافت:۹۵/٦/٤ **تاریخ پذیرش: ۹۵/۱۰/۱٤**

حاکمیت کسب و کار الکترونیک ساختار تصمیم گیری در خصوص ارتباطات، مسئولیت پذیری، رعایت و کنترل در فعالیت های کسب و کار الکترونیک می باشد. این ساختار باعث می گردد سازمان های دارای این گونه کسب و کارها بتوانند خود را به صورت موثرتری اداره و از بروز شکست های فراوانی که در این عرصه بواسطه وجود نقص در طراحی و تدوین و به کارگیری عناصر حاکمیت، نا آگاهی نسبت به ماهیت و چگونگی مدیریت ریسک های کسب و کار و عدم توجه به پویایی قوانین و مقررات بین المللی و ملی اتفاق می افتد جلوگیری کنند. در این مطالعه با استفاده از مطالعات کتابخانه ای و مصاحبه با خبرگان پرسشنامه ای طراحی و با استفاده از آن عناصر اصلی مدل حاکمیت کسب و کار الکترونیک یعنی نهاد مدیریت، توانمند سازها، دامنه تصمیم گیری، حاکمیت سازمانی، حاکمیت فناوری اطلاعات، عوامل کلیدی موفقیت و بهترین شیوه ها استخراج و روابط بین این مفاهیم در قالب مدل پیشنهادی ارائه گردید. نتایج به دست آمده از نمونه آماری مدل بالا را تایید می کند بنابراین می توان نتیجه گرفت که مدل ارائه شده به اداره کسب و کارهای الکترونیک در ایران کمک می نماید.

واژگان کلیدی: حاکمیت کسب و کار، حاکمیت شرکتی، مدیریت ریسک، انطباق با قوانین و مقررات.

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