

A study on factors affecting the successful design of E-business models in Iran

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ABSTRACT

In this paper, factors affecting the success of designing E-business models in Iran have been investigated. While success factors in the design of E-business models have been widely discussed in this literature, few studies in this field have been conducted in Iran. By studying the subject literature, key factors in the success of designing E-business models were extracted and used in the form of a questionnaire. Data were then collected from E-business owners. Using statistical techniques and SPSS software, influential factors were extracted, and finally using logistic regression model, the effects of these factors on the success of E-business design have been extracted.

Keywords: E-business models, business model success, key success factors, regression

Introduction

Strong global competition has compelled even big companies to look for ways to reduce costs, increase productivity, and improve customer service delivery. The best way to realize these efforts is through the use of web-based systems, which provides the best enablers for transferring electronic business or e-commerce in the digital economy. According to Mous-Kenter, the Internet is changing companies and their strategies, changing the real of competition and commitments required for change. Particularly, web-based systems currently provide significant strategic benefits for companies [1]. The reverberating impact of the Internet revolution has started to be felt, yet this impact does not come from information. Artificial intelligence, computers, and data processing have little contribution to decision making, policy making, and strategies. The main driver is e-commerce which was by no means predictable 10 to 15 years ago and even a topic to talk about. This type of business is indeed the explosive emergence of the Internet as one (or perhaps only) main channel for the distribution of goods and services, and quite surprisingly for worldwide management and professional works. The Internet is a fundamental change in economy, the structure of market and industry, products and services, and their streams, division of consumers, their values and attitudes and labor market. However, its impact on society, politics, and the way people look to themselves and the world is certainly stronger [1].

Research literature

Business model

Timmers defines a business model as follows; an architecture for product, service and flow of information including a description of the role of factors in business, a description of the benefits that can be gained from business factors, as well as a description of business revenue resources [2].

Langly and Shain state that business model is an architecture for products, services and information flows that include descriptions of different business entities and their roles, a description of the potential benefits to them, as well as a description of their revenue resources [3]

E-business model

Afuah and Tucci said that the way an organization plans for how to profit from the internet over a long term. E-business model is a system of elements and the relationship between them, which creates value by using features available on the internet.

Weil and Vital studied E-business model, i.e. logic of business, with the difference that most of information flows, business factors, and revenue resources rely on the Internet. [5]

Types of E-business models

E-commerce provides a potential foundation for helping to create simple, fluid, productive, transparent and effective relationships between business sectors and consumers, consumers and business sectors, consumers and consumers, and business sectors and business sectors. This topic is categorized and reviewed as models, aspects, opportunities, or applications of e-commerce.

Table 1 : e-commerce models or applications

	enterprises	consumers
enterprises	Business/to/business (B2B)	Business/to/consumer (B2C)
consumers	Consumer/to/ business (B2B)	Consumer/to/consumer (C2C)

A. consumer-consumer Model: this model facilitates our business work. The parties to a contract are people and revenue resource is the money they receive to form a relationship between buyer and seller. How money is received can be either as a certain amount or as a commission right, as in airline travel agencies and internet commerce [6]

B. consumer-business model: the consumer-business model is a new and fast way to sell consumer goods. In this model, companies are interacting with customers, allowing them to shop and sell their products from anywhere in the world at any time of the day or night. The model takes a forecast for the next three years ending 2006 [7].

C. business- business model: In this model, parties to contract are companies. This way of trading is the best and most promising opportunity for new investors in e-commerce, in the sense that it encompasses 75 percent of total global E-business. Business-Business trade is the backbone of the modern economy, and it encompasses a wide range of low-high incomes [6]

D. consumer-business model: the above models do not have much to offer, but they have led to the emergence of differences between Internet-based business and early business forms; renting a car from a specified point with an amount determined from a website [8].

According to the above accounts, it is necessary to note:

In this research, business-to-consumer (B2C) business models are the subject of the research.

General components of E-Business Models

Based on a model presented by Afuah, components that E-business or other business models have are as follows [9]:

- Scope
- Customer value
- Market sector

- Price
- Revenue sources
- connected activities
- Implementation
- Capabilities
- Sustainability
- cost structure

Research background

To review the research literature, studies relating to extraction of key factors in business models and sometimes e-commerce are reviewed. Key factors extracted from research background are as follows;

Table 2: Research background

Researchers	Key factors
Reiss and Stuttgart (2002) [9]	E-business strategy (business processes, competitive strategies), E-business culture and standards (legal norms, entrepreneurship on the Internet), Internet organization (virtual organization, network value), Internet resources (IT infrastructure, Internet competencies, staffing)
Burn et al. (2002) [10]	liquidity, value creation (market efficiency, supply chain efficiency and creating new value), partnership, technology, function (business, content, cooperation / relationship), supervision and governance (laying down labor laws and regulations), focusing (selecting the right goals /market segment)
Mckinsey and Company; CAPS Research [11]	factors of creating value, offering at the best time (through proper supply chain), being different through knowledge
Kao and Droucher (2006) [12]	Environmental factors (society, government, economy and technology), internal factors of an organization (competency orientation and business strategy, activities and processes (leadership, financial support, human resources, customers, marketing), Web and related technologies (technology, traffic)
Albert et al. [13]	High degree of computerization of activities, integrity of supply and distribution with high transparency, transaction-based revenue, network effect, advancement of core business on the basis of technological advantages, marketing on the basis of the lowest cost, outsourcing of activities to customers, reduction and monitoring of costs , low risk of costs, focus on business orientation
Jingting et al., [14]	Leadership, management, organization and competencies, technology, customers and suppliers, web capabilities and capabilities, customer related activities, supplier-related activities
Eliot (2002) [15]	Transparency of priorities, sufficient capital for development, identification of target market and learning from customers and suppliers, product type, brand, trusted suppliers, website and its capabilities, progressive competitive advantage, sales and profit making
Mahajan et al., (2002) [16]	Search for goods, goods availability, expertise and skills
Meffert et al., (2001) [17]	Technology orientation and innovativeness, market orientation, market planning, collaboration for seller strategy, strong and valid brand building, high autonomy in units Online communication, proper website design, short delivery time, strong monitoring
Strauss and Schoder (2002) [18]	Elaborate development of Internet strategy, making distinction between strategies adopted. true assessment of opportunities and threats, effective supplier management, customer relationship management, process orientation, independence in units
Chen and Haney (2003) [20]	Increased involvement in e-commerce, appropriate allocation of resources, development outsourcing, change procedures (e.g. marketing mix, etc.), customer study and evaluation and adjustment of results

researchers	Influential factors
Eid et al., (2020) [20]	business strategy-related factors (management commitment, strategic goals, internet integration with marketing, customer selection), Website-related factors (website design, effective marketing by website), global-related factors (external business environment identification, required resources, multilingual website, culture attention, availability of global delivery facilities), internal related factors (technological infrastructure, domestic culture, role of sales agents, training programs), external related factors (reliability, security, successful communication, Internet access, customer acceptance)
Thornton and Marche (2003) [22]	Management experiences in industry, planning / strategy, capital, financial control, inventory management / distribution channels, advertising strategy / marketing of market situation, target market, customer experience and value offered to customer
Kearney (2000) [23]	Choice of a proper model in market, content (content value), communication (inside or outside the organization), non-reliance on partners, combination of multiple channels (online and offline)

Research method

In the first step, for collecting the effect of the extracted criteria, a primary questionnaire was prepared, which consisted of three parts: the first part was based on extracted criteria and E-business owners were questioned about the importance and involvement of these factors in designing their business models. The second part consisted of a questionnaire containing items for assessing the success rate of E-business on the basis of indicators provided by Afuah (2002). Finally, the third part included questions about the characteristics of the interviewees. After designing the primary questionnaire, opinions of five experts were collected and applied to final questionnaires. Afterwards, the opinions of advisors and supervisors were received and some changes were made in the questionnaire.

The next step was to demonstrate the positive effect of considering factors on the success of E-business. If there is no relationship between them, the key factors determining the design of E-business models in Iran would be meaningless. Therefore, a hypothesis test can be used to prove it. The next step was collecting data and analyzing the reliability of the questionnaire. Reliability refers to accuracy of results. In other words, it suggests accuracy, reliability, stability, or frequency of test results [23]

In the third step, following questionnaire verification and collection of the required data, the statistical distribution of the data collected in the second part of the questionnaire should be determined before the hypothesis test can be proven. The purpose of studying statistical analysis is to determine the type of test (parametric or nonparametric) to prove the hypothesis. In the next step, the selection of the factors presented in the questionnaire is examined and the priority and ranking of the factors are set from the viewpoint of E-business owners.

Ultimately, important factors and their effects on the success of E-business are investigated through a regression analysis. The hypothesis of the linear regression model is based on a linear direct relationship between independent variables and dependent variables. The linear regression of the linear equation coefficients. Linear regression estimated coefficients of linear equation which include one or several independent variables in such a way that value of dependent variable is predicted at best [24]. The general trend of the research method is presented in fig. 3.1.

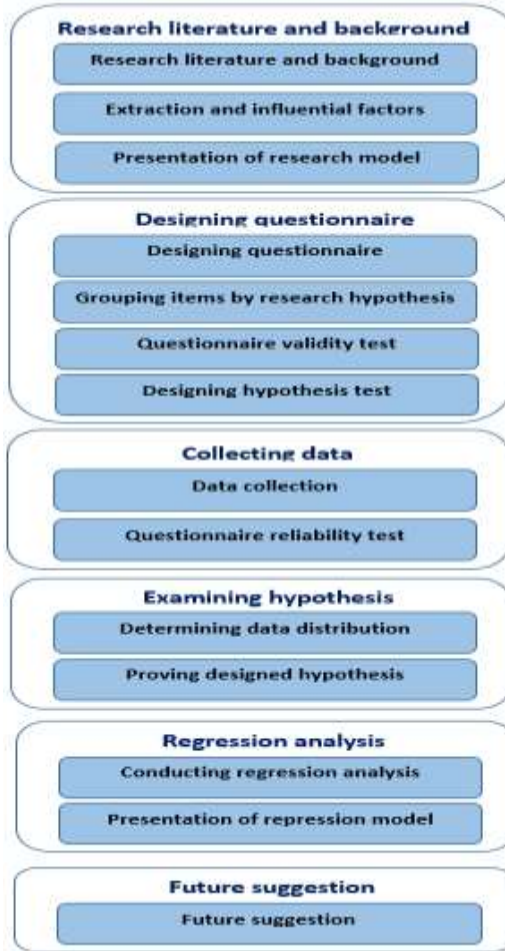


Figure 1. Research steps

Elaboration of research method

Given the study of the components of business model and the study of the factors extracted from the research background of the research model, influential factors are as follows;

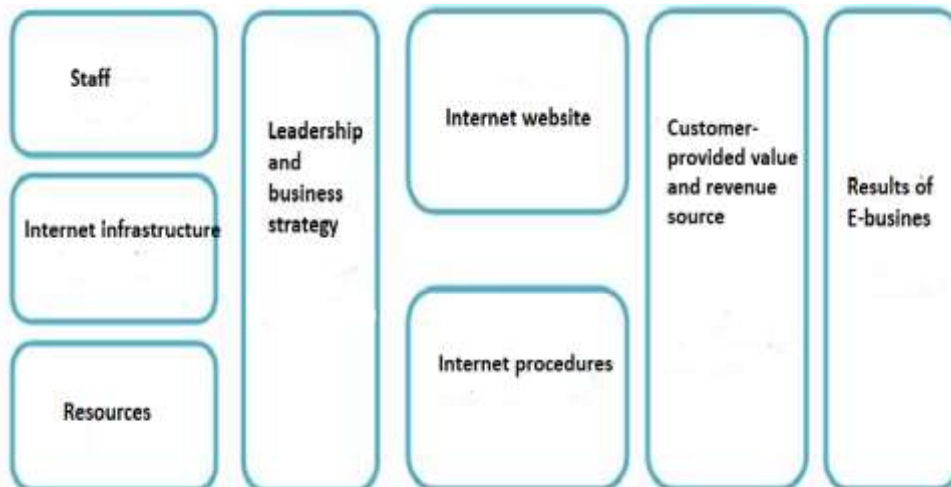


Figure 2. Research model

Items used in this research have been put separately in the areas of the research model. However, the main focus of the items and conclusions about the areas of presentable value and revenue source, and the Internet website has been part of the Internet processes and Internet infrastructure.

Designing a questionnaire

A questionnaire was designed in three parts. In the first part, 47 items were developed to examine the key criteria for designing E-business models. These criteria were discussed in section 3. Responses were collected based on Likert scale. The response spectrum in response to the level of importance to factors in the design of business model includes very high, high, medium, low, and very low. In other words, the first part of the questionnaire is the views of business owners on the extent to which factors are involved in designing their business model.

In the second part of the questionnaire, four questions were asked about factors affecting the success of E-business from E-business owners.

Question 1 (Y1): How do you evaluate your website visit?

Question 2 (Y2): How do you evaluate the sales volume of your products / services?

Question 3 (Y1): How do you evaluate the amount of your income from E-business?

Question 4 (Y2): How do you evaluate the cash flow of your website?

In the third section, information about the interviewee's profile was asked. This information included designation, education, work experience, age, and gender. An example of this questionnaire is given in the appendix. The purpose of this research is to extract the key factors of success in designing E-business models in Iran.

Factors under study

According to researcher's hypotheses, the effect of the following factors was investigated:

- Value provided to customer and sources of revenue
- Online ordering and purchasing
- Internet infrastructure
- Website quality

Data collection

For more validity, the results of this questionnaire have been asked directly from E-business owners in Iran and items have not directly inquired the importance of factors from their point of views, though they were asked to know to what extent factors received attention during designing a business model and its implementation, and considering the obtained results, influential factors will be extracted. The audience is from various ranges to the extent that general public factors that can be used for any E-business in Iran can be extracted. A large number of E-businesses were contacted, of which 52 questionnaires were completed and returned.

Analysis of the questionnaire validity

The purpose of this study is to assess the validity and reliability of the questionnaire. The test validity is the ability of an instrument to measure an attribute that the test was designed to measure. The reliability of a measuring instrument mainly refers to the accuracy of results. Reliability refers to the accuracy, reliability, stability or frequency of test results (Momeni, 2010).

Table 3: Questionnaire reliability

Cronbach's Alpha	N of Items
.958	47

Analysis

By dividing a sample into successful and unsuccessful groups (considering that the success rate of E-business was asked based on 4 items, if the second item (y2) and the third item (y3) were somewhat above the average simultaneously, then the E-business is assumed to be successful, as otherwise, the E-business

model has not been able to achieve its goals. The level of the four factors, which include customer value and revenue sources, Online ordering and purchasing, Internet infrastructure, and website quality using the non-parametric test Kruskal-Wallis were assessed as follows:

Studying the level of the first factor (customer-provided value and revenue source) with success level: The result is as follows:

Kruskal-Wallis Test

Table 4: Result of Kruskal-Wallis Test for customer-provided value

Ranks			
	Success	N	Mean Rank
Customer-provided value and revenue source	success	31	32.19
	unsuccess	21	22.65
	Total	52	
Test Statistics ^{a,b}			
	Customer-provided value and revenue source		
Chi-Square	5.133		
df	1		
Asymp. Sig.	0.023		
a. Kruskal Wallis Test b. Grouping Variable: Success			

As can be seen in the above table, given P-value which is less than 0.05. this factor is effective on the success of E-business.

Studying the level of the second factor (online ordering and purchasing) with success level: The result is as follows:

Table 5: Result of Kruskal-Wallis Test for ordering and online shopping

Ranks			
	Success	N	Mean Rank
Ordering and purchasing (internet processes)	success	31	32.10
	unsuccess	21	22.71
	Total	52	
Test Statistics ^{a,b}			
	Ordering and shopping (internet processes)		
Chi-Square	4.847		
df	1		
Asymp. Sig.	.028		
a. Kruskal Wallis Test b. Grouping Variable: Success			

As can be seen in the above table, given P-value which is less than 0.05. this factor is effective on the success of E-business.

Studying the level of the third factor (internet infrastructure) with success level: The result is as follows:

Table 6: Result of Kruskal-Wallis Test for internet infrastructure

Ranks			
	Success	N	Mean Rank
Internet infrastructure	success	31	19.749
	unsuccess	21	36.40
	Total	52	
Test Statistics^{a,b}			
	Internet infrastructure		
Chi-Square	15.719		
df	1		
Asymp. Sig.	.000		
a. Kruskal Wallis Test b. Grouping Variable: Success			

As can be seen in the above table, given P-value which is less than 0.05. this factor is effective on the success of E-business.

Studying the level of the fourth factor (website quality) with success level:

The result is as follows:

Table 7: Result of Kruskal-Wallis Test for website quality

Ranks			
	Success	N	Mean Rank
Website characteristics	success	31	25.40
	unsuccess	21	28.12
	Total	52	
Test Statistics^{a,b}			
	Website characteristics		
Chi-Square	0.436		
df	1		
Asymp. Sig.	.509		
a. Kruskal Wallis Test b. Grouping Variable: Success			

As can be seen in the above table, given P-value which is greater than 0.05. this factor is not effective on the success of E-business.

Regression model

By dividing sample into success and unsuccess groups and conducting logistic regression, given the following table, it is noted that website quality is not significant at 5% quality level (p-value= 0.064), but other three factors which were used in the previous analysis are effective on the success of E-business and their regression formula are as follows;

Table 8: Logistic regression test for examining the link between factor level and success

Model Summary							
Step	-2 Log likelihood	Cox & Snell R Square			Nagelkerke R Square		
1	42.524a	.391			.534		
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001							
Logistic regression test for examining the link between factor level and success							
Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	f1	2.556	1.178	4.708	1	.030	12.885
	f2	2.033	.861	5.580	1	.018	7.638
	f3	2.268	.989	5.260	1	.022	9.659
	f4	-3.662	1.978	3.428	1	.064	.026
	Constant	-6.659	2.610	6.509	1	.011	.001

a. Variable(s) entered on step 1: f1, f2, f3, f4.

$$y = -6.659 + 2.556f_1 + 2.033f_2 + 2.268f_3$$

- | | |
|---|-----|
| Success of E-business model | Y: |
| First factor (determining customer value and revenue source) | F1: |
| Second factor (internet processes and online ordering and shopping) | F2: |
| Third factor (internet infrastructure) | F3: |

Conclusion

By studies conducted, it was revealed that factors determining how value is offered to customer and revenue source, organization internet infrastructure and online ordering and shopping are determinants in the success of E-business in Iran. It is noteworthy that in most cases E-business providers pay attention to quality of website, which is why this factor is not considered distinctive and key factor in the success of E-business.

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