

Investigation of Electronic Maturity Level of Insurance Industry in Iran

¹Nastaran Haji Heydari,

²Somayeh Behestani and ³Poyesh Bahadori

¹Department of Business Management, Faculty Member of Tehran University, Iran

²Insurance Orientation, Tehran University, Iran

Abstract: E-Commerce and its tools are used in different businesses to improve service quality and Insurance industry is not an exception. This research aims to analyze the development rate of Iranian insurance industry in deploying E-commerce tools. The statistical population of this research is the active insurance companies all over the country, involving 22 companies, which have been selected by census of all participants. 18 companies have taken part in the research and the analysis is based on these participants' response. We have utilized Gartner IT Maturity Model for identifying the maturity level and in order to analyze the data, the MADM method has been employed. Results show that the current maturity level of E-Insurance in Iran is estimated to be 70% in the first level. Moreover, the outcome of this analysis illustrate that those insurance companies which were new established and were in the first level of Gartner IT Maturity Model, have been able to gain more points in every level which have prioritized them in terms of alignment with virtual world.

Key words: Iranian Insurance Industry • Electronic Maturity • Electronic Insurance • Gartner Maturity Model

INTRODUCTION

Intensifying global competition and increasingly sophisticated consumer preferences require companies to respond quickly and effectively to market opportunities. In this economic climate, effective implementation of a business strategy depends upon wisely use of information technology to redesign business processes, improve supply chain management and increase the value provided to the customer. To achieve these goals, managers need timely and comprehensive information to make good marketing, production and distribution decisions [1]. Internet breaks down the barriers among organization and that of time and geographical distances. Customers, suppliers, participating companies can take part in the product development process from anywhere in the world [2] and bute-commerce, Comprising commercial interactions of goods and services between different parties electronically is becoming a universal way of conducting business [3]. It is the use of computers and telecommunications in the routine business transactions i.e. relationships with customers, suppliers, banks, distributors and other trading partners [4]. E-Commerce (EC) gate for SMES to inter global markets

[5]. In fact, online purchase reduces cost compared to physical visiting a shop for purchase. This has opened the market of the developed countries to the entire world [6]. The success of e-commerce is determined in part by whether consumers trust sellers and their commodities they cannot see, touch or examine [7].

On the other hand, insurance industry as one of the major economic function plays a fundamental role in improving and promoting economic indicators. Therefore by adopting methods and factors and ranking them, an important role will be created in the development of insurance industry. Requisition of e-commerce in insurance industry following preparation of the necessary structure and require software changes. For example, software changes include manager and staff to change attitudes toward technology and e-commerce [8].

E-insurance can be broadly defined as the requisition of Internet and related information technologies (IT) to the production and distribution of insurance services. The anticipated sufficiency effect of e-insurance is twofold. First, e-insurance should reduce internal administration and management costs by automating business processes, permitting real-time networking of company departments and improving management

information. Secondly, it should reduce the commissions paid to intermediaries since it can be sold directly to clients [9]. E-insurance, as a method, results in workers' efficiency and cost saving. According the reduction in present bureaucracy along with lessened direct calls on insurance offices, insurance's daily activities will increase [10] and the income from the services (such as giving insurance policy) to its customers will rise.

There is also a significant opportunity for an insurer to gain publicity and new business by being able to proclaim it can now offer 'E-policies' that fully reflect the revised nature of the businesses and risks of their insured's [11].

Distribution of insurance products via the Internet made its appearance in the 1990s. Today, most industry players use the Internet in one way or another as part of their distribution process (Canadian Council of Insurance Regulators (CCIR), 2012). Insurance is generally known to be a complex service. The electronic service environment can also be understood as sophisticated to use by customers. Transmission of traditional insurance services to the Internet environment has been, if not difficult, at least challenging for insurance companies. Customers who have been used to discussing their insurance matters with a professional, an insurance officer or independent broker, too often experience difficulty in regulation to the novel Web-based services. Due to the complex nature of insurance, customers might find it problem to understand the content of the service without personal (service) contact. Further, as insurance services are used only occasionally, the switch from the traditional to the Web-based service environment is even more challenging [12]. Modern day insurance has evolved into a multifaceted and wrapped industry involving a rank of divergent products and services. The current insurance industry landscape is characteristically hybrid in nature, offering everything from health and life insurance to property and casualty. Many insurance companies also offer financial services such as asset management as well as commercial leasing and lending. A number of forces have challenged the insurance industry in recent years, resulting in stagnating sales in both the life/health and property/casualty sectors. The specter of an e-enabled insurance landscape is appealing to many in the industry and the potential benefits to be accrued irrefutable [13].

While making and developing business organizations, the explosive growth of the Internet and the opportunities, it provides for business, have created highly suitable grounds to make insuring process electronic. Therefore the Iranian insurance industry

intends to take some steps in order to enter the global competition and get competitive advantages [14]. Establishing phases of an electronic insurance industry contain many stages which complement one another. This article argues that since the beginning of evolution in Iranian insurance industry in terms of entering the electronic world, by employing ICT methods to serve the customers, how much the insurance agencies have been harmonized and have entered a competition ground in comparison to the agencies, lacking such methods. This can be determined by being placed in a fixed level or stage. The above-mentioned project in Iranian insurance industry has been applied on and analyzed in 22 insurance companies, including governmental, private and free zones.

Note that even Small companies because of their fundamental role in Iran economy can promote system productivity and efficiency [15].

Theoretical Background of the Subject: In relation to electronic insurance there have been some researches, a number of which is as follows:

A previous study of e-Commerce adoption of Insurance Companies [16] has shown that It is obvious that the insurance industry has made progress as far as insurance companies moving onto the Internet is concerned, with 100% of the companies in the sample having a website. Grossman *et al.*, (2004) examine the barriers as well as the success factor involved in making the transition to web-enabled insurance model. McKay *et al.* [17] found that an organisation enters the world of electronic business there are many issues as well as many challenges and opportunities as information technology provides a new channel to reach consumers and a clutter of new business possibilities. However, in order to assess the current status of the organization, understanding, future planning and development of e-business, there are models and strategies. Such strategies and models would provide a guiding path of increasing maturity and sophistication, which would include attention of both traditional information systems and IT as well as the internet and internet commerce based systems. Since, the introduction of computer technology into organisations in the 1960s, there have been numerous attempts to develop models of IS/IT maturity. All of these models are premised on the idea that organisations pass through notional 'stages' of maturity or sophistication with respect to the way they use and manage IS/IT to support and facilitate business activities, processes and operations. Such models of maturity may be used for

descriptive purposes. The stages of growth models may be helpful to describe and evaluate an organisation's maturity and sophistication in its use and management of the IT resource, for the purposes of enhanced shared understanding.

Arabi and Bromide [18] research Impact of e-commerce on the Iranian insurance companies. Ahonen *et al.*, (2007) explore the issues involved in engaging customers in the electronic service environment for complex services. Gavrilitea [19] investigated Interferences between e-Commerce and Insurance. Other study of Readiness Assessment of Iran's Insurance Industry for E-Commerce and E-Insurance [20] has shown that success attempts to develop a method for readiness assessment of potential electronic commerce (e-commerce) success of Iran's insurance industry. Banan [21] found that while payment, policy delivery and claims processing may all be done online as well, technical and regulatory constraints may not allow these elements to be subject to full e-commerce application in certain countries. Heidarzadeh and Karimian [22] investigate the role and position of e-insurance in developing countries. This research has two main goals: In the first step, we can customize EST in respect of Muslim consumers and in their markets. Another goal of this research is also amending Silver's model according to specific characteristics of Muslims.

Sekulovska (2012) [23] attempted to explain internet business models fore-insurance and conditions in republic of Macedonia. In relation to e-insurance, Unctad (2002) and Sigma (2000) did some researches, dealing with the impact of electronic business on insurance industry. In Iran there have common researches, by Central Insurance of Islamic Republic of Iran in terms of electronic insurance on insurance industry, some of which are entitled as: "Internet, a means to improve insurance," "The position of insurance industry in the age of electronic business," "Case study of the impact of electronic business on insurance industry."

In the conducted domestic researches the focus has often been on the effects of e-insurance on business, its challenges and the ways to carry. Or the strategic value of the Internet in electronic commerce such as insurance industry has been pointed out. Some of the researches too have explained the legal obstacles and the legislative infrastructures to support the parts of e-insurances. Some have analyzed the strategic informative systems in Iranian insurance companies and some have researched on the impact of e-commerce on them. E-commerce and development organization in 2002 published some articles

about electronic commerce and, while taking electronic insurance as one of its subset, compared insurance companies before and after applying electronic projects [24]. There have been other some native articles on this subject like: "Seyhoun, Alireza (2006), Presentation of Electronic Maturity Model for the Country's Insurance Industry" Master thesis of Commercial Management in the University of Tehran. "Boroumide, Ali Akbar (2004), A Collection of Articles in the Meeting of Electronic Insurance and Commerce". "Central Insurance of Islamic Republic of Iran, Electronic Commerce and Insurance (2005), the institute of researches of the ministry of commerce".

In order to evaluate and analyze the electronic growth in insurance industry, we face a plenty of electronic maturity models.

Presents a levels model for e-business, but this does not explain how companies deal with e-business but rather how a business evolves from introducing a company website to being ready for the new economy. The new economy being today's economy with all the information technology that is used for managing your business processes [25]. These models shall also contain a clear statement that the model is appropriate only to small or medium sized organizations, to large companies or universal [26].

Among models, Gartner Group's electronic model along with United Nations's model have the most account. In this article, due to the accordance between the appearance time of Gartner Model and that of electronic commerce in Iran and because of ratification of the general plan as a plan to utilize and develop ICT in 2002 –which was a long and effective step in Iran's IT-and since the studied criteria to explain the electronic insurance ground are more complete in this model than the other models, Gartner model was chosen and is going to be analyzed in details. According to this model, electronic maturity is consisted of 4 levels (major variables). In fact these levels are not certain and unchangeable but are appropriate to reach a mental concept.

What is explained in details as features and characteristics of these phases are in effect the "major goals" of each [27]:

Phase 0 (Survival/Disorganized): Little to no centralization on IT infrastructure and operations. It is a phase where IT possesses no value. In general, the general guideline of computer network management is not organized.

Table 1: Maturity Models in E-Commerce

Model's Name	Levels	Appearance of Electronic Commerce in Iran
UN Model 2000	Initial and flawless appearance, development, interaction and exchange	2002
Gartner Group (Electronic Commerce) 2002	Survival, initial presence, advancement, business constancy and change in the way of doing business	
Mysera and Dingra Model 2003	Close, initial phase, planning phase, realization phase, institutionalizing, optimizing	
United Nation Model 2003	Appearance, promotion, intercourse, interactional, harmonious (network)	
The map of the way of electronic commerce model 2003	Uncapable to be available, static, interactional, exchanging, harmonious	
B2B Phases of electronic commerce growth 2004	Electronic commerce beginning, focused actions of electronic commerce, seeking to profit, harmonious electronic commerce	

Phase 1 (Initial Presence/Information): It is the presence in the web. Static information relates to the customers and the commercial section is prepared. Utilization of IT is to save the data digitally and mechanize and purify organizational processes. This phase does not use paper and reduces the costs.

Phase 2 (Advancement/Process of Sale Initiation): People can ask their questions via email, use search engines and download a variety of forms and documents. In this phase serving networks are public which can be done by electronic post. This phase is widely related to having access to the information interactionally. Not only do the clients have access to the information, but they can correct it and the link between insurance company and its customers is drawn in both ways.

Phase 3 (Business Harmony/Sale Process): Online paying, which is to sell policies, is among its characteristics. It is a phase of change a movement towards an electronic company. In this phase, Internet-based public services are the main core of all activities. Focus on technology and the infrastructures result in creating new organizational models and processes. Here the intention is more about the change in traditional mentality as well as setting of new values and there is less reference to cost reduction. This phase involves deep changes in the organizational culture and connection with people is completely two-ways via internet sites.

Phase 4 (Change of Business Form/Process of After-Sale Services): It is a further definition of service offering by making a connection point which causes every organization related to the insurance company become clear for the customers. This phase is an electronic democracy, and utilization of IT in political processes and

involves a wide range of timely decision making and real cooperation in public processes. As it is apparent electronic democracy happens at the phase of electronic maturity and can be taken as a symbol for it.

Not only that the right information must be delivered to the right user at the right moment, but this also means that the information itself needs to be customized for that particular user's needs and delivered in a best appropriate form for each user or group individually. One must also understand and know what the current maturity level of the Business Intelligence is and what needs to be done in order to move to the next phase in order to increase business value for the company [28].

All told, each of these phases (major variables) have minor variables which is as below (Haghighi and Seyhoun, 2008):

According to the mentioned definitions of Gartner's electronic maturity model, in order to take the most points in each phase, during decision making, apart from major goals, one should pay attention to two general goals:

- Spacing to obtain the particular features in each phase
- Redundancy in more efficient and more effective application of previous phase's achievements

In this model, we face the four dimensions of people, process, technology and business management, each of which relates to the first to last phase respectively, is based on each of these dimensions it is determined how much they have been promoted in using electronic tools.

Main Questions:

- How much has Iran's insurance industry improved in utilization of electronic commerce tools?.

Table 2: Major Variables in each Maturity level

Phase 0	Phase 1	Phase 2	Phase 3	Phase 4
Without minor electronic variables	-Website complexity phase -Connections -Information exchange	-Receiving suggestions -Consulting	-Management of emission data -Emission	-Connection and consulting -Damage claim -Damage analysis -Damage repayment

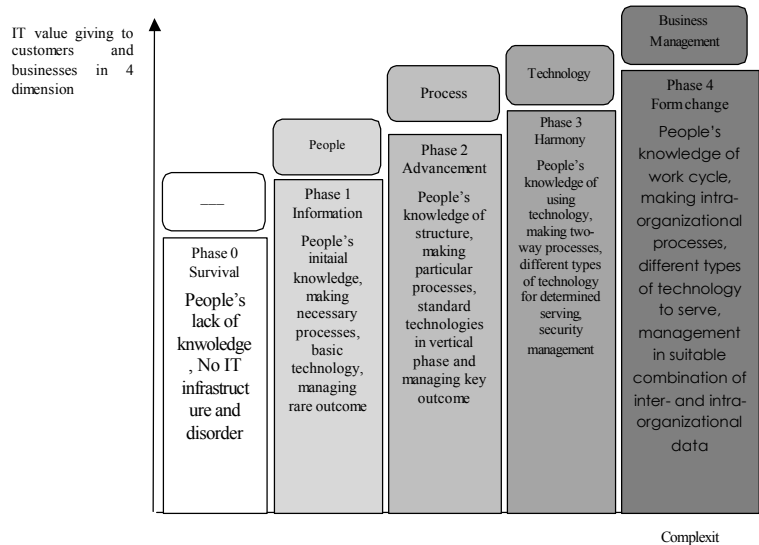


Fig. 1: Gartner Maturity Model

Secondary Questions:

- Is there a meaningful difference between the maturity phases of insurance companies?
- What effects do the company's basic features have on electronic maturity rate?

MATERIALS AND METHODS

The methodology was descriptive scaling and questionnaires were used to gather information.

Tools for Gathering Information

Library Researches: In this research all of the information about electronic insurance along with maturity models for electronic commerce, were gathered and analyzed by going to libraries, conducted researches, books and farsi and English articles on the Internet.

Questionnaire: One of the common methods to collect information in field researches is the questionnaire which makes it possible to collect information in a wide range.

In order to determine the phase of electronic maturity based on Gartner model, a questionnaire was used that contained 18 questions, involve both internet- and non-internet-based options. The internet-based options

were 42. The evaluations were based on Likert spectrum in three levels of high (7), medium (5) and low (3) which are classified in the table below:

Tools for Analyzing the Information

Electronic Maturity Model: This research used Gartner's electronic maturity model.

Topsiss Software: In order to have a complementary analysis, apart from the maturity model, in order to determine the ranking of insurance companies in terms of predominance in ICT, the multi-branched operating research software of topsiss was employed in whose calculation, the four dimensions of people, process, technology and business management were the indices and options of 18 insurance companies. This questionnaire, while determining the phases, shows the amount of companies' non-internet- and internet-based function in carrying out their tasks. The 18 questionnaires were received without any disturbances and were all analyzed and evaluated.

Questionnaire's Stability and Admissibility: In humanitarian and behavioristic sciences, most researches are conducted via questionnaire. The subject of quality control for a questionnaire's results, involve a wide range

Table 3: Questionnaire Structure for identifying E-Insurance Maturity Level

Maturity Level	Dispersion of internet-based options in the questions	Number of internet-based options	Total grade of internet-based options
0	-	-	-
1	4 (1-4)	8	56
2	3 (5-7)	7	49
3	6 (8-13)	15	105
4	5 (14-18)	12	84
Total	18	42	294

of different issues. If we assume questionnaire as a test, generally it can be said that a good test should possess suitable features such as exactness, performance simplicity, practicality, easiness in explanation and interpretation, admissibility and stability so that it can achieve correct results. Among these features, admissibility and stability have more importance.

Questionnaire’s Stability: Cronbach’s alpha is widely used to evaluate the internal stability of a psychometric document. Its popularity is largely based on a straight forward interpretation in terms of correlations, its ease of calculation and the guidance it gives to building a single dimensional scale [29] Cronbach’s alpha is a test reliability technique that requires only a single test administration to provide a unique evaluation of the reliability for a given test. Cronbach’s alpha is the average value of the reliability coefficients one would receive for all possible combinations of items when split into two half-tests [30].

In this method, parts or sections of the questionnaire are used to measure the test’s final coefficient. In this article, the obtained Cronbach’s alpha coefficient via spss software among the 18 studied companies and 42 designed internet-based options was 0.952 and since in case of Cronbach’s alpha coefficient being 0.7 or more, questionnaire has an appropriate stability along with high certainty in terms of internal cohesion of the questions, the studied coefficient proves the stability level of this tool.

Questionnaire’s Admissibility: Content admissibility shows whether the questions we asked to evaluate our factors indicate the features we want to measure or not. Content admissibility is usually evaluated by experts and professionals’ judgements (Houman, 2005) [31]. In order to extract the questionnaire types with regards to the features of maturity phases, related questions were drawn for each phase.

After editing the questionnaire, insurance companies’ experts and professors in the University of Tehran were interviewed and discussed and the questionnaire’s admissibility was confirmed by them.

Statistical Population and Sample Size: A statistical population is a group of people or units which share at least one similarity. Usually in each research, the population under study, is a statistical population which the researcher wants to study its units’ traits (variable traits) [32]. In this research the statistical population includes the experts of commercial insurances and IT units as well as the 22 insurance companies, existing in Iran’s insurance industry, consisting governmental, private and free zones. They were assessed, as the size of statistical population, only by meeting the chief executives of their organizational structure. 18 governmental and private companies filled the questionnaires and companies were assessed by their amount of ICT usage.

The Method of Calculating and Extracting the Results: The questionnaire contains internet- and non-internet-based options which help the people, doing it, answer the questions easily and correctly, without paying special attention to the internet-based options which is this article’s discussion. This increases its validity and admissibility. At the interview, only the points of internet-based options in each phase are summed up together. Since the number of internet-based options differs from phase to phase, in order to equalize each phase’s obtained points; we check what portion of the total point they cover. So doing, we can compare the phases’ points in order to determine the phase on base in Gartner’s model.

RESULTS AND DISCUSSION

Taking the status of Gartner’s electronic maturity model, in determining the phase of insurance industry in Iran, almost 70% of the companies are in the first phase, 18% in the second, 6% in the third and the remaining 6% belong to the fourth phase. In order to have a complementary evaluation, after analyzing Gartner’s electronic maturity model in Iran’s insurance industry, by using topsiss software, which is one of the multi-branched research programs and is employed in this

Table 4: Result of Data Analysis (Maturity Level and Ranking)

Row	Company	Background	Maturity Level	Ranking
1	Iran Insurance Co.	76	2	13
2	Asia Insurance Co.	53	1	4
3	Alborz Insurance Co.	53	1	17
4	Dana Insurance Co.	23	1	5
5	Moallem Insurance Co.	17	1	11
6	Parsian Insurance Co.	9	2	14
7	Tose'e Insurance. Co	9	1	15
8	Mellat Insurance Co.	8	4	16
9	Sina Insurance Co.	8	1	2
10	Razi Insurance Co.	8	3	18
11	Dey Insurance Co.	7	2	6
12	Saman Insurance Co.	7	1	8
13	Novin Insurance Co.	6	1	12
14	KarAfarin Insurance Co.	6	2	10
15	Pasargad Insurance Co.	5	1	9
16	Mihan Insurance Co.	5	1	3
17	Kosar Insurance Co.	2	1	1
18	Ma Insurance Co.	1	1	7

research as an efficient and useful choice in ranking 18 insurance companies, some information has been obtained which is as follows:

Achieving the first phase, Kosar Insurance Co. in this ranking is in the first and Razi Insurance Co., which attained the third phase, is in the 18th place. More than 50% of insurance companies were in higher ranks, in the first phase of the electronic model and the rest, reaching to the higher phases of this model, were scattered around this ranking so that, obtaining the fourth phase of Gartner's electronic maturity model, Mellat Insurance Co. was placed 16th and Razi Insurance Co. that got the third phase, became the last company in this ranking. After having the initial analysis along with the complementary evaluation, in order to distinguish the amount of the relation between the rankings (dependent variable), these companies got and the time period of their functioning background (independent variable), the regression was calculated. The regression coefficient was 0.193. We re-analyzed this calculation for the relation between the time period of the companies' functioning background and their obtained phase in Gartner model (dependent variable) and 0.044 resulted for the regression coefficient.

CONCLUSION

This evaluation can conclude that companies in Iran's insurance industry, having started its formal function in 1931, with its 80-year-old background used electronic commerce; also insurance companies began becoming electronic since 2002 in which banks and private insurance commenced to show up in Iran's

economy. This simultaneity made an opportunity for companies and industries to develop their structure based on IT and attempt to align themselves with world's current technologies. Considering the analyses in this article, it can be concluded that insurance companies have managed to align themselves with the general goals of the chosen electronic maturity model. Therefore, by ignoring it, they either were placed extremely in the first phase –which means that during the process of maturity due to lack of or weakness in appropriate planning, they had not been constant or bound in taking strong and continuous steps and often after achieving a significant score in the first phase, had shown in the next phase an inconsistent function in terms of ICT (ignoring the second goal from the general goals)-or, speaking about those insurance companies that entered higher phases, their function was abounded with slow, cautious processes so that, despite moving forward in the road to phase promotion, they got low score in each phase (ignoring the first goal from general goals). By calculating regression, the results show that the relation between companies' phase or ranking with their time period of function and background is weak and factors, other than background, are involved in obtaining higher phase or ranking, for which one can point to education level in IT sciences and electronic commerce, ability level in knowing and harmonizing the personnel with modern IT improvements, budget limits for timely promotions and changes, personnel's positive attitude towards implementing the plans and managers' schemes. Lack of each of these factors can prevent the promotion of maturity phase in insurance companies.

These results show that in utilization of electronic commerce tools, Iran's insurance industry paid less attention to general goals and merely got involved in becoming entitled as electronic, that it is far from the defined pattern for virtual space called "electronic maturity models," and still has a long road to achieve higher phases of maturity models; in other words, it is still at the beginning. These results can be informative for the managers of insurance companies so that, by following the given suggestions, they can move towards higher phases of maturity.

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