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MASTER'S THESIS

# The Impact of E-Commerce on the Iranian Insurance Companies

Narjes Aarabi
Ali Akbar Bromideh

Luleå University of Technology

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Electronic Commerce
Department of Business Administration and Social Sciences
Division of Industrial marketing and e-commerce

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## Master's Thesis On:

# The Impact Of E-Commerce On The Iranian Insurance Companies


**By:**

| ALI AKBAR BROMIDEH | NARJES AARABI |
| --- | --- |

**Supervisor:** Professor Esmail Salehi-Sangari
**Advisor:** Professor Khodayar Abili

# Abstract

The conditions for doing business are rapidly changing. The Internet and related advances in information technology significantly affect financial services in general and insurance markets and institutions in particular. The growing importance of e-commerce represents a watershed event for insurance markets and institutions, as it does for most industries. By lowering information costs, e-commerce will enable insurers to classify, underwrite, and price risk as well as settle claims more accurately and efficiently. Overall, the Internet will significantly enhance the efficiency of insurance markets and institutions and benefit consumers by lowering transaction and information costs. The effects of e-commerce are the subjects of intense debate in insurance industry. The foundation for the purpose of this research has been created by a prospective study to explore the impact of application of e-commerce on the Iranian insurance industry.

In order to fulfill the purpose of this study, a frame of reference has been emerged based on a vast literature review. With the focus at quantitative research as a general approach and descriptive research as the type of research in this study, a structured questionnaire was used as the data collection instrument. To accomplish this, a survey of 258 people (in almost all active insurance companies in Iran) has been carried out. The respondents from almost every department within the targeted insurance companies were randomly chosen. We have focused on the perception of insurers regarding the subject of study, and thus, the perception of other stakeholder such as insurance agents/brokers and even their customers have been suggested for future research, due to limitation and demarcation of this research.

This dissertation has been organized in the seven chapters. An introduction this study, problem statements and research questions were presented in chapter one. The second chapter was devoted to literature review. The emerged frame of reference was provided in the third chapter and our research methodology was discussed in the fourth chapter. Data presentation and analysis were done in accordance with the research questions and the frame of reference in chapter five and six, respectively. Finally, in the last chapter findings and conclusions were drawn by answering the research questions.

With respect to the findings, we conclude that the Iranian insurance companies were positively looked at e-commerce and its application in their companies. Their attitude and views toward e-commerce was positive so that they found that e-commerce would be an opportunity rather than a challenge or even a threat for insurance industry. They highly believed that e-commerce would affect on insurance companies and, thus, their companies should embrace e-commerce. Lack of skilled staffs in e-commerce application and scarcity of IT experts were the most infrastructure requirements which they found that the Iranian insures were suffering from. Whereas they were well equipped with hardware and networking as well as general and professional insurance software required in e-commerce applications. Lagging of other supportive sectors (e.g., e-Banking and Telecommunications), lack of appropriate legislation and regulation (e.g., copy right, digital signature, …), low Internet usage and fewer users, traditionally attitudes and views over the

companies and scarcity of skilled staffs were the five top major obstacles which would hinder the Iranian insurers to embrace e-commerce.

E-commerce is potentially applicable to marketing and sales as well as R&D with respect to insurance value chain. On the other hand, as far as insurance products concern, auto (motor) insurance, marine and aviation, life insurance and fire insurance were highly perceived to suitable to e-commerce (sale online). Finally, the Iranian insurance companies were chiefly believed that in the case of e-commerce application they would get these top five benefits: brand and image promotion (as a pioneer and modern company), extended corporation with partners (specially in the reinsurance cases), lower invest for establishing the sales and after sales services network, cost reduction in value chain management (e.g. product/service development) and decentralization and no restrictions imposed by national borders.

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# Chapter 1 INTRODUCTION AND BACKGROUND

## 1.1) Introduction

The almost every industry has been undergoing dramatic change for a number of years. Significant movements toward deregulation in businesses, along with advances in telecommunications and computer technology are forcing significant changes upon the industry and making it far more competitive.

With the development of computer technology, the World Wide Web (WWW) has become the connection medium for the networked world. Computers from locations that are geographically dispersed can talk with each other through the Internet. The connectedness and rapidity of Internet processes is revolutionizing the traditional models of our society, from technology to academics to entertainment. It is, therefore, the Internet through e-commerce is also modified not surprising that and trading processes. Since the advent of Internet, e-commerce has become the most popular application, earning large revenues and forging a rapid growth in related technology.

Until now, the focus of e-commerce has been mainly on business to customer (B2C) applications; the emphasis is now shifting towards to business to business (B2B) applications. The insurance industry provides an appropriate model that combines both B2C and B2B applications. However, the insurance industry has been reluctant to embrace e-business due to factors such as lack of proper software infrastructure, non-awareness among customers and security concerns.

Like most other industries in Iran, the insurance industry has also considered the Internet mainly as a channel of communication and advertisement, rather than as another distribution channel which is in other countries. However, with rapid growth of information technology infrastructure and radical economic reforms, online insurance can offer remarkable opportunity in Iran. Thus it makes sense to analysis the impact of e-commerce application in the Iranian insurance industry, in advance. And also, how it can affect the future of online insurance in Iran.

## 1.2) Problem Statement

The insurance sector is one of the most important service sectors regarding its basic function for the whole economy and society. Modern, highly industrialized and technology-driven economies are threatened by higher risks than ever; and individuals need to protect themselves against private risks as well as saving individually for their retirement. Insurance companies also play an important role as investors and shareholders.

Historical background of insurance in Iran goes back to 80 years ago. The industry has been encountered with many paradigm shifts, during these years. For instance, all insurance companies were entirely nationalized after the Islamic revolution in 1979. Now, there are five governmental and eleven private companies in the market. The governmental insurers are active for a long time and they were the key players in the monopolistic market. But a few years ago (since 2000), government approved to open the market to other private companies. It's forecasted that the industry will embrace many new insurers and maybe it's expected to have some mergers and alliances in the following years.

In the past, in the most developed countries, many insurance products have been distributed mainly through captive agents or independent brokers, but in new economy they are shifting to use Internet broadly. But nowadays, in Iran, insurance companies are selling their products through traditional distribution channel. Since enormous investments are needed to build up such a distribution network, established insurers were generally well protected against new competitors. In other words, the new insurers should invest much to develop a distribution channels, or they have to shortcut this investment by using the effective alternatives.

Since the insurance business is largely based on information, then Internet applications can impact greatly on the insurance industry. The Internet increases transparency on the insurance market, giving customers more market power. It allows virtualization of organizational networks, increasing the opportunity for systematic co-operative service offers. It also reduces the amount of capital needed to enter the insurance market, so that new firms find lower barriers to compete in the market.

These information-intensive industries are fertile ground for the play of forces that have spawned e-commerce. The application of e-commerce in the Iranian industries is in the very initial stage. The Internet usage is dramatically growing up in the country and almost many companies have an Internet presence on the net. A few companies in the financial services provide an elementary Internet services, say in the banking industry, in Iran.

For traditional Iranian insurers, the need to adapt to the new e-commerce opportunities not only entails direct cost, in the form of substantial investments in the new information and communication technologies, but also the indirect costs of having to change their existing business models. Iranian companies have to revamp their business processes and corporate structures, which leads to many different internal conflicts. Internet marketing threatens traditional distribution channels and therefore tends to meet with strong resistance within the company. Many Iranian insurers can avoid this problem in the short term by not passing on

to the customer through electronic distribution. Some insurers may pursue a dual strategy and try to balance between the traditional distribution channels and online insurance selling.

The effects of e-commerce are the subjects of intense debate in insurance industry. A prospective study to explore the impact of application of e-commerce on the Iranian insurance industry is severely needed.

## 1.3) Research Objectives And Questions

A full consideration of the future for e-commerce in the Iranian insurance market would entail a variety of areas of investigation. This research will be conducted as a first step in undertaking this exploration. In particular the goals of this study are to:

- Have an understanding of Iranian insurance industry and develop an understanding of the current situation of the industry, in order to explore to what extent the industry has embraced e-commerce and where it is being used.
- Examine current practices to ascertain the industry's view of where it wants to go with regard to e-commerce and what its priorities will be in this area.
- Identify roadblocks and missing capabilities that will need to be addressed for increased e-commerce activity to occur.

This study is intended to address the main question which is ***"what is the impact of e-commerce on the Iranian insurance companies?"*** Five research questions have been extracted based on a preliminary review on the available literature.

Hence, the purpose of this research is specifically to study the current situation of the Iranian insurance industry, their attitude toward deployment of e-commerce, infrastructure requirement, major obstacles, potential applications and benefits of application of e-commerce.

Therefore, this study is assigned to answer the following research questions:

1. **What are the attitudes and views of the insurance companies regarding e-commerce?**
2. **To what extent are they equipped to the infrastructures required in implementation of e-commerce?**
3. **What are the major obstacles ahead in application of e-commerce?**
4. **What are the potential applications of e-commerce in the insurance companies?**
5. **What are the benefits sought from application of e-commerce?**

These questions will be discussed in chapter 3, frame of reference, comprehensively.

## 1.4) Contribution Of Research

The insurance sector has similarities with other financial services, such as the sector of banks, since both offer specialized services. Insurance policies are information products that can be easily digitalized. In other words, insurance products are particularly suited for production, administration and distribution online.

Although there is no foothold and serious activity to embraces e-commerce in the Iranian insurance companies, but a prospective study can help the industry to gain better understanding of the impact of e-commerce on these companies.

The extent of e-commerce adoption in the Iranian insurance industry remains unclear, which is the main focus of this study. This research proposed as a roadmap for the Iranian insurance companies to evaluate their capabilities and competitiveness in the market regarding to e-commerce implementation. However, an effective e-strategy is highly recommended in this regard, for all interested insurers in order to being survive in the market.

## 1.5) Structure Of The Thesis

This thesis is organized as follow:

- **Chapter 1:** provides a brief introduction to the current research.
- **Chapter 2:** considers the literature review and draws on secondary research sources from around the world.
- **Chapter 3**: based on the literature review and with respect to the purpose of the study, the research problem and research questions are developed and stated. Formulation of the research problem and research questions enables conceptualization of the theoretical frame of reference.
- **Chapter 4:** addresses on the proposed methodology in this regard and will lead us to a primary data collection and data analysis.
- **Chapter 5:** provides data presentation according to the field study (survey).
- **Chapter 6:** presents the results drawn from the analysis of collected data.
- **Chapter 7:** conclusion and recommendations will be proposed in this final section and also further suggestion for the next research and study will be provided in this chapter.

# Chapter 2 LITERATURE REVIEW

## 2.1) Introduction

Literature survey is an essential part of any research study, since it enables a researcher to get familiar with the subject background. Finding relevant published materials is a major activity in the early stages. Through a literature review, one can find out other people ideas, approaches, methodologies, obstacles and so on, about his/her subject of interest. Finally, this activity will help the researcher to clarify the subjects, define objectives, and make an accurate proposal.

In this chapter, we will review a selection of papers and articles related to the subject of this study. The work was carried out by using existing databases of the library of *Luleå University of Technology*[1], Iranian universities and the Internet, as well. We searched the Internet through the most popular search-engines, such as *Google.com*, with combinations of these keywords:

- Insurance/actuary industry
- E-commerce and/or e-business
- E-commerce in insurance industry
- E-insurance/e-actuary and other derivatives like e-insurer.

It took a few weeks to extract key information from a vast amount of scattered data. In the followings we will consider and discuss the findings.

This chapter is organized in four sections: an introduction to insurance industry and economic key figures as well as current issues within the insurance industry will be discussed in the first section. The second section addresses the Iranian insurance industry. A brief discussion on Internet and e-commerce will be provided in the third section. And finally, adoption and impact of e-commerce on insurance industry will be reviewed and presented in the fourth section.

[1] Luleå University Library (http://www.luth.se/depts/lib/index-en.shtml)

## 2.2) Insurance Industry

A developed and functioning insurance sector is a fundamental condition for economic success. The objective of insurance is to provide financial stability to individuals, organizations and businesses. As a risk pooling and transfer mechanism, insurance allows the insured to mitigate pure risks (i.e. risks that involve only the possibilities of loss or no loss). Examples of such risks are fires, flooding, ill health and unintentional damage to a third party. Insurance helps business to stay open and individuals to continue their work or education by providing financial compensation if an insured risk occurs and causes damage. Even when no loss occurs, insurance provides peace of mind, a service of considerable, if un-quantifiable, value. A detailed discussion on the development role of insurance can be found in Outreville (1990). As a financial sector, insurance is a major investor.

The insurance sector covers long and short-term risk activities. It comprises three basic activities: "life insurance" includes common life insurance and life reinsurance with/without a saving component. "Non-life insurance" comprises insurance and reinsurance of non-life insurance business, e.g. accident, fire, health, property, motor, marine, aviation, transport, pecuniary loss and liability insurance. "Pension funding" includes the provision of retirement incomes, but non-contributory schemes where the funding is largely derived from public sources. Reinsurance activities are included in one of the three sections, according to the kind of risk reinsured [e-Business W@tch (2002)].

The insurance sector is one of the most important service sectors regarding its basic function for the whole economy and society. Modern, highly industrialized and technology-driven economies are threatened by higher risks than ever; and individuals need to protect themselves against private risks as well as saving individually for their retirement. Insurance companies also play an important role as investors and shareholders.

The insurance industry has been undergoing dramatic changes for a number of years. Significant movements toward deregulation in financial services, along with advances in telecommunications and computer technology are forcing significant changes upon the industry and making it far more competitive. If one were to enumerate the most significant technological innovations that the industry has faced in recent years, two in particular stand out [Garven (1998)]:

- The emergence of capital market alternatives to traditional reinsurance products, and
- The growing importance of computer networks such as the Internet in the marketing and distribution of insurance products.

The result is the industry is becoming more competitive. The emerging role of electronic commerce (e-commerce) is particularly important and interesting to study.

This section covers a detailed discussion on the value chain and business process of a typical insurance company. The insurance market overview (or in other words, economic profile of insurance industry) will be followed to show fairly the financial importance of this industry, in particular its share to GDP. Finally current issues within this industry will be addressed.

## 2.2.1) Insurance Value Chain And Business Process

The business of insurance is pure risk. In insurance theory, risk is often defined as the variation between actual losses and expected losses. Insurers' premium rates are based on an assessment of average expected losses and damage. However, premiums collected based on such an average rate may not be sufficient to pay for all the damages in a year, if that year generates greater-than-average losses. Thus, insurers need to have additional funds in reserve. Such reserves are established when an insurer incorporates its business and are often addressed by government insurance regulation and supervision. More importantly, reserves may be replenished during years when losses are less severe than the expected average [UNCTAD (2002)].

There are several fundamental steps an insurer must take. First, it must calculate a premium rate for the risk it intends to insure against particular causes of damage (e.g. when insuring vehicles or homes against theft or fire). It must also establish adequate reserves to cover deviations from average, expected losses. Finally, the insurer must determine whether any particular clients are likely to attract greater than average misfortune and must decide how to adjust the rates it proposes to them individually [SwissRe (2000)].

Value chain in a typical insurance industry is shown in Figure 2.1.

**Figure 2.1- Value chain within a typical insurance industry**

*Source: SwissRe (2000).*

An introduction to each of the elements in the value chain (shown above) will be presented as follows. However, we will investigate how Internet affects value chain later on.

### 2.2.1.1) Product Development

Product (and service) development is the main section within a business value chain. It deals with the creation and development of insurance products (services) suited to needs of customers in insurance company. This process is also called as "R&D[1]" in insurance company. The R&D, or in other words product development and innovation, defines new product and service initiatives within an insurance market. Product/service innovation is the result of bringing to life a new way to solve the customer's problem (need) that benefits both the customer and the sponsoring company [Tucker (2002)].

[1] Research and Development

#### 2.2.1.2) Marketing And Sales

The central idea of marketing is of a matching between a company's capabilities and the wants of customers in order to achieve the objectives of both parties [McDonald (2002)].
The marketing and sales activities are associated with purchases of products and services by end users and the inducements used to get them to make purchases. These activities include advertising and promotion, market research and planning, and dealer/distributor support [Porter (1985)]. Marketing and sales prepares the developed products available to all customers. Premium calculation, purchasing facilities and incentives will be the core tasks in this part in an insurance company.

#### 2.2.1.3) Administration

Unlike the other supportive activities, general administration activities generally support the entire value chain and not individual activities. For instance, human resources management (which is the main function of administration) consists of activities involved in the recruiting, hiring, training, development, and compensation of all types of personnel; staff relation activities; and development of knowledge-based skills [Porter (1985)]. This section facilitates the insurers' internal workflow and partially external communication, as well. Also, this department (section) covers all customers' administration.

#### 2.2.1.4) Asset Management

The term "asset management" is often used by financial services companies to describe the division of their business which runs mutual funds for both individual and institutional investors. Insurance companies have to manage and invest their assets in order of achieving a desired return on investment (ROI). This section looks for the investment opportunities and decides on assets to make more profits [SwissRe (2000)].

#### 2.2.1.5) Claims Management

One of the major sections within an insurance company is claims management which focuses on processes and analyses damage and claims declared by the customers. This section covers all claims process from underwriting to settlement. The most interaction between the company and customers are done in this section, as well as sale section [SwissRe (2000)].

## 2.2.2) Insurance Market Overview

In 2003, insurance companies worldwide wrote $2,947billion in direct premiums. In other words, the equivalent of 8.07 percent of global gross domestic product (GDP) was used to purchase insurance products [SwissRe (2004)]. During the same time, insurance companies in developing countries generated premiums worth $758 billion representing 26 percent of global premiums. 93% of market share in these countries belong to Asia. Table 2.1 visualizes these figures.

**Table 2.1- Insurance premium volumes in developing countries (in million USD)**

| Region | Life | None - life | Total per region |
|---|---|---|---|
| **Africa** | **22,888** | **8,783** | **31,671** |
| **Asia** | **516,922** | **167,718** | **684,640** |
| **Latin America and the Caribbean** | **16,050** | **25,738** | **41,788** |
| **Total per class** | **555,860** | **202,239** | **758,099** |

*Source: SwissRe (2004).*

Central/Eastern Europe in the European countries (EU) demonstrated high growth rate in 2003, about 18.5%, from $23,349 million in 2002 to $34,488 million in 2003. Second rank belongs to South and East Asia in the Asian countries, representing 12.4% growth rate, from $171,174 million in 2002 to $198,997 million in 2003. In contrary, the African and Japanese had a negative growth rate, -6.7% and –1.5%, respectively [SwissRe (2004)].

However, as discussed above, it certainly emphasizes on the importance of insurance industry, which is the main focus of this research, too. The importance of insurance in the EU and its remarkable growth in the Asian countries, it is necessary to consider the insurance market trends in these countries, which is following in the next section.

### 2.2.2.1) Insurance Market Trend In The EU

Insurance companies in the EU wrote $1,024 billion in direct premiums in 2003 and their contribution to the GDP is about 7.58 percent. Premium per capita, in the same year, was $1,230.1 in this area. Life and non-life insurance had almost the same share in this industry [SwissRe (2004)].

In 2000, about 4,800 insurance companies were active in the EU, a 3.8% decrease from close to 5,000 in 1992. During this period of time, the number of companies decreased in Belgium, Spain, France, Greece, Italy and Sweden. It increased in Denmark, Ireland, Luxembourg, Netherlands and Portugal and remained almost the same in Austria, Germany, Finland and the UK. Employment in EU insurance firms was estimated at around 900,000 persons in 2002, which was slightly less than 1992. There is a trend towards large insurance or financial groups which operate on a European level and dominate the market. However, these are leaving space for specialist insurers on a national or even regional level [e-Business W@tch (2005)].

In 2003, the most important insurance nations in terms of premium volume are the UK (around 25% of the EU market), Germany (17%) and France (16%). Total direct premium in the EU grew by 50% from 1992 to 1999, calculated with inflation-adjusted data. Growth was particularly high in Luxembourg, Portugal, Ireland and Italy. While life insurance accounted for half of the EU insurance market in 1992 (49%), it increased to almost two thirds (63%) in 1999, and then decreased to 57% in 2003 [e-Business W@tch (2002) and SwissRe (2004)].

### 2.2.2.2) Insurance Market Trend In The Asia

In 2003, insurance companies in Asia wrote 684 USD billion in direct premiums, which contributes 23.23% share of world market. It increased to almost 3% in the same year. Approximately 7.49% of GDP was used to purchase insurance products. Japan had a very high insurance penetration (premiums as a percentage of GDP) among all countries worldwide. It generated more than two-third of Asian premiums and its share of world market was 16%, in 2003 [SwissRe (2004)].

The Middle East/Central Asia had the least premiums, and it accounted to $12 billion, with less than 1% world market share. Insurance penetration was 45.2% and only 1.65% of GDP was used to purchase insurance products. Life insurance accounted for a one-forth of the Middle East/Central Asia market in 2003 [SwissRe (2004)].

### 2.2.2.3) Iranian Insurance Market Trend In The Region

In the Middle East, in 2003, Iranian insurance companies have been generated about 1,555 USD million in direct premiums, increased from 1,153 USD million in the pervious year, which accounts for 34.8% growth rate. Iran owns 46$^{th}$ rank with respect to total premiums globally. Insurance density (premium per capita) is 23.4 (life insurance: 1.9 and non-life

insurance: 21.5) in the same year; which accounts for the 79th rank among all countries in the world. Meanwhile, insurance penetration in Iran is 1.15 (life insurance: 0.09 and non-life insurance: 1.06) that is the 84th rank with regard to the insurance penetration [SwissRe (2004)].

One of significant evaluating measures of desirability and the success of the insurance industry is insurance density (per capita premium) and insurance penetration (premiums as a percentage of GDP). Currently, as far as to insurance density concern, it differs from country to country, for example in the Middle East, ranging from US $388 in Qatar, to US $45.5 in Saudi Arabia, US$23 in Iran, and finally to US$ 2.1 in Bangladesh [SwissRe (2004)].

Another important measures of desirability of the insurance industry is insurance penetration. In the Middle East, it varies from 2.88% in Lebanon, to 1.47% in United Arab Emirates, 1.23% in Iran and finally to Bangladesh and Saudi Arabia, 1.54 and 0.48, respectively [SwissRe (2004)].

All these figures are under the industry average worldwide (8.07%) and the Asia (7.49%). These indexes demonstrate existing shortcomings in promotion and publicity of insurance in Iran, as a vital institution encompassing the welfare of all citizens. Fortunately to overcome this obstacle and strengthen the country's insurance industry not only necessary regulations are already legislated, but particular supervisory organs are also employing all available potentialities within the country to augment the capacity of numerous insurance services and create new markets [SwissRe (2004)].

### 2.2.3) Current Issues Within The Insurance Industry

A multitude of issues are currently affecting the insurance industry. A number of issues within the insurance industry need addressing: pressure from external shocks and far-reaching structural change. The terrorist assault on the World Trade Center in New York (in 2001), Spain (in 2003) and UK (in 2005), as well as ongoing attacks since then, have put the insurance industry, the reinsurance in particular, under huge pressure.

Due to enormous sums the insurance companies will have to pay for claims, they are no longer able and willing to account for the risk of incalculable terrorist damages. Furthermore, the dramatic situation in the investment markets has forced the insurance companies to use up reserves and to adopt new business models. Customers are also affected, because life insurance returns decrease. With financial reserves declining or even vanishing, the insurance business is currently experiencing a wave of rationalization. Personal costs are to be reduced, automation of processes and standardization of products are sought [e-Business W@tch (2002)].

These issues are a result of complex interactions of environmental and competitive forces, and are summarized below [Cornall et al. (2000)]:

#### 2.2.3.1) Globalization

Traditionally the retail financial services industry has operated more or less as a domestic industry with very little international focus. Barriers such as tax, regulation, government, distribution channels and cultural issues have prevented the growth of (even in pan-European) industry. However, global cost efficiencies, driven by economies of scale and comparative advantage, are driving globalization. For example in the EU, the launch of the Euro is providing further impetus for the emergence of pan-European companies.

#### 2.2.3.2) New Entrants

Over the years, the insurance industry, in almost every country, has seen many new entrants such as banks, building societies and foreign insurance companies. In Iran, eleven new firms have ventured into the insurance industry since 2001. So far, there is no direct investment and entry from overseas. Another new potential competitors have the opportunity to enter into this competition. For instance, other retail companies in the UK, such as *Goldfish*, *Tesco* and *Boots*, are entering the financial services market. In many cases retailers have formed alliances with traditional insurance companies and asset management companies.

#### 2.2.3.3) Economic Environment

The low-interest rate environment has implications for the life insurance industry as demonstrated by the annuity guarantee and mortgage endowment issues. These, together with the pension miss-selling debacle, have left consumer confidence in the industry at an all time low.

#### 2.2.3.4) Regulation And Deregulation

In the past, and contrary to industrialized countries, the domestic insurance market in Iran (and even in every non-developed countries) has had more regulatory control to support the industry from any threat. International institutes, organizations, communities (such as WTO[1]) have been made the government to reduce its support and create freedom and opens market. However consumer protection and the global influence of other regulatory regimes, such as the US, mean that there is increasing pressure to provide more regulation and specific professional guidance. On the other hand there has been some pressure to open up competition by deregulation, e.g. allowing non-insurance companies to sell insurance.

[1] World Trade Organization (www.wto.org)

### 2.2.3.5) Demographics And The Aging Population

As the longevity of life increases and the birth rate falls, this placing a severe strain on social-security systems, which largely charges the government. It provides a tremendous business opportunity for the financial services industry, as governments attempt to shift the burden from the public to the private purse.

### 2.2.3.6) Socio-cultural Changes

Structural changes in employment patterns (e.g. more flexible working, periods of unemployment) are creating a new type of customer with different customer behaviors and needs. Cultural shift from traditional generation to modern is creating new demand for a growth in this business.

### 2.2.3.7) Technology And Changes In The Transactions

Technology has caused significant structural changes for all organizations including insurance companies. It has been predicted that in the future, business-to-business (B2B) transactions will exceed business to customer (B2C) transactions as B2B transaction size and frequency is larger. Moreover, business infrastructure will make way for enhanced consumer options and increased consumer spending in the future. Due to the extensive supply chain (many business supplying the customer being interlinked and interdependent) many systems, databases and networks are incompatible and hence the insurance industry has problems with sharing data. For example, many insurance brokers are not linked to insurance companies themselves and hence are unable to upload or download information. Another example is the lack of a systematic link between an insurer and a re-insurer. Current changes to resolve this dilemma include building links between supply chains e.g. a system that enables an insurer to obtain underwriting data from information suppliers.

Furthermore, we will discuss the impact of Internet on these issues in detail later on.

## 2.3) Insurance Industry In Iran

The Iranian insurance industry's earnings have jumped from 4 trillion IRR[1] to12.7 trillion IRR in recent years (1997-2003). Also, the payment of compensation by insurance firms has also increased from 2.4 trillion IRR to 7.6 trillion IRR in the same years, stressing that the insurance industry has experienced a favorable growth in recent years following the establishment of private insurance firms [BMI (2005)].

Private insurance companies have helped boost competition in the sector, calling for greater private sector participation in insurance industry. Article 44 of the Constitution[2] has been the main obstacle to privatization in recent years as it bans major industries, banks and insurances from offering their shares on the stock market, which the government is modifying it in favor of privatization.

However, the "State Expediency Council[3]" overturned the key article last year (i.e., 2003) to allow large-scale privatizations in a bid to overhaul the state-controlled economy. The council gave the green light to privatization in downstream oil and gas sectors, mines, banking, insurance, telecommunications, railways, roads, airlines and shipping. Upstream oil and gas and the airwaves for telecommunications will, however, remain under state control.

This section is organized as follow: Iranian insurance background will be provided firstly, and then insurance services and coverage in the Iranian insurance industry will be presented. Further, insurance management (in Iran) and a brief introduction to the Iranian insurance companies will be provided in the following. Finally, the Iranian insurance (market) performance and also current issues within the Iranian insurance industry will be ending this section.

### 2.3.1) Insurance Background In Iran

Historical background of insurance in Iran goes back to 80 years ago when two Russian companies ventured to open their branch offices, and following that "Iran Insurance Company" was established as the first independent and state owned insurance market. In the early 1970s many new insurance companies were established and at the same time the law establishing "*Bimeh Markazi Iran (BMI)*" or in English "Central Insurance of Iran[4]" was passed in the parliament. After the Islamic Revolution in 1979, the work permission of foreign insurance agencies in Iran has been withdrawn and ten of the insurance companies were merged in "Dana Insurance Co." Bimeh Markazi Iran, while having the responsibility of regulating, supervising and promoting insurance business in Iran, is also the sole reinsure

[1] The currency of Iran is the Iranian Republic Rial (IRR).
[2] Article 44 of the constitution divides economy into three sectors: state, cooperatives and private.
[3] http://www.csr.ir/
[4] www.cent-ir.com

of the market and has a very reputable stand in the Middle East and various markets of the world.

According to the Article 70 of the Law establishing Bimeh Markazi Iran while read as follows [BMI (1971)]:

"Insurance companies authorized to operate under this law must exclusively affect the following insurance business:

a. Insurance of movable or immovable properties existing in Iran.
b. Transport insurance for imported goods, the purchase agreement for which has been concluded in Iran, or for which the documentary credit has been opened in Iran.
c. Insurance relating to foreign workers and employees (with the exception of life insurance and personal injury insurance) for the duration of residence in Iran of such workers and employees.
d. Insurance relating to Iranian residents."

The foreign investor may obtain all types of insurance coverage in Iran from four insurance companies:

- Iran Insurance Company
- Asia Insurance Company
- Alborz Insurance Company
- Dana Insurance Company

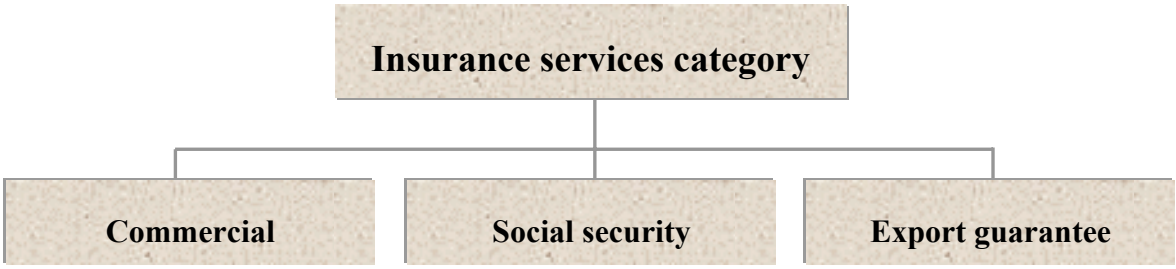
All the above companies are supervised by Bimeh Markazi Iran. The insurance service in Iran is also presented by insurance agents and brokers both of which are authorized to act in the market after passing the relevant tests and receiving the license form Bimeh Markazi Iran. Some of these agents, at present, proceed to issue policies on behalf of their companies. According to Article 71 of the same Law, all insurance companies operating in Iran are required to cede 25% of the total acquired policies in non-life and 50% in life insurance as legal cession (compulsory cession). Furthermore, the insurance companies are required to initially propose 30% of all their reinsurance contracts to Bimeh Markazi under the same conditions as those ceded to foreign reinsures; however, Bimeh Markai has full authority to accept and/or decline such offers [BMI (1971)].

In the next section, insurance services and coverage will be reviewed briefly.

## 2.3.2) Insurance Services And Coverage In Iran

There are currently three types of insurance coverage in Iran: commercial insurance, social security and exportation guarantee insurance. Figure 2.2 shows the insurance services and coverage in the Iranian market.

**Figure 2.2- Iranian insurance services and coverage**




*Source: Authors.*

Each of these categories will be explained in detail in the following, which have been collected and extracted from a vast document of BMI.

### 2.3.2.1) Commercial Insurance

The insurance companies in Iran are active in various fields in life & non- life according to the tariffs, which are approved and ratified by *High Council of Insurance*, located in the MBI. Almost every insurance company offers commercial (business) services and products. A few of them provide very limited social security and compulsory insurance portfolio as imposed by government. The main types of the policies and coverage are as follows [BMI (1971)]:

1. Fire and allied perils
2. Marine insurance (including full inland and air transport)
3. Motor insurance:
   3.1. Third party liability (compulsory coverage)
   3.2. Motor physical damage
   3.3. New T.P.L. Policy according to the Islamic principles namely “DEYEH”
   3.4. Passenger accident of vehicles
4. Life insurance (term - endowment - whole life - annuity group and individual)
5. Personal accident (group and individual)
6. Aviation (hull - passenger - liability - cargo)

7. Engineering (including policies of Contractor All Risk (C.A.R.) and Erection All Risk (E.A.R.) and Computer coverage.
8. Money in transit and safe
9. Comprehensive general liability
10. Health insurance (various schemes of hospitalization)
11. Off-shore and in-shore coverage
12. Export insurance (including commercial risk)

### 2.3.2.2) Social Security Scheme

One of the principal insurance costs of an employer is that of social insurance for his employees. Under social insurance regulation, employers are required to insure their employees with the "*Social Insurance Organization*[1] (S.I.O.)." Firms operating under the Law are required to insure all employees whether laborers or officers. However, coverage has not yet been expanded to include all officers working in the private sector.

The insurance provides benefits for retirement, illness, industrial accidents, marriage, pregnancy and childbirth. Hence, two tasks should be considered to activate this insurance. In other words, a portion of insurance premium should be paid by insured person and another by employer. These two tasks are [BMI (1971)]:

1. **Insurance premium:** The insurance premium is levied on the total of base salary or wages of the employee, but deduction of premium from family allowances, travel allowances and bonuses are not allowed. The total contribution is 30% of monthly salary as computed above; the employer deducts 7% from the employee's pay and adds 20% himself and the government contributes the remaining 3%. An additional premium of 3% is also payable by the employer for unemployment insurance, which has recently been introduced by government for employees. Foreign nationals employed by Iranian firms subject to social insurance must be insured in the same manner as their Iranian counterparts[2].

2. **General provision:** Within 20 days after the close of the month, the employer must submit to the *Ministry of Labor*[3] and Social Insurance Organization, Tehran, the following documents:

- Lists of employees, their respective wages or salaries and amounts deducted;
- Payment of deducted amounts together with his own contribution

[1] http://www.sso.ir/
[2] See http://iran.ru/eng/insurance.php
[3] http://www.irimlsa.ir

### 2.3.2.3) Insurance And Exportation

Insurance can bring about lasting and stable exportation and thus, even in the developed countries, the government plays a predominant role in providing exporters with extensive insurance coverage. Long-term plans as well as huge investments, posing enormous risks, commercial insurance companies do not ensure payments of liabilities to exporters without the governments. To bridge this serious gap, consequently, the state is forced to take various risks so as to assure the unceasing flow of the exportation. Accordingly, the protection of interests and the guarantee would seem impossible.

In order to maintain the lasting security of commodity, capital and the payment of liabilities to exporters "Export Guarantee Fund of Iran (EGFI)[1]" was founded in 1973, the EGFI re-started its operation in 1993 with the aim of non-oil export promotion by guaranteeing the Iranian exports. The EGFI's role is to share the commercial as well as the political risks with the exporters of goods/services or investors throughout the entire validity of their contract and to collaborate with them before, during and after the risks period. To reach this aim, EGFI, as a government corporation offers the following services and coverage:

- Insolvency or protracted default of the buyer.
- Repudiation of goods by the buyers.
- Default payment of the drafts on the due date by the buyer.
- Default payment of the price of the exported goods or services on the due date by the buyer.
- Imposition of a ban on imports in the country where the goods are to be handed over to the buyer, blockage on currency exchange or its international transfer.
- Occurrence of civil war, riot or civil commotion in the country where the goods are to be accepted by the buyer.
- Turbidity or breakage of political relation with the buyer's country which may lead to the exporter's failure to collect his receivables on the due date.
- Implementation of economical laws in the buyer's country resulting in an obstruction to the exporter's receivables.
- Confiscation or nationalization of the buyer's properties.
- Other risks which are not normally insured by the insurance companies.

Moreover, the most significant measures taken jointly by the parliament and the Islamic government of Iran, at the same year, (1994), were as follows:[2]

- Ratification of a law pertaining to appropriation and administration of the mentioned fund.
- Membership of two MPs in the general assembly of the fund.
- Exemption of the fund from all the relevant state regulations.
- Allocation of 1% of revenue generated by the imported non-governmental goods for the fund.

[1] See www.iran-export.com
[2] See http://www.iranecommerce.net/Articles/Insurance_managemen.htm

## 2.3.3) Insurance Management In Iran

As an integral institution within a complex urban society, insurance has substantially been devised to assist citizens who venture risky enterprises, which serve to promote safety, science and wealth in a given society. Although Iranian insurance industry is over 60 years old, serious efforts are yet to be made to enable the mentioned industry to play its decisive role in fostering the national economy, laying necessary foundations for safe investment, promoting non-oil exports and ensuring the social welfare.

Insurance industry was entirely nationalized soon after the victory of the Islamic Revolution; however, during pre-revolution years a state insurance company, twelve private companies as well as two foreign insurance agencies were also active in Iran. As mentioned earlier, the BMI began to function in 1971 as the main supervisory organ, vis-à-vis the performance of the insurance industry as a whole. Additionally the *High Council of Insurance* (in the BMI) was also formed to make relevant regulations and oversee the activities of various companies.

After the revolution all existing private insurance companies as well as two foreign agencies were closed down and only three insurance companies, namely, "*Iran insurance co.*," "*Alborz insurance co.*" and "*Asia insurance co.*" were licensed to remain active in all pertinent fields. More importantly, due to a merger of ten nationalized insurance companies "*Dana insurance co.*" was also licensed to assume its activities merely in individual-orientated insurance cases.

In recent years a new company called "*Export and Investment Insurance co.*," in partnership with the BMI, other important companies and several banks, was established to furnish the interested exporters and investors with numerous insurance services. Presently the conceived image of insurance is totally that of a state institution. Although nowadays the partnership of private sector in insurance industry seems more indispensable than ever, the mentioned sector displays no interest in such cooperation mainly due to limited prospects for substantial profits, vis-à-vis that of other sectors of economy. Nevertheless, the private sector is now participating in insurance industry only by holding franchise offices.

An introductory discussion on the Iranian insurance companies (both state and private owned) will be provided in the section below.

## 2.3.4) Iranian Insurance Companies

Currently, there are five non-privates and eleven private companies. The non-private insurers with governmental ownership are active for a long time and before entering other private companies, they were the key market players in the market and they lead the industry for a long time. But a few years ago, the government approved to open the market to other private companies. The BMI made to breakdown the monopolistic market three years ago. Hence in the short time (less than 4 years) eleven insurers established. On the

other hand, the modification of Article 44 of the constitution will be providing the path for other foreign insurance companies to enter the market easily.

In 2003, the Iranian insurers wrote 12,743.3 billion IRR in direct premiums (about 14.9 million policy) and paid 7,617.5 billion IRR for about 2.1 million loss incurred. 52% of issued insurance policies and 69.5% of loss incurred belonged to motor insurance. Motor and health insurance were the most loss incurred in Iran for a long time [BMI (2004)].

Five state-owned insurers along with eight private insurance companies were active in 2003, in the market. 97.2% of market share belonged to state-owned insurance companies and less than 3% of total market belonged to private sectors. These private companies are in their early stage of activities and it's predicated to expand their market and increase their market share in the future. Iran insurance co. has got 54% of total market share and Asia insurance co. with 22.3% of market share was the second insurers based on generated premiums. Parsian and Hafez insurance co. among the private insurers were the first and second-ranked insurance company with 1.4% and 0.07% market share, respectively [BMI (2004)].

Table 2.2 shows the sales network in Iran insurance market.

**Table 2.2- Sales network in Iran insurance market**

| Item | 1380(2001) | 1381(2002) | 1382(2003) |
|---|---|---|---|
| **Number of Companies** | **5** | **7** | **13** |
| **Number of Branches** | **380** | **379** | **400** |
| **Number of Brokers** | **129** | **172** | **200** |
| **Number of Agencies** | **4,156** | **5,116** | **6,220** |
| **Number of Policies** | **8,969,220** | **12,333,719** | **14,913,871** |
| **Number of Claims** | **1,991,830** | **1,933,621** | **2,133,935** |

*Source: BMI (2004).*

To shorten this chapter, we limited us to introduce the insurance companies which are active in the (Iranian) market and more detailed information about each of them can be obtained in the referred source in each part.

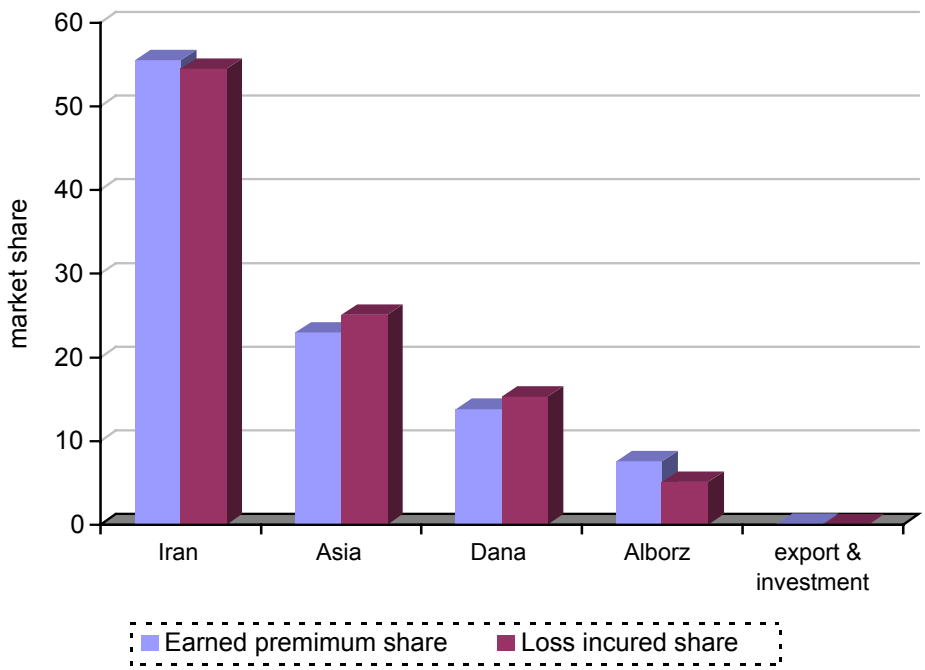
### 2.3.4.1) Non-Private Insurance Companies In Iran

Nowadays, the Iranian government completely owns five big insurance company's stock. In fact, these insurers are under direct control of the government. In 2003, theses companies wrote 12,381.2 billion IRR (about 14,830,834 policy) and paid 7,610.2 billion IRR for about 2,130,403 claims. Motor insurance with 53.2% was the most demanded and issued policy for these companies and on the other hand most incurred loss with 58.3% of total payments. Iran, Asia, Dana, Alborz and export & investment insurance companies with 55.5%, 23%, 13.8%, 7.6% and 0.13% market shares were the key market players in the market [BMI (2004)].

Figure 2.3 visualizes these five state-owned company's market shares with respect to earned premium and loss incurred in 2003.

**Figure 2.3- Market shares for state-owned insurers**

(Earned premium & loss incurred) in 2003




*Source: BMI (2004).*

#### 2.3.4.1.1) Iran Insurance Company

*Bimeh Iran* (Iran Insurance Co.[1]) was established on the 6th November 1935. A corporation decreed by statute, it is a state owned company, competent to provide insurance and reinsurance facilities and contributes effectively to the development of the national insurance industry. This company with over 70 years of experience is able to provide a full range of underwriting and claims services for all types of insurance and reinsurance business. Today Bimeh Iran is a leading insurance company in Iran with %57 shares in the Iranian insurance market. For the time being, Iran insurance company has 246 branches and 1,272 agencies spreading throughout the country's provinces and cities. Moreover, Bimeh Iran in the UK along with 12 foreign branches and in the Persian Gulf region (i.e. U.A.E, Oman, Bahrain and Saudi Arabia) are all active in the international market.

#### 2.3.4.1.2) Asia Insurance Company

*Bimeh Asia* (Asia Insurance Co.[2]) was established in 1959. The company was registered with the *Companies Registration Department*[3] in the same year. In accordance with an act of the Islamic Revolutionary Council and the Nationalization of Insurance Institutes bill, Bimeh Asia was nationalized in 1980. The company's activities include insurance and reinsurance in all fields. It is noteworthy that Bimeh Asia is authorized to perform any activity beneficial to the company's objectives, including establishment of subsidiary companies and purchasing shares of other companies. The company has expanded its activity throughout Iran during all these years. Presently Bimeh Asia has 90 branches and more than 1,000 agencies supervised by 11 areas managers in more than 275 Iranian cities.

#### 2.3.4.1.3) Alborz Insurance Company

*Bimeh Alborz* (Alborz Insurance Co.[4]) was established in 1959 by the private sector. After the Islamic revolution the government proposed a bill to the parliament there in after with the parliament approval, all private insurance companies, including Bimeh Alborz, were nationalized in 1979. As a general insurance company, Bimeh Alborz offer both life & non-life insurance. A substantial progress was made towards the implementation of computer systems for the head office, the branches and a majority of the agents, which will lead to reducing the cost ratios, improving the productivity and improving skill of all staffs. Moreover following some organizational and operational measures in response to clients needs, the company uses the cooperation of 51 branches, 700 agents and 200 brokers throughout Iran.

[1] www.iraninsurance.com
[2] www.bimehasia.ir
[3] www.sabt.gov.ir
[4] www.alborzins.com

#### 2.3.4.1.4) Dana Insurance Company

As a private company *Bimeh Dana* (Dana Insurance Co.[1]) along with several other insurance companies, was liquidated in 1981. Throughout the liquidation period the management of the above companies was put in the hands of a replacement board of directors, which was common to all the companies. Dana's portfolio was eventually taken over by two nationalized companies namely Bimeh Asia and Bimeh Alborz. On 4th December 1988, in accordance to a statute concerning the management of insurance companies, nine insurance organizations, including Sharg Issuance were merged into Dana Insurance Company. On 22nd March 1989 Dana began its operations as a completely nationalized company. Today one sixth of the Iranian population gets benefit from Dana insurance policy.

#### 2.3.4.1.5) The Export & Investment Insurance Company

*Bimeh Saderat va Sarmayeh-Gozari,* (Export & Investment Insurance Company[2]) was incorporation in late 1994 based on the establishment act of Central Insurance of Iran and commenced operation in late 1995. Shareholders of EIIC are four governmental insurance companies (i.e. Bimeh Iran, Bimeh Asia, Bimeh Alborz, Bimeh Dana) and Central Insurance of Iran as well as five major Iranian Banks i.e. *Export Development Bank of Iran*[3], *Bank of Meli*[4], *Bank of Saderat*[5], *bank of Mellat*[6] and *bank of Tejarat*[7]. Its present paid up capital is 35 billion IRR. EIIC's main objective is to promote and develop Iranian export by protecting exporters of goods and services as well as the Iranian Investors abroad for non-payment of the price of such goods and services against commercial and non-commercial risks.

### 2.3.4.2) Private Insurance Companies In Iran

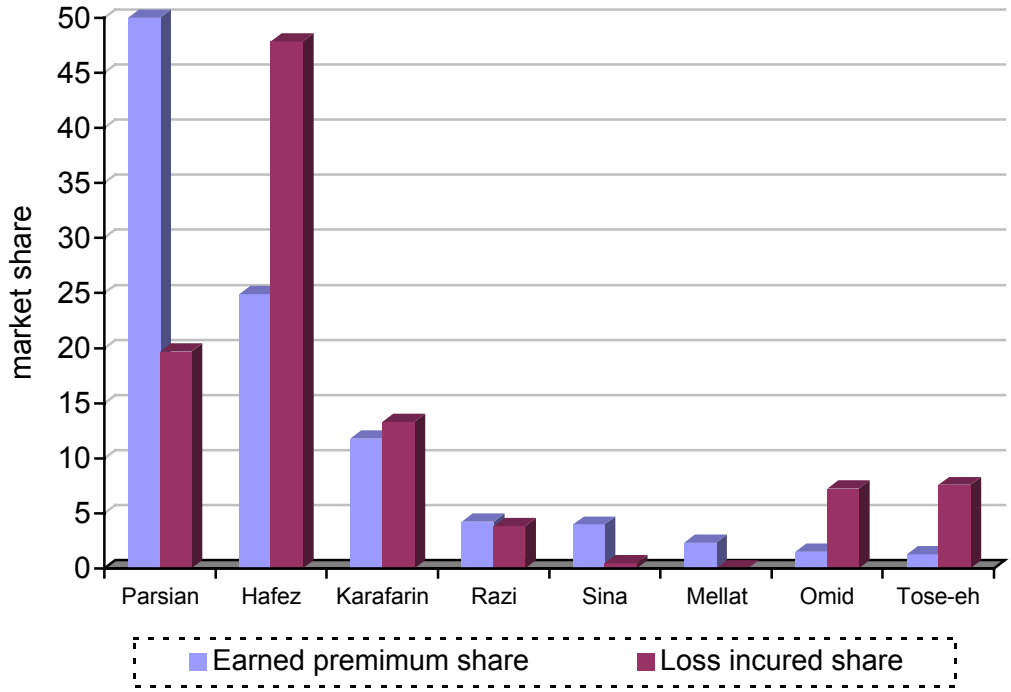
*Hafez insurance company* was the first private company in the Iranian market which have been started its activity since 2002 by generating 81.3 billion IRR and 90.1 billion IRR in 2003 (with 10.89% growth rate). Eight companies (*Parsian, Mellat, Razi, Tose-eh, Karafarin, Omid, Dey and Sina*) wrote 362.1 billion IRR in direct premium (for 83,037 policy) and paid 7.3 billion IRR for loss incurred (for 3,532 claims). Oil and energy, engineering, fire and aviation were the most demanded policy for these private companies with 24.2, 21.4, 18.3, 12.9 per-cent (or in other words, market share) respectively. On the other hand, 53% of incurred loss paid for health insurance and 39.8% of incurred loss paid

[1] www.dana-insurance.com
[2] www.eiic-ir.com
[3] www.edbi-iran.com
[4] www.bmi.ir
[5] www.bank-saderat-iran.com
[6] www.bankmellat.ir/
[7] www.tejarat-bank.com

for motor insurance in 2003. About 86.7% of total market belonged to Parsian, Hafez and Karafarin insurance companies [BMI (2004)].

Figure 2.4 shows these eight private insurance company's market shares with respect to earned premium and loss incurred in 2003.

**Figure 2.4- Market shares for private insurers**
(Earned premium & loss incurred) in 2003




*Source: BMI (2004).*

A brief introduction to all private insurance companies will be provided in the following sections.

#### 2.3.4.2.1) Hafez Insurance Company

In the year 2000 Iranian government proposed the establishment of private insurance companies in Iran Free zones. Subsequently Iranian parliament approved the corresponding regulation as drafted by Central Insurance of Iran on August 2000. *Bimeh Hafez* (Hafez Insurance Co.[1]) was the first private insurance company registered with capital of 15 billion IRR on April 8, 2002 in *Kish Island*[2], one of the three main free zones in Iran in accordance with the above-mentioned law. Bimeh Hafez is authorizes to write all lines of businesses in free zones as well as special economic zones of Iran. Besides it is free to operate in the main land in many specialized and sophisticated Credit & Health insurance.

#### 2.3.4.2.2) Parsian Insurance Company

*Bimeh Parsian* (Parsian Insurance Company[3]) registered as a publicly funded corporation, authorized by the establishment law of private insurance companies started its activities with 160 billion IRR in paid up capital. At the moment, the above-mentioned capital has increased to 200 billion IRR considering the accumulated profit at the end of financial year 2003 (1382). Now a day Parsian Insurance Co. has about 8 agents. At the mean time, Parsian insurance company during its first year of operation has gained over 60% of private insurance market successfully, besides providing new methods, such as performing insurance cooperation desks (ICDs) in order to substitute with branches and also integrate the bank and insurance services all around the country.

#### 2.3.4.2.3) Karafarin Insurance Company

*Bimeh Karafarin* (Karafarin Insurance Company[4]) is the first private insurance company, which has been registered within the framework of Central Insurance of Iran, non-governmental organization, and business law; in March 17th 2003. Since getting the license from Central Insurance of Iran, Karafarin has been started its activity. The capital of Karafarin Insurance Company is 140 billion IRR (USD 17,500,000). Around %65 of capital has been guaranteed by the founders including Karafarin Bank, Industrial and Constructional groups and high level expert team in Iran insurance industry and %35 has been offered to the public. This company has 5 branches with 16 true agents and 4 legal agencies across the country.

[1] www.hafezinsurance.com
[2] www.kfzo.com
[3] www.parsianinsurance.com
[4] www.karafarin-insurance.com

#### 2.3.4.2.4) Mellat Insurance Company

To issue various types of insurance policies, creating new and modern insurance covering in insurance related fields, the founders of *Bimeh Mellat* (Mellat Insurance Co.[1]) have established the largest private insurance company in country. This Company has been established with the primary capital of 200 billion IRR (approx. USD 25,000,000/-) and articles of association according to the requirements of Tehran stock exchange to be listed in the stock exchange as soon as possible. The target capital for the company is 1,200 billion IRR. Mellat Insurance Co. provides full range of insurance services to government, banks, investment market, industries, service providers and the private sector.

#### 2.3.4.2.5) Razi Insurance Company

*Bimeh Razi* (Razi Insurance Company[2]) is a private share holding company, which after receiving its license from Central Insurance of Iran commenced activities within its guidelines. The company started its activities with 140 billion IRR in paid up capital. At the present time Razi enjoys having more than 5 branches in the most important provinces of Iran in addition to its central office, which is located in Tehran. The national demand for having strong private insurance companies prompted its formation and soon it was one of the leading companies in the national insurance industry.

#### 2.3.4.2.6) Tose-eh Insurance Company

*Bimeh Tose-eh* (Tose-eh Insurance Company[3]) was established in March 19th 2003. Its present paid up capital is 140 billion IRR. At the present, this company has 15 agents. Centered office of the company is located in Tehran.

#### 2.3.4.2.7) Sina Insurance Company

*Bimeh Sina* (Sina Insurance Company[4]) was established in October 31st 2003 and started its activities in November 2003. Paid up capital for this company have been 140 billion IRR. Now, Sina Insurance Company manages 2 branches with 16 representatives.

[1] www.mellatinsurance.com
[2] www.razi-insurance.com
[3] www.tose-ehinsurance.com
[4] www.sinainsurance.com

#### 2.3.4.2.8) Amin Reinsurance Company

*Bimeh Etkaei Amin* (Amin Reinsurance Company) is one of the private insurance companies in Iran. Date of establishment is in July 2003. The company started its activities with 370 billion IRR in paid up capital.

#### 2.3.4.2.9) Omid Insurance Company

*Bimeh Omid* (Omid Insurance Company[1]) has been registered within the framework of Central Insurance of Iran, as a private company, in September 2003. This company has been established with the primary capital of 15 billion IRR.

#### 2.3.4.2.10) Day Insurance Company

*Bimeh Day* (Day Insurance Company[2]) is a private insurance company in Iran, which was established with the agreement and approval of the Insurance High Commission on 6 November 2004. The company's paid capital is equal to 200 billion IRR of which 65% has been provided by four major financial and economical and the remaining 35% by public investors and individuals.

#### 2.3.4.2.11) Saman Insurance Company

*Bimeh Saman* (Saman Insurance Company[3]). The newest organ of the Saman Financial Group, started its activities under the permission of Central Insurance of Iran. The shareholders of this company consist of Saman group, some investment companies, some industrial manufacturers, and a number of capital owners in the private sectors.

[1] www.omid-insurance.com
[2] www.dayins.com
[3] www.samaninsurance.com

## 2.3.5) Iranian Insurance Performance

The ratio of premium to GDP, in the Iranian insurance companies, has been grown from 0.55% in 1996 to 1.23% in 2003. In these eight years, the industry has issued about 80 million insurance policies and has earned around 55 trillion IRR. In these periods, they have paid about 33 trillion IRR for compensation of coverage in life insurance, liability and property [BMI (2005)].

Table 2.3 shows the rising trend in volume of premium in last six years. Note that figure for the year 2004 was not issued by BMI till now.

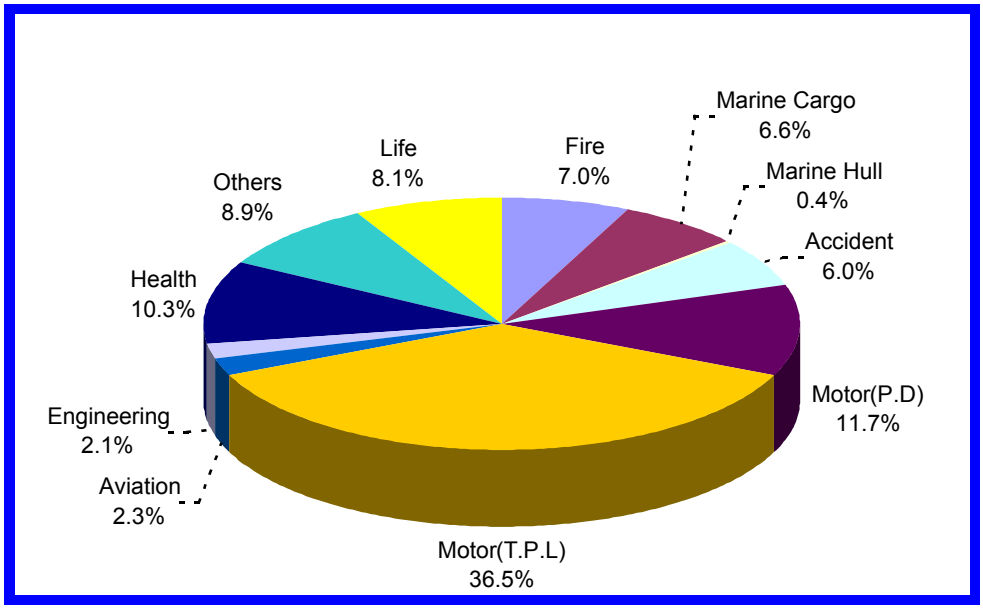
**Table 2.3- Total insurance premiums in the iranian insurers (1998-2003)**

| Year | Premium (in Million IRR) | Growth Rate (%) |
|---|---|---|
| 1377 (1998) | 2,019,228 | 30.93 |
| 1378 (1999) | 3,002,465 | 48.69 |
| 1379 (2000) | 4,063,351 | 35.33 |
| 1380 (2001) | 5,739,701 | 41.26 |
| 1381 (2002) | 9,178,790 | 59.92 |
| 1382 (2003) | 12,743,311 | 38.83 |

*Source: BMI (2004).*

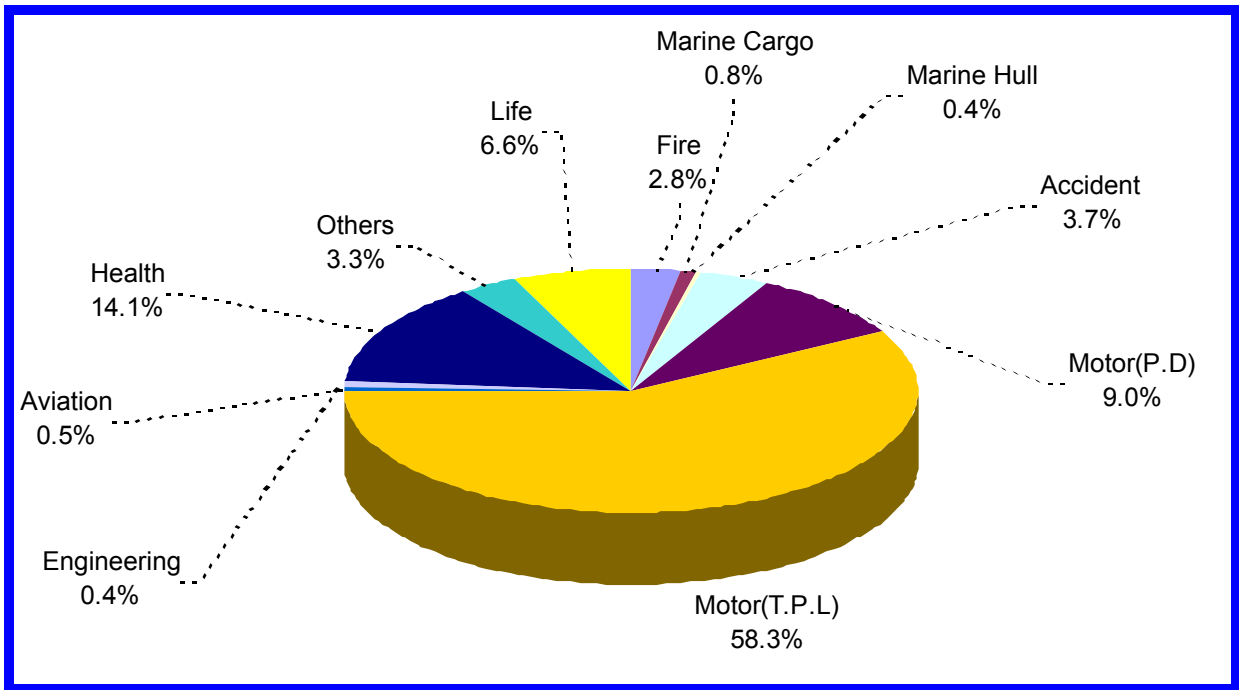
Figure 2.5 show the proportion of earned premiums (per each insurance product sold) and Figure 2.6 shows the paid loss (per each product type) in the Iranian insurance market in 2003.

**Figure 2.5 - Insurance market direct premium in Iran (2003)**




*Source: BMI (2004).*

**Figure 2.6- Insurance market direct paid loss in Iran (2003)**




*Source: BMI (2004).*

Both Iran and Asia insurance companies among the state-owned insurers, and Parsian and Hafez (among the private insurers) has got two-third of market share of each sector, in 2003. In contrast, private section has paid 7.3 billion IRR loss incurred. In 2003, losses paid in the motor (mainly for TPL) have shown a significant increase [BMI (2004)]. This is mainly attributed to the rising trend in the court reward for blood money (Dieh claim) and number of car accidents. Also health insurance has allocated a considerable proportion of paid losses of the market. This is due to an above-normal competition in this field and the rising of reimbursement of healthcare expenses.

## 2.3.6) Current Issues Within The Iranian Insurance Industry

Insurance industry in Iran has its monopolistic position for a long time, as well as other financial markets, like banking. People are paying much attention now to how to construct a competitive Insurance market. Iran government is taking measures to reform the insurance market by breaking monopoly, releasing constraints and stimulating competition in order that resources can be allocated rationally and efficiently. In that way, insurance industry can be developed in harmony with that of society, economy and environment.

Nowadays, in many developed and industrialized countries, insurance coverage expenses contain a remarkable percentage of total individual and organizational expenses. But, in Iran this figure is very low, and maybe negligible, except some compulsory insurance, such as health and pension insurance. Generally, the factors lead to non-development can be listed as [Bromideh and Amani (2004)]:

1. Low servicing of the Iranian insurance companies (insurers)
2. Inefficient management of resources in these companies
3. Low intension and lack of public acceptance of insurances (cultural)
4. Low earning of people (low GDP per capita)

Two first items are directly related to the inefficient and weak performance of insurance companies and consequently the third item is, indirectly a result of inappropriate performance of these companies so far. Because, if the insurers enhance their efficiencies and promote their customer satisfaction, then public opinion will be chanced to good image of insurers and public will get familiar with insurance and the culture will be enhance, as well. This will be a powerful and very efficient promotion for the industry. The forth one, is the same problem in almost every industry within country [Bromideh and Amani (2004)].

On the other hand, globalization and modifying monopolistic laws and legislations (deregulation) have provided the opportunities for new market players. Highly competitive insurance market will force the traditional insurers to embrace new technologies and, in particular using all Information and Communication Technology (ICT) tools, they have to redesign their business process to aim an efficient and customer oriented companies. Otherwise they will be fired and have to quitted from the market.

## 2.4) Internet And E-commerce

The term *electronic commerce* (e-commerce) has become widespread and subject of study in almost every business and activities. E-commerce and Internet are increasingly becoming one of the most important drivers of strategic change for business and national governments. Similarly, it is beginning to have a significant impact on people's lives. Everyone from shops to financial institutions is looking for ways to leverage the Internet for increased revenues, improved profitability and greater customer/brand loyalty.

In a very short time, the Internet has emerged as a viable commercial medium. Survey evidence demonstrates that Americans are showing increased acceptance and interest in shopping online [Bernoff, Morrisette and Clemmer (1998)]. When compared with other forms of direct marketing such as mail order and telephone ordering, electronic commerce on the Internet is still relatively small. However, it is growing rapidly.

The development of e-commerce is a complicated and systematic society engineering not only involved in the construction of information fundamental structure but also depending on commercial credit, payment system in Internet, identification, standards, forwarding system, tax system, enact and amending of relative laws and the framework of regime. In other way, it relies on two essential factors, one is the broad application of technology and another is the construction of market environment and policies. Studying from the evaluation of e-commerce in the Iranian insurance industry, we can easily conclude that the main bottleneck of developing e-commerce is none of the technical difficulties other than the rules of market environment and policies.

This section is organized as follows: Internet and WWW will be provided firstly, then an introduction to e-commerce, technologies and major types of e-commerce, and also benefits, limitations and barriers to implementation of e-commerce will be discussed. Finally, we will address a subsection entitled by from e-commerce to e-insurance.

### 2.4.1) Internet And The World Wide Web

The Internet is a worldwide network of interconnected computers consisting of thousands of smaller networks. The World Wide Web, or simply the "Web" (WWW, W3), is an information retrieval system that operates on the Internet. The Web uses a set of open standards that allow computers of different types — and using different software — to access a tremendous array of text, pictures, graphics, audio, and even video. The Internet has developed from purely an information and communication medium into an important distribution channel. It allows companies to deliver high quality and personalized information to a large audience in a way that was previously inconceivable. This effectively removes the information economy's conflict between the scope and depth of information. These properties make the Internet a powerful distribution channel [ISO (1997)].

While the focus in the early days of the Internet was on selling products to consumers (business-to-consumers, or B2C), the emphasis is now shifting toward commercial clients

(business-to-business, or B2B). The B2B segment is likely to be the most important focus of Internet distribution in the future [SwissRe (2004)].

Internet technologies not only have consequences for distribution, but influence a company's entire business processes as well. The more the production process depends on the processing of information, the greater the potential for change. As a result, e-commerce is now understood to mean the use of information and communication technologies, and specifically the Internet, to continuously optimize an organization's business processes. It denotes the seamless application of information and communication technology from its point of origin to its end point along the entire value chain of business processes conducted electronically and designed to enable the accomplishment of a business goal. These processes may be partial or complete and may encompass business-to-business (B2B), as well as business-to-consumer (B2C), consumer-to-business (C2B) transactions and even consumer-to-consumer (C2C) [Wigand (1997)].

Although it may be one of the most over-hyped technological innovations of all time, there is no question that the Internet that is having a major impact upon markets and business organizations. The number of computer and users accessing this worldwide "network of networks" has been annually doubling for several years now. Such growth rates are not sustainable over the long run. Indeed, if one were to simply linearly extrapolate growth trends from past 5 years out into the future, this would imply that virtually every human on the face of the earth would had to be on the Internet by the year 2003 [Partridge (1991)]. The Internet's growth prospects are also being fueled by significant infrastructure investment by the newly deregulated telecommunications industry, as well as the proliferation of new forms of high bandwidth access (for example cable modems and ADSL) and the development of alternative Internet-access devices (e.g., "smart phones" and Internet enabled personal digital assistants, televisions and game players [Garven (1998) and Garven (2000)]. Predictions denoted that nearly one quarter of all Internet-access devices would be machines other than personal computers [Sager et al. (1996)].

As of September 2002, *Nua, Ltd.*[1] estimates there were nearly 605.60 million people online worldwide, with 190.91 million of these online in Europe, 187.24 million in Asia/Pacific, 5.12 million concentrated in the Middle East [Internet world statistics (2005)].

An international website featuring up to date 2005 worldwide Internet usage, the population statistics and the area data, for over 233 countries and world regions[2], shows that about 5 million users are online in Iran. In the Middle East, Iran is in the second place in using the Internet, after Turkey with about 6 million users. It has been benefited of 1820% growth rate during 2000-2005. But, Internet penetration (percent of online population) is very low in comparison to other Middle East countries. The Middle East Internet usage and population statistics are available at Internet world statistics (2005).

[1] See www.nua.ie
[2] See Internet world statistics (http://www.internetworldstats.com/)

## 2.4.2) An Introduction To E-commerce

Broadly speaking, electronic commerce (e-commerce) includes any form of business or economic activity conducted through electronic connections. Business refers to all activity that generates value both within a firm (internally) and with suppliers and customers (externally) [Wigand (1997)]. In this sense it would include internal networks as well as networks that extend to a limited number of participants. Some of this activity may result in monetary transaction and some may not.

E-commerce is often defined as doing business electronically. As stated by Till (1998), "electronic commerce covers any form of business or administrative transaction or information exchange that is executed using any information and communications technology (ICT)". This embraces such exchange tools as the Internet and World Wide Web, intranets, extranets, electronic mail (e-mail) and Electronic Data Interchange (EDI) [Cornall et al. (2000)]. In addition, Turban and King (2003) refer to e-commerce as the process of buying and selling or exchanging products, service and information through computer networks including the Internet.

E-commerce may, however, be simply defined as the production, advertising, sale, and distribution of products via telecommunication networks. Most of the discussion on e-commerce is limited to the Internet, the medium with which electronic commerce is primarily associated [WTO (1998)].

The definitions differ with respect to the media under consideration. Some focus on the Internet, some include all sorts of direct electronic distribution channels (e.g., TV-shopping), and others include all forms of electronic market places (e. g., electronic trading systems on stock exchanges).

A few of them distinguish between phases of a transaction, such as [Schmitz (2000)]:

- Information and search,
- Negotiation and contracting, and
- Settlement (delivery and/or payment).

These more differentiated definitions are important to analyze certain policy problems such as the impact of digital money on the money demand function or the stability of the payment system [Schmitz (2000)].

The key point of these definition is that *e-commerce is a confluence of business operations with electronic and network technologies*. Telephony and non-networked technologies such as CD-ROM media may integrate into operations, but the core of e-commerce is network technologies and especially open networks such as the Internet[1].

E-commerce integrates technology and business processes to facilitate both inter-company and intra-company workflows, as well as communication with individual consumers. E-

[1] See http://www.orlandowebdevelopment.com/e-commerce_definition.htm

commerce uses technology to transfer information and conduct business. Many companies are using e-commerce to restructure operations, streamline processes, reduce costs, improve sales and service, reach new markets, and distribute information.

Through the development of information technology, such efforts towards the development of an information society have resulted in the introduction and evolution of e-commerce to its present state to replace all economic activity with that based on digital information [MITI (1997)].

One of the major drivers of the growth of e-commerce is its apparent efficiency. By connecting to the Internet, commercial enterprises can interact with their customers and suppliers at extremely low cost. Long distance telephony and backbone operations are becoming much less expensive. Computing power is also decreasing in cost, making investments in superior technology affordable for even small companies.

Finally, by using an electronic network to simplify and speed up all stages of the business process (i.e., from design and making to buying, selling and delivery) e-commerce is the exchange of information across electronic networks, at any stage in the supply chain, whether within an organization, between businesses, between businesses and consumers, or between the public and private sectors, whether paid or unpaid [DTI (1999)]. However, e-commerce is revolutionizing the way business is done.

## 2.4.3) Technologies Of Electronic Commerce

Many believe that the most promising area of electronic commerce is not retailing to individuals but the automation of purchase and sale transactions from business to business. For a number of years, companies have used proprietary electronic data interchange (EDI) systems for this purpose; now they are turning to the Web and extranets.

A number of commerce or merchant Web server systems are available. They typically provide a Web storefront, usually with some type of on-line catalogue support, and a means for taking orders. Some of these systems link to financial networks to complete payment processing. For companies that are not ready to operate their own electronic commerce sites, companies such AT&T, MCI, Best Internet Communication, and BBN Planet offer Web hosting services that process electronic commerce transactions for other organizations[1] [Tokuro (2003)].

Integrating all of the processes associated with electronic commerce requires additional software and tools, such as software providing interfaces between Web servers and the company's core-transaction databases and electronic payment systems. Electronic payment systems use technologies such electronic funds transfer, credit cards, smart cards and credit cards, and new Internet-based payment systems to pay for products and services

[1] See http://www.e-centre.org.uk/products_buinesstech_ecommerce.htm and http://pigseye.kennesaw.edu/~tnguyen4/Areas of Ecommerce.html

electronically. Software to track and monitor Web site usage for marketing analysis also is desirable [Werner (2003)].

There has been a rapid development of technologies facilitating e-commerce, among which are [ISO (1997)]:

### 2.4.3.1) Electronic Data Interchange

Electronic data interchange (EDI) is the electronic transmission of business information between the computers of trading partners, such as businesses, other organizations, government agencies, and individuals. EDI is an efficient way for trading partners to exchange the information needed to transact business.

For EDI to work, the computer systems of trading partners must be able to communicate. Trading partners must have a common format for their data. The computer systems of the trading partners must also be physically linked, through a public or private network, a dedicated telecommunications line, or modems and standard telephone lines. EDI can generate significant savings in time and money compared with exchanging information by printing, handling, and mailing paper.

### 2.4.3.2) Imaging

Imaging encompasses a set of technologies for electronically storing and managing documents and making the information available by computer, regardless of whether that information originated in paper or electronic form. In addition to storing documents, imaging systems can organize documents, giving users easy access.

The benefits of imaging include:

- improved workflow,
- more timely response to information requests, and
- reduced costs for filing, storing, and retrieving paper documents.

Imaging can make documents available twenty-four hours a day, seven days a week, to multiple users, even users in remote locations. And, unlike paper files, documents stored electronically are seldom lost or misfiled.

### 2.4.3.3) Electronic Mail

An electronic mail, or e-mail, system enables persons or computer systems to send messages or notes by computer. E-mail is an easy way to exchange unstructured information, such as descriptions of unusual conditions at a risk or suggestions for underwriting improvements. Such exchanges are possible within an e-mail system or between separate e-mail systems.

### 2.4.3.4) Electronic Funds Transfer

Electronic funds transfer (EFT) is a low-cost method for automatically transferring money by computer. An individual or business can use EFT to make a bank deposit or payment or to transfer funds to the account of a creditor. Life insurance companies have for years used EFT to collect premium payments.

### 2.4.3.5) Electronic Facsimile

Electronic facsimile combines the familiar fax technology with computers. Users can send documents from fax machines to computers and from computers to fax machines. Companies are finding new ways to exploit that capability. For example, in one system, a consumer requests information through a computerized, interactive telephone system, selecting information through the phone keypad. The system automatically generates a fax containing the requested information and sends it to the consumer's fax machine or computer.

### 2.4.3.6) Smart Card

A smart card is a wallet-sized card that looks like a credit card, but has more ability to store and transfer information. The cards record information on magnetic strips or embedded microchips. Retailers are using this emerging technology to track customer purchases and compile profiles for targeted promotions and other personalized services. The health care industry in a number of European countries is using smart cards to store patient information. Insurers may want to consider issuing some form of smart card to store data about policyholders, their coverage, and their policy limits. Departments of motor vehicles could use such cards to facilitate vehicle registrations. Police departments could use the cards to report accidents. And roadside assistance services and body shops could use the cards to verify coverage or bill for services provided.

### 2.4.3.7) Instant Messaging

Instant messaging (IM) differs from e-mail primarily in that its main focus is immediate end-user delivery. Presence information was readily available on internet-connected systems years ago, when a user had an open session to a well-known multi-user system. The user's friend and colleagues could easily tell where he or she was connected from and whether he or she was using the computer.

## 2.4.4) Major Types Of E-Commerce

E-commerce can be broadly classified into four categories: business-to-business (B2B), business-to-consumer (B2C), customer-to-business (C2B) and consumer-to-consumer (C2C). A brief discussion on these main types of e-commerce is given below [Cornall et al. (2000)]:

- **B2B** has been in use for quite a few years and is more commonly known as EDI. In the past EDI was conducted on a direct link of some form between the two businesses where as today the most popular connection is the Internet. The two businesses pass information electronically to each other. B2B generally involves large companies transferring all their business purchasing and sales to the Web. The use of extranets facilitates this. A typical example is *Cisco*[1], the supplier of Internet hardware, where both buyers and suppliers can deal online.

- **B2C** enables sellers to reach more customers and can gather comprehensive, focused information about them, enabling sellers to target them more efficiently. This is where the consumer accesses the system of the supplier. It is still a two-way function but is usually done solely through the Internet. Well known B2C examples include retail activities such as the virtual bookshop *Amazon*[2].

- **C2B** allows customers to approach businesses. Consumer to Business is a growing arena where the consumer requests a specific service from the business. For example passengers can bid for airline tickets on *Priceline*[3].

- **C2C** enables customers to interact with other customers. These sites are usually some form of an auction site. The consumer lists items for sale with a commercial auction site. Other consumers access the site and place bids on the items. The site then provides a connection between the seller and buyer to complete the transaction. The site provider usually charges a transaction cost. In reality this site should be call C2B2C. One example is *ebay*[4] where individuals can auction off goods to other individuals. *COINS*[5] (Communities of Interest), where customers share information and communicate online, are a particular aspect of this model.

Table 2.4 gives broad types of e-commerce, which is a general form of the basic areas of e-commerce activity mentioned above.

[1] www.Cisco.com
[2] www.amazon.com
[3] www.priceonline.com
[4] www.ebay.com
[5] www.coins.com

**Table 2.4- E-commerce and broader Internet applications**

| | Government | Business | Consumer |
|---|---|---|---|
| **Government** | **G2G** e.g., Coordination | **G2B** e.g., information | **G2C** e.g., information |
| **Business** | **B2G** e.g., procurement | **B2B** e.g., e-commerce | **B2C** e.g., e-commerce |
| **Consumer** | **C2G** e.g., tax compliance | **C2B** e.g., price comparison | **C2C** e.g., auction markets |

*Source: OECD.*

Governments in developed and some developing countries are beginning to reorganize the management of public procurement systems – equivalent to some 10 per cent of GDP – over the Internet, opening the prospect of sizeable business-to- government (B2G) transactions. The technology is also being used by governments for the transmission or receipt of information (G2B, G2C) to improve the convenience and lower the cost of payment systems and tax compliance (C2G), and by businesses to manage after sales service and to develop direct consumer marketing [OECD (2000)].

The Internet also encompasses a wider spectrum of potential commercial activities and information exchanges. For instance, it offers firms, individuals and governments an electronic infrastructure, which enables the creation of virtual auction markets for goods and services. Network infrastructures such as telecom, wireless, cable TV, Internet and Intranet are used to implement e-commerce transactions. The focus is currently on Internet-based e-commerce.

## 2.4.5) Benefits Of E-commerce

E-commerce is widely believed to offer considerable growth and cost saving opportunities. It attracts enormous interest worldwide from all sectors of the economy including government, legal and accounting organizations, universities and research institutes, and industry associations. The potential of e-commerce has been recognized by governments throughout the world many of which have developed strategies to facilitate and promote its adoption.

In the short-term, entry into e-commerce may offer a competitive advantage over slower to act competitors. The market for e-commerce is growing, as more consumers and businesses gain Internet access and transaction processing technologies improve security. Companies that establish an operation today, still in the early stages of Internet based e-commerce, will have a fuller understanding of the issues and be better prepared to capitalize on emerging technologies when e-commerce markets open up in the next few years.

The several e-commerce benefits which is enjoyed by both customers and merchants at the same time, a real win-win situation. A summary of e-commerce benefits and advantages are listed below [Turban et al. (2002) and Turban and King (2003)]:

- Can increase sales and decrease sale costs
- A small firm's promotional message out to potential customers in every country in the world with good ad
- Reach narrow market segments that are geographically scattered
- The Web is particularly useful in creating virtual communities for specific types of products or services
- A business can reduce the costs of handling sales inquiries, providing price quotes, and determining product availability by using electronic commerce in its sales support and order-taking processes
- Increases sales opportunities for seller, it also increases purchasing opportunities for the buyers
- Businesses can identify new suppliers and business partners
- Increases the speed and accuracy with which businesses can exchange information, which reduces costs on both sides of transactions
- Provides buyers with a wide range of choices than traditional commerce
- Provides buyers with an easy way to customize the level of detail in the information they obtain about a prospective purchase and they can instantly access to detail information on the Web without waiting for days

On the other hand, benefits for general welfare of society are [Turban et al. (2002) and Turban and King (2003)]:

- Electronic payments of tax refund, public retirement, and welfare support cost less to issue and arrive securely and quickly when transmitted over the Internet
- Electronic payments can be easier to audit and monitor than payments made by check, providing protection against fraud and theft losses
- Electronic commerce enables people to work form home

The potential benefits of e-commerce for buyers and sellers, based on a general scan of the literature, are summarized in Table 2.5.

**Table 2.5- Potential benefits of e-commerce (for business and consumer)**

| Benefits to Sellers | Benefits to Buyers |
|---|---|
| Expanded access to trading partners and market reach | Expanded access to trading partners and support services |
| Increased marketing and sales profile | Improved sourcing and procurement process |
| Enhanced customer contact and service | Enhanced supplier relationships (contact and service) |
| Reduced cost of sales, technical documentation, and customer service costs | Lower purchasing prices through improved price transparency and comparison |
| Reduced transaction handling/processing costs | Reduced procurement costs |
| Reduced working capital and inventory requirements | Reduced operating costs and maverick spending |
| Competitive advantages through improved efficiencies and process planning | Improved efficiencies and transaction flow, visibility and control |

*Source: Moodley (2003).*

## 2.4.6) Limitations And Barriers To E-commerce

The Internet and e-commerce have been built on the strength of the private sector rather than on government or institutional initiatives, and the Internet companies will continue to drive the development. There is, however, considerable scope for cooperation at all levels to remove barriers to the growth of e-commerce.

As pointed out by Turban et al. (2002), the limitations of e-commerce are both technical and non-technical:

1. **Technical limitations**: these include problems pertaining to security, reliability, telecommunications, software, integration of Internet and e-commerce software with existing databases, and incompatibility of e-commerce software with certain operating systems and components. The most sustained problem is the security issue as the specter of hackers snatching and stealing information, is always the main obsession to customers. Yet, with the emergence of new technology over time, these limitations are reduced or otherwise their impact overcome by suitable planning.
2. **Non-technical limitations**: the main problem in this respect is the cost of developing e-commerce at home, which might be very high and mistakes due to inexperience might result in delays. Furthermore, security and privacy are important issues when it comes to customer-business relationships. In fact the e-commerce industry has had very hard time trying to convince customers that on-line transactions are as secure as any other business transactions. Another issue lies in finding ways of persuading customers to do business with machines, as some customers like to touch items, such as clothes and to be sure of the reliability of the product they are buying.

One of the big differences between technical and non-technical limitations is that technical limitations can be solved (most of the time) by spending enough money -whereas non-technical limitations are things that are more difficult to change since they involve things that cannot be changed easily- like people's attitude, lack or trust, resistance to change, faceless transactions, etc.

A general scan of the literature, indicates that businesses and companies view the following as causing hindrance to implement a proper e-commerce [Turban et al. (2002) and Turban and King (2003)]:

- Costs of a technological solution
- Some protocols are not standardized around the world
- Reliability for certain processes
- Insufficient telecommunications bandwidth
- Software tools are not fixed but constantly evolving
- Integrating digital and non-digital sales and production information

- Access limitations of dial-up, cable, ISDN, wireless
- Some vendors require certain software to show features on their pages, which is not common in the standard browser used by the majority
- Difficulty in integrating e-Commerce infrastructure with current organizational IT systems
- Customer fear of personal information being used wrongly
  - Privacy issues
- Customer expectations unmet
- Rules and regulations
- Security and privacy
  - Vulnerability to fraud and other crimes
- Lack of trust and user resistance
  - Fear of payment information being insecure
- Tactile limitations
- Many businesses face cultural and legal obstacles
  - Legal issues outstanding such as jurisdiction
  - Legal environment has many new and conflicting laws
  - Cultural obstacles
  - Linguistic challenges
- Limitations of support services
  - Financial cost
  - Sourcing tech support in foreign languages
- Lack of critical mass in certain market areas for sellers and buyers
- Accessibility outside of urban/suburban and areas effects universality
- Lack of skills and higher employee training required to be click and mortar
- Lack of culture adapted to change and people's resistance to change
- People not used to faceless / paperless / non-physical transactions
- Lack of understanding at senior management level
- Problems with business process integration
- Rapid market changes

In the next section, application of e-commerce to insurance industry will be discussed, in detail briefly.

## 2.4.7) From E-commerce To E-insurance

Online insurance requires the traditional methods of insurance to be replaced by online processes analogous to those in e-commerce. In this study, we have referred to insurance processes conducted over the Internet by the term "*e-insurance*." However, e-commerce adapts the principles of traditional commerce to support business processes over the Internet.

### 2.4.7.1) Adoption Of E-commerce To Insurance

Certain industries, such as travel, banking, and retail, have embraced the emerging technologies that make electronic commerce possible. Some firms have gone as far as completely revamping their business processes. The insurance industry has made real progress in implementing some of the technologies of e-commerce, but the industry has been slow to adopt others. This is because insurers must carefully select which applications to implement, weighing the costs and benefits. Some applications of e-commerce used in other industries do not easily fit the business of insurance. Many others, however, present insurers with interesting possibilities [ISO (1997)].

A typical e-commerce transaction can be divided into the following five phases [Dasgupta and Sengupta (2002)]:

1. Search
2. Valuation
3. Logistics
4. Transaction
5. After-sales services

The first four stages of e-commerce described above directly lend themselves to analogous steps for purchasing an insurance product online. Consumers search from different insurance companies for products that they are willing to purchase. They evaluate the products from different companies to determine the one which best suits their needs. The insurance company then conveys the terms of the insurance policy to the customer and the customer responds with details including a description of the entity being insured, the terms and the duration of the insurance policy. When both the customer and insurance company agree to go ahead with the transaction, the buyer pays the initial premium to the insurance company and the policy certificate is sent to the buyer.

The after sales phase of e-insurance is however considerably different from e-commerce. In e-commerce, human intervention is required for activities in the post-sales phase such as repair or replacement of parts. However, a major interaction between an insurer and the insurance company occurs in the post-sales phase if the insurer submits a claim for the amount insured. Online claim settlement involves complex interactions between the insurer, the insurance company and possibly legal and judicial authorities and, in an automated environment, requires close interactions between humans and automated agents. This phase

is therefore the most difficult to implement over the Internet and online insurance sites mostly rely on human intervention for this phase.

Insurance companies offering proper services through Internet, can be classified into the following categories [SwissRe (2000), and Dasgupta and Sengupta (2002)]:

- **Web Sites**: Almost every insurance company has homepage providing information about the company and products. However, these homepages are little more than passive online versions of the company's brochures.

- **Product Portals**: Portals are sites that provide a collection of links to sites of interest.

- **Point-of-Sale Portals**: Unlike most other commodities, the sale of insurance products is initiated by the sellers. Certain sits exploit this approach by offering insurance products while selling insurable goods such as cars or while providing information on health or college education.

- **Intermediate Brokers**: Brokers are intermediate sites that do not sell insurance products directly but assist clients in matching their requirements with the policies offered by insurance companies.

- **Reverse Auction**: In this case, the client is usually an organization interested in group insurance. The client announces its requirements and selects the best offer made by an insurance company.

- **Aggregators**[1]: Aggregators are sites that compare quotes from different insurance companies. The service is often supplemented with general information on products as well.

### 2.4.7.2) Internet And Current Issues In The Insurance Industry

The Internet is acting as a catalyst to accelerate change in many of the areas is identified in the section before. In the following, role and effect of Internet on these issues are given [Cornall et al. (2000)].

[1] *Aggregators* are usually independent providers who specialize in providing quotations from different insurance companies for comparison purposes. The service is often supplemented by general information on insurance products as well. These providers can also be described as online insurance brokers or Internet brokers.

#### 2.4.7.2.1) Globalization

The Internet is a global medium and increases the transparency of all products including financial services products. The key and most difficult aspect, of entering a foreign market is securing distribution channels. The Internet provides global distribution potential, though there are still a number of barriers including tax regimes, regulatory requirements, brand and cultural issues.

#### 2.4.7.2.2) New Entrants

Low barriers to entry on the Internet facilitate new entrants. In the financial services industry the major entry barrier is distribution, which the Internet can overcome. The Internet emphasizes the importance of competency in direct marketing techniques and branding which encourages retailers to enter the market.

#### 2.4.7.2.3) Regulation And Deregulation

The Internet acts as a 'push' mechanism for the government to pressurize the industry into providing alternative cheaper solutions such as stakeholder pensions. At the same time the Net 'pulls' regulatory change, as consumers become more demanding due to its transparency. The Internet may lead to products becoming more customer-centric, with few boundaries between say banking and insurance, which will influence the regulatory environment.

#### 2.4.7.2.4) Socio-cultural Changes

The Internet itself may have profound changes on working and living patterns, making working lives even more flexible. This will influence the financial products people want to buy, and when they want to buy it. For example long-term regular premium products may no longer meet customer needs.

In the next section, the impact of Internet on current issues in the insurance industry will be addressed.

## 2.5) Impact Of E-Commerce On Insurance

So far, almost every business has been deployed e-commerce application and, therefore, has got many experiences. As a result, some companies have been quitted (bankrupted) and most of them are getting benefits and advantages of these new technologies. Hence, the impact of e-commerce on business has been studied by many researchers in every industry. As far as insurance industry concerns, Garven (1998), Garven (2000) and SwissRe (2000) have discussed on the effects of e-commerce on insurance industry in general.

On the other hand, Garven (2000) has studied the impact of e-commerce on intermediaries and its role of disinter-mediation within the insurance industry. Also, the impact of e-commerce on insurance industry has been studied in the UK by Cornall et al. (2000), in India by Dasgupta and Sengupta (2000), in New Zealand by Yao (2004) and finally in the Hungary by Vress (2002). This research intends to clarify the impact of e-commerce on the Iranian insurance companies.

In the following, we will study the application and implementation of e-commerce in insurance sector; potential effects of e-commerce on insurance industry will be provided in the following sections in detail. And finally, the hype and reality about e-insurance and the impact of e-commerce on the Iranian insurance companies will be addressed in this section.

### 2.5.1) Implementation Of E-commerce In Insurance

Insurers have invested enormous sums in the extension of their Internet activities. The insurance pioneers have realized useful, interactive and modern Internet presentations. However, these are largely information-oriented and more factual than exciting. This is mainly due to the peculiarities of the insurance product, but also due to the insurance sector's lack of marketing history. In contrast to other sectors, insurers' online presentations are often judged to be conservative and boring. E-commerce practice in European as well as American insurers is – except for genuine online insurers – relatively low in comparison with other sectors. However, the insurance sectors pioneers in e-commerce functions are holding their own well with other sectors [e-Business W@tch (2002)].

In Europe and in the USA, the expectations of e-commerce success (mainly B2C), as well as the success of internal e-commerce, new processes have not yet been fulfilled. Some insurers enabled the customers to conclude contracts for numerous insurance products online, and they developed large-scale e-commerce applications, but demand remained low. As far as the implementation of Internet-based business processes is concerned, most insurers are still at the very beginning, whilst others are in midstream. Only online insurers and online portals are advanced. Insurers draw different conclusions from this lack of short-term success: some continue investing significant amounts; the most apply the brakes for the time being sectors [e-Business W@tch (2002)].

Since the insurance business is largely based on information, e-commerce applications can impact greatly on the insurance industry. The Internet increases transparency on the

insurance market, giving customers more market power. It allows virtualization of organizational networks, increasing the opportunity for systematic co-operative service offers. It also reduces the amount of capital needed to enter the insurance market, so that new firms find lower barriers to compete in the market.

The suitability of insurance products for Internet distribution varies, depending mainly on how much individual advice the product requires. Standardized products, which can be described and terrified easily, are more suited for Internet distribution than complex and expensive products. Products particularly suited for Internet distribution are private motor, household, private liability and term life insurance [SiwssRe (2000)].

An important application of e-commerce (and ICT) in the insurance sector is to automate business processes which can reduce costs significantly: When dealing directly with the customer, the insurance firm can save costs for running agencies and for paying commissions to agents. Processing claims via Internet can save paperwork and, above all, much time.

Customer Relationship Management (CRM) –which is a core issue in the insurance sector- is of particular importance because the industry is characterized by large companies with abundant customer data, insurance policies tend to require personal formation, and the insurance business is largely decentralized in companies, agencies and external salespersons. Thus the use of e-commerce for customer data warehouse and data mining applications as well as for marketing, sales and service currently is an important issue in the insurance [Bromideh and Amani (2004)].

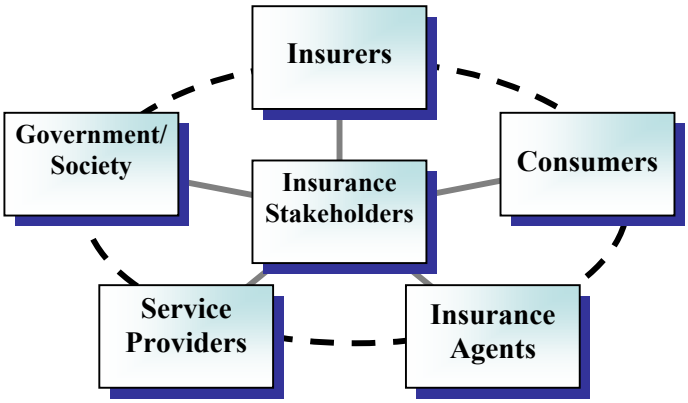
## 2.5.2) Potential Effects Of E-commerce On The Insurance Industry

Insurance and the broader area of financial services are industries where electronic commerce will play a significant role. These information-intensive industries are fertile ground for the play of forces that have spawned e-commerce. The evolution of the use of e-commerce by insurance companies and intermediaries raises a number of issues with respect to the impact of this technology on the industry and its regulation. Any discussion of the impact of e-commerce on insurance must address some of the issues affecting the major players in the insurance electronic marketplace[1]: Insurance company (Insurers), Consumers, Insurance agents, Other service providers, and Government /Society (through the supervisory authority) [SwissRe(2000)].

Figure 2.7 visualizes these main stakeholders in an insurance industry.

[1] The electronic market place can be described as meeting places where large numbers of buyers and sellers interact (which is shown by e-market/e-marketplace in the literatures).

**Figure 2.7-The major players in insurance business**




*Source: Authors.*

Each group has a direct interest in the evolution of the electronic market. Each is affected to some extent by the technological change that is revamping electronic commerce. The interests and roles of these different stakeholders must be addressed so that change is promoted and managed effectively, rather than impeded by those that feel threatened by it.

In the following sections, a brief discussion to the first three group of stakeholders mentioned above (i.e. insurers, consumers and insurance agents and intermediaries) will be explained on these major key players in an insurance industry. However, to shorten the length of this chapter and narrowing down our research scope, discussion on the remained two stakeholders (Internet service provider and society) role in the presence of e-commerce will be left to the readers which are available in almost every textbook and related researches in e-commerce.

### 2.5.2.1) Effect Of E-commerce On Insurance Companies

Insurance companies have regarded the Internet mainly as another channel of distribution for their products. Compared to online stock brokerage and online banking, development of the Internet in the insurance industry has been somewhat cautious.

Websites mainly serve to provide information about the company and its products. Many insurers especially in developing economies have not seized the opportunities created by e-commerce for making all business processes more efficient, beginning with the online sale of policies. But the growing number of those who have embraced the technology is most encouraging [Vress (2002) and Yao (2004)].

There are some factors, which make the online selling of insurance products difficult [SwissRe (2000)]:

- The complexity of some products, e.g., tax-efficient life insurance policies, increases the consumer's need for specific advice. It has not yet been possible to automate the provision of information, although it can be assumed that continuing advances in technology will create new opportunities for automated solutions. The complexity of many insurance products can often be reduced by design modifications.

- In many cases, it is difficult to standardize claims settlement for example, as this involves a large amount of investigation and decision-making. This process often involves people and companies who are not in a contractual relation with the insurer[1].

- The Internet is particularly suitable for products where contact with the company is more frequent. Insurance is usually taken out infrequently, every couple of years or even once in a lifetime. Once a policy has been concluded, with some types of insurance the insurer and the policyholder have barely any contact, unless an insured event occurs. Also, existing insurance policies can often only be cancelled with a certain amount of effort. This makes the switch to an Internet insurer more difficult.

- Many consumers still view the Internet as an insecure medium. This prevents large transactions being concluded via the Internet, and it deters the transmission of confidential information, both of which are essential aspects of insurance policies.

- In personal line especially, regulatory hurdles make Internet distribution difficult. For example, as e-commerce increases the number of cross border transactions, licensing requirements in all jurisdictions where such transactions occur also apply.

#### 2.5.2.1.1) Competition And Market Penetration

The Internet enables new entrants to the market to avoid the expensive and lengthy process of setting up traditional distribution networks. E-commerce lowers market entry barriers and increasing competitive pressure in the insurance industry [Turban and King (2003)].

In the past, many insurance products have been distributed mainly through captive agents or independent brokers. Since enormous investments are needed to build up such a distribution network, established insurers were generally well protected against new competitors. Now the Internet provides new companies with instant access to the insurance market at an affordable cost. Market transparency is improving, since product and price information is more readily available through the Internet. Lower market entry barriers and higher market transparency are combining to intensify competition and force prices down. This also makes it increasingly difficult for insurers to pass the comparatively high costs of traditional distribution onto the prices it charges for its products [SwissRe (2000)].

[1] In obligatory motor liability insurance, in many countries (such as Iran) injured parties have a right to claim directly from the insurer of the party at fault.

In life insurance especially, online distribution may change the nature of the competition. Acquisition costs traditionally play a key role here. They often come to more than 100% of the new premiums, and are only amortized over the course of a long policy term. For new entrants to the market, such a big cost burden at the start of the insurance contract is a major barrier to entry, as they are unable to draw on a constant premium flow to finance new clients' acquisition costs [SwissRe (2000)]. If Internet insurers manage to reduce these acquisition costs significantly, it would become far easier for them to break into the market. On the other hand, Internet insurers need to attract clients through advertising, and this entails substantial costs as well. Furthermore, a certain amount of advice is normally required for many life insurance products, because of their transaction volume and complexity [Goto (2001)].

Even if e-commerce lowers market entry barriers, start-up companies in particular need to become sufficiently well known if they want to win significant market share. Another important factor, particularly in the insurance industry, is that the client must have confidence in the insurance company. Online sales still carry an element of uncertainty for many clients. This is mainly because of unresolved legal aspects of online policy conclusion and premium payment, as well as concerns about data protection. Therefore, insurers with an established brand name have a competitive advantage, as they naturally command a greater degree of confidence. New companies need to build up this goodwill from scratch, and this usually involves high advertising and marketing expenses [SwissRe (2000)].

The current disadvantage experienced by new Internet insurers should gradually become less important over time. First, confidence in the Internet as a distribution channel will improve as its penetration increases. Second, newcomers will be able to build up their weak reputations through secure ratings or alliances with well-known Internet brand names. Successful alliances for Internet insurers are feasible with online banks or online brokers, as well as with quality portals such as AOL, Yahoo or Microsoft [SwissRe (2000)].

E-commerce enables established companies in other sectors to cross over into insurance. Lateral entrants from other sectors can break into the insurance business with the help of the Internet. The most likely candidates are companies who already have a well-known brand name and strong customer loyalty. These companies, such as banks or internet providers, could set up new, efficient e-commerce systems, without the burden of legacy systems or conflicts with other distribution channels. They could also transfer their brand name to the insurance industry and utilize existing sources of finance [Goto (2001)].

#### 2.5.2.1.2) Benefits For Insurance Companies

The new e-commerce capabilities bring significant efficiency improvements in distribution, administration and claims settlement. The biggest cost block for a non-life insurer is usually claims payments. Online distribution brings a direct reduction in distribution costs. Additional savings potential comes from using e-commerce to automate business processes. This in turn brings reductions in administration and claims settlement costs. Modern information technologies also bring cost savings for claims payments. For example, better

data analysis may improve risk selection, while the detection of insurance fraud and tighter control by partner companies can help to reduce claims costs [SwissRe (2000)].

In life insurance, claims costs are much less than in non-life insurance, because of the high savings component. Distribution costs represent the biggest cost block, which means that the bulk of the cost savings can be achieved in distribution. However, many life insurance products require a lot of advice, and are therefore only partly suited to pure Internet distribution [Goto (2001)].

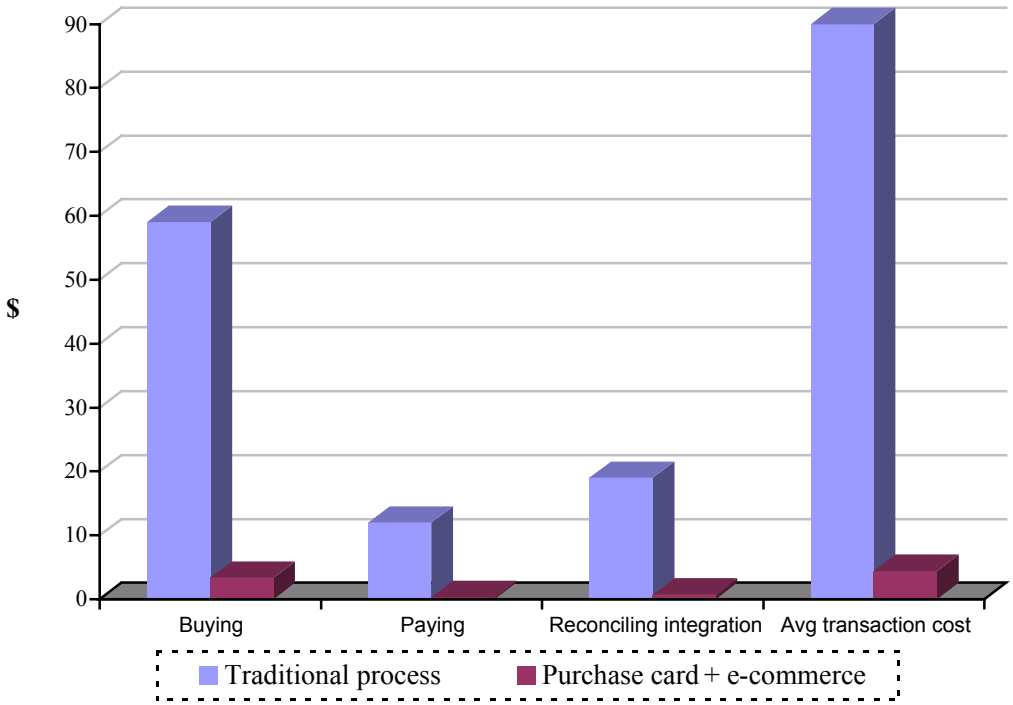
For traditional insurers, the need to adapt to the new e-commerce opportunities not only entails direct cost, in the form of substantial investments in the new information and communication technologies, but also the indirect costs of having to change their existing business models. Companies have to revamp their business processes and corporate structures, which leads to many different internal conflicts [SwissRe (2000)]. Internet marketing threatens traditional distribution channels and therefore tends to meet with strong resistance within the company. Many insurers avoid this problem in the short term by not passing on to the customer the efficiency gains created by electronic distribution. In some cases, the salesperson even receives a commission if a client in his or her area takes out a contract online. Some insurers pursue a dual strategy and try to establish a foothold in countries where they have no significant market share by offering e-commerce solutions while still maintaining the traditional distribution channels in their home market. This is not a strategy for long-term success, however, as the potential efficiency gains in the home market are abandoned [Porter (2001)].

Insurers selling over the Internet will have a substantial cost advantage over the lifetime of a customer, relative to non-internet based insurers These efficiencies are primarily driven by reduced sales costs, lower customer service costs, and cheaper and better information-gathering about the customer. At the same time, the use of e-commerce will demand the progression and integration of various components of insurers' information systems, many of which are still wedded to legacy mainframe platforms that are becoming increasingly inefficient [BAH(1999)].

According to Ernst and Young (1999), the average traditional transaction costs is $90, while the average transaction cost through a web enabled customer portal is $4.44.

Figure 2.8 shows the costs of traditional vs. online purchasing processes.

**Figure 2.8- Costs of traditional vs. online purchasing processes (in USD)**




*Source: Ernst and Young (1999).*

The structure of many insurance markets and the role of intermediaries (e.g., insurance agents) will change dramatically. Currently, there are insurance malls that allow one to obtain quotes from a number of companies almost instantaneously. If the major functions of insurance agents have been information transmission and facilitating transactions, e-commerce will make these functions much easier and less expensive for insurers and consumers. Certain agent functions will be disinter-mediated[1] or replaced by an electronic market. The traditional agent role will likely be diminished for standardized, commodity-like products such as term-life, homeowners, renters, and auto insurance. Electronic commerce will further the decreasing use of the independent agency system relative to exclusive agent and direct-response distribution systems. At the same time, the insurance agent's role may be enhanced in advising consumers on how to optimize their insurance purchases and in dealing with insurers in areas such as claims settlement, potentially valuable services for consumers. For more discussion on the structure of intermediaries and their new role, see Schmitz (2000) and AIA Advocate (2005).

[1] *Disinter-mediation* is the displacement or elimination of market intermediaries, enabling direct trade with buyers and consumers without agents.

Another interesting aspect of the economics of the Internet is the existence of so-called network externalities. That is, the network becomes more valuable the more people are connected to it. With the increased value of connection comes the decreased cost of distribution. Products with relatively high fixed costs and low value (such as travel, credit, or burial insurance) are relatively expensive to produce. Those customers pay a high price per dollar of coverage for these products. The Internet allows the disinter-mediation of this relatively high overhead for these low face-value products. This means that prices can be lowered and more insurance sold by reducing the transaction costs of the exchange. Increased access through e-commerce also may prompt some consumers to purchase broader, high-value insurance products to manage their risk [Plunkett (2004)].

#### 2.5.2.1.3) Top Obstacles And Concerns For Insurance Companies

In view of trends concerning the growth of e-commerce in the general economy, it is interesting to consider what the impact has been and is likely to be for the insurance industry in particular. Although other online financial services have already taken off quite vigorously, the insurance industry's involvement with and commitment to electronic commerce lags far behind competitors in the banking and brokerage industries [Moodley (2003)].

This is perhaps consistent with the findings of a recent survey by the US based Meta Group which reported the following findings in regard to e-commerce barriers and concerns for insurers [Hann (1999)]:

- Top obstacles for the insurance industry:
    - Resistance to change
    - Threat of agent/broker disinteremediation
    - Lack of technology/regulatory hindrances
    - Threat of insurance company disintermediation
    - Lack of industry vendor solutions

- Top e–commerce concerns:
    - Costs/impacts of moving off legacy systems
    - Impact of legacy channel investments
    - Lack of skilled information technology personnel
    - Lack of e-business strategy
    - Lack of enterprise technology architecture

It is widely recognized that e-commerce will enable insurers to significantly lower costs, realize business process efficiencies, improve customer service and brand loyalty, and enable insurers to better position themselves competitively [Hann (1999)].

However, insurers cite as top obstacles factors such as resistance to change, threat of agent/broker/company disintermediation, lack of technology infrastructure, regulatory hindrances, and lack of industry vendor solutions. An earlier study by Booz, Allen & Hamilton reports similar findings, and also notes that the insurance industry's sluggish Internet pace can also be attributed to industry concern about unleashing price competition, channel conflict with agents, and the commoditization of insurance products [BAH (1998)].

#### 2.5.2.1.4) Insurance Products Suitable For E-Commerce

Not all insurance products are equally suited to Internet distribution. Their suitability depends chiefly on how much advice is required. The more complex the product and the bigger its financial scale or transaction volume, the greater the client's willingness to pay for advice. Products that are particularly suitable for marketing on the Internet are those that can be described and rated using a small number of parameters, such as motor, private liability, homeowners, household contents and term life insurance. These types of cover are also suitable for online price comparisons, which make the Internet even more attractive for potential clients [SwissRe (2000)].

E-commerce also will have implications for the sale of more unique and complex insurance and reinsurance products particularly those purchased by commercial enterprises. These transactions rely heavily on information and communication and e-commerce can make this process more efficient. At the same time, the sale and servicing of complex insurance products will require different kinds of networks appropriate for individualized transactions. Security will be an important consideration here given the large amounts of insurance and proprietary information at stake [UNCTAD (2002)].

Products that are not necessarily suitable for online marketing include most life and pension products, health insurance and many commercial lines. But even these products can benefit from the huge opportunities for quality and service improvements presented by e-commerce [SwissRe (2000)]:

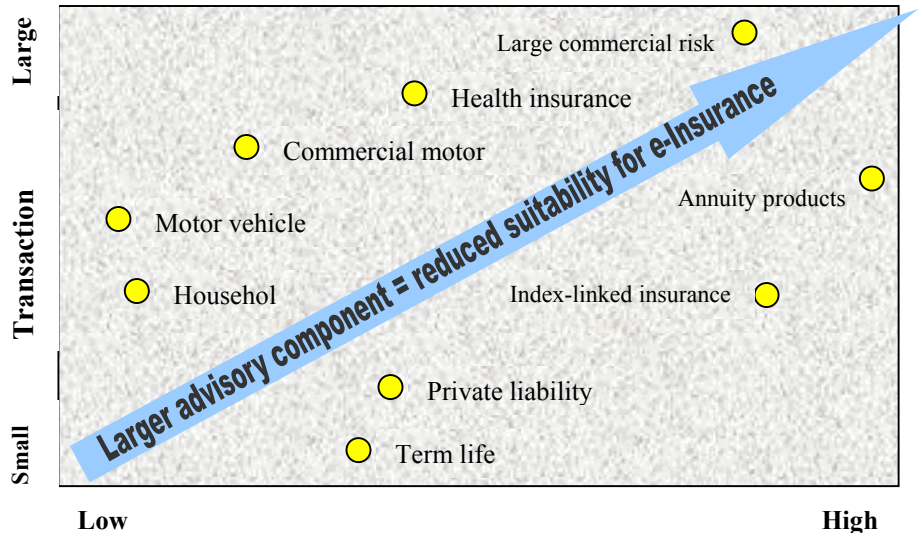
- If clients already have extensive product and risk expertise, the Internet can still be used as a marketing tool, despite the high complexity and transaction volume. "Internet team room", for example, could support the consulting and negotiation process.

- Even if the conclusion of the policy and the associated advisory services occur with little or no online support, policy administration or claims settlement can still benefit from such support. For example, a client may seek independent advice when choosing a private health insurer, but is prepared to use online facilities to process and settle doctors' bills.

- Brokers can use e-commerce solutions to bundle together the needs of a large number of clients, handle the administration themselves, and then forward the data to the insurer.
- Modern communication technologies allow more personalized products, faster response times, greater flexibility in covers and better support for risk management.

However, there are ongoing debates about the suitability of individual insurance product for e-commerce. The conventional wisdom is that obligatory, very simple or low-price products do not require a seller's push and thus can be distributed through e-commerce. The greatest demand is for motor vehicle insurance, followed by health, homeowner's and term life insurance. The very desired product to be sold on the net is shown in the Figure 2.9, whereas insurers selling online directly to clients are offering a very restricted portfolio of products.

**Figure 2.9- Product suitability for e-insurance**




*Source: SwissRe (2000).*

For instance, *Progressive.com*, a leader in the United States online insurance market, is currently offering only motor vehicle insurance and related products. Another prominent online insurer, *Allstate.com*, is more ambitious and offers motor, homeowner's, life and mall business insurance policies. *Amica.com* provides only motor and homeowner's policies, and several types of life insurance. European insurers also vary in the scope of offered insurance policies. For example, *Ineas.com* provides motor vehicle, homeowner's and accident insurance while *esure.com* offers only motor vehicle insurance [Rakovska (2001)].

While many insurers continue to rely on their agency networks and cling to the "sold not bought" paradigm, there is little real evidence supporting it, apart from pronouncements about its genuineness that are often articulated by insurance agents and managers. What is needed to bring insurance online is the implementation of best-practice management and technology suited to e-commerce [UNCTAD (2002)].

#### 2.5.2.1.5) New Value Creation For Insurers

The use of Internet technologies in the insurance industry is not just limited to distribution, but also has a fundamental impact on almost all other production areas. The integration of all business processes in a unified information flow significantly reduces the cost of gathering and analyzing information. Since the efficient processing of information is a key factor for insurers in the creation of value, the use of new information and communication technologies enables them to revamp and rationalize key links in the value chain.

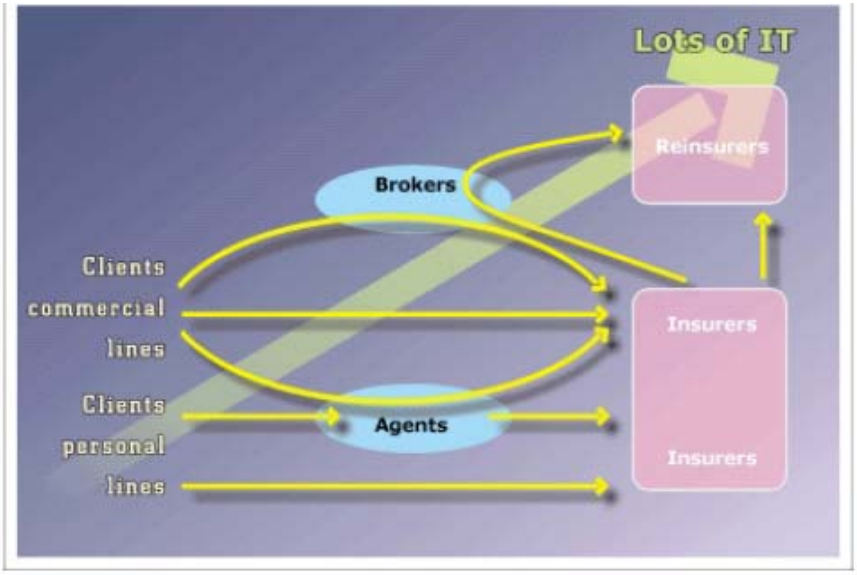
Newly established insurers are not burdened by legacy business systems and are able to exploit modern information and communication technologies in order to set "best practice" benchmarks for the entire industry. This will exert significant pressure on established insurers to adapt their business model to the changing requirements for greater efficiency, speed and quality of service [SwissRe (2000)].

In the past, the value creation of insurers has centered on the aspects of distribution, administration and claims settlement. In these areas there are many routine tasks that could be automated through the efficient use of information and communication technologies. The task would therefore embody less value creation. In the future, insurers will have to create a greater proportion of their added value through a higher standard of service [SwissRe (2000)].

#### 2.5.2.1.6) Pre-Internet And Internet-enabled Insurance

Internet and e-commerce technologies are already changing the structure of the insurance industry. The magnitude of the change can be best appreciated by comparing Figure 2.10 and Figure 2.11. As shown in Figure 2.10, the pre-Internet insurance world is largely linear, with individuals (personal lines) or businesses (commercial lines) moving risk to insurers, sometimes directly, but more often through the intermediation of brokers and agents. Intermediaries are responsible for processing more than 90 per cent of all premiums collected. The application of information technology increases diagonally down the chart and is most prevalent in the reinsurance sector [SwissRe (2000) and UNCTAD (2002)]. This is the similar case in the Iranian insurance companies now, too.

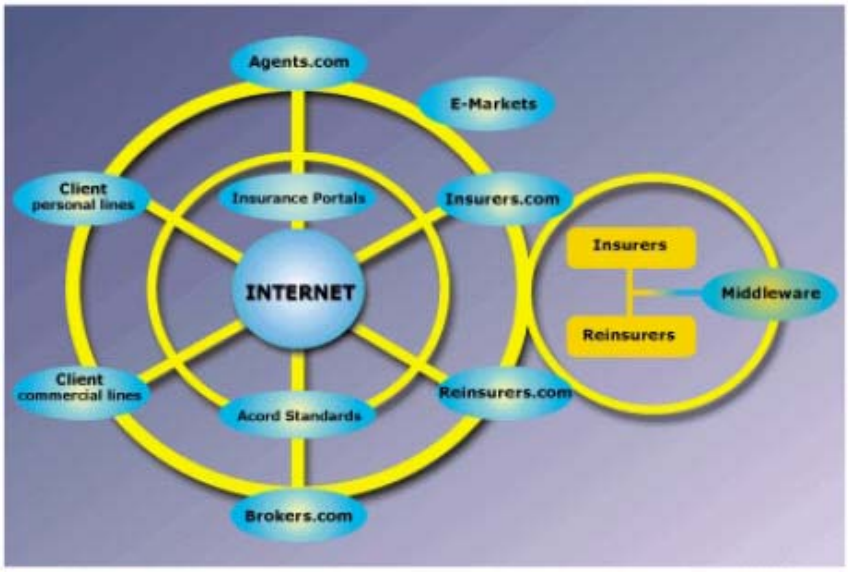
**Figure 2.10- Pre-Internet insurance business process**




*Source: UNCTAD (2002).*

Figure 2.11 visualizes an Internet-enabled insurance industry and market. Its main characteristics are that technology can be evenly distributed and information intermediation is no longer a necessity but a preference. Gone is the linear travel of payments and risk information from client to (re)insurer. Buyers of personal and commercial insurance and reinsurance can choose to pursue multiple paths to acquire price and policy information. Insurers and reinsures have extended their reach through their online incarnations. Brokers and agents may do so as well. Using data standards can positively facilitate the resulting increase in communication and data exchange [UNCTAD (2002)].

**Figure 2.11- Internet-enabled insurance business**




*Source: UNCTAD (2002).*

Agents and brokers were an irreplaceable link in the pre-Internet insurance industry. Agents intermediated sales of policies to non-businesses, such as personal life insurance, motor vehicle insurance, homeowners insurance and various savings and investment schemes. They also intermediated insurance for small and dismissed business. Brokers intermediated insurance between large organizations, or businesses, and insurers, as well as between insurers and reinsures. Their economic role was to enhance market efficiency by diminishing information asymmetries between buyers and sellers caused by any of the following situations [UNCTAD (2002)]:

- The insurer is not fully informed of the scope of the demand, or the insured is not knowledgeable about the selection of insurance policies and prices available; or

- The insurer has not fully mastered the technical and economic details of the proposed risk, or the insured does not clearly understand the insurance policy's proposed terms and conditions.

In practice, agents are generally authorized to sell policies from only one or a few insurers. Further, the terms and policy wordings of different insurers, even if distributed by the same agent, often do not match. To clarify these differences and enable cross-comparisons is perhaps the most important role of the agent.

Full discussion about the Internet-enabled model along with more details on each items mentioned in the charts (including some case study) can be found in UNCTAD (2002).

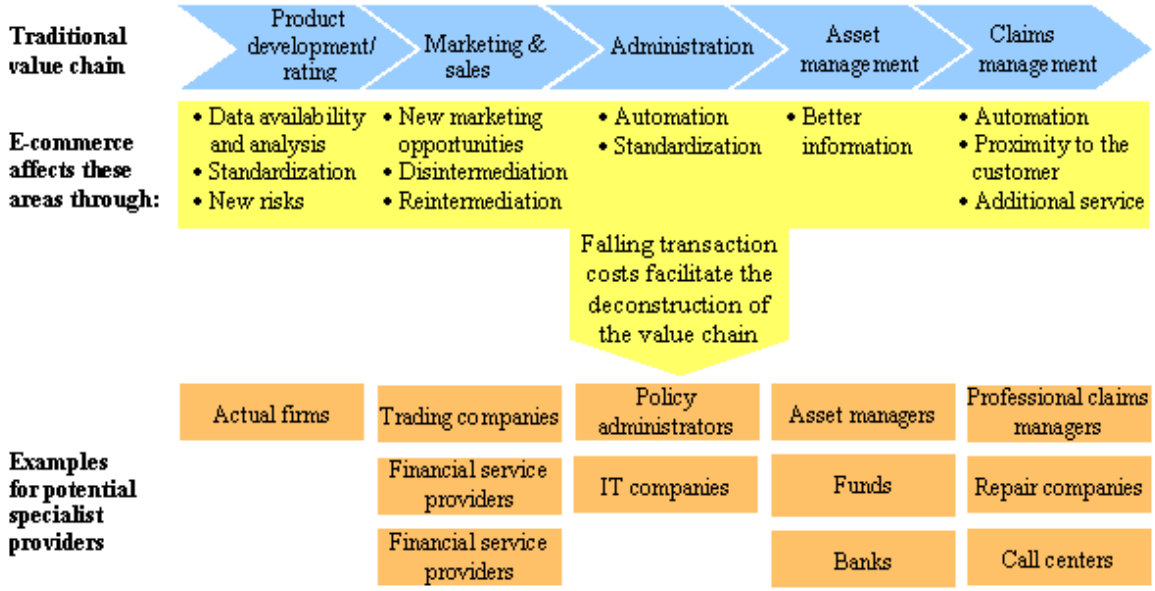
#### 2.5.2.1.7) Outsourcing Of Insurance Functions

New information and communication technologies are making it easier for insurers to break up the value chain. Individual functions, such as underwriting, policy administration, claims management, investment or risk management can be optimized within the business divisions or outsourced to a rapidly growing number of specialized external providers. Claims management, underwriting and some parts of risk management are particularly suitable for outsourcing to specialized providers. Rising cost pressure will force traditional providers to review their fully integrated business model [UNCTAD (2002)].

Traditional insurers perform almost all stages of the value creation process themselves. However, a number of functions in the value creation process may be outsourced or assigned to specialized service providers at greater efficiency and lower costs. Examples are listed in Figure 2.12.

It, also, shows the value chain of a typical insurer. Traditional insurers perform almost all stages of the value creation process themselves. The bottom half of the figure provides a list of specialized providers that handle individual functions in the disintegrated business model. This would allow insurers to concentrate on those links in the value chain they enjoy a competitive advantage(s) [SwissRe (2000)].

**Figure 2.12- Insurance value chain and e-commerce opportunities**




*Source: SwissRe (2000).*

## 2.5.2.2) Effects Of E-commerce On Customers

E-commerce opens up new ways of reducing costs. Simultaneously hardening competition will ensure that these benefits are passed on to the consumer. The Internet offers a number of possibilities for increasing the value creation for consumers by means of increased transparency and improved services, not just in the area of sales [SwissRe (2000)].

Consumers might believe that they can get different and better service though the Internet. This can be seen today in a number of limited examples. The Internet user, usually an above-average earner, well informed and price conscious, likes to have several quotes to compare. Consumers can obtain quotes for a number of companies. This is the idea behind the strategy of aggregators, also known as navigators, supermarket sites or malls. In some cases, consumers can see rating agencies' evaluations of insurers. The Internet and outsourcing can provide additional cost savings to the consumer. By removing layers of inefficiencies, technology can bring the customer closer to the insurance contract [Archeret al. (2000)].

Consumers will also obtain price comparisons for relatively generic contracts. For example, for many online insurers, they can compare prices for annual renewable-term life insurance. Or, they can compare insurers' rates for a standard set of auto insurance coverage for a given vehicle and driver characteristics.

Consumers also could have access to internal records to see where their claims are in terms of payment, when their next annuity payment is due, and how their mutual fund is performing. This can be done without calling a burdensome voice-mail system, being put on hold, or finding a person who can give them the desired information efficiently.

In addition to personal lines, commercial lines are also likely to benefit from innovations over the Internet. Large consumers of insurance could build or participate in outsourcing market auctions. Certain relatively standardized blocks of business (fleet auto or workers' compensation) could be put up for bid. This would disinter-mediate the broker or agent from a number of transactions unless they were the real market makers. At the same time, intermediaries (i.e., brokers and agents) could provide additional risk management advice to commercial buyers and qualitative information about different insurers [IAIS (1999)].

E-commerce can bring a substantial improvement to service quality. An almost complete lists of benefits and advantages of implementation of e-commerce to customers have been discussed in the pervious section. But, the important aspects include [SwissRe (2000)]:

- Continuous service (24 hours/7 days)
- Depth of available information, such as price comparisons, product information
- No restrictions imposed by national borders
- Faster response times
- Anonymity
- More transparency and speed of claims management

However, complete lists of these benefits were previously provided in the section 3.5 in this chapter. These advantages virtually constitute a catalog of requirements for insurers' successful Internet presence. At present many websites are cluttered and difficult to navigate. Many insurance websites do not allow price comparisons. If a client wants to compare quotes from several companies, the client still has to fill in a questionnaire with each insurer. This is the exact case in the Iranian insurance companies, too [SwissRe (2000) and UNCTAD (2002)].

Insurance clients may use the Internet to place a large risk themselves. These "reverse auctions" are particularly suited to big corporate clients who put their insurance requirements out to tender and then select the most competitive offer. A purchasing group could also use this facility; an automobile association, for example, looking for the cheapest insurance cover for its members. Although individual policies could be put out to tender in personal lines, this would however require very efficient search engines or aggregators on the part of the insurer, in order to keep the search costs for such small risks within reasonable limits [SwissRe (2000)].

### 2.5.2.3) Effects Of E-commerce On Intermediaries

The effect of e-commerce on insurance brokers[1] depends largely on the insurance product in question. In the area of standard products, where there is little need for advice, traditional brokers are finding themselves faced with considerable competition on account of falling information costs. In contrast, where products require a large amount of advice, and benefits and prices are difficult to compare, brokers will turn e-commerce to their advantage and offer more finance management and risk consulting services. This is particularly the case for complex pension products in life insurance, commercial lines insurance and the strong growth market of integrated risk management products.

To the extent that an insurance broker has been restricted in the past to gathering price and product information, the spread of the Internet presents a real threat to the broker as it reduces information costs. E-commerce makes it easier for insurers to establish direct contact with clients. Aggregators already offer good price comparisons substantially faster than conventional brokers. In some cases, clients can obtain online quotations on these websites, and in other cases clients' queries are forwarded electronically to participating insurance companies. Many Internet providers already perform a number of information functions. Examples can be found in SwissRe (2000).

However, insurance brokers will continue to enjoy good market opportunities if they use information technology to provide high quality advice and services. The Internet is a powerful tool for this purpose. Insurance brokers may find a new role in providing services that the Internet cannot deliver. One example is to reduce the data overload experienced when surfing the Net. Another likely development is that clients feel that an independent adviser best performs the tasks described above. This implies that fees for services will replace the traditional remuneration system of commissions based on premium volume. Such a development is especially likely in commercial lines [SwissRe (2000)].

Insurance intermediaries will need to strategically restructure their services to respond to, and take advantage of, the changes that will be prompted by e-commerce. As with other stakeholders, agents will need to be involved in the changes brought by electronic commerce so that they can facilitate these changes rather than impede them [Garven (2000)].

One of the reasons insurers have been slow to go to electronic commerce is the fear of cannibalizing the agent's business. What is interesting about the agent's role in the value chain is that, the Internet does not necessarily imply the death of the agent. Many insurers are examining their agent's role in the process and are also developing direct contacts with the insured through their Web presence. However, when the electronic securities traders of

[1] The IAIS defines intermediary as referring to any person who, or organization which, gives advice by way of direct offering, advertising or on a person-to-person basis in respect of an insurance product and includes the promotion of such product or the facilitation of an agreement or contract between an insurer and a customer. Intermediaries are generally divided into separate classes. The most common types are "independent intermediaries" who represent the buyer in dealings with the insurer (also known as independent brokers) and "agents" (which generally include multiple agents and sub-agents) who represent the insurer.

the world came online, there were forecasts of the demise of the traditional stockbroker. Stockbrokers still exist, but they are now in a competitive market that forces them to innovate to provide new and valuable services to their clients. Similarly, travel agents still exist and are able to compete against electronic ticketing and reservations systems because they can provide additional and valuable information.

Another problem with the generic model of Internet commerce in insurance is that consumers only purchase based on price. This would be true and it would make sense if the insurance industry sold a homogeneous product, but this is not the case. Insurers differ from each other in their customer service and their financial stability, as well as the provisions of their contracts.

Arguably financial stability can be accounted for by examining the ratings of the company. Rating agencies however do not tell a policyholder that an insurer will pay in a timely and forthright manner, just that the company can pay its claims. Policyholder service can mean more than just a friendly e-mail to let people know their claim is being handled. In fact, it can mean that a claim is investigated and paid promptly, thus minimizing the customers' time and effort. This type of information is not available on the Internet and is the type of information that an agent could provide. Also, many consumers are not well informed about their insurance needs and how best to satisfy them. Agents could enhance their advisory role to consumers as their paper and money-processing functions diminish [SwissRe (2000) and UNTCAD (2002)].

#### 2.5.2.3.1) The Nature Of Intermediation

One prominent feature of an intermediary is to act as a communicator of consumer preferences and to inform consumers about new products and their characteristics (e.g., quality, price, function, etc.). They bear some of the inventory risks of producers and reduce the search costs for consumers. But this is by no means the only service an intermediary offers. Others include ensuring compliance with consumer protection (and bearing the related risks), customer service, inventory management (and bearing the related risks), distribution (and bearing the related risks), and costs savings due to economies of scale in transportation or distribution in general.

The relationships between producers (buyer/seller) and intermediaries are frequently interpreted as principal-agent relations. Due to the opportunistic behavior of the agent the principal is confronted with agency costs. The most obvious way to reduce agency costs, though, is to abolish the agent altogether. This would imply that the principal has to perform the task itself, thereby reducing costs by saving the agent's compensation and the principal's share of the agency costs, but incurring additional production costs [Schmitz (2000)].

The agent must therefore have a comparative advantage in performing the task under consideration; otherwise, the principal would have no incentive to engage in a principal-agent relation in the first place. The marginal efficiency gains resulting from the employment of the agent (i.e., marginal costs of procurement minus the marginal costs of

internal production) must compensate the principal for its share of the agency costs and the agent's compensation at the margin.

It is the central task of intermediation to gather, organize, and evaluate the knowledge of particular circumstances of time and space and to communicate it to producers. As an intermediary specializes in the acquisition of relevant knowledge a competitive advantage is gained due to prevailing economies of scale in the production of information.

Once the intermediary has accomplished his or her task it seems that producers and consumers could do easily without him or her since the necessary knowledge has already been gathered, organized, and conveyed to the market participants. To conclude that the intermediary would now be under threat is not justified since in a dynamic economy the particular circumstances of time and space are always and constantly subject to change. To ensure that the producer can adapt to such changes quickly requires that the necessary information be conveyed [Garven (1998) and Garven (2000)]).

The effects of electronic commerce on intermediation will also depend on the characteristics of the goods under consideration: high degrees of standardization, a low complexity of valuation and ease of description are pre-requisites to distribute goods via electronic commerce. Obviously, the goods that can be sold this way largely consist of all the goods that are distributed via catalogue sales and TV shopping channels (e. g., books, fashion, CDs, etc.). The production of a catalogue (or a TV commercial presentation) is costly and time-consuming relative to producing and updating a Web site. Therefore, the set of goods that can be distributed via electronic commerce is larger than the set of goods distributed via catalogue sales and TV shopping channels [Schmitz (2000)].

It also includes all goods for which the production of a catalogue would be either:

- excessively expensive, or
- excessively time-consuming (e .g., stock market information services, etc.).

Furthermore, it includes all digitized goods for which the delivery of hard copies (e .g., software, CDs) via mail is excessively expensive and time-consuming. Therefore, only intermediaries dealing in these sets of goods can be expected to be directly affected by electronic commerce. The diffusion of information and communication technology can also influence the set of goods, which can be distributed via e-commerce. This problem, however, is beyond the scope of this paper.

But in most of the arguments on disintermediation the reduction of information and search costs due to the diffusion of electronic commerce play a central role. The empirical results building on different definitions of electronic commerce differ widely.

The costs of processing existing information decrease. More digitized information can be processed in less time. In addition to increasing the efficiency of information processing, electronic commerce is also expected to lead to an integration of different processes of collecting, manipulating, and transmitting information. Thereby, existing digitized information stored in various places can be interconnected [Schmitz (2000)].

#### 2.5.2.3.2) Disintermediation By E-commerce

The process of removing the middleman from a transaction is commonly referred to as disinter-mediation. This term first gained popularity in financial markets during the late 1970s when consumers began to favor money market accounts marketed by the securities industry over traditional financial products offered by banks and thrift institution. When the notion first arose that firms could actually sell goods and services over the Internet, there was a widespread belief that this would mean the death of the middleman [Baatz (1996)]. The conventional wisdom that emerged at the time was that by making it technically possible to interact directly with consumers, firms could bypass wholesalers and retailers altogether. The resulting cost savings would, depending upon how competitively structured product markets were, be enjoyed by producers and consumers [Garven (2000)].

The elimination of intermediaries can have one of two causes [Schmitz (2000)]:

- there is no longer demand for the services provided by the intermediary, or
- the provider of these services is integrated into another company at a different step in the value chain (e.g., the acquisition of a distributor by a producer) and the service will be produced internally.

However, disintermediation can be described as the displacement or elimination of market intermediaries, enabling direct trade with buyers and consumers without agents [Wigand (1997)].

Finally, an integrated Internet strategy is needed before re-structuring intermediaries in insurance networks and making them disintermediated. A dual strategy proposed by Porter (2001) can be used as a benchmark to use both online and offline sales.

## 2.5.3) E-insurance: The “Hype” And The “Reality”

There is too much hype and overstated claims associated with the Internet in every industry. This is especially true in the insurance business. In fact, there are some signs of a "dot.com backlash" because senior executives instinctively mistrust many of the claims and projections related to the Internet. However, ignoring the reality of the implications and opportunities of the net would be a serious mistake [Aspire Systems (2004)].

Table 2.6 summarizes some hype and reality about e-insurance.

**Table 2.6-The hype and reality about the e-commerce**

| The "Hype" | The "Reality" |
|---|---|
| ☑ All insurance sales will be online in 5 years.<br>☑ Insurance.com will be bigger than all exiting insurance companies in 2004.<br>☑ Agents and brokers will be extinct.<br>☑ E-commerce is going to replace all other transactions. | ☑ Net-based technologies will radically change how we do business with our customers, agents and internal and external business partners.<br>☑ If you don't have an Internet strategy to generate revenue, reduce costs and provide better service, your company will be at a competitive disadvantage; No matter how successful you are today. |

*Source: Aspire Systems (2000).*

Many executives are understandably struggling with the issue of how to define and implement an Internet strategy. The emphasis has been on building "*brochure-ware*" sites that offer little value for customers. There is also a growing sense of some vague need to do e-commerce, but with little definition or understanding of the implications of that decision. There has also been limited discussion about the true value of the Internet in terms of reshaping business practices and delivery systems.

The modest progress in e-insurance, in developed countries, compared to the online banking sector, can also be explained by the notion that insurance companies consider the use of e-commerce, and its disintermediating effect, a fairly risky business strategy. A recent SIGMA report on e-insurance concluded that "re-engineering traditional business processes is expensive and often meets with considerable opposition from within the (insurance) company itself" [SwissRe(2000)]. A similar and recent survey by KMPG[1] revealed that, while the industry is planning and preparing for e-insurance, for 40 per cent of companies' e-business actually a threat because of a lack of strategic vision. Further, a quarter of the 175 insurance executives interviewed affirmed that their companies lacked e-business competencies. In a recent joint study by the Economist Intelligence Unit and PricewaterhouseCoopers, two-thirds of the insurance managers interviewed said that their own companies do not have sufficient e-business leadership capabilities for success in e-insurance [KPMG (1999)].

The same study noted that few insurers believed they had the requisite in-house technological skills for e-business. It is worth noting that, that while insurers employ on

[1] [1] KPMG LLP, the professional services firm, surveyed 175 senior insurance executives at its 12th Annual Insurance Industry Conference and found that insurance firms are pursuing a number of future strategic options. In addition, the executives felt that more strategic e-business vision is needed. **KPMG LLP e-insurance survey** were reported at www.ivans.com

average 48 per cent more IT staff than banks do, the majority are used to service and manage unique proprietary IT systems where it is difficult to achieve economies of scale [Insurance Networking (2001)].

What price competition and product commoditization are probably basic facts of life in an increasingly competitive financial marketplace, clearly insurers whose agency distribution networks are among their most valuable corporate assets have good reason to be concerned about how to best resolve potential channel conflicts. The question that such companies will need to address is how to embrace electronic commerce in a way that enhances rather than diminishes the value of these networks. Insurers will need to determine ways to configure electronic channels that enhance traditional channels and possibly even increase overall channel utilization. After all, channel choices do not necessarily have to be mutually exclusive, and often they can be configured to reinforce each other. Indeed, Charles Schwab reports that nearly all of its on-line customers also access its call centers or visit a branch to speak with a broker [see Gazala.et al. (1998)].

Although consumers have expressed interest in online sales and customer service, many nevertheless resist conducting insurance transactions online because they [IVANS (1998)]:

1. Prefer more personal attention,
2. Are concerned about privacy and Security, and
3. Think that existing methods for transacting insurance online are too complicated.

Although there very well may be more immediate technological solutions to point 2 and 3, technological solutions to the first point will probably few and far between for some time to come. Furthermore, Epper.et al. (1997) conclude that regulatory roadblocks will also create incentives for financial firms to build on-line connections to live agents for explicit help.

### 2.5.4) The Impact Of E-commerce On The Iranian Insurance Companies

The effects of e-business are the subjects of intense debate in the insurance industry. The latest Sigma study has been provided fundamental resources in this regard [SwissRe (2000)]. Then, others have done a few studies in other countries. For instance, Dasgupta and Sengupta (2002) have been studied the e-Commerce in the Indian Insurance Industry, and e-commerce adoption of insurance companies in New Zealand, has been discussed by Yao (2004). However, the main concern of the current research is to study the impact of e-commerce on the Iranian insurance companies. In the following sections, our paradigm and methodology based on this literature review will be explained.

## 2.6) Summary Of Literature Review

In this section, a brief summary of the "Literature Review Chapter" is presented. The literature review is mainly focused on insurance industry, e-commerce and application of e-commerce in insurance industry, or in other words, e-insurance. Thus, the literature review chapter is arranged as follow. An introduction to this chapter is presented in the first section and the second section is devoted to insurance Industry and covers insurance value chain and business process, insurance market overview, and current issues within the insurance industry.

Insurance industry in Iran is discussed in the third section and covers insurance background in Iran, insurance services and coverage, insurance management in Iran and ends with an introduction to Iranian insurance companies (both private and state-owned insurers).

Internet and the world wide web, an introduction to e-commerce, technologies of electronic commerce, major types of e-commerce, benefits of e-commerce, limitations and barriers to e-commerce, from e-commerce to e-insurance, impact of e-commerce on insurance, implementation of e-commerce in insurance, potential effects of e-commerce on the insurance industry are elaborated more on in the fourth section entitled "Internet and e-commerce." This section, also, has been finished by underling the "hype" and the "reality" about e-insurance and, finally, the impact of e-commerce on the Iranian insurance companies.

# Chapter 3 FRAME OF REFERENCE

## 3.1) Introduction

The previous chapter provided a brief review of literature related to our research questions. This chapter will provide the conceptualization, which constitutes the frame of reference for this study. The aim of this chapter is to select relevant theories and concepts that we will use in our research. Hence, the frame of reference will guide us when collecting the data and help us fulfill the purpose of gaining a better understanding of impact of e-commerce on insurance companies. After presenting the conceptualization, we will provide a visualization of the emerged frame of reference.

## 3.2) Conceptualization

According to Miles and Huberman (1994), a conceptual framework explains either graphically or in narrative form, the main items or areas to be studied. We will start by presenting theories that are connected to the five research questions which are described in Chapter 1.

### 3.2.1) Attitudes And Views

**RQ1:** ***What are the attitudes and views of the insurance companies regarding e-commerce****?*

A few companies in the developing countries, and specifically Iran, are lagging to get benefits of new business opportunities, such as Internet and e-commerce. In almost all industrialized and also in some developing countries (say India) roughly every kind of business is shifting to online business in order to expand activities and markets boundary. Many insurers in those countries with high level of e-commerce application are familiar with the concept and advent of "e" (and in some cases, they have practically experienced of utilization).

However, due to lack of general acceptance and application of e-commerce in the Iranian industries, especially in the service sectors, it is necessary to evaluate mindset of insurers toward deployment of e-commerce in their companies. Hence, we need to consider these items when we want to design the questionnaire:

- Acquaintance with e-commerce
- Attitudes and views toward deploying of e-commerce in the insurance industry as well as their companies

Generally, the aim of this first part of questions is to find out how insurers think about e-commerce and what is their frame of mind?

### 3.2.2) Infrastructure Requirement

**RQ2:** ***To what extent are they equipped to the infrastructures required in implementation of e-commerce?***

Insurers over the world are beginning to realize the importance of establishing a presence on the World Wide Web. Many companies (within the Iranian industries) have developed Web sites — collections of related information, usually with convenient ways of navigating through the material and finding the desired sections.

The level of functionality in insurers' web sites varies widely. Almost every site, in the Iranian insurance industry, contains only general information about the company and its products. Some of them offer complete product descriptions. Still others let consumers send electronic messages to the company and help consumers locate the company's agents. And none of them provide a premium quote or even issue a policy online, so far!

Insurers that wish to offer premium quotes or conduct transactions over the Internet need to implement strong security measures [SwissRe (2000)]. Hardware and software systems are available to prevent unauthorized access to portions of a website and to protect both insurers' systems and the confidential information consumers submit.

To what extent the Iranian insurance companies are equipped with the basic and essential infrastructures listed below? [SwissRe (2000), Dasgupta and Sengupta (2002), Tokuro (2003), Turban et al. (2002), and Turban and King (2003)]

- Hardware and Network (Computers, Modem, Internet, Intra/Extra-net, e-mail, …)
- Software (Public and specialized/advanced packages, Standardized processes and systems, …)
- IT experts
- Skilled staffs (in e-commerce).

## 3.2.3) Major Obstacles

**RQ3:** ***What are the major obstacles ahead of application of e-commerce?***

For traditional insurers, the need to adapt to the new e-commerce opportunities not only entails direct cost, in the form of substantial investments in the new information and communication technologies, but also the indirect costs of having to change their existing business models. Companies have to revamp their business processes and corporate structures, which leads to many different internal conflicts. Internet marketing threatens traditional distribution channels and therefore tends to meet with strong resistance within the company [SwissRe (2000)].
The importance of the Internet as a distribution channel is questioned because of a number of challenges. A full list of obstacles and concerns has been listed in the chapter II of this research. As far as the insurance firms are concerned, these items may hamper implementation of e-commerce [SwissRe (2000), Hann (1999), Turban et al. (2002), and Turban and King (2003)]:

- Low intention to buy online
- Low Internet usage and fewer users
- Security reservations
- Expensive and complicated technologies of e-commerce
- Non-conformity of current products and services to online offers
- Product complexity and low-interest products
- Scarcity of skilled staff
- Traditionally attitudes and views over the companies
- Inflexible organizational chart and resistance to change
- Internal conflicts and negative reaction from intermediates, agents, brokers, …
- Lack of appropriate legislation and regulation (e.g., copy right, digital signature, …)
- Lagging of other supportive sectors (e.g. Banks and Telecommunications).

## 3.2.4) Potential Applications

**RQ4:** ***What are the potential applications of e-commerce in the insurance companies?***

The new e-commerce capabilities bring significant efficiency improvements in distribution, administration and claims settlement. The biggest cost block for a non-life insurer is usually claims payments. Online distribution brings a direct reduction in distribution costs. Additional savings potential comes from using e-commerce to automate business processes. This in turn brings reductions in administration and claims settlement costs. Modern information technologies also bring cost savings for claims payments. For example, better data analysis may improve risk selection, while the detection of insurance fraud and tighter control by partner companies can help to reduce claims costs [UNCTAD (2003)].

Insurance products practically suited for production, administration and distribution online Internet offers a wide range of application opportunities in all of the value creation types [SwissRe (2000) and e-Business W@tch (2002)]:

- Product and service development (R&D)
- Marketing and sales
- Administration
- Asset management
- Claims management

Hence, it is important to know how Iranian insurers evaluate the potentiality of these value chains to adapt with e-commerce. Also which products are suitable to be sold over the Internet? Products that are practically suitable for marketing on the Internet are those which can be described and rated using a small number of parameters [SwissRe (2000)]. Insurance products (portfolios) can be listed as below [SwissRe (2000), UNCTAD (2002), and BMI (2004)]:

- Household contents and Homeowner
- Private liability and engineering
- Health
- Fire & allied perils insurance
- Marine insurance (Cargo & Hull)
- Aviation insurance (Hull & Liabilities)
- Auto (motor) insurance (T.P.L. Physical damage, Passenger/Personal Accident)
- Engineering insurance (e.g. Contractor's and erection all-risks, Machinery-breakdown, Machinery & equipments, Electronic devices, ...)
- Liability insurance (e.g. General liability, Contractors, Employee's and Professional liability etc.)
- Personal accidents insurance (Individual & Group insurance policy)
- Life insurance (e.g. Term & Endowments etc.)
- Reinsurance

Since, all Iranian insurers don't offer all products listed above, so in our research, we will focus on the most popular insurance products sold in Iran. As far as the Iranian insurance companies concern, these products are:

- Fire insurance
- Personal insurance (Health, life and accidents)
- Liability insurance
- Marine and Aviation insurance
- Engineering insurance
- Auto insurance

### 3.2.5) Perceived Benefits

**RQ5:** ***What are the benefits sought from application of e-commerce?***

Insurers selling over the Internet will have a substantial cost advantage over the lifetime of a customer, relative to non-internet based insurers. These efficiencies are primarily driven by reduced sales costs, lower customer service costs, and cheaper and better information-gathering about the customer. At the same time, the use of e-commerce will demand the progression and integration of various components of insurers' information systems. A full list of potential benefits and advantages (for both business and consumer) have been listed in the chapter II of this research in the related section.

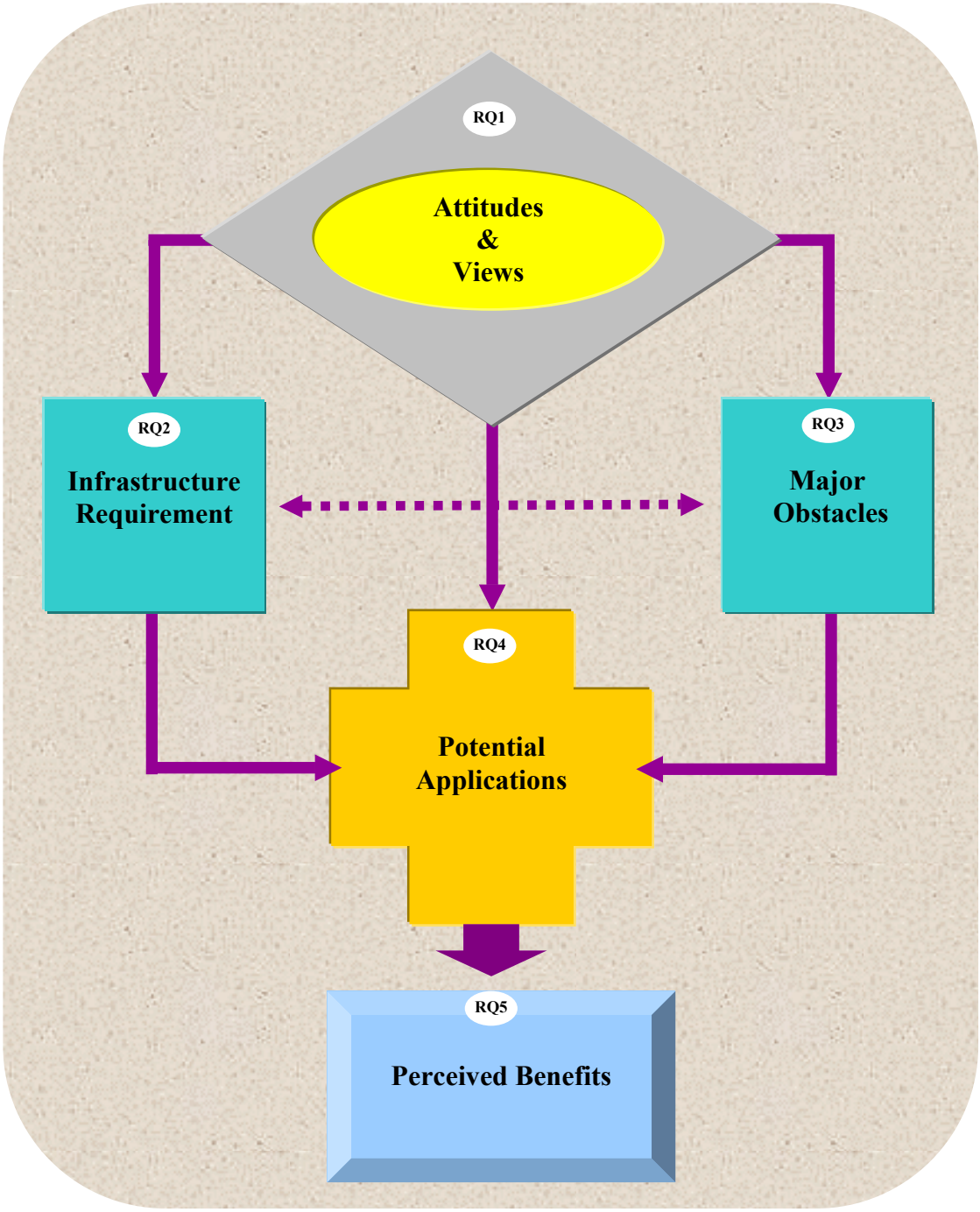
However, Internet and e-commerce can introduce some benefits and rewards, such as [SwissRe (2000), Hann (1999), Turban et al. (2002), Turban and King (2003), and UNCTAD (2002)]:

- Brand and image promotion (as a pioneer and modern company)
- Lower invest for establishing the sales and after sales services network
- Cost reduction in value chain management (e.g. product/service development)
- Decentralization and no restrictions imposed by national borders
- Desired CRM through continuous service (24 hours/7 days) and fast response
- More transparency and speed of claims management
- Increase of sale volumes (premium)
- Mass-customization and innovation
- Knowledge management and good stakeholder relationship
- Promotion enhancement with lower cost
- Job enrichment and high productivity
- Extended corporation with partners (specially in the reinsurance cases).

## 3.3) Emerged Frame Of Reference

In this section based on the conceptual discussion, we will present the emerged frame of reference which will guide us in collecting data. Figure 3.1, however, visualizes the emerged frame of reference.

**Figure 3.1-The emerged frame of reference**



# Chapter 4 RESEARCH METHODOLOGY

## 4.1) Introduction

This chapter deals with the methodology proposed for the current research. It is based on the research problem and stated research questions. In this chapter, we outline the methodology to be used in our research and the theoretical basis behind the approaches and their definitions for the understanding of the readers. It starts with the intention of applying research methodology in this study, followed by a brief outline of some common research approaches and the associated methods and techniques used for the collection of relevant data. The appropriate research methodologies were then selected for this thesis. The methodology chapter includes discussion around the research type/purpose and approach, research strategy, research design (including sample selection, data collection instrument, sample size and data analysis), and finally research quality criteria. Motivations and justifications for all adopted methodological choice will be given in each section.

## 4.2) Research Approach

The research approach is often either quantitative or qualitative. The qualitative and quantitative methods refer to the means through which one chooses to discuss and analyze the selected data [Patel and Davidson (1994)]. Both approaches have their strengths and weaknesses and neither one of the approaches can be held better than the other one. The best research method to use for a study depends on that study's research purpose and the accompanying research questions [Yin (1994)]:

- A quantitative approach implies the search for knowledge that will measure, describe, and explain the phenomena of our reality. Quantitative research is often formalized and well structured. It is usually associated with the natural science mode of research; data is quantitative, obtained from samples and observations seeking for relationships and patterns that can be expressed in numbers rather than words [Tull and Hawkins (1990)].

- In contrast, a qualitative research is the search for knowledge that is supposed to investigate, interpret, and understanding the phenomena by the means of an inside perspective [Patel and Tebelius (1987)]. Furthermore, Yin (1994) states that qualitative methods are often related to case studies, where the aim is to receive thorough information and thereby obtain a deep understanding of the research problem. Qualitative research is softer, and explores why people act or think the way they do, and is most effective when 'open ended,' as in focus groups or in-depth interviews.

Since the main objective with this work is to get more of a general picture of the impact of e-commerce on the Iranian insurance companies and precisely, to what extent these insurers will be affected by e-commerce. We are interested in knowing more about what different factors related to e-commerce application. These ambitions may indicate that we should use quantitative methods and address a larger population in order to describe and compare different factors influencing this embracement of e-commerce application in the Iranian insurance companies. As a result of these explanations, a quantitative research is fulfilling our requirements, since we are conducting research on figures not on behaviors.

## 4.3) Research Type

There are many ways to carry out a research. Most type of research can be classified according to how much the researcher knows about the problem before starting the investigation [Yin (1994)]. However, there are three classifications of research available when dealing with a research problem: *exploratory, descriptive, or explanatory* [Zikmund (1994)]. The three categories are described below:

- According to Zikmund (1994) exploratory research is done to clarify the nature of vague problem. In other words, this type of research is meaningful in a situation where researcher does not have enough understanding to proceed with the research project. It is in general done to give the problem a more solid shape and identify which information that is being needed for future research. Exploratory research may develop hypotheses, but it does not seek to test them [Wiedershiem-Paul and Eriksson (1999) and Yin (1994)].

- Descriptive research describes market (population) characteristics or functions. When a particular phenomenon of a nature is under study, it is understandable, that research is needed to describe it, to explain its properties and inner relationships. This type of research is often used when problems are fairly well structured and there is no intention to investigate cause/effect relations [Wiedershiem-Paul and Eriksson (1999) and Yin (1994)].

- Explanatory (causal) research identifies cause and effect relationships between variables. It is valuable for understanding questions of efficacy and when the focus is on cause and effect relationships, explaining what causes produced what effects. This kind

of research is also appropriate when it does not exist a clear apprehension about what model that should be used and what qualities and relations that is important. [Wiedershiem-Paul and Eriksson (1999) and Yin (1994)].

Hence, our research purpose and research questions reveal that the research in this study is primarily descriptive and somewhat explanatory, since it is our intention to describe the area of research and draw some conclusion from the collected data. It is explanatory because we would try to explain the findings by answering the research questions.

## 4.4) Research Strategy

With the focus at quantitative research as a general approach, the focus now turns to the research strategies available to collect the data. A research strategy will be a general plan of how the researcher will go about answering the research questions s/he has set [Saunders (2000)]. According to Yin (1994) there are five primary research strategies, in the social sciences: *experiments, surveys, archival analysis, histories, and case studies*. Brief explanation of these five research strategies is given below:

- Malhorta (1996) views experiment as when the researcher manipulates one or more independent variables and measures their effect on one or more dependent variables, while controlling for the effect of extraneous or irrelevant variables. Zikmund (1994) holds that experiments have the greatest potential for establishing cause and effect relationships. Also experimental control provides a basis for isolating casual factors by eliminating outside influences.

- According to Zikmund (1994) survey is a technique in which information is collected from a sample of people through a questionnaire. Malhorta (1996) looks at survey as interviews with a large number of respondents using a pre-designed questionnaire.

- Archival information holds that the goals are to describe the incidence or prevalence of a phenomenon. The use of archival information is difficult when this topic is coming research area.

- The historical method deals with past, and is used when no relevant persons are alive to report [Yin (1994)].

- Purpose of case study is to obtain information from one or a few situations that are similar to the research's problem situation [Yin (1994)].

Each of these strategies is a different way of collecting and analyzing empirical evidence. Usually, case studies are considered appropriate for the exploratory phase, while surveys and histories fit the descriptive phase, and experiments are the only way of doing explanatory or causal inquiries. Each strategy has its own advantages and disadvantages depending on three conditions [Yin (1994)]:

- The type of research question posed,
- The extent of control an investigator has over actual behavioral events, and
- The degree of focus on contemporary, as opposed to historical events.

Table 4.1 displays these conditions in each of the three columns and shows how each of five strategies is related.

**Table 4.1- Relevant situations for different research strategies**

| Research Strategy | Form of research questions | Requires control of behavioral events? | Focuses on contemporary events? |
|---|---|---|---|
| Experiment | How and why? | Yes | Yes |
| Survey | What, who, where, how many and how much? | No | Yes |
| Archival analysis | What, who, where, how many and how much? | No | Yes/No |
| History | How and why? | No | No |
| Case study | How and why? | No | Yes |

*Source: Yin (1994).*

Research questions are considered the first and most important condition for differentiating among different strategies. “What”, “who”, and “where” questions and their derivatives – “how many’ and “how much” – are likely to favor survey and archival records, while “how” and “why” questions lead us to case studies, histories and experiments as the preferred research strategies. However, the purpose of this study is to answer this question: what is the impact of e-commerce on the Iranian insurance companies. Due to this fact a survey is proposed as the research strategy. In other words, a field study will be conducted to achieve the objective of this research.

Moreover, since the aim of this study was to collect the answers from large scales of people (mainly decision makers) in the Iranian insurance companies and formulate the best possible answers of the investigated problems, we have mainly chosen survey as our research strategy. This choice is also partly determined by our research approach, which to most extent is of quantitative nature.

# 4.5) Research Design

Following the research purpose and its type, research approach and research strategy of this study, the next step is to develop our research design. According to Yin (1994) a research design is the logic that links the data to be collected (and conclusion to be drawn) to the initial questions of a study. It is a plan by which the strategy is to be carried out. It specifies the methods and procedures for the collection, measurement and analysis of data.

## 4.5.1) Data Collection And Type Of Data

There are two kinds of data normally used in researches: primary data and secondary data. Primary data is recognized as data that is gathered for a specific research, especially in response to a particular problem, for the first time. Whereas secondary (or historical) data is the data that already exists, like literature studies, which has been previously collected and assembled for some studies other than the one at hand. It may be useful for the purpose of specific survey [Zikmund (1994)]. This work was mainly based on primary data which provided us with high quality (reliable) and acknowledged data.

As earlier mentioned (in the section of research approach), experiment, surveys and observational studies are a few common research techniques to collect primary data. The most common method of gathering primary data is through surveys. This study used survey to collect primary data.

On the other hand, a survey is often classified by the kind of instrument used. There are many methods of collecting data such as observations, interviews, or questionnaires. The greatest use of questionnaires is made by the survey strategy. Questionnaires are sent to the respondent who answers them without any explanations or influence from the researcher. Questionnaires cannot be to long or to exhaustive because this might lead to unanswered questions. Questionnaire is used as data collection instrument, which will be further described below.

#### 4.5.1.1) Data Collection Instrument: The Questionnaire

The task of writing a questionnaire, determining the list of questions, and designing the format of printed or written questionnaire is an essential aspect of the development of a survey research design [Zikmund (1994)]. According to Zikmund (1994) there are two basic requirements for the questionnaire. These are relevancy and accuracy. For a questionnaire to be relevant, only needed information is collected, i.e. only information that is necessary to solve the question at stake. Accuracy is obtained by having as high validity and reliability as possible which we will explain these two important concepts later on.

As mentioned previously, the frame of reference presented in chapter 3 served as the structure in the development of questionnaire. There are different types of questions that can be used when creating a questionnaire. Generally there are two different types of questions that can be identified, based on the amount of freedom respondents have in answering. These are the closed-ended (fixed-alternatives) questions and open-ended questions. Responses are limited in closed-ended questions and the respondents are given a choice of different alternatives to choose from. Whereas an open-ended questions call for responses of more than a few words that can be detailed one and in the interviewee's own words [Zikmund (1994) and Chisnall (1997)]. Therefore, we used closed-ended questions in the questionnaire in this study.

Furthermore, according to Chisnall (1997), as the Likert-scaled is regarded to have reliability and simple construct, it was found to be suitable for the questions, in this research A 5-point Likert-scale (1=very much, 3= so-so and 5=very low) was used to answer to the question started with "to what extent?"

When designing the questionnaire, a lot of effort was put into the use of language, so that technological terminology used in the line of business would not be transferred into the questionnaire. The respondents, who were the experts, mangers and head of the insurance companies, could become confused if the terminology used were to lie outside their frame of reference. The questionnaire was accompanied with a cover letter, where we decided to what purpose the survey was conducted. Furthermore, both cover letter and the questionnaire were subject to much effort to make the questionnaire appealing to the respondents. All of these actions were taken to help increasing the response rate.

The disposition of the questionnaire was designed to entail six different parts. The first part of the questionnaire, i.e. background question concerning personal profile, was designed to be easy for the respondents to answer and provide us with socio-demographic information of them. In the second part, attitudes and views, the respondents were to answer questions about how well each statement (item) coincide with their opinions regarding e-commerce issues. The objective is to create an understanding of the insurers' attitudes and expectations of e-commerce application. The third part was focused on the infrastructure requirements. The forth part, i.e. major obstacles, was designed to ask the respondents' views about 12 items provided in this part. In the fifth part, the respondents were to give answers about potential application of e-commerce. In other words, to what extent each the section of value chin within an insurance company has the potential to embrace e-commerce? The sixth part

was to state their opinion about the perceived benefits of e-commerce applications. And finally, the questionnaire ended with an open question asking for any comments or suggestion in this regards. Although, the questionnaire were originally designed in Persian language, but the English version of the questionnaire has been attached in the appendix.

#### 4.5.1.2) Sample Selection

For many research questions and objectives it will be impossible for researcher either to collect or to analyze all the data available due to the time, money and often access. Many researcher, for example Moster and Kalton (1986) and Henry (1990), argue that using sampling enables a higher overall accuracy than a census due to the time and cost saving. The sample selection is chosen to include a relatively large number of cases (samples) in a research. The According to Saunders (2000) sampling techniques can be divided into two types:

- Probability or representative sampling
- Non-probability or judgmental sampling

Probability sampling is most commonly associated with survey-based research where researcher needs to make inferences from the sample about a population to answer the research questions or meet the research objectives. In contrast, purposive or judgmental sampling enables to use the judgment to select cases that will best to answer the research questions and meet the researchers' objectives. It may also be used by researchers following the grounded theory approach [Saunders (2000)]. Based on our data collection methods, probability sampling is the most suitable type of the subsequence when selecting research samples in this study.

In the stage of choosing research population, the researcher determines who is to be sampled, how sampling units will be selected and how large a sample is needed. Zikmund (1994) mentioned three sampling questions to have in mind and ask:

1. Target population (sampling frame): Who is to be sampled?
2. Sampling methods: How to choose and select the sampling units?
3. Sample size: How big should the ample size?

The main objective with this research was to achieve an idea of similarities and differences among certain groups of insurers on the insurance industry in Iran.

However, the most important issue in the sampling methodology is the sample frame, i.e., how the companies and respondents within the company are to be selected. In this work, the sampling frame (target population) is all insurance company in Iran (5 state-owned and 11 private insurance companies). These will be further described below.

#### 4.5.1.2.1) Selection Of Company

Currently there are five state-owned and eleven private insurance companies established in Iran. The five state-owned companies have been old established which are active in the market and they have played key roles in the market since previous years. But, the private companies are newly established and some of them are active in the market and started to issue insurance policy since 2002. Also they mostly serve their own clients, who are actually their stakeholders and consequently they have been limited to pre-specified group of companies and customers. For instance, newly established Saman insurance company serves its holder company (*Bank of Saman*[1]) and Amin and Hafez insurance are mainly focused on the free-zone area. Consequently, there is no real competition currently among these companies, and they have their safe market borders.

However, in this research we removed these three insurance companies out of sample frame because of inaccessibility and inactivity of them in the market. Five state-owned (Iran, Asia, Alborz, Dan, and Export & Investment insurance companies) and eight private (Parsian, Mellat, Razi, Tose-eh, Karafarin, Sina, Day and Omid) insurance companies constituted our sampling frame. Qualifying companies were asked and promised anonymity, due to the sensitivity of the information needed.

#### 4.5.1.2.2) Selection Of Respondents

After selection of companies, the next step is the selection of respondents within the companies, or in other words, selection of respondents from the sampling frame. As mentioned previously, the main objective of this research was to get an idea of insurers about the application of e-commerce and its effects on the insurance companies. There are many departments within every insurance company varying from administration to managing directors and board. In this research our respondents are experts, mangers, member of board and also their consultants within an insurance company. We have randomly chosen them from different departments and so, with diverse position and experience in the insurance companies. In other words, the group of people asked to participate in this research was randomly chosen in the working fields of the insurance company's value chain including: administration (human resource, finance, public relations, computer and IT), R&D, marketing and sales, claims and assets management and also head quarter.

The reason for covering all areas and fields of work in the insurance companies is to have holistic view over what e-commerce can affect on the company, and total coverage of all aspects of insurance business process (value chain) instead of focusing on a specific field of work or department. According to time and cost limitation we distributed a few questionnaires within each departments by random.

[1] www.sb24.com

According to Holme and Solvang (1991) the selection of respondent is crucial. If the wrong persons are being interviewed, the research may turn out to invalid or worthless findings. In this research we attempt to find the right person by explaining exactly what we want to do and, on other hand, we tried to not disturb (or interrupt) them with this research. In order of fulfilling the purpose of this study, it was great importance to get in contact with the persons with most knowledge and experience of working. Hopefully there are many distinguished and experienced people within these companies, thus we have got benefit from these informant people during our survey.

We tried to contact key and right people mainly located in the head office of insurance companies which are often regarded as decision makers and so we believe that they had grips at what is going on in the companies. Fortunately, they enthusiastically involved in our research.

#### 4.5.1.3) Sample Size

One important step when conducting a survey is to select the sample size, i.e. the size of the population that is to be studied. However, the larger the size of the sample, the greater its precision or reliability, but there are constraints to be dealt with. The constraints are time, staff and cost [Chisnall (1997)]. Since the main objective with this work is to get more of general picture, the larger research samples were needed. We conducted a preliminary (initial) sampling discussion with some informants in insurance companies and asked them to give us their comments on the size of samples which we can collect data from them in their companies. We found that a sample size of 300 companies would be sufficient to answer our research questions, with regards to the same studies in the social sciences as well as our experiences in this kind of research. On the other hand, limited budget for this research and time constraints made us to stick on this sample size.

For the sake of comparison, we decided to use almost same portion of both state-owned and private companies (in our case, 160 samples from state-owned insurers and 140 samples of private insurers). In this research we are not interested to compare every insurance company with each other, or even within each group or category (e.g., state-owned and private companies). We considered the companies personnel and in particular the number of staffs within each insurance company at working fields, when we wanted to breakdown the total sample size per each group.

Finally, we distributed 160 questionnaires among the state-owned insurance companies including: Iran (45 samples), Asia (40), Alborz (30), Dana (30), and Export and Investment insurance company (15). Also, 140 questionnaires distributed among the private insurance companies as: Parsian (30), Karafarin (30), Mellat (25), Razi (15), Sina (15), Tose-eh (10), Omid (10) and Day (5). It goes without saying that the private insurance companies have employed a few staffs, especially in the last three (mentioned) companies.

## 4.5.2) Data Analysis and Analytical Framework

The ultimate goal of analyzing data is to treat the evidence fairly, to produce compelling analytical conclusions and to rule out alternative interpretations. Data analysis involves turning a series of recorded observations into descriptive statements [Yin (1994)]. According to Denscombe (2000) data analysis means that the researcher is deciding what and which meaning can be attributed to the (collected) data; and what are the implications to that effect; and how does it relate to the topic being investigated.

Data analysis consists of three concurrent flows of activity: data reduction, data display (presentation), and conclusion drawing and verification [Miles and Huberman (1994)]. These are described below.

1. Data reduction: it should not be considered to be separate from analysis, but a part of it. This reduction of the data helps to sharpen, sort, focus, discard, and organize the data in a way that allows for final conclusions to be drawn and verified.
2. Data display and presentation: it is the second major stage that the researcher needs to go through. This stage includes taking the reduced data and displaying it in an organized and compressed way so that conclusion can be more easily drawn. As with data reduction, the creation and use of displays is not separate from the analysis, but a part of it.
3. Conclusion drawing and verification: it is the third and final stage of the data analysis. It is in this stage that the researcher starts to decide what the different finding means. Noting regularities, patterns, explanations, possible configurations, causal flows, and propositions does this.

The analysis of this research has followed the three steps suggested by Miles and Huberman (1994). The data reduction and data display are combined in the chapter 5 and 6, and in the last chapter our conclusion are stated.

On the other hand, with respect to the nature of the questions, analysis of the data is organized as follows:

- For the background question in the first part, i.e. socio-demographic and personal profile of respondents, are descriptive data of which some are presented by descriptive statistics that provide general information about the sample.
- All questions in the remained parts are similar and have the same 5-point Likert-scale, except question number 3 in the second part. So, the question number 3 is presented by descriptive statistics.
- But Five-point Likert-scale questions are also presented by descriptive statistics (Means and Standard Deviations). In order to test whether the means of two groups (state-owned and private insurance companies) on each topic are significant or not, we use t-test.

Also, in this research, we will undertake the analysis by dividing it according to our research questions and also comparing the state-owned and private insurance companies. After collecting data, the data are loaded into *SPSS* for further analyses. Finally, a brief discussion to descriptive statistics and t-test is given below.

### 4.5.2.1) Descriptive Statistics

The descriptive statistics of individual variables provide an important 'first look' at the data. With respect to the large number of variables, in this study descriptive statistics are used to complete the following tasks:

- Determining the 'Mean' and 'Standard Deviation' for each variable. What values occur most often? What range of values is likely to see?
- Checking the quality of the data. Are there missing or mis-entered values? Are there values that should be recoded?

### 4.5.2.2) Testing Differences In Group Means

In order to test whether the means of two groups on variables are significantly different or not, we use the t-test. The t-test assesses whether the observed differences between the means of variables in the two groups of sample occurred by chance, or if there is a true (significant) difference. The t-test can be used even in situation where the sample size is small (n<=30) [Hair et al. (2003)]. Whilst, the application of t-test for testing differences in means dependent on the assumption of normality, it is also fairly robust to deviations from normality. Recognizing this, we proceed to use the t-test to compare the insurers' perception in two groups of state-owned and private sections regarding the e-commerce.

In other words, the t-test assesses whether the means of two groups are *statistically* different from each other. This analysis is appropriate whenever we want to compare the means of two groups, in our case two groups of insurers. There are, however, two types of significance testing: paired and independent samples test, which are described in the following.

- ***Pair-difference t-test (t-test for dependent groups, correlated t-test):*** This is concerned with the difference between the average scores of a single sample of individuals who are assessed at two different times (such as before treatment and after treatment). It can also compare average scores of samples of individuals who are paired in some way (such as siblings, mothers, daughters, persons who are matched in terms of a particular characteristics).
- ***t-test for Independent Samples (with two options):*** This is concerned with the difference between the averages of two populations. Basically, the procedure compares the averages of two samples that were selected independently of each other, and asks

whether those sample averages differ enough to believe that the populations from which they were selected also have different averages. An example would be comparing math achievement scores of an experimental group with a control group.

1. ***Equal Variance (Pooled-variance t-test):*** Used when both samples have the same variances (Levene or F-max tests have p-value > .05).
2. ***Unequal Variance (Separate-variance t-test):*** Used when the samples have different variances (Levene or F-max tests have p-value < .05).

Statistical hypotheses, which we are interested in and used in chapter 5 for significance test, are following this structure, in general:

- **$H_0$** ***(Null hypothesis):*** There is no (statistically) significant difference between private and state-owned insurers with respect to each question in the questionnaire.
- **$H_1$** ***(Alternative hypothesis):*** There is a (statistically) significant difference between private and state-owned insurers with respect to each question in the questionnaire.

In this research, we have used "independent samples t-test" with respect to the nature of research, which is to compare independent groups of insurers (private and state-owned).

# 4.6) Research Quality Standards

While doing a research, many times we got no response and inaccuracy in responses because of respondent error, ambiguous of both questions and answers, and errors in formulating responses. In order to reduce the possibility of getting the answer wrong, one should keep in mind and pay high attention to two important concepts: *reliability* and *validity*. Reliability is the degree of accuracy of the collected data, while on the other hand, validity concerns to what extent the study object is measured as it was intended to be. These two important factors will further be discussed below.

## 4.6.1) Reliability

Reliability refers to the stability and consistency of the results derived from research; to be probability that the same results could be obtained if the measures used from research were replicated [Chisnall (1995)]. Reliability means whether the research instruments (in our case, the questionnaire) are neutral in their effect, and can measure the same result when used on the occasions and applied on the same subject of object; if someone else undertake the same study, would s/he get the same result and also arrive at the same conclusions? According to Denscombe (2000), the researchers have to feel confident that their measurements are not affected by a research instrument that gives one regarding on the first

occasion it is used and a different regarding to the next occasion when there has been no real change in the item being measured.

Furthermore, a good level of reliability means that the research instrument produces the same data time after time on each occasion that it is used, and that any variation in the results obtained through using the instrument is due to fluctuations caused by volatile of the research instrument itself. Hence a research is said to be reliable if it is consistent and that this is generally deemed to be good as far as research concerned. Saunders et al. (2003) have posed the following three questions concerning reliability:

- Will the measures yield the same result on other occasions?
- Will other researchers/observers reach similar observations?
- Is there transparency in how sense was made from the raw data?

The role of reliability is to minimize the errors and biases in a study [Yin (1994)]. This means that reliability is to demonstrate that the operations of the study, such as the data collection procedures, can be repeated with the same result. Saunders et al. (2003) asserts that there may be four threats to reliability. The first of these is subject of participant error, which means that a questionnaire may generate a different result at different times of the week. The second threat to reliability is subject or participant bias, which is when interviewees may have been saying what they thought their bosses, wanted them to say. Third, there may have been observer error that different interviewer may approach the questions in different ways. Finally, there may have been observer bias, which means that there may have been different approaches to interpreting the replies.

The work with this thesis started with a considerable literature study. The literature we came across (mainly articles) was from several authors and often had e-commerce and insurance topics, which meant that we covered the area of e-insurance surroundings. This would suggest that bias, form reading only one author and reading only about one topic, be held at a minimum level. Widersheim-Paul and Eriksson (1997) describe some other fallacies that are to be avoided in order to attain high reliability. One of these is measuring error, which in turn consists of respondent errors, gauging errors and errors that are effect of interplay between the interviewer and the respondent. As we used a questionnaire, this latter error was avoided in advance.

The respondent errors are such errors that are due to the fact that respondents sometimes are unable or unwilling to provide truthful answers. In order to minimize effects of this kind of errors, we found it necessary to be scrupulous about the language and the wording. Furthermore, the use of wording in the questionnaire was of major concern to avoid ambiguous or emotional charged formulations. The chosen wording and language was simple, direct and as far as possible without technical terms.

The gauging errors arise when a questionnaire entails erroneously formulated question, wrong order of question etceteras [Widersheim-Paul and Eriksson (1997)]. The order of the questions was also subject to scrutiny and it was found to be suitable to have a disposition

where the initial questioning concerned facts that the respondents easily could give an answer to.

Finally, reliability is synonymous with the consistency of a test, survey, observation, or other measuring device. Because our research is of quantitative trait, the reliability of the findings can be ensured by ensuring the survey time scale, stability, equalization questionnaire design and even the objectivity of the measurement instrument itself.

## 4.6.2) Validity

The validity aspect revolves around how well the questionnaires are able to measure what it is aimed to measure. It is important that the validity is good, because if the study does not measure what it is supposed to measure, the results are useless [Widersheim and Eriksson (1997)].

According to Denscombe (2000), validity of a research work boils down to the following questions:

- Do the conclusions do justice to the complexity of the subject or phenomenon being investigated and also does it avoids oversimplifications and also does it offer internal consistency?
- Has the researcher self been recognized as an influence in the study and also very objective?
- Have the researchers selected the topic on explicit and reasonable grounds as far as the aims and goals of the study are concerned?

If a question can be misunderstood, the information is said to be of low validity. The main types of validity are the *internal* and the *external* validity [Widersheim and Eriksson (1997)].

The internal validity refers to how well the theories and opertionalized definitions are connected. Internal validity a concern only for explanatory or casual studies in which an investigator is trying to determine whether certain condition and event lead to another event; and not for descriptive or exploratory studies. In fact, internal validity is inapplicable to descriptive or exploratory studies which are not concerned with making casual statement. Since this research is primarily descriptive, the test of internal validity will not discussed in relation to this study.

The external validity revolves around how correlation between the results of the measurement when using the opertionalizations, and the reality [Widersheim-Paul and Eriksson (1997)]. It also deals with the problem of knowing whether a study's findings can be generalized [Yin (1994)]. Generalization means the extent to which the researcher can

make a wider claim on the basis of the research and analysis, rather than stating that the analysis is particular.

The actions taken to ensure high external validity were many. First of all, much energy has been put in the exact wording of the questions. This included checking for nuances with ambiguous or emotionally charged formulations that could introduce bias in the questionnaire. The language (and writing format) used in the questionnaire was chosen to fit the respondents' frame of reference. In this research we were particularly sensitive to the risk of transferring the language used by professionals within the e-commerce, into the questionnaire. However, we have made less to put the direct technical terms (for example, WAP, FTP, EDI and smart card) into the questionnaire.

Another action taken to improve the external validity was the focusing on the content of the questions. Each question and its related items were subject to scrutiny in order to see if it was necessary to ask it. Another influence on this was the issue of length of the questionnaire. As the length was important, we had to prioritize the questions. Yet, another action taken, was the observing the order of the questions. In order to provide the respondent with a simple and smooth start, we put questions of general nature first. These questions concerned facts that describe the respondents' situation, for instance background information, which they easily could answer. Subsequent to this introduction we asked about their opinions and feelings around sacrifices in the impact of e-commerce on the insurance companies.

As mentioned above, in this study we did study nothing but the purpose in order to ensure high validity. We extracted the items within each question according to frame of reference (explained in chapter 3) which in turn comes from the objectives of this study. We have tested the questionnaire on experience researchers, such as our supervisors who has quiet a long experience in research, insurance and e-commerce consultants and some of our colleagues in the *strategic marketing planning group*[1] who are very practically informative in research and questionnaire developments. Also we tried to avoid any kind of biasness on our part and we were very objective.

## 4.6.3) Pilot Study

A pilot test of the questionnaire was carried out. Furthermore, several persons with knowledge of e-commerce and insurance also tested the questionnaire. All the test-respondents filled in the questionnaire and then a discussion was held concerning their opinions how they felt about filling in the questionnaire. The test was followed by many revisions, before it was sent to respondents.

However, once came up with the first draft of questionnaire, we handed out 6 questionnaires to the insurance experts at the Mellat insurance co. and asked them whether all questions made sense and easy to understand. After refining some questions and items

[1] Located in strategic planning center, Iran Khodro co. (www.ikco.com)

within the questions, the second pilot study was run with 9 staffs of Parsian insurance co. and Iran insurance co. and asked them to check for the wording, coverage, relevancy of the items listed within the questions. Finally, at this stage little modifications were needed and finally, the well-improved questionnaire was developed.

By using these tools (reliability, validity and pilot study) we can further analyze the data that the respondents provided us in a more accurate way.

### 4.6.4) Non-Responses And Rate Of Return

According to Chisnall (1997), the non-response is a critical limitation of a research. The main problem of non-responses is that the ones that do not respond could have very difficult opinions compared to the ones that have answered the survey.

To reduce non-response rate in this research, we personally contacted each respondent and followed him or her to fill in the questionnaire. Also, well-structured questionnaire, nice printed and wonderful format of the questionnaire, interesting topic for insurers along with acknowledged explanation about the benefits of the research for their companies, motivated them to participate in this survey. We also promised to send an executive report of this research for interested respondents.

Finally, we collected 275 questionnaires out of 300 distributed questionnaires. 17 questionnaires were not completed completely and thus, we excluded them from the analysis. Therefore, 258 questionnaires were considered to further analysis. The response rate of this survey was 86% (258/300) which was desirable and higher than the corresponded research in social science. The response rate in the state-owned insurance companies was 85% (136/300) and in the private ones was 87% (122/300).

## 4.7) Summary Of Research Methodology

The methodology chapter specified how the researcher went about finding out what was required to fulfill the purpose of the study and deal with the research problem, based on the background information provided in two first chapters.

This chapter, after an introduction, began with further discussion about the research approach. It was argued that a quantitative research approach fits this study. The next subject discussed, was the research type and strategy. The research type is descriptive and the research strategy defined as the survey in this work. In the fifth section, the research design is presented which includes data collection and type of data, and also, data analysis and analytical framework. In this study, the data type is primary and the questionnaire is used as data collection instrument. About 300-sample size is defined and simple sample selection is proposed to chose respondents within the Iranian insurance companies.

The data analysis will be analyzed quantitatively, mainly through descriptive statistics and the differences in the perception of the respondents in both state-owned and private insurers

will be tested by t-test analysis. In other words, analysis and presentation of the data are structured according to the frame of reference.

Finally, the last section is devoted to determination of research quality standards. Reliability, validity, pilot study as well as non-responses and rate of return are discussed in the final section.

# Chapter 5 DATA PRESENTATION AND EMPIRICAL FINDINGS

## 5.1) Introduction

The main focus of this chapter is on data presentation, empirical findings and results of the survey on the impact e-commerce on the Iranian insurance companies. The structure of the current chapter will be based on the sequential order of the questionnaire in order to present the data at hand and provide the empirical results of the survey. Totally, this chapter includes the answers to all questions cited in the questionnaire. Further, we have used independent samples t-test to determine whether there is a (statistically) significant difference between the means of two groups of insurers.

In this chapter we will follow the structure of the questionnaire and we will present each part separately in different section. Hence, the answer to each question in the questionnaire in general, and by each group of insurers (state-owned and private insurance companies) will be provided. Tables and figures will be mostly used to make them easy to understand and better to compare.

## 5.2) General Overview On The Survey

To fulfill the objectives of this research, we conducted a survey (or field study) on the Iranian insurance companies. As discussed in Chapter 4, a questionnaire was designed for data collection, or in other words as a data collection instrument. The questionnaire was printed and distributed in 300 copies. These were distributed to five state-owned (Iran, Asia, Export and Investment, Alborz and Dana) and eight private (Parsian, Mellat, Karafarin, Sina, Razi, Omid, Tose-eh and Day) insurance companies. The chief (CEO, vice-president, directors, head and supervisors) and experts in the central office (head quarter) were targeted to fill in the questionnaire. The time for investigation was 1st to 30th August 2005 in Tehran. The response rate of this survey was 258 answers, which translates to 86 per cent. A response rate of 86% is high for this kind of investigation, which creates a foundation of getting reliable answers.

In this research, however, the percentage of contribution for state-owned insurers (five companies) is 53 per cent and the remained 47 per cent belongs to the private insurers (eight companies).

## 5.3) Recoded Variables

According to Miles and Huberman (1994), the first step in data analysis is data reduction. It is difficult to analyze the raw data in some cases, when the frequency of each value of a variable is low. For instance, the frequency of values of age, employment records in insurance, and field of study are negligible, so to have better and easy to understand and avoid of complicated analysis of these values, one should categorize them into specific categories or groups. We have used the frequency table (primarily frequency table for each variable) to determine these categories. For these variables we have created new recoded variables which are further described below by each variable.

First, we have recoded some items asked in the first part of the questionnaire, in order to make simple and comparable of those items. For the first variable in the questionnaire, i.e. age, we have recoded it as below:

- Less than 25 year olds,
- 26-30 year olds,
- 31-35 year olds,
- 36-40 year olds,
- 41-50 year olds,
- More that 51 year olds.

Also we have recoded the variable of "working experience in insurance" as below:

- One year
- Two years
- 3-5 years
- 6-10 years
- 11-20 years
- More than 21 years

In this research, with respect to frequency table of education, the variable of "field of study," it is recoded as below:

- Computer, which includes hardware, software, applied mathematics (application of math. in computer), IT and network.
- Finance, which contains of accounting and banking.
- Communication and administration, which has been constituted by these course of studies: Communication and Information, Social sciences, Foreign languages, Politics, Psychology and Sociology.

- Management, which includes commercial management, state (government) management, management of technology, strategic management and marketing.
- Economic and mathematics, which contains economics, mathematics and statistics along with their all derivatives.
- Engineering which covers industrial engineering, mechanics, agriculture and chemistry.

These new (recoded) variables replaced with the old ones and, therefore, they will be used in this chapter whenever needed to consider them.

# 5.4) Part One: Personal Profile

In this part, we have asked the respondents to provide us about their socio-demographic information. Seven items were included in this part and the main idea of this section was to describe the personal profile of the sample. These included: age, education level, field of study, occupation, employment records in insurance, department/section and the company's name.

In the following we will further present them.

## 5.4.1) Age And Employment Record

The first item, in this part, was the age of respondents which its distribution over the samples is shown in Figure 5.1 and Figure 5.2. Figure 5.1 shows the total distribution of the respondent's age, while Figure 5.2 shows the age distribution of each group of insurers separately and it makes easy to compare these two groups of insurer in age.

**Figure 5.1- Total age distribution of respondent**

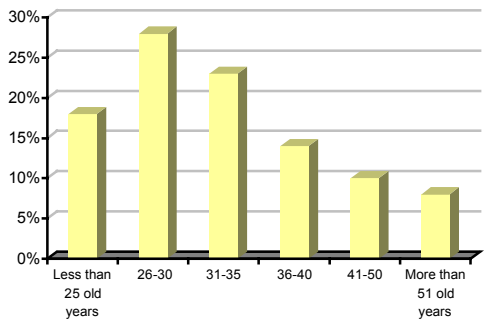
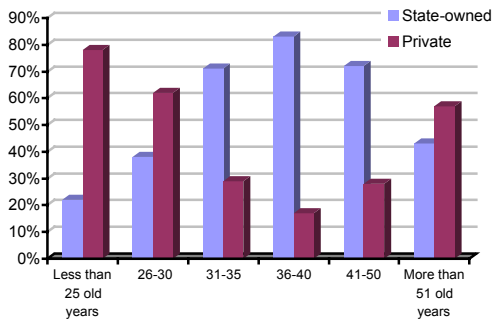



**Figure 5.2- Age distribution in each group**




The average age of respondents within the state-owned insurers is about 37 year olds whereas the mean of mean within private companies is 32 year olds. Although the private

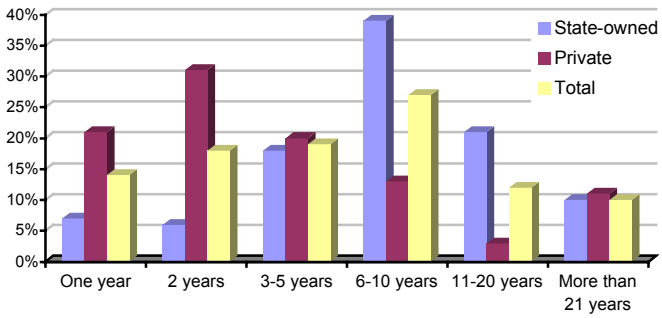
insurers have recruited younger people, but the variance of age is high, which means that they have employed many aged and experienced staffs who are mostly retired people from the state-owned companies. Table 5.1 shows more on the age mean of respondents within the insurance companies.

**Table 5.1- Average age of respondents**

| Insurers Group | Mean (in years) | N | Std. Deviation |
|---|---|---|---|
| State-owned | 35.62 | 136 | 7.836 |
| Private | 31.99 | 122 | 11.134 |
| **Total** | **33.90** | **258** | **9.691** |

The employment records in insurance, or working experiences in insurance, is the second interested item in this section to be provided. Since the private companies have employed younger personnel (see Figure 5.2), thus the employment records in insurance for the respondents from these companies is mainly low and about 52% of them have less than two years working experience in insurance. Figure 5.3 shows the distribution of this variable/question and compares the employment records in insurance for both groups of insurer, easily.

**Figure 5.3- Distribution of employment records in insurance**




The employment record in insurance for the respondents from private sector is less than the correspondent value for the state-owned insurers, on average. The mean values for the employment records in insurance are about 10 and 7 years for stat-owned and private insurers, respectively. Table 5.2 gives more details on the mean values for both groups.

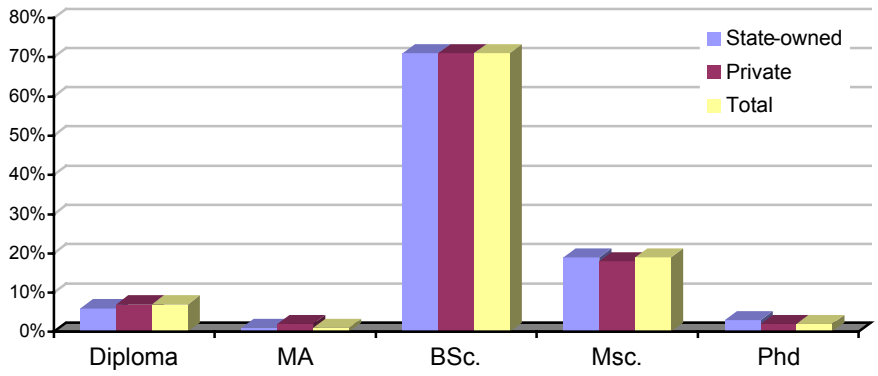
**Table 5.2- The mean value employment records in insurance**

| Insurers Group | Mean (in years) | N | Std. Deviation |
|---|---|---|---|
| State-owned | 9.63 | 136 | 7.463 |
| Private | 6.62 | 122 | 9.462 |
| **Total** | **8.21** | **258** | **8.583** |

## 5.4.2) Education And Field Of Study

Educational level and field of study of the respondents are other interested items, which were included in the first part, entitled by personal profile. Generally, the level of education varies from diploma to PhD. In this research, about 71% of the respondents are B.Sc. in both private and state-owned groups, which represent that these companies are getting benefits of these well-educated staffs. Furthermore, more than 20% of their employments are post-graduated. Figure 5.4 visualizes the level of education in the sample.

**Figure 5.4- Distribution of educational level of respondents**




On the other hand, the variation of graduation (field of study) between these companies is shown in Table 5.3.

**Table 5.3- Cross-tabulation of field of study and type of company's ownership**

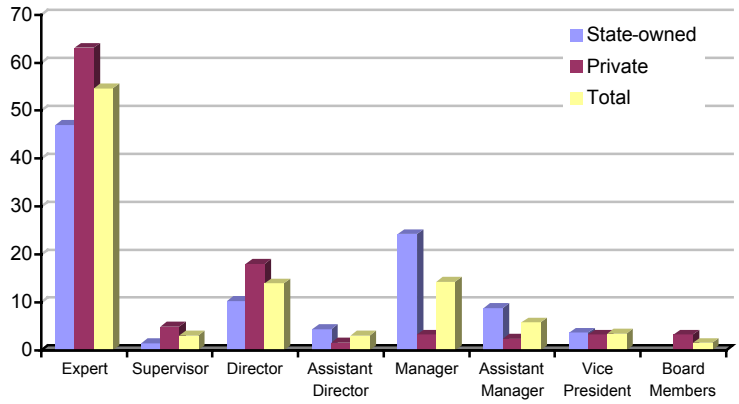
| Field of Study | Type of Company's Ownership | | Total |
|---|---|---|---|
| | State-owned | Private | |
| Communication & Administration | 18 (13.2%) | 10 (8.2%) | 28 (10.9%) |
| Computer | 23 (16.9%) | 13 (10.7%) | 36 (14.0%) |
| Finance | 13 (9.6%) | 13 (10.7%) | 26 (10.1%) |
| Management | 30 (22.1%) | 29 (23.8%) | 59 (22.9%) |
| Insurance | 31 (22.8%) | 34 (27.9%) | 65 (25.2%) |
| Engineering | 8 (5.9%) | 12 (9.8%) | 20 (7.8%) |
| Economic & Math. | 13 (9.6%) | 11 (9.0%) | 24 (9.3%) |
| **Total** | **136 (100.0%)** | **122 (100.0%)** | **258 (100.0%)** |

According to Table 5.3, two dominant field of study for the respondents in both groups of Iranian insurance companies are insurance and management. Computer sciences with 3rd rank are following those two dominant courses.

## 5.4.3) Occupation And Department

Clearly, the respondents are working in different departments within the selected insurance companies. Their occupations vary within these departments/sections. Totally, 55% of them are experts, 14% directors and 14.3% managers. Four CEO's of private insurance companies (of eight) have completed the questionnaire, luckily. Figure 5.5 visualizes the distribution of respondent's occupations within the targeted insurance companies.

**Figure 5.5- Occupation of the respondnets within the selected companies**




On the other hand, the percentage of departments within the selected companies is shown in Table 5.4. People from computer, finance, fire insurance, R&D and liability insurance have a remarkable share of contribution in this research. In contrast, the respondents from Asset and claim management, property insurance and members of board have less participation in this survey.

**Table 5.4- Distribution of the respondents in each department**

| Department / Section | Insurance Group | | Total |
|---|---|---|---|
| | State-owned | Private | |
| Computer | 16.2% | 7.4% | 12.0% |
| Finance | 8.1% | 9.8% | 8.9% |
| Fire insurance | 9.6% | 7.4% | 8.5% |
| R&D | 6.6% | 10.7% | 8.5% |
| Liability insurance | 6.6% | 9.8% | 8.1% |
| Personal insurance | 8.1% | 6.6% | 7.4% |
| Marine and Aviation insurance | 8.1% | 6.6% | 7.4% |
| Administration | 6.6% | 7.4% | 7.0% |
| Auto insurance | 3.7% | 7.4% | 5.4% |
| Re-insurance | 6.6% | 3.3% | 5.0% |
| Engineering insurance | 7.4% | 2.5% | 5.0% |
| Sale | 2.2% | 7.4% | 4.7% |
| Life insurance | 3.7% | 3.3% | 3.5% |
| Health insurance | 1.5% | 4.1% | 2.7% |
| Claim payment | 4.4% | - | 2.3% |
| Member of board | - | 3.3% | 1.6% |
| Property insurance | - | 2.5% | 1.2% |
| Asset management | 0.7% | 0.8% | 0.8% |
| **Total** | **100.0%** | **100.0%** | **100.0%** |

# 5.5) Part Two: Attitudes And Views Toward E-commerce

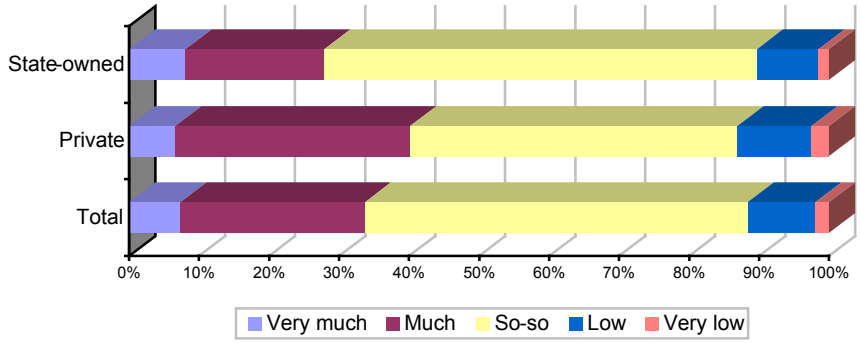
Four questions were included in this part. In fact, we have asked the respondents to provide us about their attitudes and views toward e-commerce and its application in insurance. Actually, this part focused on the opinion of the respondents about the effects of e-commerce on insurance industry, their perception about the e-commerce, importance of e-commerce to their companies and to what extent they are acquainted with the concept and application of e-commerce. In the following we will further discuss about each of them.

## 5.5.1) Acquaintance With E-commerce

The first item in this part was the assessment of familiarity of the respondents and their acquaintance with e-commerce in general. In other words, to what extent the respondents are acquainted with the concept and application of e-commerce?

Figure 5.6 visualizes answer to this question by each party.

**Figure 5.6- Respondents' acquaintance with e-commerce**




According to Figure 5.6, more than 80% of respondents are somehow familiar with the concept and application of e-commerce. Whereas less than 20 per cent of the respondents declared that the extent of their familiarity with e-commerce is low or very low. In comparison, the private insurer with taking benefit of younger and newly graduated employment are more aware of concept and even application of e-commerce. The average level of acquaintance with e-commerce is given in Table 5.5.

**Table 5.5-The average level of awareness on e-commerce**

| Insurers Group | Mean* | N | Std. Deviation |
|---|---|---|---|
| State-owned | 2.76 | 136 | 0.78 |
| Private | 2.69 | 122 | 0.84 |
| **Total** | **2.72** | **258** | **0.81** |

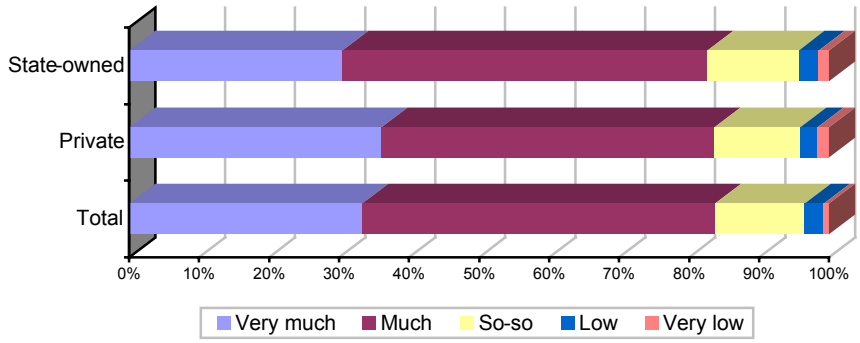
*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low.)

## 5.5.2) Perceived Effects Of E-commerce On Insurance Industry

The second item in this part concerns about the perceived affects of e-commerce on insurance company from the respondents point of view. The main idea behind this question was to understand what they think about the general effects of e-commerce on insurance. In other words, to what extent will e-commerce affect insurance industry?

The respondents' answer to this question is shown in Figure 5.7.

**Figure 5.7- Perceived effects of e-commerce on insurance industry**



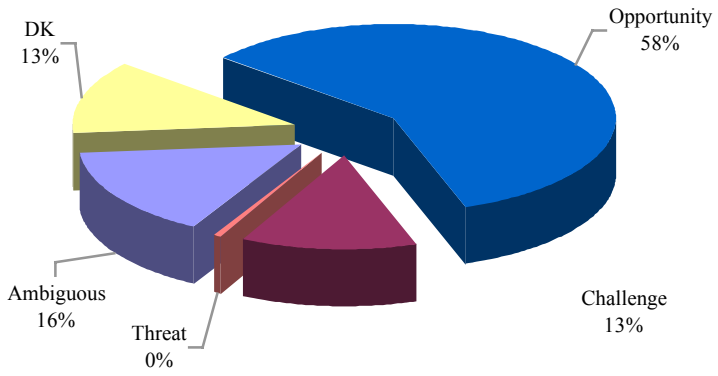

According to Figure 5.7, more than 80% of respondents believe that e-commerce will strictly affect on insurance industry, and a few of them (less than 3%) rated this effects as low. Generally, both parties in this research (state-owned and private) have perceived common effects of e-commerce on insurance industry.

## 5.5.3) Perception About E-commerce

Obviously, the application of e-commerce can be considered as an opportunity, a challenge or even a threat to insurers. It strongly depends on many factors, for instance, the insurance company's competitiveness and their ability and compatibility with this new business tool. In this research we have asked respondents to answer to this question for their company. In other words, for their company, e-commerce is an opportunity, a challenge or a threat?

According to Figure 5.8, about 59% of the respondents look at e-commerce as an opportunity for their companies. About 14% of respondents within the state-owned insurers found it as a threat whereas 11% of respondents within the private insurers perceived it as a threat to their companies.

**Figure 5.8-The perception of insurers on e-commerce**

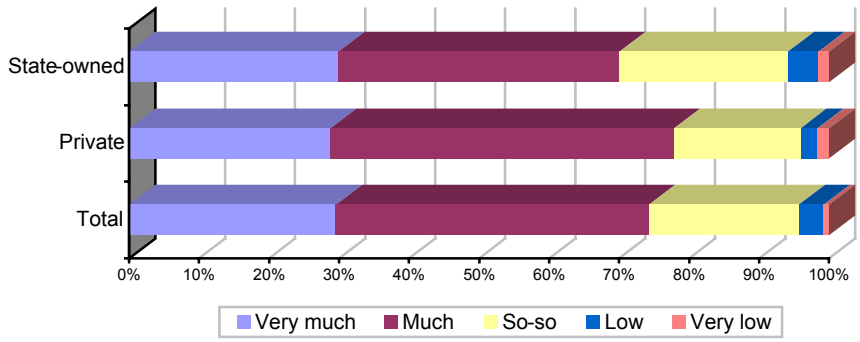



## 5.5.4) Importance Of E-commerce To Insurers

With respect to the previous question, i.e. perception on the role of e-commerce, the next question is: how important the implementation of e-commerce is to the respondents' company?

Figure 5.9 visualizes the respondents' opinion on this question.

**Figure 5.9-The importance of e-commerce implementation**




According to Figure 5.9, the implementation of e-commerce for the private insurers is more important than the state-owned companies. Totally, almost 70% of respondents in both group of insurers significantly convinced that it is very important to embrace and implement e-commerce into their companies.

# 5.6) Part Three: Infrastructure Requirement

In this part, level of the essential infrastructures equipments which are basically needed in implementation of e-commerce will be evaluated in the respondents' company. Actually, the respondents are asked to answer this question: to what extent their company are equipped to implement e-commerce for each items listed as hardware and network, software (public and specialized/technical), IT experts and skilled staff in e-commerce?

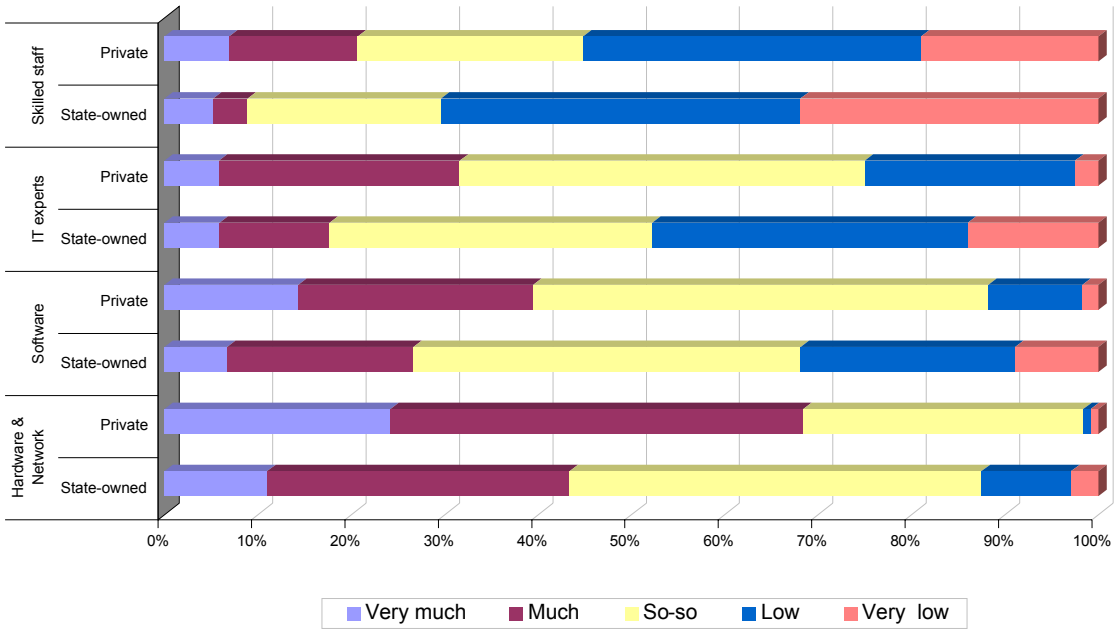
The responses of respondents to these four essential infrastructures are shown in Table 5.6 for both insurers and in total.

**Table 5.6 - Infrastructre requirements for e-commerce deployment**

| Infrastructures Requirement | Insurers Group | Very much | Much | So-so | Low | Very low | Total |
|---|---|---|---|---|---|---|---|
| **Hardware & Network** | **State-owned** | 11.0% | 32.4% | 44.1% | 9.6% | 2.9% | 100% |
| | **Private** | 24.2% | 44.2% | 30.0% | 0.8% | 0.8% | 100% |
| | **Total** | 17.2% | 37.9% | 37.5% | 5.5% | 2.0% | 100% |
| **Software** | **State-owned** | 6.7% | 20.0% | 41.5% | 23.0% | 8.9% | 100% |
| | **Private** | 14.3% | 25.2% | 48.7% | 10.1% | 1.7% | 100% |
| | **Total** | 10.2% | 22.4% | 44.9% | 16.9% | 5.5% | 100% |
| **IT experts** | **State-owned** | 5.9% | 11.8% | 34.6% | 33.8% | 14.0% | 100% |
| | **Private** | 5.8% | 25.8% | 43.3% | 22.5% | 2.5% | 100% |
| | **Total** | 5.9% | 18.4% | 38.7% | 28.5% | 8.6% | 100% |
| **Skilled staff (in e-commerce)** | **State-owned** | 5.2% | 3.7% | 20.7% | 38.5% | 31.9% | 100% |
| | **Private** | 6.9% | 13.8% | 24.1% | 36.2% | 19.0% | 100% |
| | **Total** | 6.0% | 8.4% | 22.3% | 37.5% | 25.9% | 100% |

According to Table 5.6, the Iranian insurance companies are generally well equipped with hardware and software in comparison to IT experts and skilled staff in e-commerce. Furthermore, the private insurers are remarkably well equipped to these essential elements in comparison to state-owned companies. Figure 5.10 shows the private and state-owned insurers assessment on these infrastructure requirements in their own companies.

**Figure 5.10- Infrastructure equipment level in insurance companies**




The gaps (differences) on the level of infrastructures equipment between these two groups are statistically significant for all four items listed in this part. The mean value for this question is shown in Table 5.7. Moreover, the output of significance test based on the t-test for the mean of these elements is shown in Table 5.8. All differences in the mean values of the respondents' perception about infrastructure requirements in both groups are statistically significant. We have used the highlighted rows in the related tables for our conclusions.

**Table 5.7 - Descriptive statistics for infrastructure requirements**

| Infrastructure Requirement | Insurers Group | N** | Mean* | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| **Hardware & Network** | **State-owned** | 136 | 2.61 | 0.912 | 0.078 |
| | **Private** | 120 | 2.10 | 0.803 | 0.073 |
| **Software** | **State-owned** | 135 | 3.07 | 1.027 | 0.088 |
| | **Private** | 119 | 2.60 | 0.914 | 0.084 |
| **IT experts** | **State-owned** | 136 | 3.38 | 1.055 | 0.090 |
| | **Private** | 120 | 2.90 | 0.902 | 0.082 |
| **Skilled staff (in e-commerce)** | **State-owned** | 135 | 3.88 | 1.065 | 0.092 |
| | **Private** | 116 | 3.47 | 1.153 | 0.107 |

*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low), **- There are some missing values in the responses.

**Table 5.8 - T-test for infrastructure requirements**

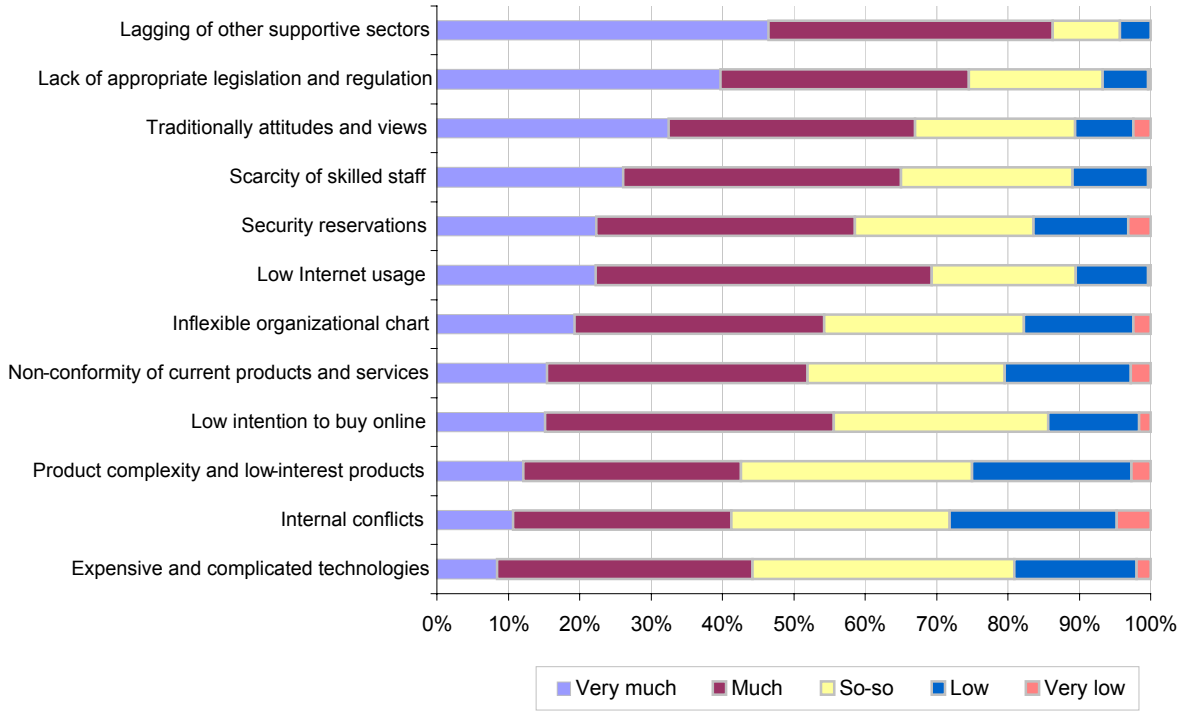
| Infrastructure Requirement | Types of Variance | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Hardware & Network** | Equal variances assumed | 4.122 | .043 | 4.721 | 254 | .000 | .51 | .108 | .297 | .723 |
| | Equal variances not assumed | | | 4.759 | 253.999 | .000 | .51 | .107 | .299 | .721 |
| **Software** | Equal variances assumed | .019 | .889 | 3.892 | 252 | .000 | .48 | .123 | .236 | .719 |
| | Equal variances not assumed | | | 3.920 | 251.971 | .000 | .48 | .122 | .238 | .717 |
| **IT experts** | Equal variances assumed | 6.211 | .013 | 3.906 | 254 | .000 | .48 | .123 | .239 | .726 |
| | Equal variances not assumed | | | 3.944 | 253.764 | .000 | .48 | .122 | .242 | .723 |
| **Skilled staff (in e-commerce)** | Equal variances assumed | 3.899 | .049 | 2.969 | 249 | .003 | .42 | .140 | .140 | .692 |
| | Equal variances not assumed | | | 2.951 | 236.434 | .003 | .42 | .141 | .138 | .694 |

# 5.7) Part Four: Major Obstacles

In this part, major obstacles and barriers for insurers in e-commerce implementation were questioned. In this question, we were listed 12 major obstacles (among a vast of items) and asked the respondents to evaluate these items according to their company's capabilities. The proposed question was: To what degree each of these items (obstacles) will hinder deployment of e-commerce at their company?

Figure 5.11 shows the respondents' answer to this question. Totally, lagging of other supportive sectors (such as e-banking and telecommunication), lack of appropriate legislation and regulation (such as digital signature and copy right), traditionally views over company, scarcity of skilled staffs, and low Internet usage are the five top obstacles for insurers to embrace e-commerce.

**Figure 5.11- Major obstacles for e-commerce for insurers (in general)**




Moreover, Table 5.9 gives more details on theses obstacles. It also makes easier to compare the effects of these items on private and state-owned companies in deployment of e-commerce.

**Table 5.9- Major obstacles hindering insurers to embrace e-commerce**

| Major Obstacles | Insurers Group | Very much | Much | So-so | Low | Very low | Total |
|---|---|---|---|---|---|---|---|
| Low intention to buy online | State-owned | 17.6% | 37.5% | 31.6% | 11.0% | 2.2% | 100% |
| | Private | 12.4% | 43.8% | 28.1% | 14.9% | 0.8% | 100% |
| | Total | 15.2% | 40.5% | 30.0% | 12.8% | 1.6% | 100% |
| Low Internet usage | State-owned | 24.3% | 45.6% | 19.9% | 9.6% | 0.7% | 100% |
| | Private | 19.8% | 48.8% | 20.7% | 10.7% | 0% | 100% |
| | Total | 22.2% | 47.1% | 20.2% | 10.1% | 0.4% | 100% |
| Security reservations | State-owned | 24.6% | 32.8% | 26.1% | 11.9% | 4.5% | 100% |
| | Private | 19.7% | 40.2% | 23.8% | 14.8% | 1.6% | 100% |
| | Total | 22.3% | 36.3% | 25.0% | 13.3% | 3.1% | 100% |
| Expensive and complicated technologies | State-owned | 10.5% | 33.1% | 40.6% | 14.3% | 1.5% | 100% |
| | Private | 5.9% | 39.0% | 32.2% | 20.3% | 2.5% | 100% |
| | Total | 8.4% | 35.9% | 36.7% | 17.1% | 2.0% | 100% |
| Non-conformity of current products and services | State-owned | 19.1% | 33.8% | 26.5% | 16.2% | 4.4% | 100% |
| | Private | 11.0% | 39.8% | 28.8% | 19.5% | 0.8% | 100% |
| | Total | 15.4% | 36.6% | 27.6% | 17.7% | 2.8% | 100% |
| Product complexity and low-interest products | State-owned | 10.4% | 28.1% | 29.6% | 28.1% | 3.7% | 100% |
| | Private | 14.0% | 33.1% | 35.5% | 15.7% | 1.7% | 100% |
| | Total | 12.1% | 30.5% | 32.4% | 22.3% | 2.7% | 100% |
| Scarcity of skilled staff | State-owned | 33.1% | 39.0% | 16.9% | 10.3% | 0.7% | 100% |
| | Private | 18.2% | 38.8% | 32.2% | 10.7% | 0% | 100% |
| | Total | 26.1% | 38.9% | 24.1% | 10.5% | 0.4% | 100% |
| Traditionally attitudes and views | State-owned | 41.2% | 31.6% | 17.6% | 7.4% | 2.2% | 100% |
| | Private | 22.7% | 37.8% | 27.7% | 9.2% | 2.5% | 100% |
| | Total | 32.5% | 34.5% | 22.4% | 8.2% | 2.4% | 100% |
| Inflexible organizational chart | State-owned | 25.2% | 38.5% | 25.2% | 10.4% | 0.7% | 100% |
| | Private | 12.6% | 31.1% | 31.1% | 21.0% | 4.2% | 100% |
| | Total | 19.3% | 35.0% | 28.0% | 15.4% | 2.4% | 100% |
| Internal conflicts | State-owned | 11.9% | 28.9% | 29.6% | 24.4% | 5.2% | 100% |
| | Private | 9.4% | 32.5% | 31.6% | 22.2% | 4.3% | 100% |
| | Total | 10.7% | 30.6% | 30.6% | 23.4% | 4.8% | 100% |
| Lack of appropriate legislation and regulation | State-owned | 43.0% | 31.9% | 17.8% | 6.7% | 0.7% | 100% |
| | Private | 36.4% | 38.0% | 19.8% | 5.8% | 0% | 100% |
| | Total | 39.8% | 34.8% | 18.8% | 6.3% | 0.4% | 100% |
| Lagging of other supportive sectors | State-owned | 48.9% | 41.5% | 6.7% | 3.0% | 0% | 100% |
| | Private | 43.8% | 38.0% | 12.4% | 5.8% | 0% | 100% |
| | Total | 46.5% | 39.8% | 9.4% | 4.3% | 0% | 100% |

Furthermore, the mean value and standard deviation for these 12 major obstacles are given in Table 5.10.

**Table 5.10- Descriptive statistics for major obstacles**

| Major Obstacles | Insurers Group | N** | Mean* | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| **Low intention to buy online** | **State-owned** | 136 | 2.43 | .979 | .084 |
| | **Private** | 121 | 2.48 | .923 | .084 |
| **Low Internet usage** | **State-owned** | 136 | 2.17 | .931 | .080 |
| | **Private** | 121 | 2.22 | .890 | .081 |
| **Security reservations** | **State-owned** | 134 | 2.39 | 1.117 | .096 |
| | **Private** | 122 | 2.39 | 1.016 | .092 |
| **Expensive and complicated technologies** | **State-owned** | 133 | 2.63 | .908 | .079 |
| | **Private** | 118 | 2.75 | .935 | .086 |
| **Non-conformity of current products and services** | **State-owned** | 136 | 2.53 | 1.108 | .095 |
| | **Private** | 118 | 2.59 | .954 | .088 |
| **Product complexity and low-interest products** | **State-owned** | 135 | 2.87 | 1.057 | .091 |
| | **Private** | 121 | 2.58 | .973 | .088 |
| **Scarcity of skilled staff** | **State-owned** | 136 | 2.07 | .990 | .085 |
| | **Private** | 121 | 2.36 | .902 | .082 |
| **Traditionally attitudes and views** | **State-owned** | 136 | 1.98 | 1.043 | .089 |
| | **Private** | 119 | 2.31 | 1.006 | .092 |
| **Inflexible organizational chart** | **State-owned** | 135 | 2.23 | .969 | .083 |
| | **Private** | 119 | 2.73 | 1.063 | .097 |
| **Internal conflicts** | **State-owned** | 135 | 2.82 | 1.092 | .094 |
| | **Private** | 117 | 2.79 | 1.030 | .095 |
| **Lack of appropriate legislation and regulation** | **State-owned** | 135 | 1.90 | .969 | .083 |
| | **Private** | 121 | 1.95 | .893 | .081 |
| **Lagging of other supportive sectors** | **State-owned** | 135 | 1.64 | .739 | .064 |
| | **Private** | 121 | 1.80 | .872 | .079 |

*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low), **- There were some missing values in the responses.

On the other hand, Table 5.11 shows the t-test to determine whether the differences in the mean value for two groups are statistically significant.

**Table 5.11- T-test each item listed in major obstacles**

| Major Obstacles | Types of Variance | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Low intention to buy online** | Equal variances assumed | .340 | .560 | -.444 | 255 | .657 | -.05 | .119 | -.287 | .182 |
| | Equal variances not assumed | | | -.446 | 254.122 | .656 | -.05 | .119 | -.287 | .181 |
| **Low Internet usage** | Equal variances assumed | .070 | .791 | -.474 | 255 | .636 | -.05 | .114 | -.278 | .170 |
| | Equal variances not assumed | | | -.475 | 253.702 | .635 | -.05 | .114 | -.278 | .170 |
| **Security reservations** | Equal variances assumed | 1.370 | .243 | .021 | 254 | .983 | .00 | .134 | -.261 | .266 |
| | Equal variances not assumed | | | .021 | 254.000 | .983 | .00 | .133 | -.260 | .265 |
| **Expensive and complicated technologies** | Equal variances assumed | .189 | .664 | -.980 | 249 | .328 | -.11 | .117 | -.344 | .115 |
| | Equal variances not assumed | | | -.978 | 243.571 | .329 | -.11 | .117 | -.344 | .116 |
| **Non-conformity of current products and services** | Equal variances assumed | 3.173 | .076 | -.488 | 252 | .626 | -.06 | .131 | -.321 | .194 |
| | Equal variances not assumed | | | -.493 | 251.986 | .622 | -.06 | .129 | -.319 | .191 |
| **Product complexity and low-interest products** | Equal variances assumed | .505 | .478 | 2.262 | 254 | .025 | .29 | .127 | .037 | .539 |
| | Equal variances not assumed | | | 2.272 | 253.815 | .024 | .29 | .127 | .038 | .538 |
| **Scarcity of skilled staff** | Equal variances assumed | .028 | .867 | -2.436 | 255 | .016 | -.29 | .119 | -.523 | -.055 |
| | Equal variances not assumed | | | -2.449 | 254.849 | .015 | -.29 | .118 | -.522 | -.057 |

**Table 5.11- T-test each item listed in major obstacles (Contd.)**

| Major Obstacles | Types of Variance | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Traditionally attitudes and views** | Equal variances assumed | .101 | .750 | -2.585 | 253 | .010 | -.33 | .129 | -.587 | -.079 |
| | Equal variances not assumed | | | -2.591 | 250.588 | .010 | -.33 | .129 | -.586 | -.080 |
| **Inflexible organizational chart** | Equal variances assumed | 1.807 | .180 | -3.932 | 252 | .000 | -.50 | .128 | -.753 | -.250 |
| | Equal variances not assumed | | | -3.909 | 240.534 | .000 | -.50 | .128 | -.754 | -.249 |
| **Internal conflicts** | Equal variances assumed | .512 | .475 | .204 | 250 | .839 | .03 | .134 | -.237 | .292 |
| | Equal variances not assumed | | | .204 | 248.184 | .838 | .03 | .134 | -.236 | .291 |
| **Lack of appropriate legislation and regulation** | Equal variances assumed | 1.434 | .232 | -.400 | 254 | .690 | -.05 | .117 | -.277 | .183 |
| | Equal variances not assumed | | | -.401 | 253.793 | .688 | -.05 | .116 | -.276 | .182 |
| **Lagging of other supportive sectors** | Equal variances assumed | 1.950 | .164 | -1.634 | 254 | .103 | -.16 | .101 | -.363 | .034 |
| | Equal variances not assumed | | | -1.620 | 236.501 | .107 | -.16 | .102 | -.365 | .036 |

According to Table 5.11, excluding four items (*scarcity of skilled staff, product complexity and low-interest products, traditionally attitudes and views and inflexible organizational chart)* both groups of insurers have shown common ideas about the remained eight major obstacles and there are no statistically significant differences between the mean values of two groups of insurer.

# 5.8) Part Five: Potential Applications

The potential applications of e-commerce will be addressed in this part. Hence, we have concentrated in two important and basic elements of every insurance company, namely the value chain or business process and insurance products/services. Thus, we have asked two questions in this part. In the following we will elaborate the results more on these two issues.

## 5.8.1) Application Of E-commerce In Insurance Value Chain

The first question, in this part, was mainly focused on the business process within every insurance company. Product and service development (R&D), Marketing and sales, Administration, Asset management, and Claims management are the five nodes on the value chain of every insurance company, which have been discussed in more details in Chapter 2. However, this question states: to what extent each part of value chain can get benefits of e-commerce implementation.

Table 5.12 shows the respondents' opinions and attitudes toward the potential applications of e-commerce in insurance business process.

**Table 5.12- Potential applications of e-commerce in insurance value chain**

| Insurance Value Chain | Insurers Group | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|---|
| **Product and service development (R&D)** | **State-owned** | 23.7% | 35.6% | 20.7% | 17.0% | 3.0% |
| | **Private** | 30.1% | 38.1% | 23.9% | 8.0% | -% |
| | **Total** | 26.6% | 36.7% | 22.2% | 12.9% | 1.6% |
| **Marketing and sales** | **State-owned** | 24.3% | 44.9% | 18.4% | 11.8% | 0.7% |
| | **Private** | 30.3% | 37.0% | 21.8% | 9.2% | 1.7% |
| | **Total** | 27.1% | 41.2% | 20.0% | 10.6% | 1.2% |
| **Administration** | **State-owned** | 8.3% | 24.8% | 38.3% | 22.6% | 6.0% |
| | **Private** | 6.7% | 30.8% | 40.8% | 18.3% | 3.3% |
| | **Total** | 7.5% | 27.7% | 39.5% | 20.6% | 4.7% |
| **Asset management** | **State-owned** | 18.7% | 26.9% | 32.1% | 20.9% | 1.5% |
| | **Private** | 14.8% | 37.4% | 32.2% | 13.0% | 2.6% |
| | **Total** | 16.9% | 31.7% | 32.1% | 17.3% | 2.0% |
| **Claims management** | **State-owned** | 12.5% | 27.2% | 27.2% | 23.5% | 9.6% |
| | **Private** | 16.9% | 24.6% | 28.8% | 20.3% | 9.3% |
| | **Total** | 14.6% | 26.0% | 28.0% | 22.0% | 9.4% |

Totally, two processes (elements) within the insurance value chain, namely R&D and marketing/sales, are more applicable to embrace e-commerce deployment.

On the other hand, Figure 5.12 compares the attitudes of the participants in both private and state-owned insurers on the potential application of e-commerce to the value chain of insurers.

**Figure 5.12- Camparison of potential application of e-commerce in the value cahin by insurer groups**

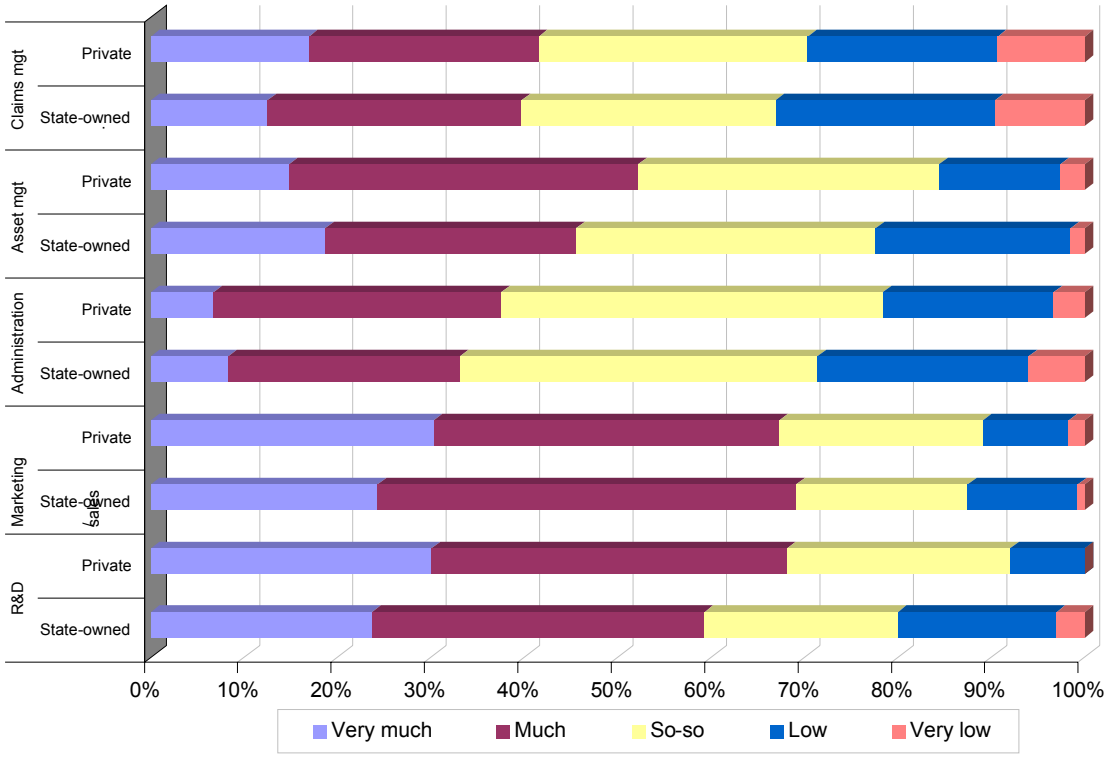



Table 5.13 shows the descriptive statistics for each process within the insurance value chain cited in this question for both group of insurers.

**Table 5.13- Descriptive statistics for each item listed in the value chain**

| Insurance Value Chain | Insurers Group | N** | Mean* | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| **Product and service development (R&D)** | **State-owned** | 135 | 2.40 | 1.114 | .096 |
| | **Private** | 113 | 2.10 | .925 | .087 |
| **Marketing and sales** | **State-owned** | 136 | 2.20 | .965 | .083 |
| | **Private** | 119 | 2.15 | 1.014 | .093 |
| **Administration** | **State-owned** | 133 | 2.93 | 1.024 | .089 |
| | **Private** | 120 | 2.81 | .929 | .085 |
| **Asset management** | **State-owned** | 134 | 2.60 | 1.063 | .092 |
| | **Private** | 115 | 2.51 | .986 | .092 |
| **Claims management** | **State-owned** | 136 | 2.90 | 1.179 | .101 |
| | **Private** | 118 | 2.81 | 1.214 | .112 |

*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low), * *- There were some missing values in the responses.

**Table 5.14- T-test for respondents' opinion about value chain**

| Insurance Value Chain | Types of Variance | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Product and service development (R&D)** | Equal variances assumed | 8.638 | .004 | 2.299 | 246 | .022 | .30 | .132 | .043 | .562 |
| | Equal variances not assumed | | | 2.337 | 245.988 | .020 | .30 | .130 | .048 | .558 |
| **Marketing and sales** | Equal variances assumed | .420 | .518 | .381 | 253 | .703 | .05 | .124 | -.197 | .291 |
| | Equal variances not assumed | | | .380 | 244.760 | .704 | .05 | .124 | -.198 | .292 |
| **Administration** | Equal variances assumed | .307 | .580 | 1.005 | 251 | .316 | .12 | .123 | -.119 | .367 |
| | Equal variances not assumed | | | 1.010 | 250.993 | .313 | .12 | .123 | -.118 | .366 |
| **Asset management** | Equal variances assumed | 1.628 | .203 | .643 | 247 | .521 | .08 | .131 | -.173 | .341 |
| | Equal variances not assumed | | | .646 | 245.502 | .519 | .08 | .130 | -.172 | .340 |
| **Claims management** | Equal variances assumed | .219 | .640 | .660 | 252 | .510 | .10 | .150 | -.197 | .396 |
| | Equal variances not assumed | | | .659 | 244.780 | .511 | .10 | .151 | -.198 | .396 |

According to Table 5.14, significance test for the mean (t-test), for each item between these two groups, only significant difference in this regards belongs to R&D. In other words, the state-owned insurers are more conservative than the private companies.

Further, excluding the process of "*R&D*" the minor differences in the mean values of remained four nodes within the value chain, between private and state-owned insurers are not statistically significant. That is, the difference in mean value of attitude for private and state-owned insurers is statistically significant in level of 5% (P-value <0.05), which reveals that the private insurers believed that the R&D is more eligible to embrace e-commerce rather than state-owned insurers.

## 5.8.2) Insurance Products And E-commerce

The second question, in this part, was designed to evaluate the suitability of current insurance products to sale online. To create a common understanding among the respondents, we used seven common and most sold insurance products in the market in this question, which in turn cover the majority of insurers' portfolio. These seven products were: Auto, life, fire, marine and aviation, personal, liability, and engineering insurance.

This question was stated as "which of these insurance products are suitable to sale online?" Table 5.15 shows the respondents' answer to this question.

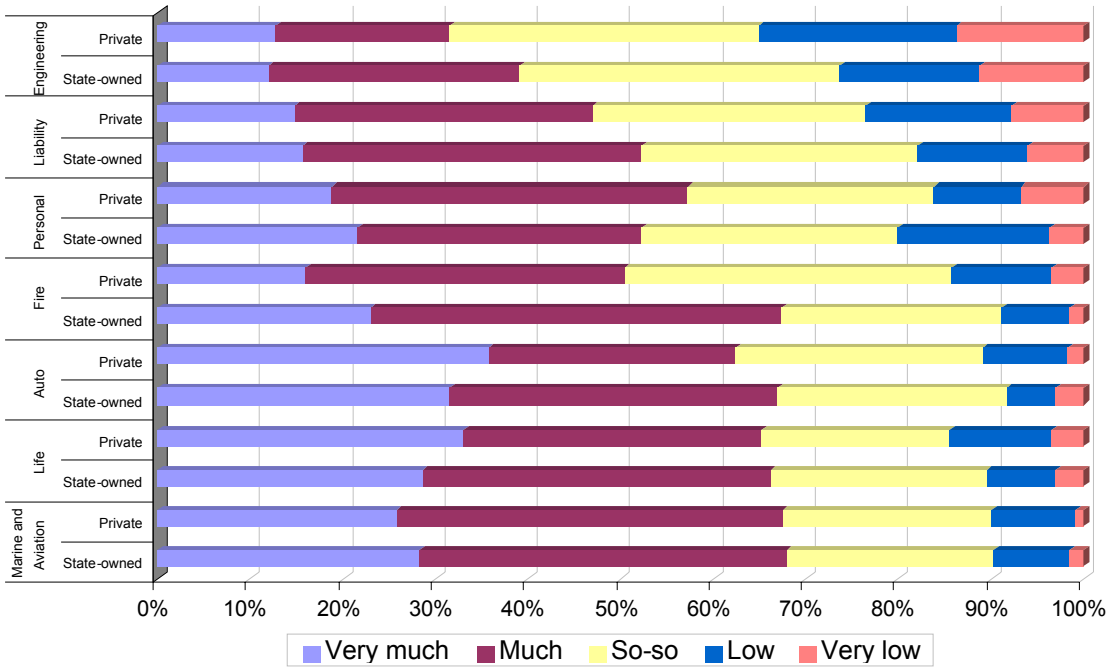
**Table 5.15-The consistency of insurance products with online sale**

| Insurance Products | Insurers Group | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|---|
| **Fire insurance** | **State-owned** | 23.0% | 44.4% | 23.7% | 7.4% | 1.5% |
| | **Private** | 16.0% | 34.5% | 35.3% | 10.9% | 3.4% |
| | **Total** | 19.7% | 39.8% | 29.1% | 9.1% | 2.4% |
| **Personal insurance** | **State-owned** | 21.6% | 30.6% | 27.6% | 16.4% | 3.7% |
| | **Private** | 18.8% | 38.5% | 26.5% | 9.4% | 6.8% |
| | **Total** | 20.3% | 34.3% | 27.1% | 13.1% | 5.2% |
| **Liability insurance** | **State-owned** | 15.7% | 36.6% | 29.9% | 11.9% | 6.0% |
| | **Private** | 14.8% | 32.2% | 29.6% | 15.7% | 7.8% |
| | **Total** | 15.3% | 34.5% | 29.7% | 13.7% | 6.8% |
| **Marine and Aviation insurance** | **State-owned** | 28.4% | 39.6% | 22.4% | 8.2% | 1.5% |
| | **Private** | 25.8% | 41.7% | 22.5% | 9.2% | 0.8% |
| | **Total** | 27.2% | 40.6% | 22.4% | 8.7% | 1.2% |
| **Engineering insurance** | **State-owned** | 12.0% | 27.1% | 34.6% | 15.0% | 11.3% |
| | **Private** | 12.8% | 18.8% | 33.3% | 21.4% | 13.7% |
| | **Total** | 12.4% | 23.2% | 34.0% | 18.0% | 12.4% |
| **Auto insurance** | **State-owned** | 31.6% | 35.3% | 24.8% | 5.3% | 3.0% |
| | **Private** | 35.8% | 26.7% | 26.7% | 9.2% | 1.7% |
| | **Total** | 33.6% | 31.2% | 25.7% | 7.1% | 2.4% |
| **Life insurance** | **State-owned** | 28.6% | 37.6% | 23.3% | 7.5% | 3.0% |
| | **Private** | 33.1% | 32.2% | 20.3% | 11.0% | 3.4% |
| | **Total** | 30.7% | 35.1% | 21.9% | 9.2% | 3.2% |

Totally, marine and aviation, auto, life, and fire insurance are strongly more suitable to sale online. In contrast, engineering and liability insurance are the least favorable to offer online.

However, the comparison of views of both groups of insurer on the consistency of insurance products with e-commerce has been shown in Figure 5.13.

**Figure 5.13- Sutitability of insurance product to sale online**




According to Figure 5.12, these two groups have common opinion and idea about the suitability of products to sale online.

Table 5.16 shows the descriptive statistics for this question and Table 5.17 presents the significance test for the differences in mean for both private and state-owned insurers.

**Table 5.16- Descriptive statistics: the mean values for the suitability of insurance products to offer online**

| Insurance products | Insurers Group | N** | Mean* | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| **Fire insurance** | **State-owned** | 135 | 2.20 | .929 | .080 |
| | **Private** | 119 | 2.51 | .999 | .092 |
| **Personal insurance** | **State-owned** | 134 | 2.50 | 1.116 | .096 |
| | **Private** | 117 | 2.47 | 1.111 | .103 |
| **Liability insurance** | **State-owned** | 134 | 2.56 | 1.080 | .093 |
| | **Private** | 115 | 2.70 | 1.141 | .106 |
| **Marine and Aviation insurance** | **State-owned** | 134 | 2.15 | .977 | .084 |
| | **Private** | 120 | 2.17 | .950 | .087 |
| **Engineering insurance** | **State-owned** | 133 | 2.86 | 1.160 | .101 |
| | **Private** | 117 | 3.04 | 1.213 | .112 |
| **Auto insurance** | **State-owned** | 133 | 2.13 | 1.018 | .088 |
| | **Private** | 120 | 2.14 | 1.063 | .097 |
| **Life insurance** | **State-owned** | 133 | 2.19 | 1.031 | .089 |
| | **Private** | 118 | 2.19 | 1.119 | .103 |

*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low); **- There were some missing values in the responses.

**Table 5.17- T-test for differences on the mean value of suitability of products to sale online**

| Insurance Products | Types of Variance | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Fire insurance** | Equal variances assumed | 2.343 | .127 | -2.584 | 252 | .010 | -.31 | .121 | -.551 | -.074 |
| | Equal variances not assumed | | | -2.572 | 242.414 | .011 | -.31 | .122 | -.552 | -.073 |
| **Personal insurance** | Equal variances assumed | .292 | .589 | .212 | 249 | .832 | .03 | .141 | -.248 | .307 |
| | Equal variances not assumed | | | .212 | 244.726 | .832 | .03 | .141 | -.247 | .307 |
| **Liability insurance** | Equal variances assumed | .430 | .513 | -.965 | 247 | .335 | -.14 | .141 | -.413 | .142 |
| | Equal variances not assumed | | | -.961 | 236.728 | .338 | -.14 | .141 | -.415 | .143 |
| **Marine and Aviation insurance** | Equal variances assumed | .053 | .818 | -.212 | 252 | .832 | -.03 | .121 | -.264 | .213 |
| | Equal variances not assumed | | | -.213 | 250.307 | .832 | -.03 | .121 | -.264 | .213 |
| **Engineering insurance** | Equal variances assumed | .089 | .765 | -1.185 | 248 | .237 | -.18 | .150 | -.474 | .118 |
| | Equal variances not assumed | | | -1.182 | 240.738 | .238 | -.18 | .151 | -.475 | .119 |
| **Auto insurance** | Equal variances assumed | 1.462 | .228 | -.106 | 251 | .916 | -.01 | .131 | -.272 | .244 |
| | Equal variances not assumed | | | -.106 | 245.709 | .916 | -.01 | .131 | -.272 | .245 |
| **Life insurance** | Equal variances assumed | 1.434 | .232 | -.051 | 249 | .959 | -.01 | .136 | -.274 | .260 |
| | Equal variances not assumed | | | -.051 | 239.286 | .959 | -.01 | .136 | -.276 | .262 |

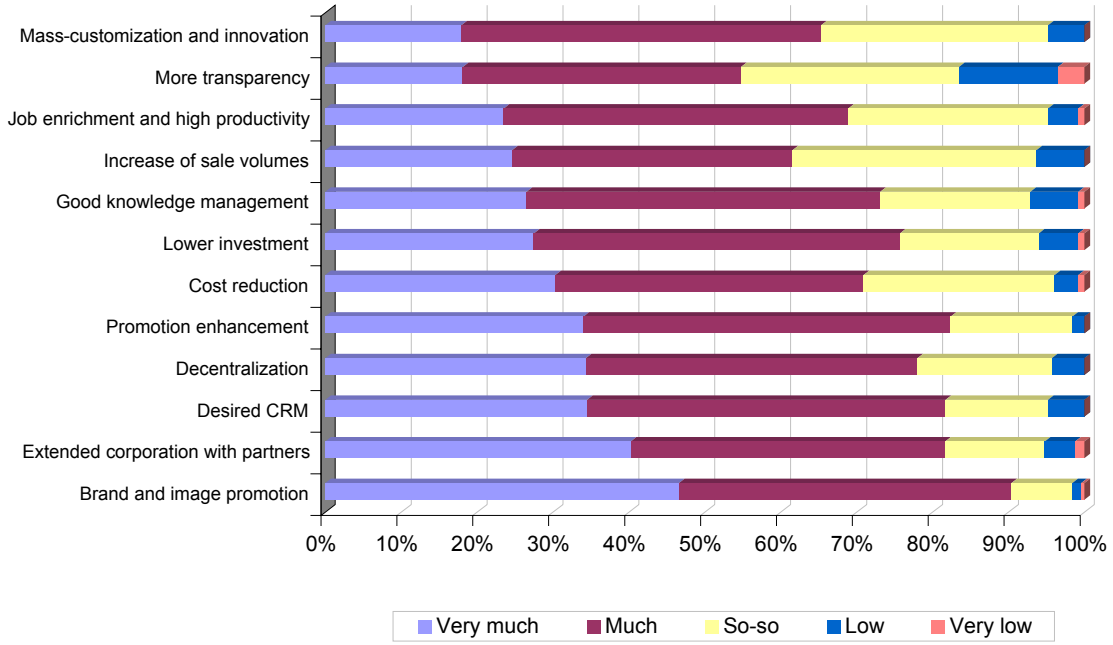
According to Table 5.17, there are no statistically significant differences for the suitability of insurance products to sale online between state-owned and private insurers, except for fire insurance.

# 5.9) Part Six: Perceived Benefits

In the final part, the perceived benefits and advantages of e-commerce implementation were the main question to be asked from the respondents. In this question, twelve popular and remarkable benefits were given to the respondents. Actually, the question stated as: how much benefits will their company obtain, in the case of implementation of e-commerce?

Insurers' perceived benefits from e-commerce deployment are shown in Figure 5.14.

**Figure 5.14- Total perceived benefits of e-commerce implementation for insurers**




Totally, brand and image promotion, extended co-operation with partners, desired CRM, decentralization, and promotion enhancement are the most important benefits sought from the e-commerce implementation from the respondents' point of view.

However, breakdowns of the respondents' answer in two groups of insurers are given in Table 5.18, which makes easier the comparison of attitudes toward these benefits between private and state-owned insurers.

**Table 5.18- Breakdown of percieved benefits for private and state-owned insurers**

| Perceived Benefits for Insurers | Insurers Group | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|---|
| **Brand and image promotion** | **State-owned** | 41.0% | 50.0% | 6.0% | 2.2% | 0.7% |
| | **Private** | 53.0% | 36.8% | 10.3% | 0% | 0% |
| | **Total** | 46.6% | 43.8% | 8.0% | 1.2% | 0.4% |
| **Lower investment** | **State-owned** | 29.9% | 45.5% | 19.4% | 4.5% | 0.7% |
| | **Private** | 24.8% | 51.3% | 17.1% | 6.0% | 0.9% |
| | **Total** | 27.5% | 48.2% | 18.3% | 5.2% | 0.8% |
| **Decentralization** | **State-owned** | 37.0% | 42.2% | 16.3% | 4.4% | 0% |
| | **Private** | 31.1% | 45.4% | 19.3% | 4.2% | 0% |
| | **Total** | 34.3% | 43.7% | 17.7% | 4.3% | 0% |
| **Cost reduction** | **State-owned** | 34.8% | 40.0% | 20.7% | 3.7% | 0.7% |
| | **Private** | 25.2% | 41.2% | 30.3% | 2.5% | 0.8% |
| | **Total** | 30.3% | 40.6% | 25.2% | 3.1% | 0.8% |
| **Increase of sale volumes** | **State-owned** | 28.1% | 35.6% | 31.9% | 4.4% | 0% |
| | **Private** | 20.5% | 38.5% | 32.5% | 8.5% | 0% |
| | **Total** | 24.6% | 36.9% | 32.1% | 6.3% | 0% |
| **Mass-customization and innovation** | **State-owned** | 20.1% | 48.5% | 27.6% | 3.7% | 0% |
| | **Private** | 15.4% | 46.2% | 32.5% | 6.0% | 0% |
| | **Total** | 17.9% | 47.4% | 29.9% | 4.8% | 0% |
| **Promotion enhancement** | **State-owned** | 36.6% | 48.5% | 13.4% | 1.5% | 0% |
| | **Private** | 31.0% | 48.3% | 19.0% | 1.7% | 0% |
| | **Total** | 34.0% | 48.4% | 16.0% | 1.6% | 0% |
| **More transparency** | **State-owned** | 18.5% | 34.8% | 27.4% | 15.6% | 3.7% |
| | **Private** | 17.6% | 38.7% | 30.3% | 10.1% | 3.4% |
| | **Total** | 18.1% | 36.6% | 28.7% | 13.0% | 3.5% |
| **Desired CRM** | **State-owned** | 37.3% | 48.5% | 9.7% | 4.5% | 0% |
| | **Private** | 31.4% | 45.8% | 17.8% | 5.1% | 0% |
| | **Total** | 34.5% | 47.2% | 13.5% | 4.8% | 0% |
| **Job enrichment and high productivity** | **State-owned** | 26.1% | 45.5% | 23.9% | 3.7% | 0.7% |
| | **Private** | 20.5% | 45.3% | 29.1% | 4.3% | 0.9% |
| | **Total** | 23.5% | 45.4% | 26.3% | 4.0% | 0.8% |
| **Extended corporation with partners** | **State-owned** | 42.9% | 42.9% | 10.5% | 3.0% | 0.8% |
| | **Private** | 37.3% | 39.8% | 16.1% | 5.1% | 1.7% |
| | **Total** | 40.2% | 41.4% | 13.1% | 4.0% | 1.2% |
| **Good knowledge management** | **State-owned** | 28.9% | 46.7% | 18.5% | 5.2% | 0.7% |
| | **Private** | 23.7% | 46.6% | 21.2% | 7.6% | 0.8% |
| | **Total** | 26.5% | 46.6% | 19.8% | 6.3% | 0.8% |

Table 5.19 shows the t-test for significance test of differences in the mean values for each benefits listed in this question.

**Table 5.19- Significance test for differences in the mean value for perceived benefits**

| Perceived Benefits | Types of Variances | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Brand and image promotion** | Equal variances assumed | .151 | .698 | 1.598 | 249 | .111 | .14 | .090 | -.033 | .321 |
| | Equal variances not assumed | | | 1.609 | 248.612 | .109 | .14 | .089 | -.032 | .320 |
| **Lower investment** | Equal variances assumed | .012 | .912 | -.559 | 249 | .576 | -.06 | .109 | -.275 | .154 |
| | Equal variances not assumed | | | -.560 | 244.788 | .576 | -.06 | .109 | -.275 | .154 |
| **Decentralization** | Equal variances assumed | .587 | .444 | -.813 | 252 | .417 | -.08 | .104 | -.291 | .121 |
| | Equal variances not assumed | | | -.814 | 249.078 | .417 | -.08 | .104 | -.290 | .121 |
| **Cost reduction** | Equal variances assumed | .008 | .928 | -1.566 | 252 | .119 | -.17 | .109 | -.385 | .044 |
| | Equal variances not assumed | | | -1.570 | 249.913 | .118 | -.17 | .109 | -.384 | .043 |
| **Increase of sale volumes** | Equal variances assumed | .237 | .627 | -1.476 | 250 | .141 | -.16 | .112 | -.384 | .055 |
| | Equal variances not assumed | | | -1.474 | 243.704 | .142 | -.16 | .112 | -.385 | .055 |
| **Mass-customization and innovation** | Equal variances assumed | .953 | .330 | -1.415 | 249 | .158 | -.14 | .100 | -.338 | .055 |
| | Equal variances not assumed | | | -1.413 | 242.775 | .159 | -.14 | .100 | -.338 | .056 |
| **Promotion enhancement** | Equal variances assumed | .084 | .772 | -1.233 | 248 | .219 | -.12 | .093 | -.299 | .069 |
| | Equal variances not assumed | | | -1.230 | 239.828 | .220 | -.12 | .094 | -.300 | .069 |
| **More transparency** | Equal variances assumed | 1.298 | .256 | .629 | 252 | .530 | .08 | .131 | -.176 | .341 |
| | Equal variances not assumed | | | .631 | 251.202 | .528 | .08 | .131 | -.175 | .340 |

**Table 5.19- Significance test for differences in the mean value for perceived benefits**

| Perceived Benefits | Types of Variances | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Desired CRM** | Equal variances assumed | .000 | .986 | -1.492 | 250 | .137 | -.15 | .102 | -.354 | .049 |
| | Equal variances not assumed | | | -1.486 | 241.418 | .138 | -.15 | .103 | -.355 | .050 |
| **Job enrichment and high productivity** | Equal variances assumed | .339 | .561 | -1.141 | 249 | .255 | -.12 | .107 | -.332 | .089 |
| | Equal variances not assumed | | | -1.141 | 244.691 | .255 | -.12 | .107 | -.332 | .089 |
| **Extended corporation with partners** | Equal variances assumed | .508 | .477 | -1.629 | 249 | .105 | -.18 | .111 | -.401 | .038 |
| | Equal variances not assumed | | | -1.615 | 232.928 | .108 | -.18 | .112 | -.402 | .040 |
| **Good knowledge management** | Equal variances assumed | 1.067 | .303 | -1.170 | 251 | .243 | -.13 | .111 | -.350 | .089 |
| | Equal variances not assumed | | | -1.167 | 243.632 | .245 | -.13 | .112 | -.350 | .090 |

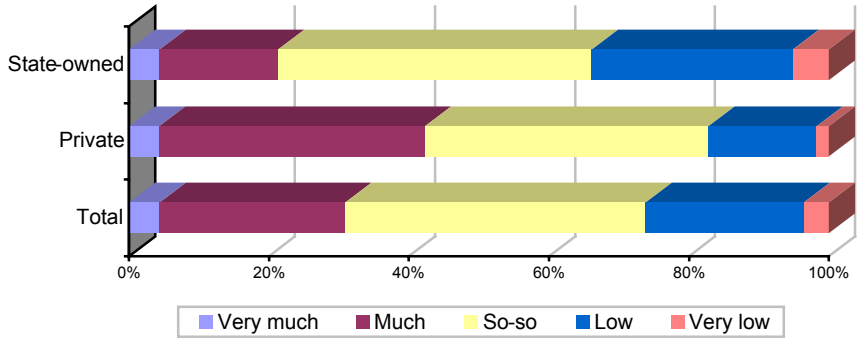
Noticeably, according to Table 5.19, there is no statistically significant evidence for the differences in mean values of these twelve benefits between private and state-owned insurance companies.

# 5.10) Readiness To E-Commerce Implementation

The last question, in this questionnaire, was designed to sum-up the respondents' overall attitudes toward the implementation of e-commerce. In other words, with respect to all questions cited in this questionnaire, to what degree their companies are read to implement the e-commerce application. The question was stated as: *Totally, to what extent your company is ready to embrace e-commerce?*

The respondent's answer to this question is shown in Figure 5.15.

**Figure 5.15- Readiness to embrace e-commerce**




The chart reveals that almost 30% of the respondents believed that their companies are (very much and much) ready to embrace e-commerce in total. The participants from the private companies are more ready to embrace e-commerce rather than state-owned insurers.

Table 5.20 shows the mean and standard deviation for this question by both parties in this survey.

**Table 5.20- Descriptive statistics for the readiness to embrace e-commerce**

| Insurers Group | N** | Mean* | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| State-owned | 136 | 3.13 | .909 | .078 |
| Private | 116 | 2.72 | .840 | .078 |

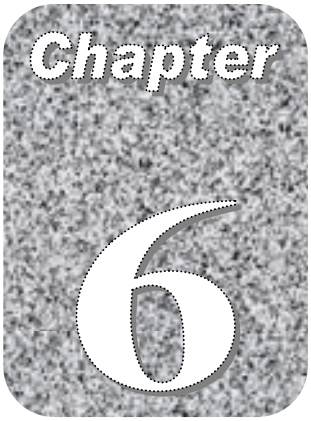
*- (Scale: 1-very much, 2-much, 3-so-so, 4-low, and 5-very low),
**- There were some missing values in the responses.

Table 5.21 shows the t-test for this question. The t-test assesses whether the means of two groups of insurer (private and state-owned) are statistically different from each other regarding to readiness to e-commerce implementation.

**Table 5.21- T-test for differences in the mean value for "readiness to embrace e-commerce" by each group of insurers**

| Readiness to Embrace E-commerce | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|
| | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| **Equal variances assumed** | .014 | .905 | 3.678 | 250 | .000 | .41 | .111 | .190 | .627 |
| **Equal variances not assumed** | | | 3.701 | 248.382 | .000 | .41 | .110 | .191 | .625 |

According to, the private and state-owned insurers have different ideas in this regard. In other words, the private insurers have declared that they are more ready to embrace the e-commerce rather than the state-owned insurance companies




# DATA ANALYSIS AND RESEARCH FINDINGS

## 6.1) Introduction

In the pervious chapter, the data collected in this study was presented. Also the empirical study and preliminary findings were provided in the chapter 5. Therefore, in order to finish the data analysis process, this chapter is devoted to analysis and interpretation of the quantitative data gathered by the survey done in this research.

According to topics identified in the theoretical frame of reference, which have been concluded in the questionnaire, and in order to solve the research problem and answer the research questions, in this chapter analysis and interpretation of the findings of the empirical study are structured on the basis of research question that lead us to clarify the research problem.

Hence, we have organized this chapter in six sections. This chapter starts with review of the research problem and research questions that resulted in the theoretical frame of reference. This review provides a clearer picture of the objectives of this study. The second section is devoted to the analysis of the first research question entitled by "attitudes and views toward e-commerce." The analysis and answers to the second research question, i.e. infrastructure requirements, will be provided in the third section. Major obstacles and barriers ahead in application of e-commerce, which is the third research question, will be further analyzed in the fourth section. In the fifth section, the analysis of fourth research question, which is underlying potential application of e-commerce in insurance companies, will be addressed. Potential application of e-commerce and suitability of current insurance products to sale online will be covered in this section. And finally, the last section is devoted to the analysis of the fifth research question entitled by the perceived benefits sought from application of e-commerce in the insurance companies.

## 6.2) A Review On The Research Questions

The effects of e-commerce are the subjects of intense debate in the insurance industry. The extent of e-commerce adoption in the Iranian insurance industry remains unclear, which is the main focus of this study. As well discussed in the pervious chapters, this study is intended to address the main question which is ***"what is the impact of e-commerce on the Iranian insurance companies?"***

In order to achieve this purpose, we have attempted to clarify: attitude toward deployment of e-commerce, infrastructure requirement, major obstacles, potential applications and benefits of application of e-commerce from the insurers' point of view.

Hence, based on this background and the main purpose of this study, the current research has its origin in five questions as itemized below:

1) **What are the attitudes and views of the insurance companies toward e-commerce?**

2) **To what extent are they equipped to the infrastructures required in implementation of e-commerce?**

3) **What are the major obstacles ahead in application of e-commerce?**

4) **What are the potential applications of e-commerce in the insurance companies?**

5) **What are the benefits sought from application of e-commerce?**

However, with respect to the purpose of this study and the research questions, in the next sections we aim at analyzing and interpreting the findings of the empirical study presented in the chapter five to answer the research questions. Interpreting of the findings enables us to draw conclusions, discuss the theoretical findings and apply the necessary modifications in the theoretical frame of reference in the next chapter entitled by conclusion and recommendation.

## 6.3) RQ 1: Attitude And Views Toward E-Commerce

To answer the first research question (***What are the attitudes and views of the Iranian insurance companies toward e-commerce?***) we need to identify the insurers' perception regarding to e-commerce and its application in insurance companies. In order to achieve this purpose, we have attempted to clarify these questions from the respondents' point of view:

- To what extent they are familiar with the concept and application of e-commerce?
- To what extent e-commerce will affect insurance industry?
- What role e-commerce will play for their company?
- And, how important is the implementation of e-commerce to their company?

First of all, it is important to know to what extent they are acquainted with the concept and application of e-commerce. In other words, are the participants familiar with e-commerce or not? Obviously, they can get the related information through various resources. For instance, these are: certificate courses and workshops, self-study, company's training program (during job), and etc.

A self-assessment question was asked in this regard from both private and state-owned insurance companies. Reviewing of information provided in section 4.1 in chapter 5 indicates that almost one-third of the participants have assessed their familiarity with the concept and application of e-commerce as "much" and "very much," on the other hand, the "so-so" response has made a 55% record in both insurance companies, totally. Furthermore, the private insurers have assessed more familiar than the state-owned companies in this regard. In addition, less than 15% of the participants aren't acquainted with the concept and application of e-commerce, since they have assessed themselves as "low" and even "very low" in response to this question. As a result, the majority of respondents in selected insurance companies are good acquainted with the concept and application of e-commerce.

The level of familiarity with e-commerce goes up as the level of education varies from diploma to PhD. In fact, PhD and MSc. graduated staffs are more acquainted with e-commerce with respect to B.Sc. or even diploma staffs. The respondents who graduated in communication and administration, finance, insurance and engineering are less acquainted with the concept and application of e-commerce in comparison with others. On the other hand, around 43%, 34%, 33% and 31% of the respondents from health insurance, auto insurance, property and engineering insurance are respectively assessed themselves low and very low in familiarity with e-commerce.

Totally, the selected samples are desirably informant with respect to e-commerce and its application, which highly enable us to extend and generalize the results obtained from this survey to almost all insurance companies.

Second item related to this research question is the perceived effects of e-commerce on insurance industry in general. In other words, to what degree the insurers think that e-commerce will affect on insurance industry? Summary of the information provided in section 4.2 of chapter 5 are given in below.

Almost surely, all insurers (except less than 3% of them) have found that e-commerce will strongly affect on insurance industry. Over one-third of the respondents believe that the effects of e-commerce on insurance industry as "very much" and, besides, around half of the respondents predicted the effect of e-commerce on insurance industry would be "much." On the other hand, only less than 3 per cent of the respondents who are working in finance, computer, fire and auto insurance departments as expert with BSc. in finance, computer, and engineering declare that the effect of e-commerce on insurance industry would be low.

The third question in this part is about the role of e-commerce in insurance companies. In fact, what they think about the role of e-commerce in the respondents' companies? Is it an opportunity, a challenge, or even a threat? Figure 8 in chapter 5 (section 4.3) provides the summary of the insurers perception. Over half of the participants believe that e-commerce is an opportunity for their companies. 13% of them look at e-commerce as a challenge for their companies, and 16% find it as an ambiguous issue. Less than 1% of the respondents in both insurance companies believe that e-commerce is a threat for their companies.

For people from administration, computer, marine and aviation, liability, and auto insurance departments, deployment of e-commerce is more challenges in comparison to other sectors that have found e-commerce a challenging issue for their companies. All four participants form member of board in the private insurance companies believe that e-commerce is an opportunity for their companies. Both private and state-owned insurers consistently look a like in their perception about the implementation of e-commerce in their companies.

The fourth and last question in this part is concerned about the importance of e-commerce deployment in the respondents' companies. Review information provided in section 4.4 (chapter 5) highly indicates that for around 70% of the respondents (in both private and state-owned insurer) implantation of e-commerce is (much and very much) important. Wonderfully, less than 4% of the respondents in both groups of insurer believe that the importance of e-commerce implementation is low who mostly are mangers and vice president in the state-owned insurance companies. The most of these people graduated in communication and administration, engineering and management and are working in administration, claim payment and auto insurance departments.

Based on the discussion done above and as a result of analyzing the related data for the first research question, we can conclude that the Iranian insurers have positively attitudes and views toward the concept and application of e-commerce. They also are well informed and acquainted with e-commerce and its application. They strongly find that e-commerce will highly affect on the Iranian insurance industries. Since they believe it is an opportunity for their business if they embrace e-commerce implementation, then they have positively stated that it is very important to their companies to implement e-commerce.

## 6.4) RQ 2: Infrastructure Requirement

Following the discussion on the importance of e-commerce to the Iranian insurance companies, which believed as highly important issue, the next step is to evaluate these companies' capability and ability to commerce implementation. This fact has been asked in the second part. To answer the second research question (*To what extent are the Iranian insurance companies equipped to the infrastructures required in implementation of e-commerce?*) we have categorized the basic elements of infrastructure requirements in four groups as:

- Hardware and Network (Computers, Modem, Internet, Intra/Extra-net, e-mail, …)
- Software (Public and specialized/advanced packages, Standardized processes and systems, …)
- IT experts
- Skilled staffs in e-commerce.

In order to achieve the purpose of this part (i.e., 2nd research question), we have attempted to clarify the items mentioned above from the respondents' point of view and what they exactly think over them.

Review of information provided in section 5 (chapter 5) indicates that the Iranian insurers are well equipped with hardware and network. The level of equipment to hardware related infrastructures are significantly different in private and state-owned companies. In other words, the private sectors are highly equipped with this infrastructure in comparison to the state-owned insurance companies.

Totally, less than 8 per cent of the respondents state their companies low and very low in hardware and network infrastructures, which these participants are mostly working at the state-owned insurance companies. These respondents are generally graduated from computer, insurance and finance. They, also, are working in personal, marine and aviation, life and computer departments.

The level of equipment to public and specialized software/packages needed in e-commerce implementation in insurance is the second item in the infrastructure evaluation. Table 6 in section 5 (chapter 5) indicates that almost 12% of the private insurers have assessed their equipment to the necessary software and applications as "low" and "very low," whereas around one-third of the state-owned insurers evaluate themselves as "low" and even "very low." The gap between these two groups of insurer is statistically significant, which means that the private sectors are well equipped with these facilities. Almost surely, every department within the state-owned insurance companies has assessed themselves very weak with respect to the essential software. In front, over one-quarter of the respondents from sales, computer, life and health insurance departments within the private companies are weak evaluated themselves in software. Totally, less than 23% of insurers rate their level of software infrastructure weak.

The third infrastructure needed in e-commerce deployment is the availability of IT expert who are full of necessary skills. According to Table 6 in section 5 (chapter 5), around 35%

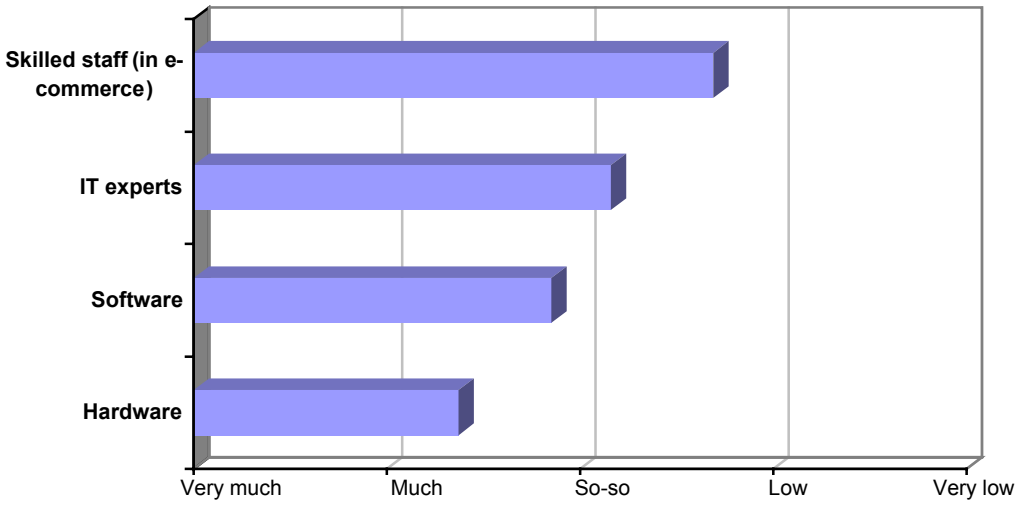
of the respondents indicate that they are not appropriately equipped with this basic infrastructure, in general. Nearly 50% of the state-owned insurers are concerned about the lack of enough and skilled IT experts in e-commerce implementation, whereas about 25% of the respondents from private sectors assess their companies as low and very low in this regard.

Over half of the respondents from sales, claim payment, personal, re-insurance, and engineering insurance departments in the state-owned insurers have assess their IT experts as low and very low, whereas over 50 per cent of the participants from sales and life insurance believe that they are not well equipped to IT experts.

In the fourth essential infrastructure needed in the e-commerce implementation, we have asked the respondents to assess their own companies that to what extent they are equipped to skilled staffs in e-commerce application? Following information provided in section 5 (chapter 5) reveals that over 60% of respondents believe that they are not well equipped to this infrastructure. In fact, both private and state-owned insurers need more investments in this regard and they have to overcome to this problem. They may train their current personnel or employ the skilled people, for example. However, around 70% of the respondents from the state-owned insurers believe that they company suffer from the lack of skilled staffs in e-commerce, whereas 55% of the respondents from the private insurance believe that they have not enough skilled people in e-commerce. The gap between private and state-owned insurers is statistically significant (see Table 8 in section 5, chapter 5).

Finally, Figure 6.1 shows the average value of the respondent's opinion regarding infrastructure requirements.

**Figure 6.1-The average value for infrastructure requirement**




In summary, as reveals from the chart above, the Iranian insurance companies are well equipped to hardware and network, they also are moderately equipped to software needed to

e-commerce implementation and weakly equipped to IT experts and less equipped to skilled staffs in e-commerce. The state-owned insurers are more concerned about these infrastructures than the private sectors.

## 6.5) RQ 3: Major Obstacles

The third part in this research examines the major obstacles and barriers which are hindering the Iranian insurers to embrace e-commerce. To answer the third research question (***what are the major obstacles ahead in application of e-commerce?)*** we need identifying the most perceived obstacles and thus, ask the respondents to examine that to what degree these barriers will hinder deployment of e-commerce in their companies? Based on the literature and preliminary study to explore a full list of potential obstacles and barriers to e-commerce implementation and development, a list of twelve major obstacles have finalized according to an empirical study (for example, after two pilot study and deeply discussion with some of the respondents in the pilot phase). These are:

- Low intention to buy online
- Low Internet usage and fewer users
- Security reservations
- Expensive and complicated technologies of e-commerce
- Non-conformity of current products and services to online offers
- Product complexity and low-interest products
- Scarcity of skilled staff
- Traditionally attitudes and views over the companies
- Inflexible organizational chart and resistance to change
- Internal conflicts and negative reaction from intermediates, agents, brokers, …
- Lack of appropriate legislation and regulation (e.g., copy right, digital signature, …)
- Lagging of other supportive sectors (e.g., e-Banking and Telecommunications).

They are, as mentioned above, creating a base for answering this research question. One question including twelve alternative (sub-questions) were asked to grade each item from "1=very much" to "5=very low" by the respondents according to their companies abilities. From studying the distribution of the barriers shown in figure 11 in section 6 of the pervious chapter, some observations can be made. First can be stated that most of the mean values from grading lies between 1.71 up to 2.81. This means that the respondents highly agree with these major obstacles hindering from the embracement of e-commerce.

Also, review of information provided in section 6 (chapter 5) indicates that lagging other supportive sectors, such as banking (precisely speaking e-banking) and telecommunication,

to facilitate the e-commerce is the most important issue which will hinder insurance companies to embrace e-commerce. This item has got mean value around 1.71, which is the highest graded item among the others. Nearly, half of the respondents strictly believe that this item is hindering e-commerce deployment in insurance. Only as few as 14% declare that lack of other supportive sectors is rather or very unimportant in implementation of e-commerce.

The second highest mean value belongs to obstruction as stated by "*lack of appropriate legislation and regulation (e.g., copy right, digital signature, and etc.)*." The mean value for this hurdle is 1.93 which is close to option "much" important obstacles. Almost 40 per cent of the respondents graded it as "very much" and 35% as "much" for e-commerce deployment. Totally for 75% of the respondents highly agree with that this barrier will impede e-commerce development. The perception regarding this barrier is almost equal for the private and state-owned insurers.

Generally speaking, these three most important factors (e-banking, telecommunication infrastructure and appropriate regulation) are the main and basic elements in the implementation of e-commerce in every industry or business. In principle, without any support of telecommunication (to provide and develop Internet services), e-banking (to make available electronically payment) and, finally, appropriate legislation and regulation (to protect of copy right and digital signature) no business can initialize and deploy any electronically activity or even business. Inefficiency of each of them definitely will interrupt e-commerce application. However, these two major obstacles are believed as external factors and consequently, insurance industry may less influence on them.

Moreover, review information from figure 11 and table 9 in section 6 (chapter 5) reveals that traditionally attitudes and views over companies, scarcity of skilled staffs, security reservations, low Internet usage, resistance to change through and inflexible organizational chart are the next five most important obstacles obstruct e-commerce deployments.

Over one-third of respondents (in particular, whom are working in the state-owned companies) are completely concerned about traditionally attitude dominated over the companies. The perception regarding this obstacle is statistically different between both groups of insurer. In other words, the private sector has in general the lowest grades, which is seen to be less importance for these insurers in comparison to the state-owned insurance companies.

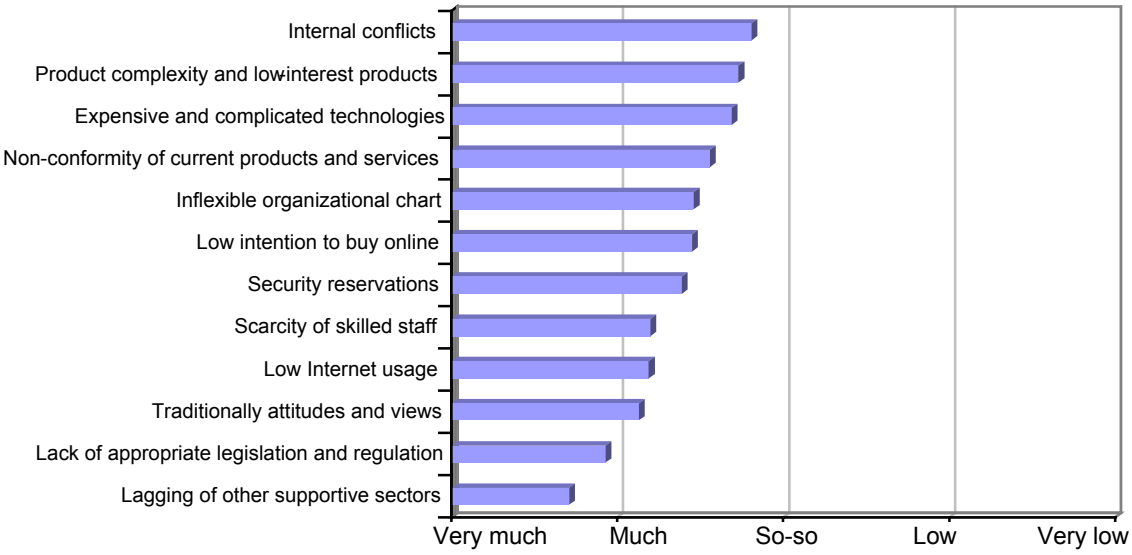
In addition, both groups of insurer are suffering from rarity of skilled staffs and hence, the fourth major obstacles come to this impediment in the respondents' viewpoint. Almost 65% of them strongly agree on this issue and 25% of them are somewhat in agreement with insufficiency of skilled staffs in e-commerce. Low Internet usage is graded by 69% of the respondents and security reservations is graded the most important barrier by around 58% of the respondents. According to t-test provided in chapter 5 (see table 11 in section 6), there are no statistically significant different perceptions about these two major obstacles between the private and state-owned companies.

On the other hand, about 55% of the respondents have found that inflexible organizational chart and resistance to change and adapt with the culture needed to e-commerce implementation as another major obstacles which can drawback e-commerce deployment. Different perception about this hurdle between private and state-owned insurers is statistically significant (see, table 11, in section 6, chapter 5). The state-owned insurers are more concerned about inflexible organizational chart and resist changing rather than the private companies.

Low intention to buy online and non-conformity of current products/services to online offer are the next major obstacles which are highly expressed by about 55% and 51% of the respondents, respectively. Product complexity and low-interest products, expensive and complicated technologies of e-commerce, and internal conflicts and negative reaction from intermediates, agents, and brokers are the remained obstacles which are greatly graded by 44%, 43% and 42% of the respondents. Excluding product complexity and low-interest products, the perception regarding the remained four major obstacles are almost equal for private and state-owned insurance companies and there are no statistically significant differences in their opinions. In the product complexity and low-interest products aspect, the private insurers are more concerned about it and they have found this item more disadvantages to e-commerce deployment.

Finally, Figure 6.2 shows the average value of the respondent's opinion regarding major obstacles hampering e-commerce implementation in insurance companies.

**Figure 6.2-The average value of the respondents' perception on top 12 obstacles ahead**




In summary, the majority of the respondents believe that these 12 major obstacles will hinder e-commerce implementation. They strongly agree on all of them but the intensity of agreement is slightly varied. According to the chart above, the most important obstacles for both groups of insurer are sorted below:

- Lagging of other supportive sectors (e.g., e-Banking and Telecommunications).
- Lack of appropriate legislation and regulation (e.g., copy right, digital signature, …)
- Low Internet usage and fewer users
- Traditionally attitudes and views over the companies
- Scarcity of skilled staff
- Security reservations
- Low intention to buy online
- Inflexible organizational chart and resistance to change
- Non-conformity of current products and services to online offers
- Expensive and complicated technologies of e-commerce
- Product complexity and low-interest products
- Internal conflicts and negative reaction from intermediates, agents, brokers, …

# 6.6) RQ 4: Potential Applications Of E-commerce

Potential applications of e-commerce in insurance companies have been included in the fourth part of this study. To refresh the readers' memory, the fourth research question is repeated below:

- **RQ4:** ***What are the potential applications of e-commerce in the insurance companies?***

To answer this question, we have separated this main question into two sub-questions concerning insurance value chain (or insurance business process) and suitability of insurance products to sale online. Hence, two questions used in the questionnaire which both are creating the base for answering the research question. These are questions number 7 and number 8 in the questionnaire designed for this research.

In the following the data analysis for these two questions will be further provided.

## 6.6.1) Potential Applications Of E-commerce In Insurance Value Chain

E-commerce is dramatically changing every business and their related processes. Insurance business processes will be undergoing in the case of e-commerce implementation. As we well discussed a typical insurance value chain, or in other words, insurance business process in Chapter 2 of this study, we identified these five elements more important in an every insurance company:

- Product and service development (R&D)
- Marketing and sales
- Administration
- Asset management
- Claims management

Accordingly, we asked the respondents to answer this question: *To what extent each section (listed above) has the potential to embrace e-commerce?* Review of information provided in section 7.1 in the pervious chapter indicates that marketing and sale, product/service research and development, asset and investment management, administration, and claim management can potentially get benefits of e-commerce, respectively. The average values of the respondent's opinion on this question are 2.18, 2.26, 2.56, 2.86 and 2.87, respectively, for potentiality of application of e-commerce in marketing and sale, product/service research and development, asset and investment management, administration, and claim management. These figures lies between "much" and "so-so" important or agreement on each item, which indicates high potential application of e-commerce in insurance value chain.

Almost 68% of the respondents agree that marketing and sales have the most potential to use of e-commerce. Only as few as 12% of the respondents declare that e-commerce will

provide less and rather unimportant potentiality to these sections. The assistant managers in both groups of insurer believe that marketing and sales have less potentiality to embrace e-commerce. The people from administration engineering, auto, and personal insurance sections are not in agreement that potential application of e-commerce in marketing and sales. Almost all people from marketing and sales department agree on consistency of their department with e-commerce applications. The perception regarding the potential application of e-commerce in marketing and sales is almost equal for private and state-owned insurers, with the state-owned companies leading the private insurers slightly, which translates the private more agree on potential application of e-commerce in marketing and sales rather than the state-owned companies.

Product/service development (R&D), or in other words innovation center, is the second part in insurance business process which the respondents agree on potential application of e-commerce in it. Totally, around 65% of the respondents express that R&D are potentially suitable to embrace e-commerce. Almost 68% of the respondents in private insurers and 60% of the respondents in state-owned companies believe that R&D can more utilize e-commerce applications. The gap in perception regarding this item between these two groups is statistically significant just in 5% confidence level. The respondents in computer, auto insurance and even R&D divisions are more concerned about the potentiality of R&D to seize e-commerce, especially for the participants from state-owned insurers.

Nearly half of the respondents in both groups believe that asset and investment management can properly utilize e-commerce application. 52 per cent of respondents in private insurer and 46 per cent of respondents in state-owned companies highly comply with potentially utilization of e-commerce in this part. The gap in opinion between these two groups is not statistically significant (see, table 14, section 7.1 in chapter 5). Almost 56% of respondents in life insurance, one-third of respondents in personal insurance and 30% of respondents in health insurance disagree on high potential application of e-commerce for asset management. Also, one out of four the board of members (in private companies) lowly grade this item. On the other hand, over 60% of respondents in administration, asset managements, claim payment, re-insurance, sales and liability sections highly grade this item and strongly believe that asset and invest management can take advantage of e-commerce application.

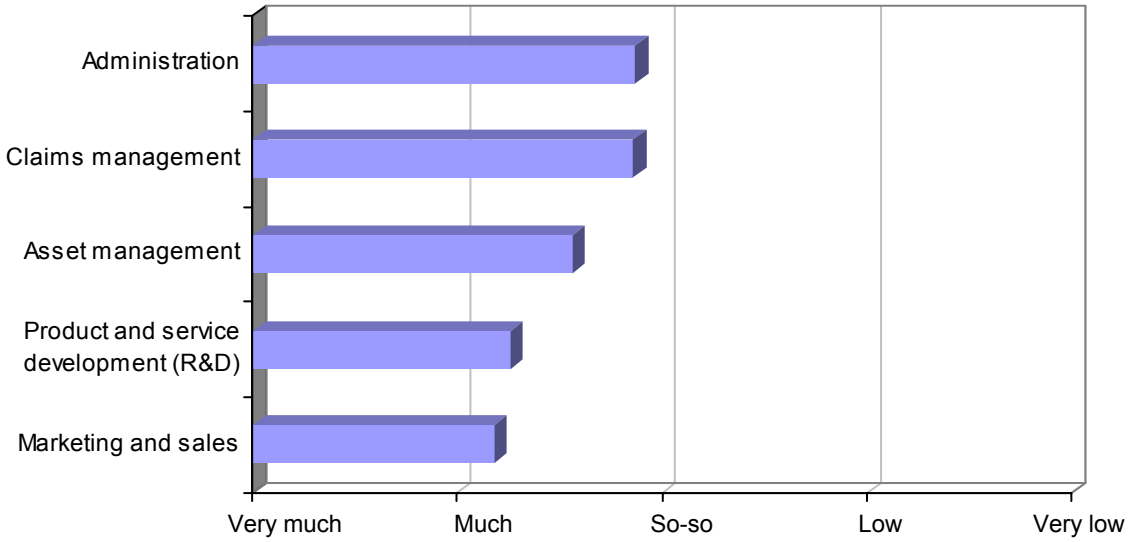
Totally, 36% of respondents highly believe that administration seize e-commerce application within its processes. Over one-third of directors and their assistants, assistant manger and two members of board (out of four) are more concerned on the suitability of administration to take advantage of e-commerce. They all believe that administration may lowly utilize e-commerce applications and potentiality of e-commerce application in administration and its processes is low. In contrast, 67% of respondents in claim payment, 55% of liability, half of sales persons, and 40% of respondents from administration departments agree on potential application of e-commerce in administration.

Finally, 31% of respondents express that claim management and settlement can utilize e-commerce in its processes. Around 44% of vice presidents and 40% of assistant managers disagree with high potentiality of e-commerce in claim and payment management. Three (out of four) members of board, 75% of sale persons, 67% of claim payment, 63% of R&D,

and 52% of respondents from finance department highly declare that claim management can take advantage through e-commerce implementation. While, 78% of people from life insurance, 48% of participants from auto insurance, 46% of personal insurance people and 45% of respondents from liability insurance sections lowly grade that claim and payment management has the potentiality to utilize e-commerce application and they are more concerned on benefits of e-commerce to claim and settlement management.

Finally, Figure 6.3 visualizes the average values of the respondents' opinion regarding potential application of e-commerce in insurance value chain, or in other words insurance business process.

**Figure 6.3-The average value of potential application in insurance value chain**




In summary, Iranian insurers believe that marketing and sales, R&D and asset management have the most potential application to utilize e-commerce in their processes among the five parts identified in a typical insurance companies. In comparison, administration, and claim, payment and settlement management have less potential application of e-commerce in their processes.

## 6.6.2) Potential Applications Of E-commerce For Insurance Products

Obviously, not all products or services are suitable to sale online in general. As far as insurance products concern, not all insurance products are equally suited to Internet distribution. As well discussed in chapter 2, their suitability depends chiefly on how much advice is required. The more complex the insurance product and the bigger its financial scale or transaction volume, the greater the customer's willingness to pay for advice.

On the other hand, insurance products and services are widely developed and they're so many products available to buyers. To have a better picture of these products, it is necessary to categorize them in few number and manageable category. As far as the Iranian insurance companies concern, these products are the most demanded insurance policy, which we have concentrated on:

- Fire insurance
- Personal insurance (Health and accidents)
- Liability insurance
- Marine and Aviation insurance
- Engineering insurance
- Auto insurance
- Life insurance

Consequently, we asked the respondents to answer a question regarding suitability of insurance products to offer online. This question was stated as: *Which of the insurance products (listed above) are suitable to sale online?*

To answer this question, we need review of information provided in section 7.2 in chapter 2 which indicates that these products orderly are suitable to sale online: auto insurance, marine and aviation insurance, life insurance, fire insurance, personal insurance, liability and engineering insurance. The average values of the respondent's opinion on this question are 2.13, 2.16, 2.19, 2.35, 2.49, 2.62 and 2.95 for auto insurance, marine and aviation insurance, life insurance, fire insurance, personal insurance, liability and engineering insurance, respectively.

Almost 65% of the respondents believe that auto insurance highly can be offered online. Only as few as 10% of them put less grade that auto insurance is suitable to sale online. 88% of assistant directors, 80% of directors, 75% of supervisors and 72% of assistant mangers greatly judge that auto insurance has the most chance to sale online. Half of the respondents from auto insurance agree on suitability of their products to online offer, whereas around 58% of sale people are convinced that it is more suitable to e-commerce. On the other hand, over 70% of people from health insurance, life insurance, re-insurance, engineering insurance, administration and R&D have found that auto insurance can be sold through

Internet. The perception of respondents is equal between private and state-owned insurers with respect to suitability of auto insurance to sale online.

Totally, 68% of respondents express that marine and aviation insurance is highly suitable to online sale, whereas only as few as 10% of them less grade that marine and aviation insurance is suitable to sale online. Around 90% of respondents who graduated in engineering and almost over 70% of respondents graduated in insurance and finance believe that marine and aviation insurance can be chiefly sold over Internet On the hand, we have found that this insurance products to be highly suitable to offer online according to about 78% of directors and 75% of supervisors point of view. Furthermore, 77% of respondents from department of marine and aviation insurance strongly believe that marine and aviation insurance can properly be offered online. Only as few as 10% of them are concerned about this and grade it less important. Almost 79% of people from auto insurance, 78% of sale persons, 77% of R&D, 75% of liability and 75% of people from re-insurance department highly find more suitable to sale this product online.

Again, the perception of both group of insurers regarding suitability of online sale for marine and aviation insurance is equal. On the other words, we face a slightly different picture in case of private insurers which is leading a state-owned insurers a slightly. However, this difference is no statistically significant.

In the life insurance aspect, we go back to a somewhat similar pattern generated by the marine and aviation insurance analyzed above. In general, 66% of respondents grade that life insurance is highly suitable to sale online. Around 88% of vice-presidents and supervisors and 75% of assistant directors more prioritize this product to offer on the Net. Almost, 67% of the respondents from life insurance department have found it more suitable, while 92% of sale persons, 84% of people from the section of marine and aviation insurance, health insurance and claim payment and two board member (out of four) believe that life insurance is greatly suitable to sale online. The minor difference between the perception of private and state-owned insurance companies is not statistically significant (see table 17, section 7.2 in chapter 5).

The fourth insurance product which is suitable to offer online is fire insurance. Around 60% of respondents judge it highly fits to e-commerce. The private sectors interestingly display different opinion regarding appropriateness of fire insurance to sale online. About 67% of respondents in the state-owned believe that it is the most suitable to offer online, whereas half of respondents in the private sectors have found that fire insurance meets e-commerce requirements and then it can be offered online. The difference in the average value of the respondents' opinion regarding the fitness of fire insurance to be sold online is statistically significant (see table 17, section 7.2 in chapter 5).

All four members of board and 75% of mangers in the private insurance companies on one hand, and 92% of assistant managers, 79% of directors and 76% of mangers in the state-owned insurance companies on the other hand, strictly believe that fire insurance is appropriate to sale online. Almost surly, all sale persons and people from marine and aviation in the state-owned insurance companies along with 89% of administration people agree on fitness of fire insurance to be offered online, whereas the corresponding figures in

the private insurers are not as high as the state-owned insurers. For example, just 55% of sales persons and 66% of respondents from administration in the private insurers express that fire insurance is more eligible to sale online. The respondents from fire insurance department interestingly grade it less suitable to be sold through Internet. About 46% of the participants from state-owned insurers and 44% of the participants from private insurers hit are as much as suitable to sale online.

Personal insurance is the next suitable product to offer online. Personal insurance covers both accident and health insurance in our study. About 55% of the respondents agree that it is highly suitable to offer online. Two members of board (out of four), 88% of assistant directors and 75% of vice presidents among others highly agree on suitability of personal insurance to be sold online. In addition, 83% of sales persons, 75% of participants from re-insurance and 67% of people from administration divisions declare that personal insurance is highly appropriate to offer online. Around 63% of respondents from personal insurance believe that their relevant product applicable to e-commerce and, therefore, it is eligible to online sale. Only as few as 11% of them declare that it is lowly fit online sale. On the other hand, nearly 61% of the respondents from health insurance agree on appropriateness of personal insurance to be offered on Internet, which includes health insurance. 14% of them are concerned about that and declare that it is lowly suitable to be offered online. The perception regarding fitness of personal insurance to online sale is almost equal for state-owned and private insurers.

Almost half of the respondents declare that liability insurance is highly suitable to sale online. Two members of board (out of four), 73% of assistant managers, 63% of supervisors and 63% of vice presidents among others highly agree on suitability of liability insurance to sale online. In addition, 83% of people from health insurance division, 67% of participants from claim payment and 67% of people from sales department express that liability insurance is highly appropriate to offer online. About 35% of respondents from liability insurance department rated their product highly fit to e-commerce. Surprisingly, the same portion is against, which means that 35% of them have found it less meet online sale. Therefore, there is no common understanding about the appropriateness of this products and the suitability of this product is need more exploration. The private and state-owned insurers displayed the same idea about the fitness of liability insurance to online sale and there is no statistically significant difference in their perception.

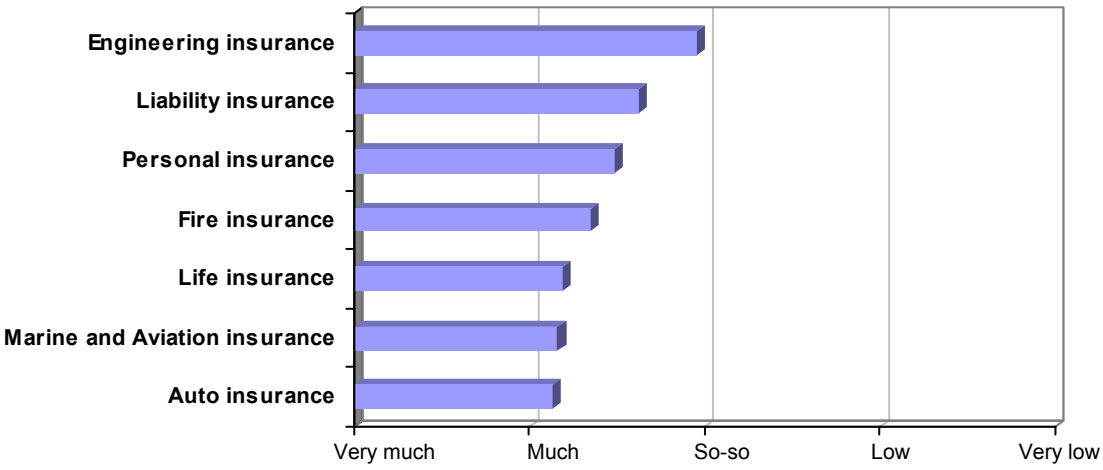
Engineering insurance is the last product suitable to sale online according to the respondents' point of views. Only 36% of the respondents believe that this product is suitable as much as possible to sale online. In contrast, 30% of the respondents declare that it is the least favorable to be offered online. The rest are not sure about its appropriateness to e-commerce application. One of board members (out of four), half of assistant managers and 46% of managers among others highly agreed on suitability of engineering insurance to sale online.

In addition, 83% of people from claim payment and 50% of people from sales department express that engineering insurance is highly appropriate to offer online. About 23% of respondents from engineering insurance department agree their product highly applicable to e-commerce and hence it can be offered online, surprisingly, whereas, 62% of the

participants from this department believe that it lowly fit online sale. Therefore, this may mean a negative perception of the appropriateness of this product and, accordingly, engineering insurance is not suitable to sale inline. There is no statistically significant different idea about the fitness of this product between private and sate-owned insurers.

Figure 6.4 visualizes the average values of respondent's opinion regarding suitability of current insurance products to offer online.

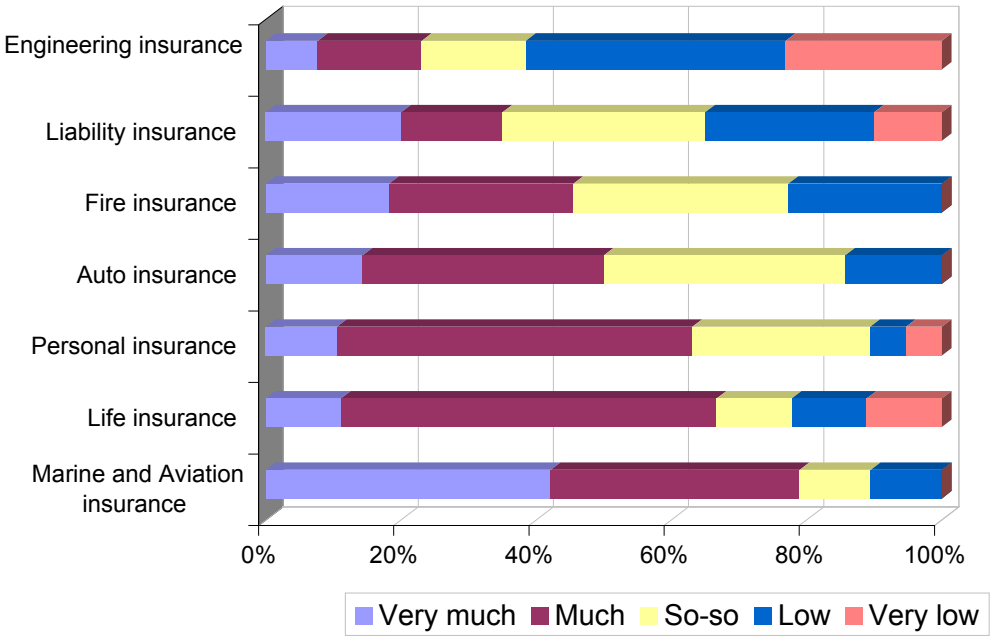
**Figure 6.4-The average values for suitability of insurance products**




Obviously, according to chart above, products that are particularly suitable for marketing on the Internet are those that can be described and rated using a small number of parameters, such as auto (motor) insurance, marine and aviation, life insurance, fire insurance, personal insurance, liability insurance and finally engineering insurance, in order of suitability to sale online.

Finally, Figure 6.5 displays the perception of respondents from each department with respect to suitability of their products to online sale. In other words, to what degree they think their products are suitable to offer online.

**Figure 6.5- Suitability of insurance products from the relevant department**




In summary, in order of fitness to online sale, almost 80% of the respondents from marine and aviation insurance department, over 60% of the respondents from life insurance department, 60% of the respondents for personal insurance department perceive that their products are more suitable to sale online.

# 6.7) RQ 5: Perceived Benefits Of E-commerce

The last research question, the fifth research question, on this research concerns about perceived benefits sought from application of e-commerce. To refresh the readers' memory, the fifth research question is repeated below:

- **RQ5:** ***What are the benefits sought from application of e-commerce?***

To answer this question, we have selected top twelve benefits of e-commerce application. These are listed below:

- Brand and image promotion (as a pioneer and modern company)
- Lower invest for establishing the sales and after sales services network
- Cost reduction in value chain management (e.g. product/service development)
- Decentralization and no restrictions imposed by national borders
- Desired CRM through continuous service (24 hours/7 days) and fast response
- More transparency and speed of claims management
- Increase of sale volumes (premium)
- Mass-customization and innovation
- Knowledge management and good stakeholder relationship
- Promotion enhancement with lower cost
- Job enrichment and high productivity
- Extended corporation with partners (specially in the reinsurance cases).

Accordingly, we offered the respondents to weigh these twelve major benefits in the case of e-commerce implementation. In other words, to what degree they think that their company will achieve to these benefits if their company enter to e-commerce. The answer to this question was shown in section 8 the pervious chapter.

Review of information provided in section 8 in chapter 5 reveals that these top twelve benefits are greatly perceived for the Iranian insurance companies. On the whole, for the top five benefits sought, the average values of the respondent's opinion regarding this question are 1.65, 1.84, 1.85, 1.88, 1.92 for *brand and image promotion, extended corporation with partners, promotion enhancement, desired CRM and decentralization*, respectively. Figure 6.6 shows the average value of the respondents perception about these 12 top benefits sought from e-commerce application. The perception of private and state-owned insures is equal for these twelve top benefits. In fact, there is no statistically significant difference between these two group of insurers regarding all top 12 benefits sought from application of e-commerce (see table 19 in section 8, chapter 5).

Almost surly all respondents highly believe that in the case of e-commerce deployment, their companies will enjoy of brand and image promotion as a pioneer and modern company. Hence brand and image promotion is regarded as the first and most important

benefits sought form e-commerce application, among the top benefits. Only as few as 1.6% of the respondents are not sure on this benefit, and therefore they believe it is less important. All respondents from life, fire, property and re-insurance as well as people from sales completely agree on this benefit for their companies. Both groups of insurer feel the same way regarding this benefit and the minor difference in the respondents' opinion is not statistically significant (see table 19 in section 8, chapter 5).

The second most important benefit according to the respondents' idea is the extended corporation with partners (especially in the reinsurance cases). Almost 80% of the respondents express that it is highly important benefit for their company if they implement e-commerce.

On the other hand, only as few as 5% of the respondents judge it is less important to them so that to be considered as the most important benefit. These people have been graduated in management and finance. Around 14% of directors and two members of board (in the private insurance companies) are among these people. And 18% of respondents from R&D do not believe that e-commerce will positively affect on the extended corporation with partners.

Over 90% of the respondents from Finance, fire insurance, health insurance as well as 88% of respondents from personal insurance and 85% of participants from engineering insurance departments positively look at this benefit for insurers in the presence of e-commerce. On the other hand, 77% of respondents from re-insurance department and 67% of salesmen highly express that it will be the most important benefit to the Iranian insurance companies.

Almost 83% of the respondents state that promotion enhancement with lower cost would be another benefits for the insurance companies if they embrace e-commerce applications. In contrast, less than 2% of the respondets are not confident that e-commerce application would cause positive results for promotion upgrade through lowering cost. All respondents from sales and claim payment highly believe that doing business over Internet will promote their companies with lower cost.

The fourth perceived benefits generated from e-commerce application belongs to desired CRM through continuous service (24 hours/7 days) and fast response. Almost 80% of the respondents highly agree that it will create excellent CRM opportunity to companies. Around 5% are against and believe that e-commerce application will less affect on CRM and instant response to customers.

Almost 78% of the respondents do believe that e-commerce will be helpful to decentralization and removing any geoghraphical distances between inurers and their customer. Generally, in the Decentralization and no restrictions imposed by national borders aspect we go back to a somewhat similar pattern generated by the desired CRM. Again, less than 5% of the respondents have found it less important. 22% of people from life insurance and 10% of people from computer departmetns negatively look at this benefit for the insurance companies.

The sixth benefit which generated the strongest agreement is the cost reduction in value chain management (e.g. product/service development). 70% of the respondents highly

believe that e-commerce can be helpful to lower the cost, and precisely, cost reduction in every part of the insurance business processes. Only as few as 3% do not agree and they have found it is less important to cost reduction. However, the majority are in agreement with and thus, cost reduction can be regarded as another benefits sought from e-commerce deployment.

Lower investment for establishing the sales and after sales services network is the 7th highest score (average value) on benefits and falls within high agreement by the majority of respondents. Nearly, 78% of the respondents most agree whit this benefit for insurance companies. In other words, over three-fourth of the respondents believe that in the case of e-commerce application they will not high budget and investment to establish the sales and after sale services network, due to sophisticated online business. About 6% of the respondents are against and are not convince that e-commerce can lower investment for sales and after sales services network. Sales persons completely agree and in contrast, one (out of four) members board have found that it is less important factor to invest more on sales and after sales services.

With respect to benefit of good knowledge management and better stakeholder relationship, most people agree but not all. Almost 74% of the respondents believe that implementation of e-commerce will make their company to create a good knowledge management and better stakeholder relationship. 11% of managers and two (out four) members board negatively express that e-commerce will empower them to make a good knowledge management and better relationship with their stakeholders.

Almost 70% of the respondents agree highly on the job enrichment and high productivity as another beenfits for insurers in the case of e-commerce application. Less than 5% of the participants negatively disagree with this benefit. Around 15% of respondetns from R&D and engineering insurance departments are convince that e-commerce will less affect on Job enrichment and high productivity.

Another strongest agreeement is generated on the benefit of increase of sale volumes (premium) due to e-commerce deployment. Almost 62% of the respondents strongly agree with this benefit and as few as 6% are found it less important. With respect to this benefit two (out of four) board members and 8% of managers presnet a relatively negative opinion. The majority of people from sales, finance, re-insurance, life and health insurnces positively believe that e-commerce can highly rise their sales volume.

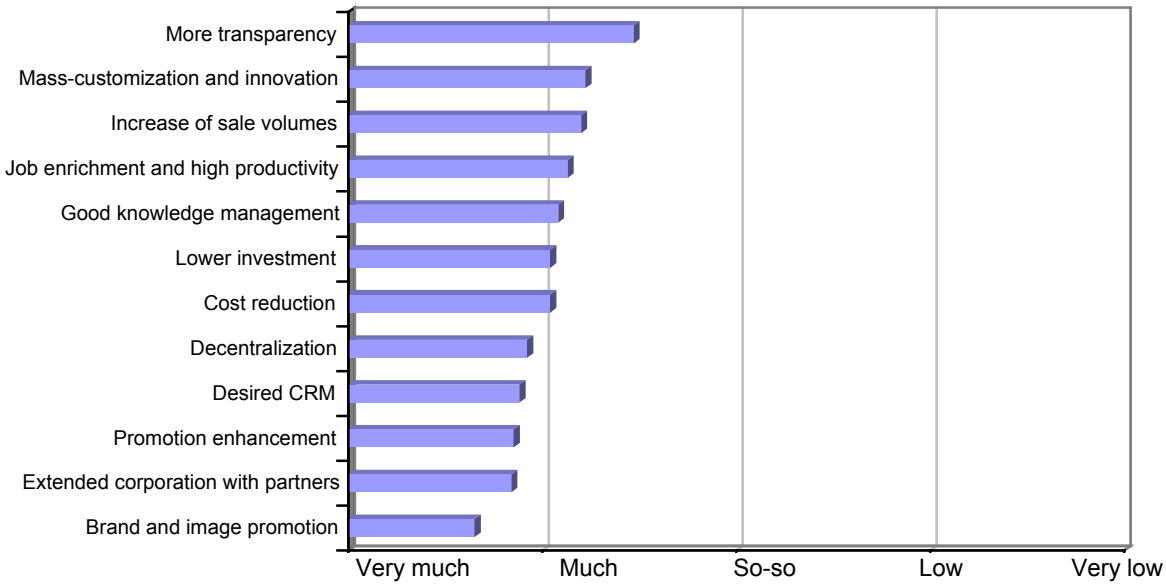
One of the next and most impotnat benefits sought from implementation of e-commerce is Mass-customization and innovation. Almost 65% of the respondents highly agree on this benefit and less than 5% of the respondents disagree. All members of board strongly believe that e-commerce will empowevr them to more innovation and mas-customization.

The 12th and last benefits in this research concerns about more transparency and speed of claims management. Almost 55% of the respondents greatly believe that e-commerce and doing business on the net will make more transparency of their business and at the same time the can rapidly response to claims. In other words, implementation of e-itively generate

benefit of more transparency and speed of claims management. Only 17% of the participants stated that e-commerce is less important with respect to this benefit.

Figure 6.6 shows the distiribution of average values for the answers received for the relevant question in the questionnaire regarding perceieved beneifts (the fifth research question) in this survey.

**Figure 6.6-The average value of benefits sought from e-commerce implementation**




In summary, the majority of respondents strongly agree on these twelve top benefits. In fact, in the case e-commerce implementation, the Iranian insurance companies will take advantage of all benefits listed and discussed above. Consequently, these twelve top benefits can be sorted below according to the respondents' highest agreement from the highest perceived benefits to the lowest benefits:

- Brand and image promotion (as a pioneer and modern company)
- Extended corporation with partners (specially in the reinsurance cases)
- Lower invest for establishing the sales and after sales services network
- Cost reduction in value chain management (e.g. product/service development)
- Decentralization and no restrictions imposed by national borders
- Desired CRM through continuous service (24 hours/7 days) and fast response
- More transparency and speed of claims management

- Increase of sale volumes (premium)
- Mass-customization and innovation
- Knowledge management and good stakeholder relationship
- Promotion enhancement with lower cost
- Job enrichment and high productivity

## 6.8) Readiness To E-commerce Implementation

As discussed above, we have faced a negligible different picture of e-commerce in the Iranian insurance companies. In fact, both groups of insurer (private and state-owned) have revealed in common perception regarding e-commerce applications. Generally, the readiness of every company to embrace e-commerce varies and strictly depends on many factors surrounded the company. With respect to these factors and issues, we asked the respondents to answer the final question regarding their readiness to e-commerce embracement. Accordingly, in this research, the last question in the questionnaire is stated as: "*Totally, to what extent your company is ready to embrace e-commerce?*"

The answer to this question was presented in section 9, chapter 5. Totally, around 31% of the respondents believe that their companies are ready to embrace and welcome to e-commerce. Around 21% of the respondents from state-owned insurance companies and almost 42% of the respondents from private insurance companies strongly declare that their companies are ready to take up e-commerce implementation. The gap between these two groups of insurer are statistically significant, hence, the private insurers are more ready to welcome to e-commerce according to the perception of their personnel.

On the other hand, 17% of the respondents from private insurance company negatively believe that their companies are capable to embrace e-commerce, whereas significantly, 34% of state-owned companies disagree, and thus, they believe that their companies are not ready to implement e-commerce application.

It is interesting to note that two (out of four) board members chiefly agree that their companies are ready to e-commerce implementation. In comparison of the perception of computer graduated people, we have found that in state-owned companies only 17% agree and 30% disagree, but in private sectors 39% of them highly agree and only 15% of them disagree. The majority of highest score comes to finance and fire insurance departments in state-owned companies with 37% and 39% of respondents' high agreement, respectively. While in private companies, 67% of people in marine and aviation insurance, 56% of respondents in sales department, 55% of participant from liability insurance and half of life insurance and finance highly believe that they companies are more capable to implement e-commerce.

# Chapter 7 CONCLUSIONS AND RECOMMENDATIONS

## 7.1) Introduction

In the pervious chapter we analyzed the data collected by questionnaire in this research. The main structure used in chapter 6, was the structure outlined in the emerged frame of reference, chapter 3. In other words, we were centered on the analysis of five research questions addressed in this study.

In this chapter, we shall summarize our analytical findings and present the conclusions drawn from the survey performed in this work. Findings will initially be presented in a general discussion, dealing with the areas of the fifth research question. In other words, in this final chapter, five research questions will be answered and, therefore, general conclusions will be drawn. And finally, in the end of this chapter we will also give and outline some further suggestions and recommendations for future research.

## 7.2) General Discussion

Almost surely, all insurance company along with their subsidiaries and agent has an Internet and they introduce their products and services. Their websites are more static than dynamic. They just present a little information on their companies, no regularly updated information and a few of them offer to visitors to contact them via e-mail.

Implementation of e-commerce in a company is not spontaneous, it is result of decision; hence, if the company wants to understand the processes and requirements, then they has to explain why they undertake to become involved in e-commerce operations. In other words, they should keep in mind this critical question: *What business are they in and how will that be conducted?* As far as insurance companies concern, this resistance to redefine the industry for a potentially very different future puts the insurance industry at risk It means that it is not enough to have a firm with resources, opportunities in the environment and

even an Internet domain (presence) to become an e-insurer. All these factors are necessary but not enough. Doing business on the Net and becoming e-insurer needs considering all aspect of business from the beginning to the final nodes in insurance business process insurance companies. All sections within an insurance company aiming at e-commerce deployment must be active and proactively interact with the customers.

As stated in the first chapter of this dissertation, the main purpose of this study was "The impact of e-commerce on the Iranian insurance companies." Regarding the continued debates on the nature of e-commerce and its effects on insurance in developing countries and with respect to this fact that there is no real e-commerce application in the Iranian companies, we proposed this prospective study to explore: what are perceived about the potential effects of e-commerce on insurance companies, in advance, by the Iranian insurers.

In order to fulfill the purpose of this study, as well discussed again in the pervious chapter, the main research question was divided into five research questions. Based on the survey done in this works, overall answers to these five research questions will be given in this chapter. In addition to the objective with this research, we examined whether there are any likenesses and differences in the perceptions and attitudes between state-owned insurers and private insurance companies. In order to fulfill this further objective, we ran a t-test analysis to explore and find out any differences in the average values of perception about each question between both groups of insurer. However, our findings and conclusions drawn thereof are presented below.

## 7.3) Research Findings And Conclusions

As mentioned above, a brief data presentation and data analysis have been provided in the pervious chapters. Also comprehensive answers to all research questions have been discussed in chapter 6. This section has been devoted to present a summary of the research findings and an overall answer to the five research questions.

Survey respondents represent almost all segments of the insurance industry: life, health, marine and aviation, liability, fire, engineering, auto, reinsurance, administration, computer, sale, and finance. Accordingly, it make easy to generalize the findings to all insurance companies and even insurance industry as well. Although almost samples agreed upon the high effects of e-commerce on insurance companies, dissimilarities and differences were distinguished between the insurers perceptions. Therefore, based on the discussions and findings in chapters 5 and 6, summary of the research findings with respect to the research problem and research questions is presented in this section.

### 7.3.1) Attitude And Views Toward E-Commerce

As was stated in the frame of reference, the first research question is formulated: *What are the attitudes and views of the Iranian insurance companies toward e-commerce?*

Totally, the selected samples are desirably informant with respect to e-commerce and its application, which highly enable us to extend and generalize the results obtained from this survey to almost all insurance companies. Only as few as 20% of the respondents declared that they are not familiar enough with the concept and application of e-commerce. With respect to rapid change in e-business, our conclusion reveals that insurers have to hold more training program and educate staffs or even to recruit more and more knowledge people.

Almost surely, all respondents (except less than 3% of them) expressed that e-commerce will chiefly affect on insurance industry. They believed that introduction of e-commerce in insurance will undergo the industry. On the other hand, they positively perceived that e-commerce would open more opportunities rather than challenges or even threat. Hence, they have concluded that the implementation of e-commerce in their companies is more important issue, and they have preferred to use e-commerce in their own companies. The private insurers are more interested in e-commerce application than the state-owned companies.

### 7.3.2) Infrastructure Requirement

As was stated in the frame of reference, the second research question is formulated: *To what extent is the Iranian insurance companies equipped to the infrastructures required in implementation of e-commerce?*

According to the survey, the majority of respondents believed that the Iranian insurance companies are well equipped to hardware and network, they also are more equipped to software needed to e-commerce implementation and weakly equipped to IT experts and less equipped to skilled staffs in e-commerce. The state-owned insurers are more concerned about these infrastructures than the private sectors.

Thus, the most important requirement for both groups of insurer is to recruit more skilled people in e-commerce and IT operations. Due to scarcity of well educated with more practical experience in e-commerce application, it is highly recommended to long-time planning in this regard and they may have a joint and close relationship with university to educate their staffs or graduate more skilled students in IT operation and e-commerce applications.

### 7.3.3) Major Obstacles

As was stated in the frame of reference, the third research question is formulated: *What are the major obstacles ahead in application of e-commerce?*

To answer this question, a list of twelve major obstacles was offered to the respondents and asked them to what degree they perceived these barriers are hampering their companies to embrace e-commerce. The findings of this study imply that the majority of the respondents believe that these 12 major obstacles will hinder e-commerce implementation. They strongly agree on all of them but the intensity of agreement is slightly varied. In summary, the most important obstacles for both groups of insurer are sorted below:

- Lagging of other supportive sectors (e.g., e-Banking and Telecommunications).
- Lack of appropriate legislation and regulation (e.g., copy right, digital signature, …)
- Low Internet usage and fewer users
- Traditionally attitudes and views over the companies
- Scarcity of skilled staff
- Security reservations
- Low intention to buy online
- Inflexible organizational chart and resistance to change
- Non-conformity of current products and services to online offers
- Expensive and complicated technologies of e-commerce
- Product complexity and low-interest products
- Internal conflicts and negative reaction from intermediates, agents, brokers, …

### 7.3.4) Potential Applications Of E-commerce

The fourth research question, which was stated in the frame of reference, is formulated: *What are the potential applications of e-commerce in the insurance companies?*

This question was divided into two sub-questions on potential application of e-commerce on 1) insurance business process (value chain) and 2) insurance products.

In summary, Iranian insurers believe that marketing and sales, R&D and asset management have the most potential application to utilize e-commerce in their processes among the five parts identified in a typical insurance company's value chain. In comparison, administration, and claim, payment and settlement management have less potential application of e-commerce in their processes.

Furthermore, as well discussed in chapter 6, products that are particularly suitable for marketing on the Internet are those that can be described and rated using a small number of

parameters, such as auto (motor) insurance, marine and aviation, life insurance, fire insurance, personal insurance, liability insurance and finally engineering insurance, in order of suitability to sale online. On the other hand, in order of fitness to online sale, the majority of respondents from the departments, which are more relevant to the seven insurance products, offered in this question, feel the same way and they confirmed the conclusion mentioned above.

### 7.3.5) Perceived Benefits Of E-commerce

The last research question, which was stated in the frame of reference, is formulated: *What are the benefits sought from application of e-commerce?*

To answer this question, we have selected top twelve benefits of e-commerce application and, accordingly, we offered the respondents to assess these twelve major benefits in the case of e-commerce implementation. In other words, to what degree they think that their company will achieve to these benefits if their company enter to e-commerce.

In summary, the majority of respondents strongly agreed on these twelve top benefits. In fact, the Iranian insurance companies will take advantage of these benefits, in the case e-commerce implementation. Consequently, these twelve top benefits can be sorted below according to the respondents' highest agreement from the highest perceived benefits to the lowest benefits:

- Brand and image promotion (as a pioneer and modern company)
- Extended corporation with partners (specially in the reinsurance cases)
- Lower invest for establishing the sales and after sales services network
- Cost reduction in value chain management (e.g. product/service development)
- Decentralization and no restrictions imposed by national borders
- Desired CRM through continuous service (24 hours/7 days) and fast response
- More transparency and speed of claims management
- Increase of sale volumes (premium)
- Mass-customization and innovation
- Knowledge management and good stakeholder relationship
- Promotion enhancement with lower cost
- Job enrichment and high productivity

## 7.4) Recommendations For Future Research

The limitation of this study and its findings should be noted with a view to extending the present study. This section contains some explicit suggestions for future research related to research methodology and theory as well as empirical issues. We hope that these suggestions will encourage others to conduct studies in order to advance our knowledge of the impact of e-commerce on the Iranian insurance companies. And possibly confirm, refine or dispute the propositions made in this dissertations.

As mentioned in the pervious chapters, none of the Iranian companies have actually implemented e-commerce, so far. A few businesses have been started semi-online (pseudo online business) by offering their customer to fill in their information and even order their offers (i.e., products and services) and then they have to pay to their account in bank or maybe they pay in cash when they got the offers. As far as insurance companies concern, only Alborz insurance do like this. However, some of the Iranian' banks are planning to start their e-business which means that they may help other sectors in transaction of money. Thus, it is highly suggested to repeat this study in the case e-banking, just to compare this prospective study with a real one (that is, after e-commerce implementation).

The next recommendation is to extend demarcation of this study. In this research we have concentrated on insurers (and mainly the head quarters) and then we did not consider other stakeholders and key players in an e-insurer business. They are: insurance agents and brokers, Internet services providers, customers and society or government. Future researches could make several extensions of the current research and also study the roles and effects of e-commerce on these stakeholders and consequently the overall effects of e-commerce on insurance industry.

With focus on a quantitative research in this study, it is strongly recommended to run another research with qualitatively research to probe deeply on each items mentioned in this work, and explore the hidden (unknown) aspects of this study.

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# APPENDIX

## Appendix A: Glossary And Operational Definitions

## Appendix B: Questionnaire

# Glossary And Operational Definitions

**Aggregators**- are usually independent providers who specialize in providing quotations from different insurance companies for comparison purposes. The service is often supplemented by general information on insurance products as well. These providers can also be described as online insurance brokers or Internet brokers.

**Business process (BP)** – the processes within a business.

**Business process** -standardized set of activities that accomplish a specific task. For example, processing a customer's order.

**Business to business (B2B)** –e-commerce that takes place between organizations.

**Business to customer (B2C)** –e-commerce sites that sell products and services, or provide information services directly to consumers

**Commerce** –people buying and selling products and services from and to each other

**CRM** – customer relationship management systems – use information about customers to gain insights into their needs, wants, and behaviors in order to serve them better.

**Customer to business (C2B)** –consumers band together in order to obtain volume discounts from a business.

**Customer to customer (C2C)** –consumers deal with each other ex: EBay

**Digital signature -** A digital code that can be attached to an electronically transmitted message that uniquely identifies the sender.

**Disintermediation** –cutting out the middleman

**E-commerce** –commerce accelerated and enhanced by IT, in particular the Internet.

**E-Government** – describes the application of e-commerce technologies in governmental agencies

**E-marketplace** - The electronic market place can be described as meeting places over the net (cyber) where large numbers of buyers and sellers interact.

**Extranet** – intranet that is restricted to an organization and certain outsiders such as customers and suppliers.

**Intermediaries** – specialist companies that provide services better than their client companies can themselves ex: call centers, UPS deliveries

**Intermediary-** The IAIS defines intermediary as referring to any person who, or organization which, gives advice by way of direct offering, advertising or on a person-to-person basis in respect of an insurance product and includes the promotion of such product or the facilitation of an agreement or contract between an insurer and a customer. Intermediaries are generally divided into separate classes. The most common types are "independent intermediaries" who represent the buyer in dealings with the insurer (also known as independent brokers) and "agents" (which generally include multiple agents and sub-agents) who represent the insurer.

**Internet -** A global network of networks all using the same protocols (TCP/IP) so they can communicate with one another. The most complex machine ever made by mankind.

**Internet Service Provider -** (ISP) A company that provides subscribers access to the Internet (e.g., MindSpring).

**Intranet** – internal organization Internet guarded against outside access by a special security feature called a firewall.

**IT infrastructure –** includes the hardware, software, and telecommunications equipment that, when combines, provide the underlying foundation to support the organization's goals.

**Modem -** The hardware that is used by a computer to send and receive data over phone lines.

**Network -** A group of connected computers the share information and resources.

**Portal -** Web site that specializes in leading the surfer to others - vertical portals are 'targeted' to specific interest groups (e.g. Insweb), whereas horizontal portals are more general (e.g. use of Yahoo as a portal).

**Reverse auction** – process in which a buyer posts its interest in buying a certain quantity of items, and sellers compete for the business By submitting successively lower bids until there is only one seller.

**Search Engine -** A program or Web Site that will search the Internet for Web Sites containing information on whatever subject you are interested in. There are over 300 search engines on the Internet.

**Server** - A computer that supplies information to other computers.

**Smart cards** – plastic cards the size of credit card that contains an embedded chip on which digital information can be stored.

**Value Chain -** The chain of operations, each adding value in some sense to the realization of a product.

## Part 1: Personal Profile

**A) Age: ----Years B) Education: ----- C) Field of study: -----**

**D) Occupation: ------ E) Department/Section: ------- F) Company: ----**
**G) Employment records in insurance: ----Years**

## Part 2: Attitudes And Views

**1) To what extent are you acquainted with the concept and application of e-commerce?**

❑ Very much ❑ Much ❑ So-so ❑ Low ❑ Very low

**2) To what extent will e-commerce affect insurance industry?**

❑ Very much ❑ Much ❑ So-so ❑ Low ❑ Very low

**3) For your company e-commerce is a/an:**

❑ Opportunity ❑ Challenge ❑ Threat ❑ Ambiguous ❑ DK

**4) How important is the implementation of e-commerce to your company?**

❑ Very much ❑ Much ❑ So-so ❑ Low ❑ Very low

# Part 3: Infrastructure Requirement

**5) To what extent your company are equipped to implement e-commerce for each items listed below?**

| Infrastructures | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|
| Hardware and Network (Computers, Internet, Intra/Extra-net, e-mail, Modem, …) | | | | | |
| Software (Public and specialized/advanced packages, Standardized processes and systems, …) | | | | | |
| IT experts | | | | | |
| Skilled staff (in e-commerce) | | | | | |

# Part 4: Major Obstacles

**6) To what degree each of these items will hinder deployment of e-commerce at your company?**

| Major obstacles | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|
| Low intention to buy online | | | | | |
| Low Internet usage and fewer users | | | | | |
| Security reservations | | | | | |
| Expensive and complicated technologies of e-commerce | | | | | |
| Non-conformity of current products and services to online offers | | | | | |
| Product complexity and low-interest products | | | | | |
| Scarcity of skilled staff | | | | | |
| Traditionally attitudes and views over the companies | | | | | |
| Inflexible organizational chart and resistance to change | | | | | |
| Internal conflicts and negative reaction from intermediates, agents, brokers, … | | | | | |
| Lack of appropriate legislation and regulation (e.g., copy right, digital signature, …) | | | | | |
| Lagging of other supportive sectors (e.g. Banks and Telecommunications). | | | | | |

# Part 5: Potential Applications

**7) To what extent each the section below has the potential to embrace e-commerce?**

| Sections | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|
| Product and service development (R&D) | | | | | |
| Marketing and sales | | | | | |
| Administration | | | | | |
| Asset management | | | | | |
| Claims management | | | | | |

**8) Which of these insurance products are suitable to sale online?**

| Insurance products | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|
| Fire insurance | | | | | |
| Personal insurance (Health and accidents) | | | | | |
| Liability insurance | | | | | |
| Marine and Aviation insurance | | | | | |
| Engineering insurance | | | | | |
| Auto insurance | | | | | |
| Life insurance | | | | | |

# Part 6: Perceived Benefits

**9) How much benefits will your company obtain, in the case of implementation of e-commerce?**

| Benefits | Very much | Much | So-so | Low | Very low |
|---|---|---|---|---|---|
| Brand and image promotion (as a pioneer and modern company) | | | | | |
| Lower investment for establishing the sales and after sales services network | | | | | |
| Decentralization and no restrictions imposed by national borders | | | | | |
| Cost reduction in value chain management (e.g. product/service development) | | | | | |
| Increase of sale volumes (premium) | | | | | |
| Mass-customization and innovation | | | | | |
| Promotion enhancement with lower cost | | | | | |
| More transparency and speed of claims management | | | | | |
| Desired CRM through continuous service (24 hours/7 days) and fast response | | | | | |
| Job enrichment and high productivity | | | | | |
| Extended corporation with partners (specially in the reinsurance cases) | | | | | |
| Good knowledge management and better stakeholder relationship | | | | | |

**10) Totally, to what extent your company is ready to embrace e-commerce?**

❑ Very much ❑ Much ❑ So-so ❑ Low ❑ Very low

**Any comments or suggestion?** ----------