

## Applications of Intelligent Marketing Information System(Case Study of Insurance Industry in Iran)

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**Abstract:** In today's dynamic market, the role of the customer is more important than ever. In new markets, by using various technologies, especially information technology, have reached high capabilities in the field of competition and customer attraction. These technologies can play a key role in increasing management efficiency, reducing the cost of the product in the market, increasing customer satisfaction and increasing competitiveness capabilities. Iranian companies and the insurance industry have a major problem in collecting data through traditional methods and the lack of a data collection system through cyberspace, data conceptualization and the lack of an intelligent data analysis system to provide indicators in management. The purpose of this research is to model an intelligent marketing system in the Iranian insurance industry and to help managers in the field of marketing and customer relations. To examine the management functions of the system in the insurance industry, such as insurance indicators in the market, we used the opinions of 54 managers of the insurance industry and experts and specialists in the field of information systems and marketing. The results of this study after field study by preparing and distributing a questionnaire by analyzing data through inferential data analysis and population mean statistical tests (T test), two-population mean comparison test (independent T test), analysis of variance and modeling Structural equations were examined and a suitable model for creating an intelligent business system was presented.

**Keywords:** Intelligence marketing, insurance industry, business intelligence system, intelligence system modeling.

### 1. Introduction

Marketing is the same as customer relationship management. business intelligence is a technology-driven process for analyzing data. An intelligent marketing information system is information and analysis to better support operational plans and decision-making strategies (Hurakova<sup>1</sup>, Skalska<sup>2</sup>, 2013, 50). The business information system is able to analyze and report data quickly and easily (Oda<sup>3</sup>, 2018, 84-92). Data acquisition in the form of intelligence business is done through business analysis and valuable and specialized reporting and executive management (Philip<sup>4</sup>, Kevin Lan<sup>5</sup>, 2017). Traditionally, intelligence business tools have been allowed to use knowledge to access the internal data of a company with different technologies. But companies now have access to a variety of data, including resources such as websites, business software, social media pages, documents and archives, and archiving documents, all of which magnify data creation. Information explosion refers to the volume, variety and density of existing information, which are conflicts of new forms of intelligence business. In recent years, with the growth of research in various fields of science and the scientific community facing an explosion of information, thinkers in practice have come to the conclusion that knowledge and mastery of all aspects of a field and up-to-date in this field to the extent Not much is possible, this is where the importance of intelligence information becomes more and more necessary. Data models have been proposed to support the intelligence business situation in a multifaceted way in using offers and creating creative partnerships in companies (Taimiswara<sup>6</sup>, 2018, 335). In order to provide a suitable model of marketing intelligence system in the insurance industry, because there was no history of an intelligent system in Iran, we designed and modeled an

<sup>1</sup>Horakova

<sup>2</sup>Skalska

<sup>3</sup>Ouda

<sup>4</sup>Philip

<sup>5</sup>Kevin Lane

<sup>6</sup>Timisoara

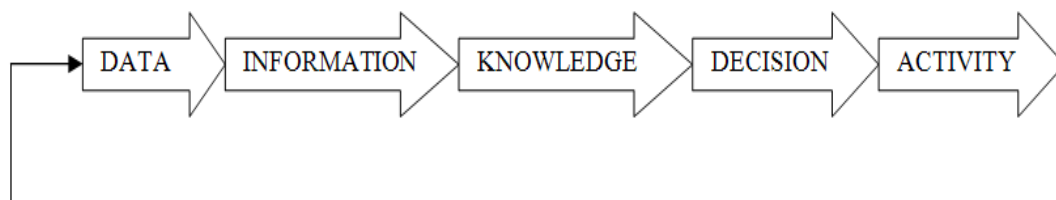
intelligent system in the insurance industry, modeling the creation of a comprehensive bank We provided information for the insurance industry and a review of system management functions in the insurance industry, such as insurance indicators in the market. In this study, by studying and reviewing the previous studies, and using the method of inferential data analysis, the statistical tests of mean population (T-test), comparison test of mean of two populations (independent test T), analysis of variance and structural equation modeling were used. It has been done through coding and utilizing SPSS analysis software.

## 2. An overview of the concepts and literature of the intelligent marketing system

The term business intelligence was first used by Hans Peter Lonn in a 1958 article. Intelligence business started in the late 60's and to achieve an important result in the 80's, the use of computers and support systems is the source of development of this system. Models developed to aid decision-making, planning, and performance (Bagdan<sup>7</sup>, 2013, 12-20). By 2020, the volume of specific data generated in electronic environments has increased dramatically. Mobile software, multimedia tools, operational sensors, electronic systems, online customer relations, cloud storage, web clicks, mobile traffic, general feedback from virtual communications on telephones Intelligent, a number of structured and unstructured data are constantly increasing (Seti<sup>8</sup>, Bakhshi<sup>9</sup>, 2013, 23-25). Aintelligence marketing system defines a system in which marketing data is formally collected, stored, analyzed, and distributed to managers according to their information needs. A general marketing information system. It is a set of procedures and methods for collecting regularly, planned, analyzing and presenting information for use in marketing decisions (Philip, Kevin Lan, 2012). They state that the term market research is relatively narrower than marketing information system, which has changed from the term management information systematization. Market research shows that information is not collected for specific reasons or projects, the main purpose of which is disposable use (Robert<sup>10</sup>, David, 2006, 720).

## 3. Intelligent system in the insurance industry

Market intelligence and insurance IT systems Polish insurance companies offer insurance products to the market that make a fair transfer of risk from one entity to another. Business processes in insurance companies, their unique characteristics, affect the characteristics of implemented IT solutions. Poland is a relatively large and completely unsaturated market for insurance companies compared to highly industrialized countries. In fact, the performance of a management information system is based on a structured transformation sequence of data collected by the firm (Figure 1).



**Figure 1:** The idea of operating a business intelligence system (Rostek<sup>11</sup>, 2009, 65-82).

The data provided to the BI system includes operational data from various sources, including: internal resources and customers, resources collected or purchased from foreign companies or the Internet. This data can be structured or unstructured, stored in various formats and originating from different programs and trading systems. Business information solutions, as an element of integration, access different scattered data from different structure sources and formats (Figure 2).

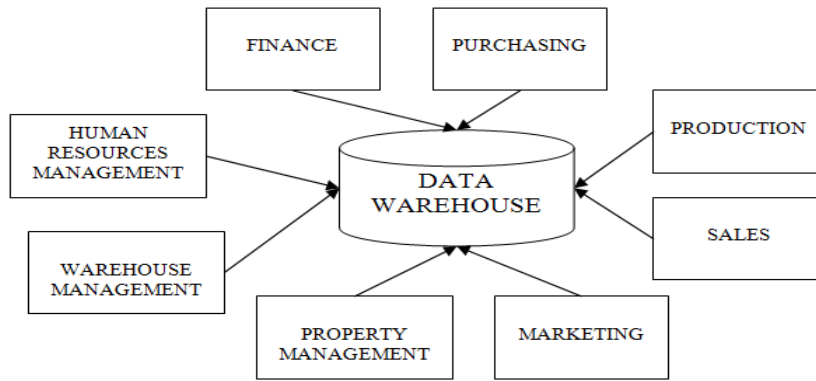
<sup>7</sup>Bogdan

<sup>8</sup>Setty

<sup>9</sup>Bakhshi

<sup>10</sup>Robert

<sup>11</sup>ROSTEK



**Figure 2.** Data sources of business intelligence system (Rostek, 2009, 65-82).

The insurance industry in the country in a business environment faces many challenges and limitations. Business intelligence technologies can help insurers control risk, detect fraud, and help their profitability and international customer visibility. The business information system reported in this study is able to analyze and report data quickly and easily (Oda, 2018, 84-92).

**4. Research Method**

The present study is applied in terms of purpose and descriptive in terms of data collection method. Content related to the literature has been collected through library studies and the scale of measuring variables and their prioritization through a questionnaire and methods for inferential analysis of data are also from the community average statistical tests (T-test), comparison test. Mean of two communities (independent t-test), analysis of variance and structural equation modeling based on research done by Zalnezhad et al. (2016) and Zalnejadet al. (2019) were used, which was done through coding and analysis using SPSS software.

**4.1. Research variables**

BI systems analyze, predict and simulate data analysis based on methods; BI systems are important in analyzing the following:

**Table 1 - Operational definition of research variables**

Source	Definitions	Variables
	the capabilities of organizations, the business environment and the final analysis of the participant. An intelligent marketing system is very important for planning and analysis	Analyzing and planning
(Behsin <sup>12</sup> , 2014), (Hosseinpour, 1399, 99-111) and (Pourjavan, 138, 15-34)	such as intelligent marketing system can help a crisis	Control
	possible based on classification, forecasting and simulation methods	BI systems make data analysis

**4.2. Validity of research questionnaire**

To determine the validity of the questionnaire, a number of experts, experts in the field of models, marketing systems, as well as university professors and insurance company managers were used. Cronbach's alpha method has been used in this research. Cronbach's alpha method is used to calculate the internal consistency of measuring instruments such as questionnaires. Through a total of 54 questionnaires obtained from 31 questions, which are related to a total of three questions, namely the ability to model an intelligent marketing system in the insurance industry and capabilities related to comprehensive database modeling and data analysis based on it, as well as management functions.

<sup>12</sup>Bhasin

**Table 2.** Relevant Pearson correlation test, all components and questionnaires

		<b>modiriat</b>	<b>Q<sub>1</sub></b>
<b>maneg</b>	Pearson Correlation	1	0.309*
	Sig. (2-tailed)		0.023
	N	54	54
<b>Q<sub>1</sub></b>	Pearson Correlation	0.309*	1
	Sig. (2-tailed)	0.023	
	N	54	54

\*. Correlation is significant at the 0.05 level (2-tailed).

According to the relevant test, all components and questionnaires are normal. Therefore, Pearson correlation test should be used in calculating the significance of the hypothesis test.

**4.3. Conceptual model of research**

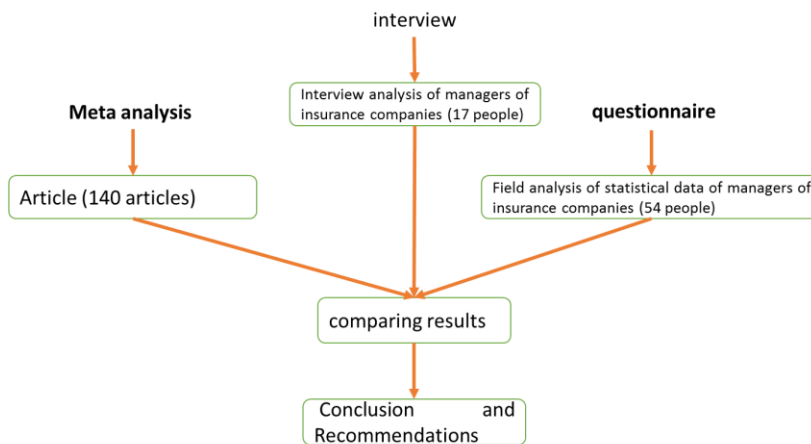
In Figure 3, the conceptual Research model is presented in three forms of information analysis to suggest a suitable model for market intelligence .

Three study methods in this study:

- A- Meta-analysis: Based on reading articles to obtain variables and themes
- B- Interview: to evaluate the relationship between variables and the management of the insurance industry to establish an intelligent system
- C- Questionnaire: to evaluate the reliability and validity and the degree of compatibility of the intelligent market management system with the Iranian insurance industry.

**4.4. Meta-analysis**

In this step, 149 related sources with fields related to the keywords of intelligent marketing system were selected, which are presented in Table 3 in terms of frequency.



**Figure 3.** Conceptual model of research

**Table 3.**Number of articles related to each of the functions of the business intelligence system

<b>Article</b>	<b>149</b>
Managing	109
Customer Satisfaction	96
Competitiveness	95
Pricing	97
Quality	56
Welfare	64

Sales	67
Value	78
Effectiveness	69
Efficiency	109
Relevance	78
Reduction Inventory	75
Market Assessment	65
Market Research	100
Accessibility Ease	71
Supply Raw Materials	70
Market Design	104
Final Price	70
Competitors Assessment	66
Product Variability	64
Data Analysis	115
Database	121
KPI	115
Security	94

## 5. Interview

In the brainstorming sessions, the following issues were raised by the managers of the companies, whose names are also listed at the beginning of the interview, which is summarized as a Table 4 of interview data as follows:

**Table 4.** Frequency of issues raised about intelligent marketing system in the insurance industry

Managing	15
Customer Satisfaction	11
Competitiveness	12
Pricing	10
Quality	10
Sales	14
Value	10
Effectiveness	12
Efficiency	15
Relevance	12
Reduction Inventory	12
Market Assessment	10
Market Research	14
Accessibility Ease	11
Supply Raw Materials	12

Data Analysis	11
Database	10
Intelligence	13
KPI	12
Security	12

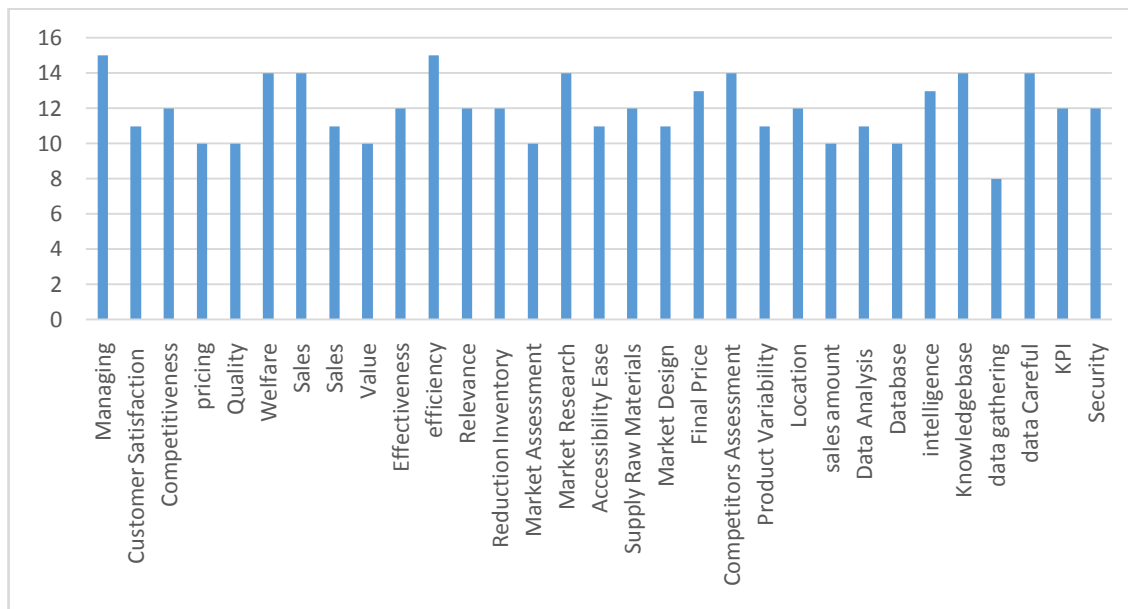


Figure 4. Frequency of issues raised about intelligent marketing system in the insurance industry

4.6. Questionnaire (field study)

Variable descriptive statistics results by describing the variables and answers obtained from the statistical population, we examined the hypotheses and the statistical test used in the research.

Table 5. Simple descriptive statistics presented in managerial positions expressed among 54 respondents to 31 research questions.

Descriptive							
Post	N		Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Management	Top	6	82.9861	7.26682	2.96667	75.3600	90.6122
	Mean	20	82.5000	8.42602	1.88412	78.5565	86.4435
	Staf	28	79.5387	7.62949	1.44184	76.5803	82.4971
	Total	54	81.0185	7.90638	1.07592	78.8605	83.1765
Bid data	Top	6	77.6515	4.85676	1.98277	72.5547	82.7484
	Mean	20	76.2500	8.58253	1.91911	72.2333	80.2667
	Staf	28	78.9773	7.04247	1.33090	76.2465	81.7081
	Total	54	77.8199	7.45242	1.01415	75.7857	79.8540
MKiS	Top	6	71.8750	14.65755	5.98392	56.4928	87.2572
	Mean	20	80.7813	8.55967	1.91400	76.7752	84.7873
	Staf	28	75.7813	10.61018	2.00514	71.6671	79.8954
	Total	54	77.1991	10.63002	1.44656	74.2976	80.1005

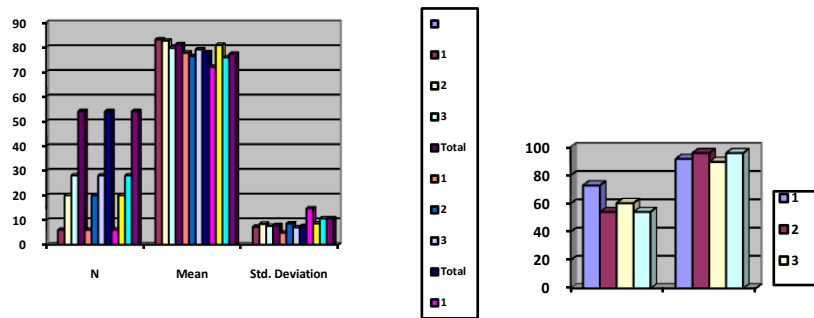


Figure 5. Descriptive statistics

There is a significant relationship between the modeling capability of intelligent marketing system in the insurance industry and the capabilities related to comprehensive database modeling and data analysis based on it, as well as robust management functions. The final model is obtained based on studies conducted as an intelligent market system as Figure 6.

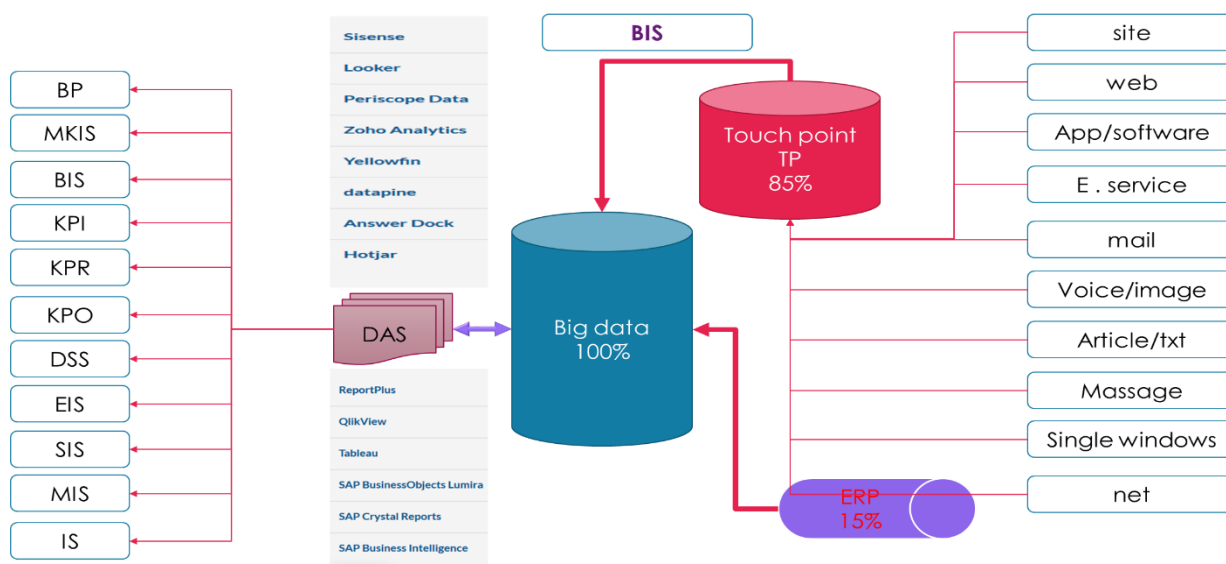


Figure 6. Final model

### 5. Conclusion

Helping to diversify products and connect with the market is one of the important issues mentioned in these systems as its performance. The ability to determine the location to provide services and the ability to design the production and distribution network and provide a business plan are also expressed in these systems. The application of this system in branding and customer loyalty is very wide. In the insurance industry, the subject of pricing is very valuable, sensitive and risky insurance products. The ultimate capability of this system in articles is the explanation of management indicators, which is very important in the insurance industry and the bank for decision-making and planning.

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