

Investigating the Necessity of Using Intelligent Marketing Information System in Iran

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Abstract: In this study, we tend to develop a suitable system for intelligent market management in the insurance industry. This system is used in all companies and institutions in Iran. This system can play an important role for market research and market evaluation. A mixed study was conducted through meta-analysis and by a questionnaire and the results were analyzed. The variables were obtained and the problem was determined through interviews with experts of the insurance industry in a few sessions. The results were evaluated through review of more than 100 articles; by distributing the questionnaire and analyzing it, we achieved significant specifications in the model of an intelligent system in Iran. In this study, we obtained the proper model of an intelligent system and needs of managers in evaluating management criteria in the insurance industry. The necessity of a database and using internet data and importance of an input data analysis system and collected data were confirmed. Finally, we reached the position of a suitable model for Iranian companies, especially the insurance industry. The need to use the analyzed data was identified for market research and design of appropriate packages in management of insurance companies.

Keywords: Intelligence, Database, Knowledge Base, Market Data Analysis, Market Research

1. Introduction

The term business intelligence (BI) was first used in 1958, when Hans Peter Luhn used it in an article. BI, as it is known today, is thought to make decisions through support systems, and its evolution began in the late 1960s. An important milestone in the 1980s was the use of computers and decision support systems, which is the source of development of this system. Models developed seemingly to help decision-making, planning and performance.

In new markets, they have reached high capabilities in the field of competition and customer attraction by using various technologies, especially information technology. These technologies can play a key role in increasing management efficiency, reducing the finished cost of the product in the market, increasing customer satisfaction and increasing competitiveness capabilities. Companies that have been able to use this technology in the market have been more successful in these options and have less error management. A strong and extensive database of customers as a database provides a good platform for continuous communication and targeted advertising messages. In each country and even in each company, type and shape of these systems are different, but their output should lead to management reports based on index analysis. BI systems must be able to analyze information at any time and show the ability to support management decisions and planning, and provide the ability to control the product according to the plan. This study will propose a local model suitable for the insurance industry after evaluating and studying the existing market in Iran.

2. Literature Review

Although many benefits are gained through establishment of a BI system, this system cannot always be considered a successful tool for businesses. It is important to have methods that can establish a good relationship between databases, but questions have been raised about the role of participant culture and methods of making these systems intelligent (Otmene, 2018).

A BI opportunity system can engage minds who have a long-term business plan. It is also appropriate for changes in structure of analysis to create a new combination of information that is, of course, questionable. If foundations of the information building are well constructed, it will protect the position of technology and data organization, which indicates the breadth of the approved field in the BI system.

The term BI system was first coined by the Gartner Group in the mid-1990s to define the term data collection for concepts and methods related to decision support and decision-making through data analysis, delivery and

processes. The intelligent system is widely used in operational and scientific fields in businesses. Therefore, we have not been very successful in understanding it. Different definitions of its unclear role have been presented. In a brief definition it certainly cannot be described. In 1996, intelligent systems defined the following streams: data analysis, reports, query tools that can help users analyze a sea of data and transform it into information, which today, however, is the process of collecting information from BI categories (Anandarajan, 2004).

Just as there is a difference in understanding the concept of BI, there is a difference in architecture of BI systems in the literature. About the vast knowledge of this concept and term currently in works, all of the above are logical differences in processes and cases that are used in references whose forms are the basis of BI architecture. These processes show that the concepts and methods together form the concept of BI.

This study defines the stream of identified processes in BI including the following:

1. Data collection
2. Data integration
3. Data storage
4. Data processing
5. Data presentation

3.Methodology

It includes operating systems that provide access to data for the BI system. More specifically, we must distinguish between internal and external resources of systems. Among data integration, in which data is quickly transferred to elementary systems, processing and compression (ETL process) take place. The purpose of ETL is processing to ensure that the data could be stored or maintained. Stored data can be freed up in different structures of system architecture. Data warehouse and other data are used.

3.1. Data processing or data analysis

All of their concepts and tools are centrally visible for evaluating and analyzing data in one process. At this level, therefore, analytical software is observed and the considered indicators can be obtained by using the stored data during the preliminary process. This process involves a combination of online OLAP processing capabilities and conceptualization of data used in data analysis models.

In data presentation, group goals are shown in a specialized way and the results of information analysis are run for users. To achieve this goal, different concepts such as OLAP are used for customers to execute one-item queries or reports with prefabricated specialized goals. This level can provide access to dashboards and management files, programs and skill cards, which will increase the importance of these systems.

3.2. Steps required to conduct this research from the author's point of view

In this study, the Shell and Roth method is used to study previous articles through meta-analysis. This method involves 6 steps, which are: 1) clear expression of the problem and hypotheses; 2) determining the inclusion criteria for independent study in meta-analysis; 3) searching and retrieving related sources and studies; 4) data coding and statistical analysis of selected studies; 5) summarizing and reporting the results; 6) explaining the applications of the results. In order to complete the studies, the work is followed by interviews and theme analysis to evaluate achievements of the studies and meta-analysis and to analyze opinions of the insurance industry experts about them. For statistical and quantitative evaluation of the previous two parts, the work was followed by using field study and questionnaire given to senior managers of the insurance industry relevant to the subject of intelligent system. T-test and analysis of variance were used for final analysis.

3.3. Procedure

Data analysis was done in three forms for proposing a suitable model for intelligent market (Figure 1).

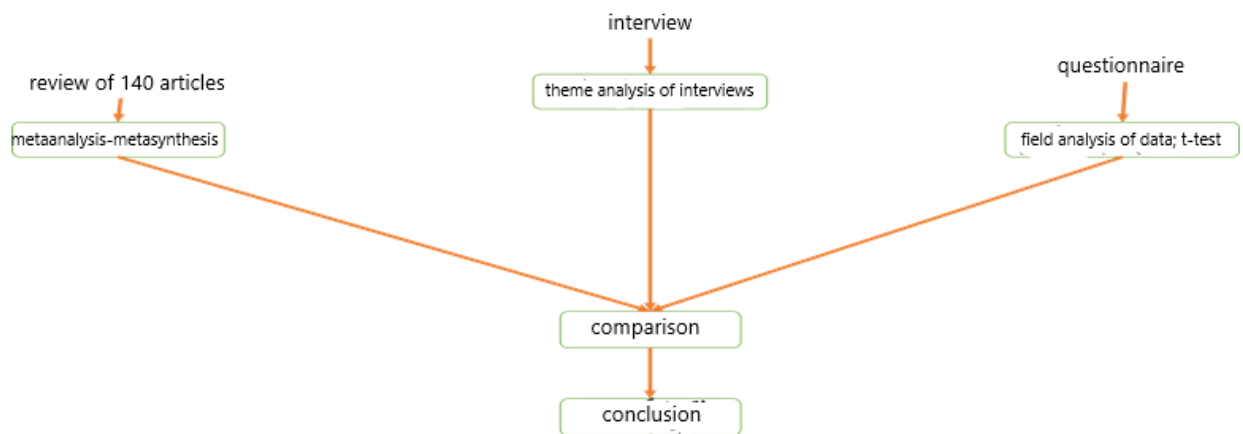


Figure 1: Conceptual model of BI system research

4.Results

Table 1 shows the number of studies related to each function of BI system.

Table 1: Archival study data on expectations from the intelligent marketing system

article	general	article	149
management	management	Managing	109
management	customer satisfaction	Customer Satisfaction	96
management	competitiveness	Competitiveness	95
management	pricing	pricing	97
management	quality	Quality	56
management	welfare	Welfare	64
management	sales	Sales	55
management	income	Sales	67
management	value	Value	78
management	effectiveness	Effectiveness	69
management	efficiency	efficiency	109
management	relevance	Relevance	78
analysis	inventory reduction	Reduction Inventory	75
analysis	market assessment	Market Assessment	65
analysis	market research	Market Research	100
analysis	easy access	Accessibility Ease	71
analysis	raw material supply	Supply Raw Materials	70
analysis	market plan	Market Design	104
analysis	finished price	Final Price	70
analysis	competitor assessment	Competitors Assessment	66
analysis	product diversity	Product Variability	64
analysis	locating	Location	66
analysis	sales amount	sales amount	72
system	data analysis	Data Analysis	115
system	database	Database	121
system	intelligence	intelligence	130
system	knowledge base	Knowledgebase	122
system	data collection	data gathering	81
system	data accuracy	data Careful	114
system	management index	KPI	115
system	security	Security	94

This data can be plotted as follows:

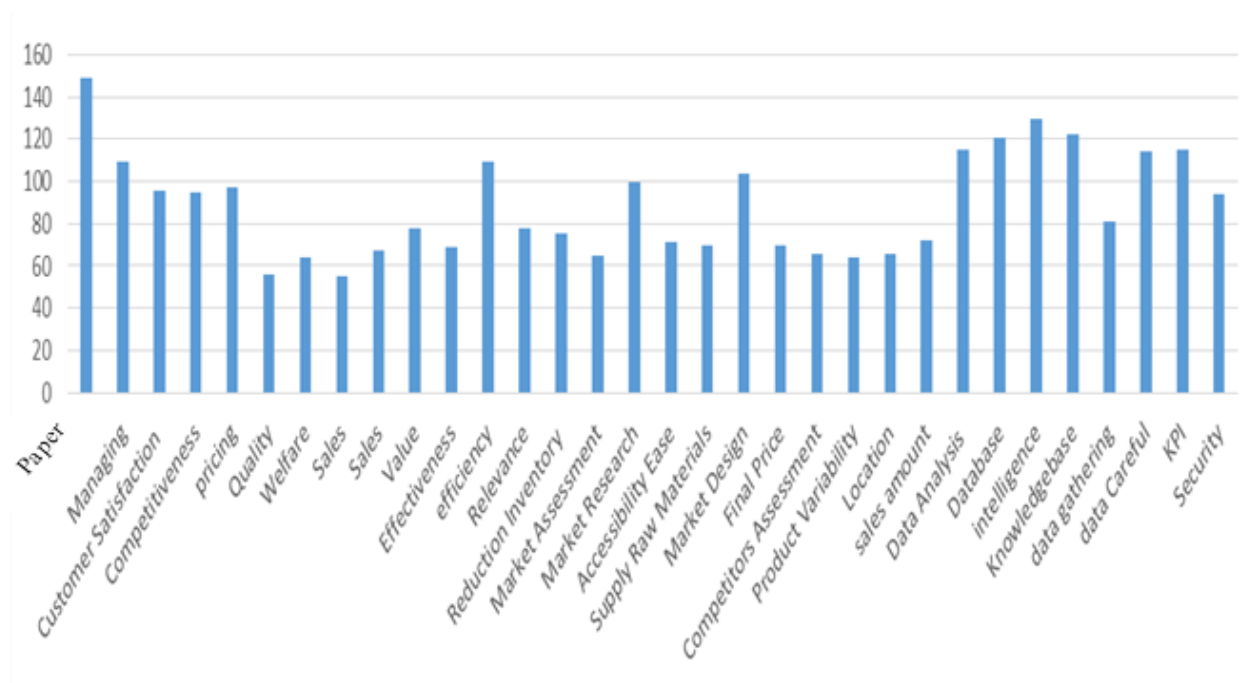


Figure 2: Archival study data on expectations from the intelligent marketing system

In evaluation and review of the articles, the most emphasis is on intelligence and indicators in the subgroup as output of the system; in the management subgroup, the management and impact of the system on efficiency of management are emphasized. In general, most of the topics of the articles are dealt with intelligent system itself and then data analysis and functions of intelligent systems in this field and finally the managerial uses in the articles are examined. The items are categorized in the following table and figure.

The second stage begins when the author reads the data and becomes familiar with it. This step involves creating the initial code of the data. Codes introduce a data attribute that the analyst finds interesting. The encoded data are different from the analysis units (themes). Coding can be done manually or through software programs. Table 1 presents the initial interview codes in this study.

Table 2: Initial codes of the interview No.1

Theme	code
intelligent systems are required	1000 M
Analytical reports are expected	1001 M
It is expected to affect managerial efficiency	1002 M
The system must provide data security	1003 M
Managers must be able to take advantage of the data	1004 M
Data accuracy must be evaluated for the analysis	1005 M
Access to data analysis should be accelerated	1006 M
The system must support managers in selling products	1007 M
System reports should be accompanied by management criteria	1008 M
The system must allow the use of environmental data	1009 M
The system must have sufficient intelligence to make decisions	1010 M
The cost of data production must be reduced	1011 M
The system should enable managers to evaluate the market	1012 M
The system must have an integrated database	1013 M
The system must provide competitive conditions for insurances	1014 M
The system must create an integrated management environment	1015 M
We need a system to help make the insurance industry more competitive	1016 M
The system must provide the necessary welfare for the customer and provide full services	1017 M
The system must be able to reduce the price of services for the customer	1018 M
The ability of the intelligent system to communicate with other databases is important	1019 M
The subject of knowledge base is important for intelligent analysis in the system	1020 M
The system must allow online sales of services	1021 M
Increasing the quality and reliability of data is important for managers to make decisions	1022 M
Price assessment should be provided in the system	1023 M

System cost should help increase the income of insurance companies	1024 M
Continuous market assessment and development of products should be provided	1025 M
The system must have the flexibility to adapt to the environment	1026 M
Ability to control and monitor the services and agencies should be provided in a system	1027 M
The system must enable error assessment and follow-up	1028 M
The system must supply human resources and present its indicators relative to services	1029 M
The system must be able to evaluate market opportunities and present them to management	1030 M
The system must be able to provide transparent data on revenues and costs	1031 M
The system must enable diversity in reporting without limitation	1032 M

5. Discussion

According to the review, 130 articles out of 149 selected articles pointed to and addressed the system intelligence; 122 articles pointed to knowledge base in the system; 121 articles fully addressed database and data collection and data integration; 115 articles addressed management criteria in output of intelligent marketing systems and final reports and evaluated their methods; 115 articles addressed data analysis as the most important subject and function of intelligent systems. These articles compared various types of software related to data analysis and data intelligence. Moreover, 114 articles discussed about data accuracy and precision and data evaluation methods used by this system. They introduced analytic software for evaluating data accuracy and their functions. In addition, 109 articles pointed to efficiency in management and management efficacy and emphasized the effect of this system on efficiency of management.

A number of 109 articles also addressed management in general. General functions of management and managers' use of this system were emphasized; 104 articles also pointed to the use of these systems to prepare a market plan; one of the important outputs of intelligent systems is to provide a detailed plan of the market for products and services considered by entrepreneurs; 100 articles pointed to market research as the best output of this system with high accuracy and reliability and conducted extensive research on it; 97 articles pointed to pricing as one of the management functions of the system; 96 articles pointed to customer satisfaction as a result of establishment of an intelligent marketing system in insurance companies.

Out of the reviewed articles, 95 articles addressed competitiveness in the field of marketing and production through this system and its intelligence; 94 articles pointed to data security and function of intelligent systems in this field and some articles have concluded about it; 81 articles pointed to data collection methods in intelligent systems and presented the results of their research in this field; 78 articles also addressed the function of intelligent marketing system in the field of management, how to establish relevance through intelligent business system; 78 articles explained the values required by the customer and the values that should be considered in the product to meet through intelligent system and the role of this system.

Moreover, 75 articles addressed the control of production to distribution network through this system to solve the problem of incorrect data transmission or reduction of revenue due to under-declaration or loss of product or revenue and how this system can reduce this problem; 72 articles pointed to analytical function of the system in influencing the sales amount and increasing the network and product portfolio by using this system; 71 articles addressed easy access of customers and manufacturers to raw materials or products through data analysis of this system. Final pricing was also mentioned in 70 articles and was the subject of studies; 70 articles also addressed intelligent system used to supply raw materials through formation or identification of supply networks.

In review of the studies, 69 articles pointed to increasing effectiveness of insurance industry management by using an intelligent marketing system. The increase in revenue by using this system was addressed in 66 articles; 66 articles pointed to locating and networking for production and distribution of insurance products as one of the functions of the intelligent system; 66 articles analyzed marketing intelligent system for competitor assessment. This system has many applications for market needs assessment for product supply and its diversity, which has been discussed in 65 articles.

Moreover, 64 articles pointed to ability of this system in diversifying product based on market need; 64 articles addressed the result of this system in welfare of customers. The role of this system in helping to develop product quality was a topic addressed in 56 articles. Finally, 55 articles pointed to contribution of this system to sales.

6. Conclusion and Implications

The necessity of this system has been very evident in review of more than 160 articles and analysis of the opinions of insurance industry managers. Existence of this system for more than 30 years at the level of global

businesses and its contribution to management of businesses in the fields of marketing, sales, advertising, quality management, determining management criteria, etc. have very important effects on success of organizations and companies.

Concerns of insurance industry managers about data aggregation through data analysis and retention of customer data in companies can be a good answer to needs of insurance companies. Updated data collection methods were also emphasized. According to the studies reviewed, this system can respond to this need through environmental data collection without the need for high dependence on internal data.

Another issue that is the main problem in the field of non-intelligent systems is the inability to use them in quality management and instant analysis of management criteria in companies or in the insurance industry, which is one of the specialized outputs of this system with high accuracy and speed.

In conclusion, it is recommended:

- 1) To replace non-intelligent systems with intelligent system in all companies as an important market management tool
- 2) Evaluate system intelligence as capability to analyze criterion and receive data from the environment and update data instantaneously
- 3) Train management for receiving the criterion from the existing systems rather than receiving data to take advantage of opportunities

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