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# COMPETITIVE INTELLIGENCE COMPARISON BASED ON THE TYPES OF INDUSTRY CASE STUDY: LISTED COMPANIES IN TEHRAN STOCK EXCHANGE (TSE)

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## **Abstract:**

*The purpose of this study is to compare competitive intelligence based on the types of industry. In order to do this, the listed companies in Tehran Stock Exchange (TSE) during a five year period (2004-2008) have been selected. These companies' products are grouped into five industrial categories; that are, food & drink, tile & ceramic, petrochemical, automobile & parts manufacturing, and cement. In this study, we compare the level of competitive intelligence and its four dimensions among different companies to analyze its relation with the type of industry by using GTILab methodology. The results show significant difference in the competitive intelligence of surveyed industries.*

**Keywords:** competitive intelligence, strategy, competitor analysis, industry

## **1. Introduction**

During the past years, information technology development and information explosion have been resulted in increasing attention to competitive intelligence. Competitive intelligence could be known as the act of collection, selection, and general information explanation with focus on competitors' position, performance, capabilities, and targets. In this process, sporadic information about the competitors and customers is converted to strategic applied knowledge in the field of business threats and opportunities (Albescu et al., 2009). Therefore, continuous analysis of internal and external environment of the organization and explanation of information gained from the environment have a considerable influence on the future managerial decisions to

further success of the organization (Rouach & Santi, 2001). Today, organizations look at the knowledge as their most valuable and strategic source and so believe that to retain their competitive positions they have to manage their intellectual capabilities and properties. Therefore, successful organizations are those who are equipped with more organizational knowledge (Civi, 2000). Competitor's information collection is not difficult in today's technological environment; that is, general market information could be collected from numerous sources (Agnihotri, 2009). However, intelligence acquisition is rather difficult and resulted intelligence will be more valuable if it is used in decision-making process.

Competitive intelligence is a business process that if it is managed properly, it will result in competency creation for the organization; moreover, could be used as an instrument for reducing operational risk in the organization. Organizational risk relates not only to its physical dimension but also to any environmental uncertainty. Competitive intelligence is an economical method to reduce organizational uncertainty (Odenhaal, 2003).

Long-term economic growth needs optimized resources allocation at the national level; moreover, efficient capital market utilization will facilitate achieving this goal. Capital market provides necessary circumstances for creating financial and capital facilities in order to economic development of the countries and has a significant role in financing production plants; for this, the importance of competitive intelligence among the listed companies in TSE will become more considerable.

The relationship between competitive intelligence (and its dimensions) and active companies in TSE had been investigated in previous studies. Results showed a positive and significant relationship between the mentioned variables. In this research, we are trying to answer the question: "Has the type of industry any influence on the competitive intelligence of Iranian companies?" In other words, is there any relationship between the type of industry and competitive intelligence? This paper continues with a brief literature review of competitive intelligence and description of the industries selected in section 2. Research theoretical framework and hypotheses is provided in section 3. Section 4 describes the methodology used for this research. In section 5 research findings will be presented; that is, this section investigates the existence of a significant difference between competitive intelligence and its dimensions in different industries. Section 6 concludes this paper; also, includes some suggestions for managers to improve their organizations.

## **2. Literature Review**

One of the manifest characteristics of this era is increasing changes in the human knowledge and various social, economical, political, and technological fields. As a result, superior quality of products and services is not the distinguishing factor but the quality of organization knowledge is the key factor for its success (Govoreanu et

al., 2010). In such conditions, organizations need information for supporting decision-making in different level in order to become competitive at the global level and retain their positions. Information abundance in today's world has caused to decrease in the necessity of data and information collection; in contrast, information utilization and conversion to applied intelligence for guiding organizational decision-makings has become more important. Competitive intelligence performs as a factor to protect organizations against future risks and recognize hidden opportunities (Calof, 2008). Therefore, pioneer companies are looking for increasing control on information and creating intelligent organization for the future. Since companies have always been looking for information about their competitors' position, competitive intelligence is not a novel concept. The concept was academically introduced in 1980 by Michael Porter through presentation of the five competitive forces and generic strategies (Murphy, 2005). He was forerunner in Competitive Intelligence Experts Society foundation in 1986 and published the first issue of Competitive Intelligence Journal in 1990 (Du Toit, 2003).

There are numerous definitions of competitive intelligence. Generally, competitive intelligence is the value-adding, continuous, and systematic process of knowledge flow in order to monitor internal and external environment of the organization in which competitive environment dimensions collected from legal resources are analyzed and finally used for improving strategic and operational decision-making (Roitner, 2008); in addition, it is adopted by all of the organizational level in order to better formation of the organization's future and preservation of its current conditions (Calof, 2008). Competitive intelligence is the combination of previous events knowledge and predicted knowledge about the future events in the business environment so that it results in necessary decision-making and administrative actions (Sharp, 2009). Considering information as the main axis of competitive intelligence, it contains not only data collecting but also data processing. In addition, in this process, knowledge utilizing is of great importance (Rouach & Santi, 2001). The main purpose of competitive information analysis is to gain better understanding of an industry and its competitors to make better decisions, develop a competency strategy, and achieve more efficient results which put the organization in a higher level comparing its competitors (Rakimane, 2009). Since the competitive intelligence framework is designed to respond more quickly and efficiently than competitors to the environment, its quality and level in an organization could be affected by the competition conditions in the market or industry in which the organization operates.

The environment in which organizations operate called "market" and market analysis requires knowledge about its structure. Market's structure is like a system composed of coordinated and related components. Market's strength reflects the level of each enterprise's monopoly and is affected by each component's function and the organization's level of control on the price, product, and the types of produced goods. Market structure is usually based on the number and distribution of companies' share in the economy. The structure is also related to the market's importance and

characteristics in an economy (Ferguson & Ferguson, 1998). Industry's structure is explained based on the relationships among its components which have strategic influence on the nature of competition and pricing. Inside the market, these components are called structural factors (Bain, 1968). Economics forerunners say that perfect competition is the most effective guarantee for consumers' access to the most inexpensive and qualified goods and services. However, more concentration is the dominant trend in many industries especially large industries. Practically, there is no perfect competition in many fields. Large industries are usually under the influence of some powerful companies and competition is usually limited to substitute items. Porter believes that competition in any industry is a function of rivalry among the present companies, newcomers, substitute goods, bargaining power of suppliers, and bargaining power of customers (Hunger & Wheelen, 2010).

During past decades, with information technology development and increasing access to communicative networks and internet, so much evolution has been created in the competitive environment of companies (Popovic et al., 2010). Considering the influence of efficient capital market on national economic growth, paying more attention to listed companies in this market is of great importance.

Listed companies in Tehran Stock Exchange (TSE) are grouped into different industries. This grouping which is based on ISIC method results in 37 distinguished industries in TSE. In this article, five industries are investigated: food & drink, tile & ceramic, petrochemical, automobile & parts manufacturing, and cement. Here is a brief description of the industries:

*Food & drink industry*, less attendance of the government has resulted in entrepreneurship development in food & drink industry. Previous researches review shows that the industry has the highest ranking in economic flourishing. Food & drink industry, moreover, has one of the top rankings in job creation and revenue generation. Nowadays growth and development of societies and progress of science and industry create some new habits that thereby feel variety of product in foods industry is needed. At the present time food industries in Iran suffer because of lacking modern machineries, So how come we can expect to produce a new product that cover all the customer needs from an old machinery, in addition to this fact these machines also increase raw material wastes, Decrease human potentials and wastes the time which everyone is a big problem and creates plenty challenges (Amiri Aghdai & Davari, 2010).

*Tile & ceramic industry*, the Iranian tile industry has been growing in both quality and quantity and is one of the most dynamic and innovative industries in Iran. (Khoshsima & Ebrahimnejad, 2008). Tile & ceramic production are one of the industries that have an especial position because of the big share of domestic resources in cost price. Another characteristic of the industry in Iran is the multiplicity of manufacturing companies which are mainly small and medium-sized enterprises. Considering the existence of domestic competitors, tile imports are not a threat for this industry but its flourishing needs more exports. The main requirement of this industry is creating proper infrastructures to develop export and finding target countries to sell

products (Mohseni, 2003). The industry's structure is monopolistic competition and there is competition for quality, price, and market share among the manufacturers; however, each manufacturer has its own monopoly of power in a specific field.

*Petrochemical industry*, many policy-makers, domestic managers, and parliament representatives believe that petrochemical industry is a one of the development increasing, bloom producing, job creating, and revenue generating industries of the country. Therefore, many domestic managers and policy-makers look at this sector as a competency for Iran and prepare the necessary resources for petrochemical plans development. However, the industry's efficiency has reduced due to the inconformity of founded industries to local advantages of the host states, the industry introversion instead of extroversion and export orientation. Also, government pattern for industrial goal-setting results in wasting national investments. Despite sanctions and domestic challenges, Iran's petrochemicals industry is still managing to grow its global market share (Henni,2011).

*Automobile & parts manufacturing industry*, based on the previous studies, the most important environmental factor influencing on competency in automobile industry are national infrastructures. With regard to the gap between current and ideal state of national infrastructures, automobile industry has not made use of total available capabilities. In general, in spite of the advancements in recent years in marketing and access to global markets, automobile industry faces some problems because of continuing previous policies. Old procedures have resulted in high price and low quality of domestic cars. Therefore, economic competency in the industry is less than expected level. The only way to increase quality is by attracting more investments. All production stages need advanced technology, which also necessitates vast domestic and foreign investments. The automobile industry in particular requires huge investments and the long-term capital return in the sector is an impediment (Manteghi, 2005).

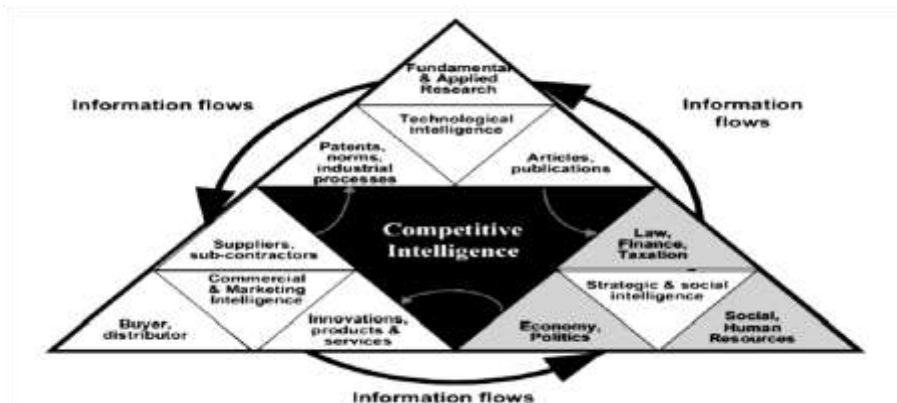
*Cement industry*, there is not a significant diversity in cement industry. Moreover, because of continuous need to this product in Iran market and demand pressure, the production of no cement factory has been stopped by now and will not be stopped in the near future. The probability of new companies' arrival in cement industry is low because of the high initial investment; unless, government provides these companies with enough supports and facilities. Increasing trend of economical production scale of this industry in Iran and other countries has raised the level of initial investment which in turn is an obstacle for new companies' arrival. On the other hand, there are not enough tendencies in private companies to invest in cement industry because of government's price controlling policy (Bakhshi, 2008).

### 3. Research Theoretical Framework

Different models for investigating competitive intelligence are introduced in literature; for example, we can mention models of competitive intelligence cycle and theories for defining different dimensions of competitive intelligence (Roitner, 2008). In this research, GTILab methodology is used as the theoretical framework because its components are simpler to be understood; in addition, it is consistent with conditions of Iranian companies. From the viewpoint of this theory, dimensions of competitive intelligence are related to each other and fall into four main categories:

- 1) *Commercial & marketing intelligence*, this intelligence is required for roadmap preparation from customers' present and future trends and preferabilities, new markets and innovative segmentation opportunities, and deep changes in marketing and distribution. Usually, the information of customers, buyers, suppliers, and distributors is collected and analyzed.
- 2) *Competitor intelligence*, with the help of this intelligence we can evaluate organization's competitive strategy toward change in competitors' structure, their new product, and newcomers to the industry.
- 3) *Technological intelligence*, this intelligence is required for evaluating the cost and benefit of present and future technology; in addition, for predicting future technological changes. It deals with basic and applied researches, factories, processes, standards (norms), and patents.
- 4) *Strategic & social intelligence*, this intelligence includes law, finance, politics, economy, and also social and human resources issues.

Figure 1, illustrates these dimensions.



**Figure 1. Dimensions of competitive intelligence (Rouach & Santi, 2001)**

Regarding dimensions of competitive intelligence, investigated hypotheses in this study are as follows:

*Key hypothesis:*

There is a significance difference among the competitive intelligence of investigated industries in TSE.

*Particular hypotheses:*

- i. There is a significance difference among the commercial & marketing intelligence of investigated industries.
- ii. There is a significance difference among the intelligence in respect of the competitors of investigated industries.
- iii. There is a significance difference among the technological intelligence of investigated industries.
- iv. There is a significance difference among the strategic & social intelligence of investigated industries.

**4. Methodology**

Porpose-wise, this research is an applied research and implementation-wise it is a field research. Also, since the research is going to analyze the relation between variables, based on the method of data gathering (research plan) it will be a descriptive research.

Listed companies in TSE after 2004 were chosen as the statistical population of the research and census method was used instead of sampling. The main reason for selecting these industries was different competition conditions in each of them. Data collection tool for competitive intelligence evaluation was a questionnaire with 46 questions which were prepared by literature review and after testing validity and reliability of questionnaire, was applied to the sample of this research. The validity of the questionnaire was approved by experts judgement. In order to test its reliability Cronbach's  $\alpha$  method was used. As it is shown in table 1, reliability of the questionnaire equals to 0.941.

*Table 1. Testing reliability of the questionnaire*

	Number of questions	Cronbach's $\alpha$
Competitive intelligence	46	0.941
Commercial & marketing intelligence	12	0.775
Intelligence in respect of the competitors	8	0.843
Technological intelligence	10	0.764
Strategic & social intelligence	16	0.850

Descriptive methods were used for data grouping and analysis and inferential methods; such as, Kruskal-Wallis test and other statistic tests were used for hypotheses testing according to the type of questions and the evaluation level of dependent and independent variables.

**5. Research Findings**

As it was mentioned in the previous section, data gathering for evaluation the competitive intelligence of selected companies is questionnaire which produces a competitive intelligence score for each company. After calculating each company’s score, the score of each industry is calculated based on the average score of active companies in that industry. The number of companies, average ranking, and the ranking of each industry is shown in table 2.

*Table 2. Competitive intelligence scores of selected industries.*

Industry	Companies #	Average score	Relative ranking
Tile & ceramic	6	8.25	4
Automobile & parts manufacturing	6	16.5	3
Food & drink	9	22	1
Petrochemical	6	16.5	3
Cement	6	19.25	2

As in is shown in table 2, food & drink industry is at the first place with average score of 22; cement industry is at the second place with average score of 19.25; automobile & parts manufacturing industry and petrochemical industry are together at the third place with average score of 16.5; and tile & ceramic industry is at the forth place with average score of 8.25.

One question is that whether this difference in competitive intelligence among the mentioned industries is accidental or significant? In order to investigate the existance of a significant difference regarding samples independence and ranking nature of the studied variable (competitive intelligence) Kruskal-Wallis test has been used. The output of statistical software for this test is represented in table 3.

*Table 3. Kruskal-Wallis test results for competitive intelligence*

Investigated variable	Chi-square	Degree of freedom	Significance level (p)
competitive intelligence	12.104	4	0.017



With regard to the results ( $p=0.017$ ,  $\chi^2= 12.104$ ), there is a significant difference in competitive intelligence of various industries; in other word, at the 95% confidence level food & drink industry take the first place of competitive intelligence, followed by cement industry at the second place, automobile and petrochemical industries at the third place, and tile & ceramic industry at the fourth place.

Now, we have to test the significance of difference between the components of competitive intelligence. As it is mentioned in theoretical framework, according to the GTILab methodology, competitive intelligence has four subcategories or components; that are, commercial & marketing intelligence, intelligence in respect of the competitors, technological intelligence, and strategic & social intelligence. We are going to test that is there any difference between these components in different industries?

Firstly, we test commercial & marketing intelligence. Table 4 shows the average score and relative place of each industry from the viewpoint of commercial & marketing intelligence. As it is shown, food & drink industry takes the first place with average score of 23.5; cement industry takes the second place with average score of 20.75; automobile & parts manufacturing industry takes the third place with average score of 18; petrochemical industry takes the fourth place with average score of 12.5; and tile & ceramic industry takes the fifth place with average score of 7.

Table 4. Commercial & marketing intelligence scores of selected industries

Industry	Companies #	Average score	Relative ranking
Tile & ceramic	6	7	5
Automobile & parts manufacturing	6	18	3
Food & drink	9	23.5	1
Petrochemical	6	12.5	4
Cement	6	20.75	2

Now the question is that whether this difference in commercial & marketing intelligence among the mentioned industries is accidental or significant? In order to investigate the existence of a significant difference regarding samples independence and ranking nature of the studied variable (commercial & marketing intelligence) Kruskal-Wallis test has been used. The output of statistical software for this test is represented in table 5.

Table 5. Kruskal-Wallis test results for commercial & marketing intelligence

Investigated variable	Chi- square	Degree of freedom	Significance Level ( $p$ )
competitive intelligence	17.785	4	0.001

With regard to the results ( $p=0.001$ ,  $\chi^2= 17.785$ ), there is a significant difference in commercial & marketing intelligence of various industries; in other word, at the 99% confidence level food & drink industry take the first place of commercial & marketing intelligence, followed by cement industry at the second place, automobile industry at the third place, petrochemical industry at the forth place, and tile & ceramic industry at the fifth place.

Secondly, we test intelligence in respect of the competitors. Table 6 shows the average ranking and relative place of each industry from the viewpoint of intelligence in respect of the competitors. As it is shown, food & drink industry takes the first place with average score of 24; cement industry takes the second place with average score of 18.5; petrochemical industry takes the third place with average score of 15.75; automobile & parts manufacturing industry takes the forth place with average score of 13; and tile & ceramic industry takes the fifth place with average score of 10.25.

*Table 6. Intelligence in respect of the competitors scores of selected industries.*

Industry	Companies #	Average score	Relative ranking
Tile & ceramic	6	10.25	5
Automobile & parts manufacturing	6	13	4
Food & drink	9	24	1
Petrochemical	6	15.75	3
Cement	6	18.5	2

Now the question is that whether this difference in intelligence in respect of the competitors among the mentioned industries is accidental or significant? In order to investigate the existance of a significant difference Kruskal-Wallis test has been used. The output of statistical software for this test is represented in table 7.

*Table 7. Kruskal-Wallis test results for intelligence in respect of the competitors*

Investigated variable	Chi- square	Degree of freedom	Significance Level ( $p$ )
intelligence in respect of the competitors	12.150	4	0.016

With regard to the results ( $p=0.016$ ,  $\chi^2= 12.150$ ), there is a significant difference in the intelligence in respect of the competitors of various industries; therefore, at the 95% confidence level food & drink industry take the first place of intelligence in respect of the competitors, followed by cement industry at the second place, petrochemical industry at the third place, automobile industry at the forth place, and tile & ceramic industry at the fifth place.

Thirdly, we test technological intelligence. Table 8 shows the average ranking and relative place of each industry from the viewpoint of technological intelligence. As it is shown, food & drink industry and cement industry together take the first place with average score of 19.5; automobile & parts manufacturing industry and petrochemical industry together take the second place with average score of 16.75; and tile & ceramic industry takes the third place with average score of 11.25.

Table 8. Technological intelligence scores of selected industries

Industry	Companies #	Average score	Relative ranking
Tile & ceramic	6	11.25	3
Automobile & parts manufacturing	6	16.75	2
Food & drink	9	19.5	1
Petrochemical	6	16.75	2
Cement	6	19.5	1

Now, in order to find that whether this difference in technological intelligence among the mentioned industries is accidental or significant, the results of Kruskal-Wallis test has been represented in table 9.

Table 9. Kruskal-Wallis test results for technological intelligence

Investigated variable	Chi- square	Degree of freedom	Significance Level ( $p$ )
technological intelligence	4.176	4	0.383

With regard to the results ( $p=0.383$ ,  $\chi^2 = 4.176$ ), there is no significant difference in the technological intelligence of various industries; therefore, at the 95% confidence level there is no difference among 5 industries with regard to technological intelligence.

Forthly, we test strategic & social intelligence. Table 10 shows the average ranking and relative place of each industry from the viewpoint of strategic & social intelligence. As it is shown, cement industry takes the first place with average score of 23.75; automobile & parts manufacturing industry takes the second place with average score of 18.25; food & drink industry takes the third place with average score of 17.33; petrochemical industry takes the forth place with average score of 15.5; and tile & ceramic industry takes the third place with average score of 10.

*Table 10. Strategic & social intelligence scores of selected industries*

Industry	Companies #	Average score	Relative ranking
Tile & ceramic	6	10	5
Automobile & parts manufacturing	6	18.25	2
Food & drink	9	17.33	3
Petrochemical	6	15.5	4
Cement	6	23.75	1

Now, in order to find that whether this difference in strategic & social intelligence among the mentioned industries is accidental or significant, the results of Kruskal-Wallis test has been represented in table 11.

*Table 11. Kruskal-Wallis test results for strategic & social intelligence*

Investigated variable	Chi- square	Degree of freedom	Significance Level ( $p$ )
technological intelligence	8.622	4	0.071

With regard to the results ( $p=0.071$ ,  $\chi^2 = 8.622$ ), at the 95% confidence level, there is no significant difference in the strategic & social intelligence of various industries; however, if we reduce the confidence level to 90%, the difference will be significant. Therefore, based on the results we can conclude that there is a significant difference among 5 industries with regard to strategic & social intelligence.

## **6. Conclusion**

The results of this research show that there is significant difference in the competitive intelligence of industry type of listed companies in Tehran Stock Exchange (TSE). Table 12 shows the results in brief.

*Table 12. Results of the research*

Variables	Significance level	Type of industry
Competitive intelligence	95%	Significant difference
Commercial & marketing intelligence	99%	Significant difference
Intelligence in respect of the competitors	95%	No significant difference
Technological intelligence	95%	Significant difference
Strategic & social intelligence	90%	Significant difference

These results show significant difference in competitive intelligence as the main variable and three components (commercial & marketing intelligence, intelligence in respect of the competitors, strategic & social intelligence). Also, there is no significant difference in the technological intelligence of 5 surveyed industries. In other words, the technological intelligence of the industries in the field of investigating and analyzing of internal processes and implementing benefit-cost analysis of the current technology and predicting required technology for the future, is the same for all of the surveyed industries.

The results of this research confirm the environmental viewpoint on strategy; because in this viewpoint organizations' strategies should be designed based on the requirements and circumstances of environment. On the other hand, in the viewpoint of the organization as an open system, it should be in relation and interaction with the surrounding environment and have to adopt with it in order to survive. Therefore, we can conclude that the reason of difference in competitive intelligence and the components (commercial & marketing intelligence, intelligence in respect of the competitors, strategic & social intelligence) are rooted in the different requirements of environment and industry.

In addition, results reveal that most of the industries perform differently in respect of commercial & marketing intelligence, intelligence in respect of the competitors, and strategic & social intelligence. Some of the industries have a limited extent in commercial & marketing intelligence; however, some other have to be more commercially informed worldwide. Moreover, as it was mentioned before, the number of competitors in some industries is low but in some others is not. Some industries have domestic competitors, some others have international, and a few has both. These factors lead to different policies in the field of knowledge and intelligence about the competitors.

Since the capital market could have a great influence on the economic growth, paying more attention to the listed companies in TSE will lead to more growth in national economy. This study, proved the influence of industry type on competitive intelligence. Based on the results, it is necessary for managers to pay attention to every dimensions of competitive intelligence with regard to industry type. Also, surveyed companies have to increase every dimensions of competitive intelligence. Managers of these companies can use following suggestions to improve their organizations' competitive intelligence:

- 1) Increasing commercial & marketing intelligence is guaranteed by continuous analysis of customers, market, financial partners, and industrial partners in the supply chain.
- 2) Continuous strategic analysis through competitors benchmarking, direct and indirect information acquisition about the current, potential, and hidden competitors, and more attention to five competitive forces will be helpful for improving intelligence in respect of the competitors.
- 3) More attention to internal processes of the organization, analysis the benefit and cost of technology used in the organization and forecasting future

- technology needed is beneficial for increasing technological intelligence. Meanwhile, using monitoring and managerial information systems is important.
- 4) Strengthening internal forces and more concentrating on external factors is helpful for increasing organization's strategic & social intelligence. Creating an integrated managerial culture and paying more attention to the employees in order to share knowledge will result in strengthening intelligence in respect of internal factors. Furthermore, continuous investigation of macro environmental components including political-economic factors will result in raising intelligence in respect of environmental factors. These two potentials will result in strategic & social intelligence.

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