

# Organizational Performance Measurement Based on Competitive Intelligence and Strategic Flexibility in the Food Industry: Kalleh Dairy Company in Iran Case Study

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**Abstract-** *Competitive intelligence requires the appropriate conditions to achieve sustainable competitive advantage and improve organizational performance. Strategic flexibility is one of the effective factors. Since organizational performance can be a factor in recognizing the ascension or decline of organizations in the competition, organizations need to new strategies to have a good performance alongside challenges with the optimal use of opportunities. The purpose of this study is to identify the effect of competitive intelligence on organizational performance with the attention to the role of strategic flexibility mediator. The statistical population of this research is 150 directors, supervisors and experts of the Kalleh Dairy Company in Iran. 108 of them were randomly selected as the sample and responded to competitive intelligence, organizational performance and strategic flexibility questionnaires. The current research is applied research in terms of the purpose and is part of descriptive research of correlation type in terms of its nature and method. The questionnaires were: Vale and Wright's competitive intelligence questionnaire (2002), Nojavanfar strategic flexibility questionnaire (2018) and Hersey and Goldsmith Questionnaire (1981). The conceptual model of the research, which was developed using the literature of the research, was studied using structural equation modeling with least squares and Smart PLS software version 2.0. The results of statistical analysis showed that competitive intelligence has a positive and significant effect on organizational performance and strategic flexibility. Also, strategic flexibility has a positive and significant effect on organizational performance. Finally, the findings show that considering the role of the mediator of strategic flexibility, competitive intelligence has a positive and significant effect on organizational performance.*

**Keywords:** *Competitive Intelligence, Strategic Flexibility, Organizational Performance, Kalleh Dairy Company in Iran.*

## 1. INTRODUCTION

The behavior of organizations in a dynamic and unpredictable environment has been one of the most interest topics in the university and industry for decades. Two viewpoints are important in this regard: Static and dynamic viewpoints. Static viewpoint examines the impact of the organization's flexible structure on the ability to adapt to the environment. In contrast, a dynamic view focuses on how to create, modify and re-shape the organization's capabilities to adapt them to environmental changes (Robert & Grover, 2012, p. 581). In today's concept, the organization is a collection of interacting elements, arranged levels, and decision-making units. Identifying and reviewing these elements has always been one of the most important issues facing organizational researchers (Martinelli & Dante, 2001, p. 71). Researchers are trying to examine the effect of changes in these elements through intermediary processes on the performance of the organization (Cheng et al., 2013, p247). However, this is dependent on performance

measurement, because effective management is also dependent on the proper measurement of performance. Therefore, performance and measurement in management studies is very important (Cho, 2011, p.241). In a dynamic competitive environment, an organization faces a variety of challenges. So the first goal of the organization is to create competitive advantages through the design of appropriate strategies to improve its operational performance (Jaramilu & Hakkaran, 2005). In the past, organizations have emphasized on financial performance, but now the development of information has changed the competitive bases to intangible assets. Consequently, current bases include non-financial indicators such as quality and customer satisfaction that can be effectively used by an organization to evaluate operational performance and the strength of competitive advantage (Wang et al., 2010). In each organization, in order to achieve the best results by using the lowest resources, it is necessary and indispensable to identify the weakening factors of employee performance in the

workplace in the direction of corrective action. Due to the importance of this, experts and researchers from various disciplines such as economics, industrial and organizational psychology, accounting, managers and even physicists, physiologists and engineers on a variety of organizational, group and individual levels, has been studied the performance management as one of the most important concepts in organizational research (Armstrong, 2014; Robertsen et al., 2011). Research results of Chand et al. (2007) show that human resource management practices (human resource planning, selection, job design, education and improvement, quality circles, and proper payment systems) are effective in organizational performance. Today, companies operate in a global market and a turbulent environment, and they must resist pressure from the manufacturer or supplier, as well as from services, products and new technologies. For this reason, the organization's management needs competitor and market information and should be managed and optimized them. Gathering information about competitor's products and programs is important for organizations, because the organization can identify the strengths and weaknesses of its products and programs based on those information, and seek to design new products and neutralize competitors' efforts. (Xu et al., 2011). An intelligent organization understands competitor's strategies better and faster, and learns about their failure and success, and enables managers to compete with high competitive ability (Saayman et al, 2008). Competitive intelligence is a business tool that can have meaningful partnerships and cooperation with the strategic management process in modern business organizations. It can also be a driver of change and business performance by enhancing knowledge, internal communication and the quality of strategic plans (Priporas et al., 2005). Competitive intelligence can serve as an important source of information for planning and other business activities, as it provides information about the present and future of the behavior of competitors and the overall business environment. Integration of intelligence and marketing into an organization creates a dual vision to identify threats, opportunities, and strengths (Johns & Van Doren, 2010). Competitive intelligence will provide many benefits, such as creating new growth opportunities, minimizing the surprise impact, preparing for faster response to market changes, improving the quality of strategic planning processes, identifying potential vulnerabilities, providing early warning (Chen & Das, 2010; Bose, 2008; Ross et al., 2012). In recent years, due to the changing needs and demands of customers, the intense competition, globalization, crisis and technology development, the business environment has become more complex, and businesses need to have different strategies and policies to deal with environmental uncertainty and change.

(Singh and Akdo Gan, 2013). In recent years, organizational flexibility has been taken into consideration by researchers and organizational managers as a concept that reflects the organization's ability to adapt to changing environments. In fact, organizational theorists believe that organizations should be up-to-date and flexible in the face of ever-changing demands and unpredictable environments. Therefore, organizations should seek to design strategies for implementing programs and institutionalize organizational flexibility (Tamayo-Torres et al., 2014; Bjornstad & Lichacz, 2013). In the current competitive world, the firm's proper performance toward competitors is the firm's success. In recent years, despite of having the proper potential in producing and providing better products to customers, the performance of active enterprises in Iran's food industry had many challenges. According to the World Trade Organization's 2015 statistical report the net export trend of Iran's food industry has been negative in recent years and, overall, has gone down by 2013, and there is a slight improvement in the 2014 trade balance of this industry. While a slight improvement in the trade balance of this industry in 2014. On the other hand, according to the 20-year vision document of the Islamic Republic of Iran, having health, prosperity and food security, and achieving the first economic position in the Middle East region is one of the Iranian society characteristics in the horizons of prospects. This emphasizes the importance of further study of the factors influencing the performance of active enterprises in the food industry. Regarding to the mentioned contents, in the present study we intend to examine the relationships between the three factors of competitive intelligence, strategic flexibility and organizational performance in Kalleh Company as the largest and most popular food brands in Iran. The rest of the paper is organized as follows. Next section presents a description of Theoretical foundations. Conceptual model and hypotheses are described in Section 3. Section 4 contains a short description of the case study. Section 5 describes the methodology. In Section 6, the numerical results from a real-world case study are presented and discussed. Finally, concluding remarks are given in Section 7.

## 2. THEORETICAL FOUNDATIONS

### 2.1 ORGANIZATIONAL PERFORMANCE

Theoretically, organizational performance can be defined as the ability of an organization to achieve objectives of retaining profits, having a competitive edge, increasing market share, and maintaining long-term survival depends on using applicable organizational strategies and action plans (Oyemomia et al., 2019). Organizational performance is almost all of the objectives of competitiveness and product

excellence and is related to cost, flexibility, speed, reliability or quality. In addition, organizational performance can be assumed as an umbrella that includes all the implications associated with the success and activities of the entire organization. Organizational performance is one of the most significant components for managers as the ultimate goal of the organization (Chan & Chao, 2008; Shahzad et al., 2017; Soriano, 2010). Therefore, the organizations attempt to apply exclusive approaches to improve the organizational performance and set themselves apart from competitors (Oyemomi, Liu, Neaga, & Alkhuraiji, 2016). Performance of organizations is mostly evaluated using broad categories known as performance elements, which is a system that receives inputs and adds value. These elements are effectiveness, efficiency, quality, profitability, quality of innovation, and productivity (Oyemomia et al., 2019; Chen et al., 2009). Organizations with superior performance regularly evaluate individual performance and measure improvement compared to established objective values using these elements. These elements provide a mechanism for organizations to evaluate unit financial and nonfinancial performances. Organizations with superior performance not only aim to sustain a predefined level of performance but also continuously attempt to optimize organizational performance by enhancing performance elements.

## 2.2 COMPETITIVE INTELLIGENCE

Competitive intelligence (CI) is an orchestrated mechanism that approaches short, mid and long term actions to decode and surmount competency gaps between organization and its competitors (Luu, 2013b). It is used to ethically and legally collecting, processing and analyzing the data from both external and internal environments including customers, market, direct and indirect competitors, future behavioral patterns of the environment and market, and business interactions (Koseoglu et al., 2011). According to Calof and Wright (2008) and Toit (2015), CI refers to an evolving process which converts the collected data into usable information to help companies better understand their competitive environment in order to make informed decisions and to uncover opportunities as well as threats. CI has many features like: scanning and searching of various information sources and data mining, compressing data and information, providing effective and timely multimedia information, sharing and protecting knowledge and information, early detection of risks and opportunities and the ability to create reports against queries at the moment of storing. It is directly related to both organizational strategy and strategic decision-making within organizations (Calof et al., 2017). CI has three main achievements including: providing a general understanding of competitors (Trim and Lee 2008); recognizing the strengths and

weaknesses of competitors (Calof and Wright 2008); and having timely actions on competitive reactions and preempt threats in the external environment (Fuld 2006; Tej Adidam et al., 2012). The process of CI consists of four steps: 1) planning and directing: by understanding the requirements, resource allocation and data collection methods are specified in a time frame. 2) collecting data: raw data (white, gray and black data) are collected in this step. 3) analysis: is a pivotal factor in the process of CI. At this point, unrelated information becomes intelligence. 4) dissemination: the analyst proposes appropriate actions for the dissemination and transfer of information (intelligence) to the end user. CI has four components: market intelligence, competitor intelligence, technologic intelligence and strategic intelligence. Market intelligence captures the current and future needs of customers, the new and innovative opportunities available in the market segmentation. Then it shows the major changes that occur in marketing and distribution process. Information related to customers, suppliers, buyers and distributors are collected and analyzed in this intelligence. Appropriate suppliers, product and service innovations, loyal distributors and buyers are market intelligence variables. Competitor intelligence focuses on pricing policies, successor products and rival development policies. Technologic intelligence evaluates existing technologies and predicts future technological developments. Applied and basic research, and patent are investigated in this intelligence. Strategic intelligence includes laws, taxes and finances, economic and political scope, and human resource categories.

## 2.3 STRATEGIC FLEXIBILITY

In a modern society which is characterized by irregularity, high level of complexity and uncertainty, and low level of predictability (Nowotny *et al.* 2001), traditional management approach faces limitations in preparing organization to achieve its goals and objectives. Consequently, new management theories focus on the development of strategic flexibility as a dynamic organizational ability to successfully navigate through the fluidic and turbulent business environment (Nadkarni and Herrmann, 2010; Cingoz and Akdogan, 2013; Brozovic, 2016). Strategic flexibility enables the adjustment of internal and external change and reduces organization's vulnerability to unanticipated changes to ensure organizational survival (Spieth and Schneider, 2016). Therefore, highly flexible organizations are also capable of coordinating the use of their resources by redefining their strategies, reconfiguring their supply chains, and redeploying their resources effectively and can quickly redirect from one strategy to another strategy (Zhou and Wu, 2010; Cingoz and Akdogan, 2013). As listed in a recent review of 156 strategic flexibility studies by Brozovic (2016), some of the

frequent outcomes of strategic flexibility are superior financial performance, competitive advantage, improved decision-making process, value creation, increased perceived service quality, successful international venturing, innovativeness, sustainability and so on. Organizations with the flexibility versus new competitive patterns have the benefit to simply redistribute critical resources, apply the variety of strategic options available to them and make new markets. Successful adaptation through strategic flexibility brings great performance and inimitability of core competences for competitors.

### **3. CONCEPTUAL MODEL AND HYPOTHESES**

In this section, a conceptual model (Fig. 1) was developed by reviewing the theoretical and empirical foundations. In this model, the continuous and smooth lines show a direct relationship between the variables and the dashed lines also show indirect relationship. The research hypotheses are based on studies conducted in the subject literature. In fact, this research seeks to test the validity of the following hypotheses:

Hypothesis 1; Competitive intelligence affects strategic flexibility.

Hypothesis 2; Competitive intelligence affects organizational performance.

Hypothesis 3; Strategic Flexibility Affects Organizational Performance.

Hypothesis 4; Competitive intelligence has an impact on organizational performance with the role of mediating strategic flexibility.

### **4. CASE STUDY**

One of the largest and most popular food brands in Iran is Kalleh which is one of the 20 subsidiaries of the Solico food industries company. Kalleh brand was established in 1991 with the aim of improving the food basket of Iranian people (Solico Food Industries Website). Kalleh started its activity with a daily milk supply of 3 liters, and today it supply more than 2,500 tons of milk per day. With its 16 production groups, Kalleh has a large volume of dairy products in Iran, where it is the largest dairy producer and the largest dairy exporter in Iran. In 2013 it had 26% of the Iranian cheese market (Donnelly, 2016). In 2014, it has been ranked by the market research company Euromonitor International as one of the top 50 brands in the world. Besides Iran, it also has offices Iraq, United Arab Emirates, USA, Germany, Kuwait, Oman, Saudia, United Kingdom and Russia.

### **5. METHODOLOGY**

#### **5.1 TYPE OF RESEARCH, COMMUNITY AND STATISTICAL SAMPLE**

Based on the purpose, this is an applied research and based on how data is collected, this is descriptive. The statistical population of the study consists of 150 managers and supervisors of the company. The sample size was determined using Krejcie and Morgan tables and 108 questionnaires were randomly distributed among the statistical sample.

#### **5.2 DATA COLLECTION METHODS**

In order to collect data for testing the hypotheses and the theoretical model a questionnaire consisting of 68 questions was used. The questionnaire has four sections: the first part is demographic questions that include gender, age, and level of education in the organization. The second part is a questionnaire with 21 questions of competitive intelligence developed by Vale and Wright (2002). In this questionnaire, questions 1-5 related to the marketing opportunities dimension, questions 10-6 related to the threat of the competitors dimension, questions 14-11 concerning the dimension of competitive disadvantages, questions 18-15 related to the dimension of the underlying assumptions and questions 19-21 is related to the vulnerability dimension. These questionnaires are measured with a five-point Likert scale (totally opposite = 1 to fully agree = 5). The third part is the strategic flexibility questionnaire, which is provided by Nojavanfar (2018) and has 10 rows. In this questionnaire, questions 1-3 related to the design challenges of the organization, questions 4-6 related to the dimension of change in the organization's workforces and questions 10-7 related to the problem of the contradiction solving. These questionnaires are measured with a five-point Likert scale (totally opposite = 1 to fully agree = 5). Finally, in the fourth part, the 42-item questionnaire developed by Hersey and Goldsmith (1981), were used to measure organizational performance. In this questionnaire, questions have been use for different features: questions (1,2,3,20) for measuring the ability, questions (4,5,6,7,8,38,39) for measuring the clarity, questions (9,11,12,13,15) to measure assistance, questions (16,18,19,21,22,25) to measure incentives, questions (23,30,31,32,33,34,35,36,37) for measuring the evaluation, questions (17,24,26,27,28,29) for validating questions and questions (10,14,40,41,42) for measuring the work environment. These questionnaires are measured with a five-point Likert scale (totally opposite = 1 to fully agree = 5). The questionnaire was submitted to some of the experts and its formal validity was confirmed. Since the standard questionnaire has been used in this research and is based on approved models of the researchers, the research tool has structural validity, which was confirmed by confirmatory factor analysis.

### **6. RESULTS AND DISCUSSION**

#### **6.1 DESCRIPTIVE STATISTICS**

Descriptive analysis involves analyzing demographic data, including: number of samples in terms of gender, age and education, which results are shown in Table 1.

## 6.2 DATA ANALYSIS

### 6.2.1 Measurement model

The questionnaire used in this study is standard and validated by several experts. Three criteria include the Cronbach's alpha coefficient, convergent validity (AVE) and composite reliability were used to investigate the reliability of the questionnaire. The results are shown in Table 2.

### 6.2.2 Structural model

Unlike to measuring models, in the structural model only the hidden variables along with the relationships between them are investigated. In the structural model, the significant coefficients  $z$  (T-value) and the  $R^2$  criterion of the structural model are investigated. The results of these criteria are presented in tables 3 and 4. According to the results of table (2), T-values for questions are larger than 2.58 and are significant at 95% confidence level. T-values indicate the correctness of the structural relationships between the mentioned variables. As shown in Table (3) and Fig. 3 (numbers in the circles),  $R^2$  values for the main endogenous variables are acceptable and desirable. To complete the analysis process, the value of  $R^2$  for the first order structure is also given in the table.

### 6.2.3 Overall model

The overall model includes both measurement and structural models. There is only one criterion called GOF to evaluate the fitness of an overall model. The GOF criterion was developed by Tenenhaus et al. (2004) and calculated as follows. The values of .01, .25 and .36 are introduced as weak, moderate and strong values for GOF. Communalities are only used in first order structures, and second and third order structures do not play a role in calculating the average of shared values. But all structures including first and second order is considered in the calculation of  $\overline{R^2}$ . The average value of communalities was .43 and the mean value of  $R^2$  was .34. According to the following equation, the GOF criterion was .38, which according to the above classification indicates a strong fitness of the proposed overall model.

$$GOF = \sqrt{\overline{Communalities} \times \overline{R^2}} = \sqrt{.43 \times .34} = .38 \quad (1)$$

## 6.3 HYPOTHESES TEST

After verifying the model in structural, measurements and overall parts, the hypotheses are investigated. The statistics  $t$  and the regression beta coefficient (path coefficient) are used to investigate the hypotheses. Indeed, using statistics  $t$  indicates whether a structure

affects another structure. The next step is to determine the intensity of the effects of variables on each other using standardized path coefficients. After determining the coefficients  $t$  and the extracted factor loads, the values are presented in Table 5 and the result of the hypotheses test is expressed.

### 6.3.1 The first hypothesis discussion

The results of Table 5 show that the significant coefficient between competitive intelligence and strategic flexibility is 8.043. This means that the hypothesis of the impact of competitive intelligence on strategic flexibility is confirmed with a probability of 99%. Also, the beta coefficient between these two structures is .538, indicating that an increase in a standard deviation in the competitive intelligence variable would result in an increase of .538 standard deviations in the strategic flexibility variable.

### 6.3.2 The second hypothesis discussion

Table 5 shows that the significant coefficient between competitive intelligence and organizational performance is 3.346. This means that the hypothesis of the impact of competitive intelligence on organizational performance is confirmed with a probability of 99%. The beta coefficient between these two structures is .399, indicating that an increase in a standard deviation in the competitive intelligence variable would result in an increase of .399 standard deviations in the organizational performance variable.

### 6.3.3 The third hypothesis discussion

Table 5 shows that the significant coefficient between strategic flexibility and organizational performance is 6.326. This means that the hypothesis of the impact of strategic flexibility on organizational performance is confirmed with a probability of 99%. The beta coefficient between these two structures is .531, indicating that an increase in a standard deviation in the strategic flexibility variable would result in an increase of .531 standard deviations in the organizational performance variable.

### 6.3.4 The fourth hypothesis discussion

The direct effect is the coefficient of regression effect (load factor) of each independent variable on the dependent variable. As seen in Fig. 3, the direct effect of competitive intelligence on organizational performance is .399. To obtain the indirect effect value of each independent variable on the dependent variable, all paths of the indirect effects of each independent variable on the dependent variable must be multiplied, and then the result of all these effects is combined. Therefore, the indirect effect of competitive intelligence variable on organizational performance is equal to:  $.531 \times .538 = .286$

Therefore, as shown below, the total effects of competitive intelligence on organizational performance are: (To get this total value, the direct and indirect effects of each independent variable must be summed together)

Effect of total competitive intelligence = Direct impact (.399) + Indirect impact (.286) = .685

Due to higher value of the t-statistic than the boundary limit of 2.58 on both direct and indirect paths, it can be concluded that the hypothesis of the effect of competitive intelligence on organizational performance with the role of strategic mediation is confirmed with a 99% probability.

## 7. CONCLUSIONS

Considering the importance of competitive intelligence and strategic flexibility and its impact on organizational performance, the present study aimed to investigate the relationships between these variables in Kalleh dairy company in Iran. The proposed conceptual model was evaluated using a structural equation approach and a questionnaire. Smart PLS software was used to analyze the data. The reliability of the questionnaire was evaluated with three criteria: Cronbach's alpha, combined reliability and convergent validity. Then the quality of the measurement, structural and overall models was measured and finally the hypotheses were tested. Experimental results provide sufficient support for the proposed research framework and hypotheses. The findings show that by considering the role of intermediary strategic flexibility, competitive intelligence has a positive and significant effect on organizational performance. Since competitive intelligence has a positive and significant effect on strategic flexibility (for each unit increase in competitive intelligence, .54 units increase in strategic flexibility is expected.), it is recommended that Kalleh's managers systematically and continuously collect and analyze market information. The result of this analysis is to increase strategic flexibility, respond better to market changes, increase marketing effectiveness, and increase organizational performance. Considering the effect of competitive intelligence on changing products, processes, organizational structure and culture, and finally organizational performance (per unit increase in competitive intelligence is expected to increase by .40 units in organizational performance), Kalleh's managers should try to work towards improving competitive business through specialized units for competitive intelligence. Also, if Kalleh's managers systematically consider the competitive environment of the business, they can predict the actions of the competitors and greatly influence the performance and effectiveness of the company. The company also has innovative and integrated policies to improve and enhance organizational learning, followed by increased market intelligence and competitor intelligence. Using the

mechanisms appropriate to the organization's goals, it provides the most appropriate ways to share information in different areas of work in order to improve organizational performance. Also, as strategic flexibility has a positive and significant effect on organizational performance (per unit increase in strategic flexibility is expected to increase by .53 units in organizational performance), managers should increase the organization's strategic flexibility by developing flexible processes and structures. Managers should look for a flexible allocation of marketing and production resources, flexible product design, and redefining of production strategies in order to improve the organizational performance of the Kalleh and gain a larger market share. Development of a suitable strategy and its proper implementation, using organizational flexibility, improves performance and increases the effectiveness of the organization and leads to the consent of the stakeholders.

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**TABLES**

**Table 1. Results of data analysis**

Feature	Option	Frequency	Frequency percentage
Gender	Male	74	68.52
	Female	34	31.48
Age	20 to 30 years	26	24.07
	31 to 40 years	52	48.15
	41 to 50 years	22	20.37
	Over 50 years	8	7.41
Education	Bachelor	33	30.55
	Master	57	52.78
	Ph.D.	18	16.67

**Table 2. Results of Cronbach's alpha coefficient, combined reliability and convergent validity for first-order structures**

Model	AVE>.5	Cronbach's alpha coefficient Alpha>.7	composite reliability Alpha>.7
Competitive intelligence	.62	.88	.91
Strategic Flexibility	.57	.79	.75
Organizational Performance	.65	.83	.82

**Table 3. Factor loading and T-value**

Independent structures	Dependent structures	Path coefficient	T-value	Comment
Competitive intelligence	Strategic Flexibility	.538	8.043	At 90%, 95%

	Organizational Performance	.399	3.346	and 99%, this value
Strategic Flexibility	Organizational Performance	.531	6.326	was more than 1.64, 1.96 and 2.58, respectively

**Table 4. R2 Coefficient**

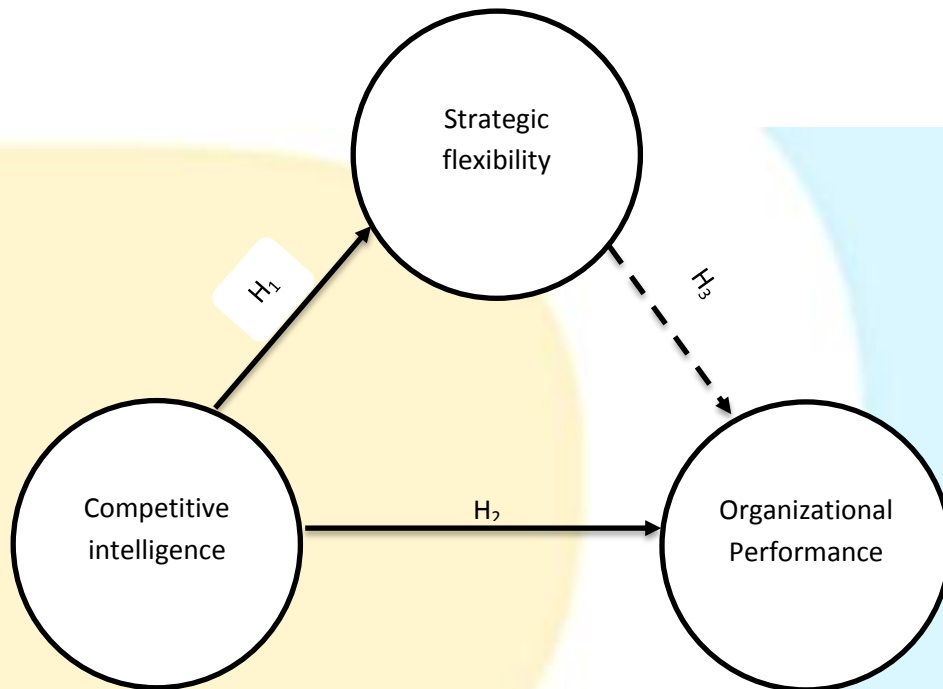
Structures	R2	Comment
Strategic Flexibility	.289	The values of .19, .33 and .67, were used as criterion values for weak, moderate and strong values, respectively.
Organizational Performance	.381	

**Table 5. Research hypotheses**

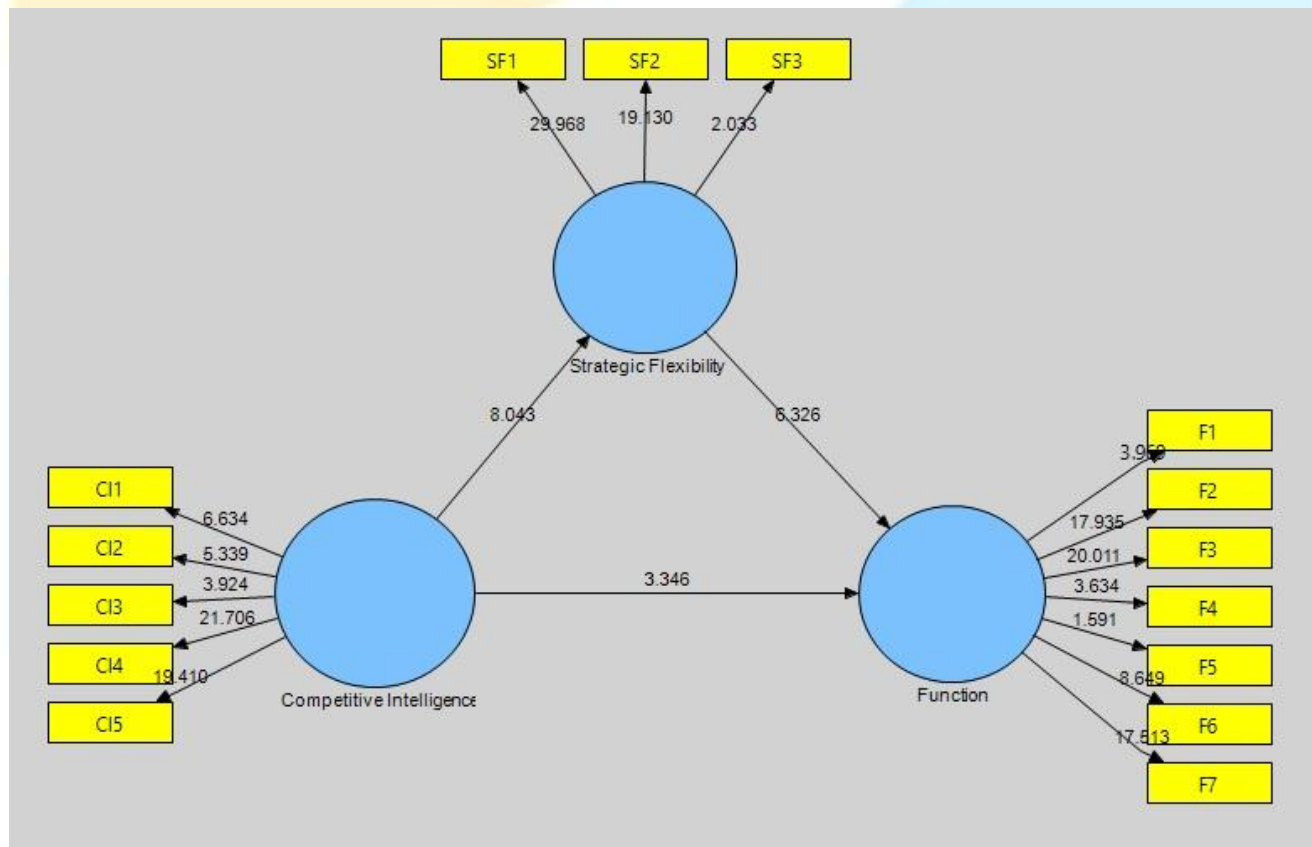
Hypotheses	Path coefficient	T-statistics	Test result
Competitive intelligence has an impact on strategic flexibility.	.536	8.043	Confirmed
Competitive intelligence has an impact on organizational performance.	.399	3.346	Confirmed
Strategic flexibility affects organizational performance.	.531	6.326	Confirmed
Competitive intelligence has an impact on organizational performance with the mediating role of strategic flexibility.	.685	-	Confirmed



**FIGURES**  
**Fig. 1: Conceptual model**



**Figure 2. T-value coefficients of structure model**



**Figure 3. Tested Model based on path coefficients**

