Original Research

Analysis of the Effect of Competitive Intelligence on Strategic Decision Making in Small and Medium-Sized Food Enterprises

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Abstract

The main goal of this study was to analyze the relationship between competitive intelligence (CI) and strategic decision-making and its six aspects such as quality, agility, flexibility, integration, effectiveness and efficiency in small and medium-sized food enterprises in Iran. This was an empirical study in which we searched to prove that competitive intelligence elevates the process of managing and making important decisions to a higher level. In this study, a conceptual model was developed to demonstrate the effect of CI on strategic decisions. The statistical population estimated at 90 senior managers from top small and medium-sized food enterprises in Iran, and based on the Cochran formula, the sample of this research included 73 managers of the SMEs in Iran food industry We used factor loading, path analysis, t-value, and Probability value (p-value) to analyze the data. The study's results indicated that CI could help with strategic decisions and significantly affect considered strategic decision's sides. Based on the t-value's findings, CI had the most impact on the quality, flexibility, and effectiveness of the strategic decision-making, 15.139, 12.868, and 11.641, respectively. Therefore, CI acts as a support system to develop strategic decisions.

Keywords: Competitive intelligence, Strategic decision making, Efficiency, Food enterprises.

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Introduction

Novel products and services are increasing in the market, and organizations should be agile to such dynamic changes on the market (Elbanna, 2018). In order to develop and be innovative in this highly competitive global market, managers need to make rapid and valid strategic decisions (Hlavatý & Ližbetin, 2021). The development and survival of an organization are contingent on sufficient related information that leads to correct strategic decisions (Afolayan & de la Harpe, 2020).

Top managers who are known as organization's strategists are responsible for the success of their company for an extended period as well as satisfying their stakeholders. Since strategic decisions result in the future, organizations need professional and competent managers (Hlavatý & Ližbetin, 2021). One of the most critical scopes of today's management is making strategic decisions, which produces an outstanding contribution to obtain success and preserve the company of current and potential competitors, and that is why there is an emphasis on the vital role of management and the process of strategic decision-making (Papulova & Gazova, 2016). Strategic decisions trigger other company choices and activities that influence the company's path, and they are also crucial in integrating the company's many activities and allocating resources (Luffman et al., 1996).

Strategic decisions are long-term unique organizational decisions connected with a great deal of data and actions, and it is one of the essential responsibilities of top managers because its outcome affects the company's future direction. (Aghaei & Asadollahi, 2013). The view of Strategic forecasting is to use practical approaches to forecast changes and their effects on an organization's strategies and decisions and take the lead in the dynamic environment, and this is feasible by scanning and observing the new events and changes that happened in the market and environment (Vecchiato & Roveda, 2010). The fundamental question is how decision-makers and managers prepare themselves and their organizations for the coming future and changes. Generally, managers are individuals who develop organizational strategies and consider their long-term results. Besides, they meet the organizational goals and fulfill its mission by sharing responsibilities and managing the alterations. The speed of changes is too high that business survival is contingent on the higher level of strategies and decisions as well as a broader range of abilities and approaches to deal with the external dynamic market (Buehring & Bishop, 2020; Desmet et al., 2015). Moreover, Effective decisions in different managerial conditions have a substantial and decisive influence on management activities and an organization's development and success in domestic businesses' operation (Bushovska et al., 2019).

Rousseau (2018) stated that a wide range of reliable and accurate information is necessary for improving the quality of decisions. Therefore, supportive tools play a crucial role in developing strategic decisions. Competitive intelligence (CI) gathered the maximum amount of the latest information about a determined subject, which is the primary technical purpose of CI. Moreover, this intelligence creates long-term strategies rather than imitate competitors' strategies (Domashova & Zasypkina, 2021). Therefore, CI is a decisive factor in altering the initial data to helpful information contributing to strategic decision-making (Stefanikova et al., 2015). Hence, organizations can be more

successful in attracting customers, improving engaging employees, and developing their performance that uses competitive features such as CI (Köseoglu et al., 2021). Competitive intelligence has three main steps, including data gathering, processing, and storing data that individuals in different levels of an organization have access to such information. In addition, CI helps individuals form the future of their organization and preserve it from competitive threats. Such data is related to competitors, suppliers, customers, technologies, and the environment (Negash & Gray, 2008).

Nowadays, organizations face too much information and data; this considerable amount of information is not sufficient for success in this competitive world. So, the vital matter and practical approach are about using this data and information intelligently and correctly in making decisions. Strategic decision-making is sophisticated and entails reliable and the latest information. As a result, it is imperative to have solutions and tools that make data administration easier and accelerate the process (Silva et al., 2019). Moreover, increasing the volume of data riddled with unreal news gives organizations extra and inefficient data that cause misleading (Lazer et al., 2018). Also, a drastic split is observed between the data used to make decisions and the amount of data senior managers receive. The issue is that this split has not reduced over the recent years (Global, 2019). As a result, organizations encounter more challenges in making high-quality strategic decisions. Hence, organizations' operations are becoming more complex, so firms' lifespan decreases (Madureira et al., 2021). CI is used to support organizations to make efficient decisions in order to develop and maintain their performance as well as increase organizations' lifespan (de Almeida et al., 2016; López-Robles et al., 2019; López-Robles et al., 2020).

The food industry is a competitive and turbulent market in Iran and other countries. Hence, organizations and managers need to monitor the products in the market, their rivals' activities, and market risks to be able to make better decisions and develop their performance. Competitive power is the backbone of companies' survival and maintaining this power needs useful data and information. CI provides managers with useful data to improve the process of making a decision. Thus, organizations will be able to recognize their competitors and detect their weaknesses and strengths to choose optimal strategies and overtake their rivals. Hence, this research has considered CI as a valuable and supportive tool for making better strategic decisions in several specific aspects. Since competitive intelligence is a discipline that seeks to obtain accurate and up-to-date information and acts as a supportive tool for strategic decisions, it can lead organizations and companies to analyze external and internal settings more accurately and quickly. They can also store and use these beneficial results in making decisions. This action can accelerate the interaction of transferring data and knowledge at different levels of an organization. Therefore, it improves the effectiveness of strategic thinking, making decisions, and planning to a significant extent. Accordingly, the primary objective of this study is to investigate whether CI can improve strategic decisions by developing six considered aspects. According to the peruse through previous pertinent studies to CI and strategic decision-making, it is a new sight into the relationship between competitive intelligence and making strategic decisions, and it is considered an aspect in the food industry.

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Literature Review

Trunk et al (2020) have investigated the effect of artificial intelligence on the quality of strategic decisions alongside human decision-makers. The findings indicate that decision-makers should translate the results of AI instead of controlling it, and the view to AI is related to individuals' overview. Therefore, both AI results as a supportive tool and human responsibilities are needed for improving strategic organizational decisions.

Meissner et al (2021) have investigated the effect of anger on the process of making strategic decisions. Since anger is one of the most frequent feelings that effects on individuals' thoughts and decisions, it is essential to focus on the effect of this factor on organizational decisions. The findings indicate that anger affects the quality of strategic decisions. However, it does not affect the speed of decisions.

Prange (2020) defines agility as a rapid and flexible item in making a decision. This study has designed a conceptual model of agility transformer to develop the idea of strategic agility through perpetuity factors such as merging flexibility, slowness, and reflection in an uncertain setting. This model determines three levels; including, resilient, versatile, and transformational, for agility to improve the process of making decisions.

Elali (2021) in a study entitled "The Importance of Strategic Agility to Business Survival during Corona Crisis and beyond" investigated the vital role of strategic agility in Covid-19Unexpected occurrences, like the Covid-19 outbreak, occurred in this tumultuous market and environment, overshadowing corporate success. Therefore, organizations must take concrete deliberated steps in the market, make agile decisions and define agile strategies, and adapt their strategies and approaches to the new situation to survive their business from failure. The findings indicate that strategic agility can develop organizations' performance, leading businesses to succeed in uncertain conditions.

Aghaei & Asadollahi (2013) have analyzed the effect of BI on some aspects of strategic decisions, such as quality, efficiency, integration, etc. The results indicated that BI could develop the integration of strategic decisions, and it suggested that organizations use integrated resources to make such decisions.

Bushovska et al (2019) have focused on developing managements decisions under uncertain circumstances and increasing their effectiveness. The improvement and adjustment of strategic decisions are contingent on managers' performance, and if they operate efficaciously in different managerial situations, they will be successful in making effective decisions and domestic businesses. Therefore, it is vital to creating the approaches to develop the effectiveness of strategic decision-making to support organizations of risks and threaten markets.

Netz et al (2020) in a study entitled "Business Disruptions and Effective Reactions: A Strategic Perspective as Action in Rapid Strategic Decision Making" examined the work of managers in making swift strategic decisions under intense time pressure. Focusing on effective responses as behavioral responses to business disruptions caused by unforeseen events, the strategic vision as an action using quantitative and qualitative data sets

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collected from 39 sites in a corporate environment over three consecutive stages over a while. The data shows two types of patterns: intensity-focused and type-focused emotional reactions to management teams' use of management tools as part of mental shortcuts during rapid decision-making. These patterns depend on whether the teams have acted in areas with previous experience managing similar unforeseen events. Effective responses to the use of tool-based mind shortcuts reveal the mechanism of action that explains the strategic actions of middle management teams during a business disruption due to an unforeseen event. While research mainly shows that the impact on management teams in crisis-related areas is "bad," the results show that this view is misleading. Emotional reactions prevent it and help vital exchange information between middle management teams and company levels while making strategic decisions under intense time pressure. Therefore, a redefined perspective of rapid strategic decision management is proposed, and the concepts of theory and practice are discussed.

Treffers et al (2020) have investigated the impact of emotions and time limitation on two managers' tasks: making decisions in generating ideas and choosing the strategy. The results show that happy managers, under more time limitations, generated fewer main strategic ideas, which are not much feasible, and it seems that they produce worse strategic choices. While, in comparison with managers in the defused situation having minor time limitations, sad managers with high time limitations have effective main strategic choices. As a result, time and emotion restrictions have a common effect on different aspects of quality in various tasks such as strategic decision making.

Liu et al (2021) have considered two main issues in the high-level decision-making literature: the CEO's influence and the top management team. Using ethnographic video data of the two top management teams in making decision sessions, patterns of interaction between CEOs and members of the top management team are discovered. Twenty topic discussions identify five "forms," a team-level structure that explores the core dynamics of the relationship through the influence of co-CEO-senior management team members during the discussion, which is related to a strategic topic. It is created, acquired. It also explains how the forms are revealed and their consequences for the top management team's strategic decision processes and their results. Then explain how the findings contribute to the top management team literature and higher levels and our understanding of team policy.

Dukić et al (2016) have analyzed the role of business intelligence (BI) on operational and strategic decisions in the changeable world and time limitation. The study's result shows that using BI positively affects the efficiency of decisions by reducing dormancy and increasing the efficiency of an organization's profits, its success, and a better outlook market's threats and chances.

Adidam et al (2012) have investigated the effect of competitive intelligence and the firm's performance in emerging markets in the Indian industry. The results demonstrate a positive relationship between competitive intelligence and firms' financial performance in two levels. Indian firms that use higher levels of CI have better performance, and Indian firms that use the present level of CI have a delicate operation.

Appiah-Adu et al (2001) in a research entitled "Marketing effectiveness and business performance in the financial services industry", has investigated the relationship between effective marketing and the performance of organizations in the finance industry, and data was collected from 52 banks. This study investigated different dimensions of effective marketing on profit, growth, and customer performance. The result indicated that several aspects including, the philosophy of customers, the efficiency of operation, the information of marketing, and its integration, can have a positive and meaningful effect on the performance of the business.

Ranjan & Foropon (2021) have studied that organizations have begun to use big data and novel technologies to a significant extent to analyze and obtain valuable insights through the decision-making process over recent years. Moreover, the permeability and liberation of considerable data potential and technics are dominant elements of competitive intelligence and strategies. In this study, researchers have surveyed the usage of big data in competitive intelligence by dealing with extensive data analysis. This study's results indicated a ratio of the concentrated informal process to a formal structure (process) in competitive intelligence.

Material and Methods

In terms of purpose, this study was in the field of applied research and the method of this study was quantitative. This research used two underlying statistical analysis for structural equations: 1. factor loadings and path analysis 2. T-value test. We used factor loading to analyze the accuracy of statements, path analysis to determine the strength of variables' relationship, t-value, and Probability value (p-value) to analyze the research hypotheses. LISREL, PLS, and SPSS software were used to analyze the data.

The statistical population(N) of this research was senior managers of the best enterprises operating in Iran's food industry, which was estimated at 90 people. The criterion for selecting these enterprises were the number of enterprises' employees, the number of their brands and products, their market share, and their leading position in the market. According to the Cochran formula, the sample size(n) was equivalent to 73. In the process of calculating the statistical sample based on this formula, p (estimated proportion of the population) and q (1-p) were considered 0.5, the amount of $Z\alpha/2$ at 0.05 confidence level was 1.96, and e (margin of error) was equivalent to 0.05. Our statistical population's demographic profile has been divided based on their age, level of education, and years of work experience, and the demographic data analyzed through SPSS software that provided us with pie charts and figures based on managers' profiles.

The sampling method in this study was simply random, and a questionnaire was designed by google form and because of the Corona Virus Pandemic, the questionnaire was distributed among the managers of small and medium-sized enterprises through their emails, and they responded to the questions based on Likert five scales method. The research had two questionnaires. The first one was related to competitive intelligence and was a standard questionnaire. It was designed based on Nwokah and Frannces' (2009) research questionnaire in which they studied five sides of competitive intelligence, including marketplace opportunities, competitor threats, competitive risks, core assumptions, and vulnerabilities. Cronbach Alpha was used for analyzing the reliability

of the questionnaires in SPSS statistical software. According to the amount of Cronbach Alpha Coefficient, the reliability of competitive intelligence was 0.79 and since this value was higher than 0.7, the reliability was accepted. We use confirmatory factor loading to investigate this variable. The second questionnaire was pertinent to strategic decision-making and its aspects. The reliability of these variables based on the Cronbach Alpha Coefficient was 0.87. The second questionnaire was researcher-made, and the validity of questions was determined through most cited publications and experts' opinions. We distributed the questions among nine experts in the field of management and business, and according to the Content Validity Index (CVI), the validity of questions was calculated at 0.77, which is more than the acceptable value (0.75) for nine people. Structural equations used to analyze the effect of competitive intelligence on determined sides of strategic decisions through path analysis and t-value

Competitive intelligence data has been analyzed by confirmatory factor loadings in LISREL software. Factor loading was used to analyze the compatibility and correlation of competitive intelligence and its factors, which was the research independent variable. Factor loading of confirmatory is from zero to one. If the factor is less than 0.3, the relationship is considered weak and ignored. The factor loading between 0.3 and 0.6 is acceptable, and if the factor is more than 0.6, the relationship or outcome is optimal (Hulland, 1999). Structural equation modeling is used for investigating the role of competitive intelligence on strategic decisions and their considered aspects.

The pertinent data to strategic decision and mediator variables are analyzed by factor loading and path analysis in PLS statistical software. "Path analysis is a statistical technique used primarily to examine the comparative strength of direct and indirect relationships among variables" (Lleras, 2005). The amount of this statistical analysis is between -1 and +1. The positive value describes the direct impact, and the negative value is defined as versa direction. And, the closer the value of variables is to 1, the more the changes affect each other. Composite Reliability (CR) was used to analyze the construct reliability of strategic decision's aspects and, Average Variance Extracted (AVE) was used to analyze the convergent validity of the construct.

One of the outcomes of PLS software is T values (Z score) that are used for research hypotheses testing. The amount of t-value must be more than 1.96 and at 95% confidence reliable level to be acceptable and the hypotheses will confirm. Also, the p-value is used for testing hypotheses and the amount of p-value must be less than 0.05 to be acceptable.

The conceptual model of this research was designed based on the conceptual model of (Aghaei & Asadollahi, 2013) research. In the mentioned study, business intelligence operates as a supportive system for making organizational decisions. In the current model of this study, competitive intelligence is the independent variable, and strategic decision-making is the dependent variable. It is appointed to analyze the effect of competitive intelligence on quality, agility, flexibility, integration, effectiveness, and efficiency, which are the mediator variables of this study. Investigating these six variables indicates the relationship between competitive intelligence and strategic decision-making.

The conceptual model of this research (the effect of competitive intelligence on the strategic decision) is illustrated in figure (1).
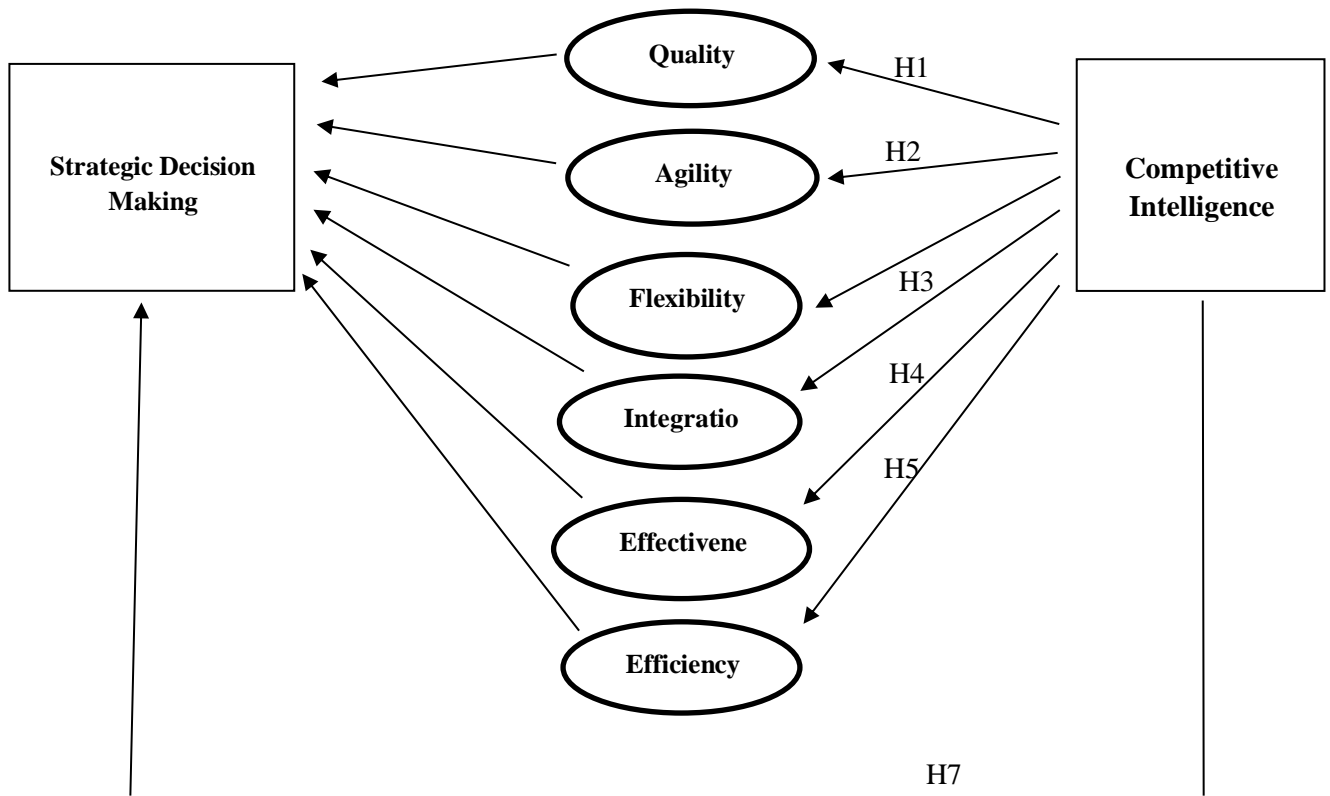
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Figure (1). Conceptual model of research (Aghaei & Asadollahi, 2013)

According to the conceptual model of research and the relationship between variables, the research hypotheses are:

1. Competitive Intelligence improves the quality of strategic decision making.

2. Competitive Intelligence improves the agility of strategic decision making.

3. Competitive Intelligence improves the flexibility of strategic decision making.

4. Competitive Intelligence improves the integration of strategic decision making.

5. Competitive Intelligence improves the effectiveness of strategic decision making.

6. Competitive Intelligence improves the efficiency of strategic decision making.

7. Competitive Intelligence improves the strategic decision making.

Results

The factor loading of analyzing different statements of competitive intelligence is illustrated in Figure (2).
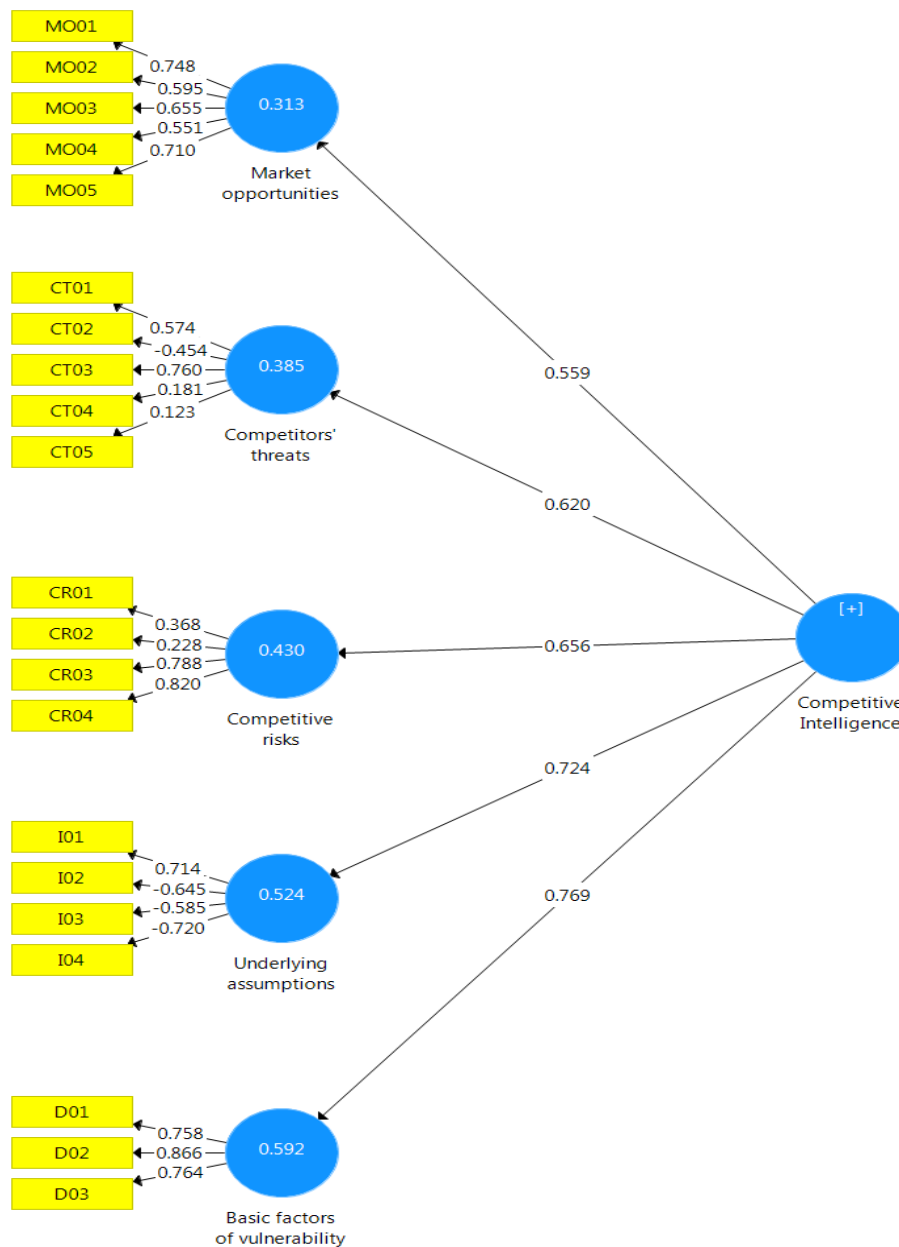
Figure (2). Competitive intelligence Confirmatory factor analysis

The factor loading relates to the impact of an observable variable on a latent variable. The strength between these two variables indicates by factor loading, which is from zero to one. The items which have minus factor loading will be omitted. There is no limitation to keep measured things that are under 0.3. However, the value and reliability of these items are not high. Thereby, the items with below 0.3 factor loading will be deleted. The factor loading between 0.3 and 0.6 is acceptable, and if the factor is more than 0.6, the relationship or outcome is optimal. We analyzed competitive intelligence through five factors, which were marketplace opportunities, competitor treats, competitive risks, core assumptions, and vulnerabilities. According to the findings of factor loading analysis, the amount of factor loading of measured items was more than 0.6 and indicated the optimal relationship of this variable. The value of two statements, underlying assumptions, and

essential vulnerability factors, were more than others that displayed the more powerful impact.

The factor loading of each measured item is depicted in the table (1).

Table (1). The factor loading of measured items in competitive intelligence

Row	Competitive intelligence dimensions	Factor loading	Questions	Factor loading
1	Marketplace Opportunities	0.559	Q1	0.748
2			Q2	0.595
3			Q3	0.655
4			Q4	0.551
5			Q5	0.710
6	Competitor Treats	0.620	Q5	0.574
7			Q7	0.754
8			Q8	0.760
9			Q9	0.181
10			Q10	0.123
11	Competitive Risks	0.656	Q11	0.368
12			Q12	0.228
13			Q13	0.788
14			Q14	0.820
15	Core assumptions	0.724	Q15	0.714
16			Q16	0.645
17			Q17	0.585
18			Q18	0.720
19	Vulnerabilities	0.769	Q19	0.758
20			Q20	0.866
21			Q21	0.764

It is evident that the factor loadings of all measured items were more than 0.3. As a consequence, the results were acceptable. Only three questions of 21 pertinent questions to competitive intelligence were below 0.3. Nevertheless, the total factor loading was above this value.

Strategic decision-making analysis its results

We analyzed the correlation between aspects of strategic decisions and their pertinent questions via using confirmatory factor loading. The amount factor loadings of observable (measured items) and latent variables are depicted in table (2).

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Table (2). The factor loadings of observable and latent variables

Row	Aspects of strategic decisions	Questions	Factor loading
1	Quality of strategic decision	Q1	0.856
2		Q2	0.853
3		Q3	0.826
4		Q4	0.837
5		Q5	0.785
6	The agility of strategic decision	Q5	0.793
7		Q7	0.811
8		Q8	0.813
9		Q9	0.715
10	The flexibility of strategic decision	Q10	0.740
11		Q11	0.756
12		Q12	0.806
13		Q13	0.732
14	Integration of strategic decision	Q14	0.635
15		Q15	0.675
16		Q16	0.666
17		Q17	0.888
18	Effectiveness of strategic decision	Q18	0.827
19		Q19	0.830
20		Q20	0.795
21	The efficiency of strategic decision	Q21	0.700
22		Q22	0.651
23		Q23	0.857
24		Q24	0.887

It is evident that all measured items in all pertinent questions to the sides of strategic decisions were higher than 0.3. Therefore, the impact of observable and latent variables was acceptable.

The path analysis of the relationship between dependent and independent variables is illustrated in figure (3).
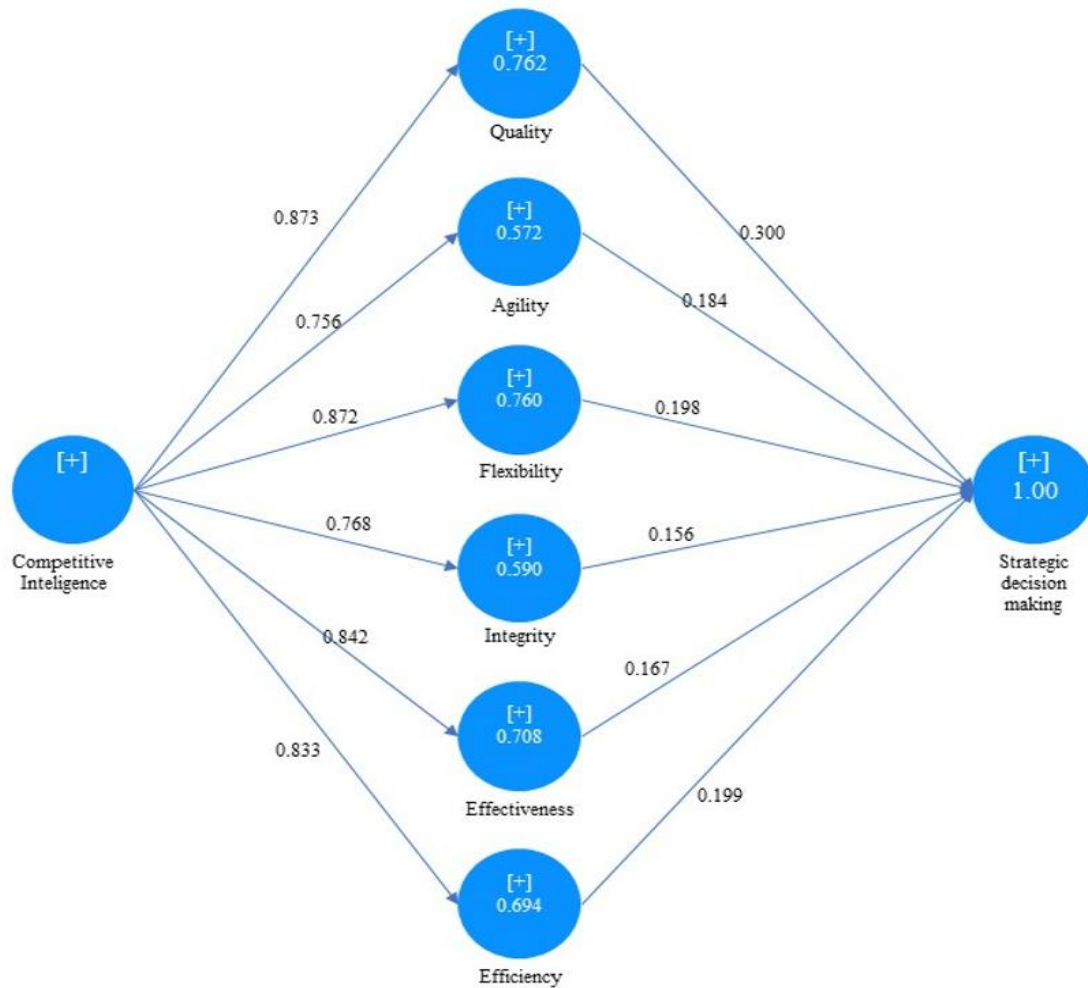
Figure (3). The path analysis of the dependent and independent variables

Path analysis is used to determine the direction and intensity of the relationship between variables. The amount of all measured items was positive so that indicated a direct relationship. And, the intensity of the relationship between variables that their path analysis value was closer to 1 was higher.

Analyzing Composite reliability and Convergent validity

The composite reliability factor used for analyzing composite reliability as well as average variance extracted (AVE) was used to analyze the convergent validity of the research model.

The outputs of analyzing these data are demonstrated in the table (3).

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Table (3). Composite reliability and Average Variance Extracted outputs

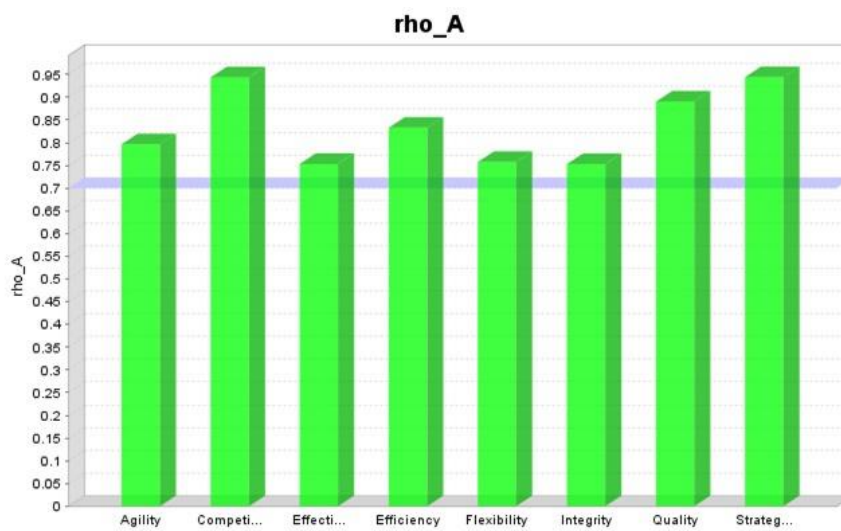| Latent variables	composite Reliability $\alpha \geq 0.7$	average Variance Extracted $AVE \geq 0.5$
Quality	0.918	0.891
Agility	0.944	0.796
Flexibility	0.844	0.758
Integration	0.811	0.753
Effectiveness	0.858	0.753
Efficiency	0.860	0.833

The bar figure (4) gives information on the Average Variance Extracted.

Figure (4). Average Variance Extracted

The bar figure (5) gives information on composite reliability.
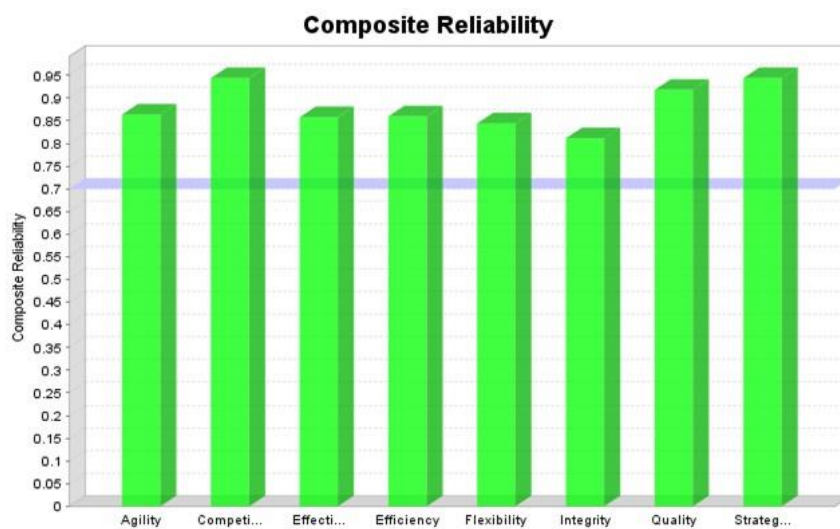
Figure (5). Composite reliability

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Table (3), figures (4), and (5) indicated that all variables had acceptable the value of composition reliability and average variance extracted that proved composite reliability and convergent validity of the research model.

Z score significant (t-values)

This statistical analysis was used to examine the structural equations model of the research by PLS software. The value of T statistics has to be more than 1.96 to the meaningful relationship between variables and their confirmation. Since the value of all measured items were over 1.96, the variables had a meaningful relationship.

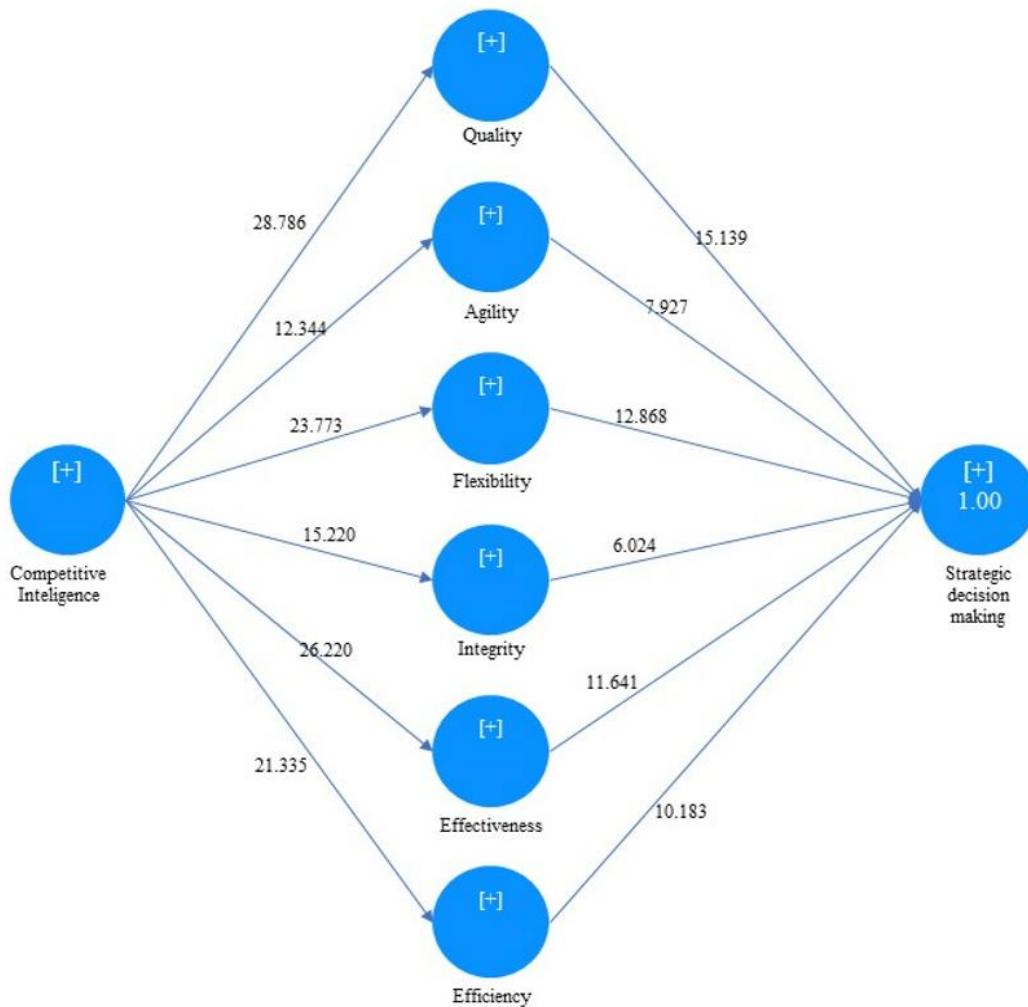The results of t-values are demonstrated in figure (6).

Figure (6). Z score significant (t-values)

Since the values of all measured items were more than 1.96, the hypotheses of research were confirmed and the test of this research model was at a 95% reliable level. Also,

according to the t-value of three factors; quality, effectiveness, and flexibility, which were more than other factors, these three mediator variables were more affected by competitive intelligence and affect strategic decisions.

Analyzing descriptive statistics and values

The amount of variables' impact on each other is demonstrated in the table (4).

Table (4). P-values of variables

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Competitive Intelligence ---->Agility	0.756	0.754	0.061	12.344	0.000
Competitive Intelligence ---->Effectiveness	0.842	0.844	0.032	26.220	0.000
Competitive Intelligence ---->Efficiency	0.833	0.836	0.039	21.335	0.000
Competitive Intelligence ---->Flexibility	0.872	0.870	0.037	23.773	0.000
Competitive Intelligence ---->Integrity	0.768	0.781	0.050	15.220	0.000
Competitive Intelligence ---->Quality	0.873	0.872	0.030	28.786	0.000
Agility ---->Strategic decision making	0.184	0.180	0.023	7.927	0.000
Effectiveness ---> Strategic decision making	0.167	0.166	0.014	11.641	0.000
Efficiency ----> Strategic decision making	0.199	0.198	0.020	10.183	0.000
Flexibility ----> Strategic decision making	0.198	0.196	0.015	12.868	0.000
Integrity ---->Strategic decision making	0.156	0.160	0.026	6.024	0.000
Quality ---->Strategic decision making	0.300	0.298	0.020	15.139	0.000

Table (4) demonstrated the amount of variables' impact on each other and statistical samples. The rows show the effect of independent variables on mediator variables and, therefore, on the dependent variables. If P-values are less than 0.05, the mentioned effectiveness relationships are correct. As a result, it is evident that the amount of P-value for all the committed relationships was zero, and the effectiveness of variables' relationship, therefore, proved.

The first column related to the original sample and showed the average factor loading of a part of the statistical sample that had the most effect on the response. The second column was the sample mean, and the amount of the factor loading of this column was exceptionally close to the previous column, which means the model accuracy. The third column dedicated the value of standard deviation. Since this factor should be lower, the amount of all measured items in this column was low, showing the closeness of sample average and sample mean. The T statistics, which is the fourth column, dedicated the meaningful relationship between variables and it should be over 1.96 to be acceptable. Consequently, since all the values of the measured items in T statistics were much over 1.96, they had a meaningful and effective relationship.

The internal relations of variables are demonstrated in table (5).

Table (5). P-values of variables

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Competitive Intelligence -> Agility -> Strategic decision making	0.139	0.137	0.026	5.248	0.000
Competitive Intelligence -> Effectiveness -> Strategic decision making	0.140	0.141	0.014	9.734	0.000
Competitive Intelligence -> Flexibility -> Strategic decision making	0.173	0.169	0.018	9.638	0.000
Competitive Intelligence -> Integrity -> Strategic decision making	0.120	0.126	0.025	4.796	0.000
Competitive Intelligence -> Performance -> Strategic decision making	0.166	0.165	0.020	8.204	0.000
Competitive Intelligence -> Quality -> Strategic decision making	0.262	0.261	0.021	12.485	0.000
Competitive Intelligence -> Strategic decision making	1.000	1.000	0.000	17.520	0.000

In the table (5), the effectiveness of all variables on each other is dedicated. In this step, research analysis was investigated at a 95% reliable level, and the P-values has to be less than 0.05 unless all measured items (the variables' relationship) be confirmed. As a result, the amount of P-value of all determining relationships was zero, therefore, approved.

Overview of research results

Path analysis and T statistics were used to investigate the statistical hypothesis in structural equations modeling. T statistics dedicates the meaningful relationship between variables. Path analysis showed the strength of the relationship between variables, and the closer it is to number 1, the stronger the relationship would be.

The hypothesis of the research is investigated in the table (6).

Table (6). Research hypothesis investigation

Hypothesis	Path analysis	t-values	Results
CI affects the quality of strategic decision-making	0.300	15.139	Confirmed
CI affects the agility of strategic decision-making	0.184	7.927	Confirmed
CI affects the flexibility of strategic decision-making	0.198	12.868	Confirmed
CI affects the integration of strategic decision-making	0.156	6.024	Confirmed
CI affects the effectiveness of strategic decision-making	0.167	11.641	Confirmed
CI affects the efficiency of strategic decision-making	0.199	10.183	Confirmed

According to the statistical analysis, it is evident that all hypotheses of this research were confirmed. Consequently, competitive intelligence had direct, positive, significant, and constructive effects on strategic decision-making and its determined aspects: quality, agility, flexibility, integration, effectiveness, and efficiency.

Discussion

According to the highly competitive era in which numerous companies and brands are increasing in the market, organizations should make practical and valuable strategic decisions to gain the market share among their competitors and survive the organization in stiff competition and current or potential threats. According to the previous studies and the primary aim of the current investigation, some tools and technologies improve strategic decisions. One of the most crucial tools in the competitive market is CI. This intelligence helps organizations recognize the market's threats and risks alongside understanding rival companies' information to make better strategic decisions. Thus, numerous researchers and experts have investigated using competitive intelligence to succeed in the market and creating approaches to develop strategic decision-making.

The Data related to CI was analyzed by confirmatory factor loading, and the value of all measured items was over 0.3, so they are confirmed. Two statistical methods were used for structural equations: 1. factor loadings and path analysis 2. T-value. The amount of t-value of all measured items was over 1.96; the variables had a meaningful relationship. According to all proofs, it is evident that competitive intelligence had a positive and meaningful relationship with the quality, agility, flexibility, integration, effectiveness, and efficiency of strategic decision-making. Based on the t-values, competitive intelligence had a more substantial effect on the quality (15.139), flexibility (12.868), effectiveness (11.641) of the strategic decision-making, and it had a minor effect on the integration (6.024) of strategic decisions.

According to the findings of factor loading of competitive intelligence analysis, two statements, underlying assumptions (0.724) and primary vulnerability factors (0.769), had the highest value. It means that the accuracy of these two statements in the questionnaire was more than other statements. Furthermore, the market opportunity statement had the lowest value, although all statements were acceptable and had sufficient accuracy in questions to rely on.

According to the factor loading of observable and latent strategic decision aspects, the average value of quality and effectiveness-related questions were more than other aspects that demonstrated more accuracy and strength. Based on the path analysis output of analyzing the relationship between dependent and independent variables, competitive intelligence had the most impact on the quality of strategic decisions (0.873), and this mediator variable also had the highest effect on making decisions (0.300). Likewise, Competitive intelligence significantly impacted the flexibility, effectiveness, and efficiency of making strategic decisions, which were 0.872, 0.842, and 0.833, respectively. Moreover, CI had the lowest influence on strategic decision integrity (0.768) and agility (0.756).

Based on CR findings, although the composite reliability of all mediator variables was more than 0.7, the reliability of agility was more than other aspects (0.944), and the reliability of integration was the lowest one (0.811). According to AVE, the value of quality and efficiency was more than other measured items, which means that the validity of these two latent variables was more than others. However, since the value of AEV of all variables was more than 0.5, the validity of all items was evident.

According to the findings of t-values, competitive intelligence had a significant impact on strategic decisions and six considered aspects. CI affected the quality of strategic decision-making (15.139) rather than other aspects. Likewise, flexibility (13.868) and effectiveness (11.641) of the strategic decision can develop to a significant extent by using CI. The integration (6.024) and agility (7.927) of making a strategic decision were two variables with the lowest amount of t-value, and it means that CI had the lowest effect on these two variables.

Nwokah and Frances defined five variables for CI according to Fahey's statement, which was about competitive intelligence strategies to increase marketing effectiveness, and the results indicate that competitive intelligence has a positive effect on marketing effectiveness (Nwokah & Ondukwu, 2009). This study aims to investigate competitive intelligence and its strategies on strategic decisions and its different aspects. Another study indicated that competitive intelligence could boost an organization's financial performance (Adidam et al., 2012). Also, a study has investigated the different aspects of effective marketing and the performance of organizations in 52 banks. The result indicated that several aspects, including the philosophy of customers, the efficiency of operation, the information of marketing, and its integration, can have a positive and meaningful effect on the performance of the business (Appiah-Adu et al., 2001). We investigated the effect of competitive intelligence on six aspects of strategic decision-making to improve the strategic decision, which is one the most key scope of manager's responsibilities, and the results indicated that competitive intelligence had an affirmative and meaningful effect on quality, agility, flexibility, integration, effectiveness, and efficiency of strategic decision-making. As a result of improving strategic decisions, this research made it possible to cover mentioned studies' cases.

An investigation analyzed the effect of business intelligence (BI) on the quality, agility, flexibility, integration, effectiveness, and efficiency of strategy decisions, and the results indicate that business intelligence have a positive and meaningful impact on agility, flexibility, integration, effectiveness, and efficiency of strategy decisions but the hypothesis which was related to the quality of strategic decision, has rejected after its statistical analysis (Aghaei & Asadollahi, 2013). According to the t-value in the research of the effect of business intelligence on strategic decision-making, the amount of t-value of variables was: quality (1.22<1.96), agility (9.42), flexibility (8.31), integration (10.32), effectiveness (9.43), efficiency (6.78) and the value of the effect of BI on strategic decision-making was 9.83. While, in this current research, the amount of

t-value was: quality (15.139), agility (7.927), flexibility (12.868), integration (6.024), effectiveness (11.641), efficiency (10.183), and the value of the effect of CI on strategic decision-making was 17.52. It is evident that the t-values of all measured aspects of strategic decision-making in our study were higher than mentioned study except agility

and integration. As a result, competitive intelligence significantly affects the quality, flexibility, effectiveness, and efficiency of strategic decision-making rather than business intelligence. However, using both bits of intelligence are imperative for an organization's success.

Also, there is an investigation on the effect of artificial intelligence as a supportive tool on strategic decision-making under uncertain conditions. The result shows that humans are necessary to translate the outcomes, and it is not just about conducting machines, and this intelligence is related to the human's self-point of view(Trunk et al., 2020). Another study investigated that if competitive intelligence comes up with strategic implementation, the result will be a competitive advantage. The researcher has studied the samples of competitive technical intelligence in planning and operating activities in companies (Colakoglu, 2011). Furthermore, the result of the current study proved that CI has a direct effect on improving the process of making a strategic decision and its considered aspects.

Conclusion

The role of competitive intelligence (CI) in strategic decision-making and its different aspects has been analyzed in this research. Making strategic decisions is one of the dominant roles of managers' responsibilities and some factors and tools can support the process of making decisions in order to develop strategic decisions. We have analyzed the effect of competitive intelligence as a supportive tool. CI can be defined as an organization's approach to investigate rival markets or rival company's information and collect such data to help with strategic decisions. The study concluded that CI directly affects the quality, agility, flexibility, integration, effectiveness, and efficiency of strategic decision-making. Therefore, it can be considered a valuable tool and as a backbone of the process of making decisions in organizations.

This research is investigated on food small and medium-sized enterprises. Consequently, this study might result in different outcomes in other industries or big scale companies. Another limitation was about the place of study, which was in Tehran, Iran, so there might be other results in other countries. In addition, Iran's economic conditions and current market circumstances may affect this study's findings. Moreover, according to the size of Tehran and a large number of food enterprises in this city, the statistical sample of this study is small, which is another research limitation.

There are several recommendations for future studies. It is recommended to investigate variables of this research on other industries such as Information Technology (IT) enterprises or companies. Other aspects of strategic decision-making can be considered, or other models or aspects of competitive intelligence can be used in further research. Furthermore, investigating the effect of other independent variables on the process of making strategic decisions is recommended.

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