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Ranking Factors Affecting Sustainable Competitive Advantage From the Business Intelligence Perspective: Using Content Analysis and F-TOPSIS

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ABSTRACT

Sustainable competitive advantage, as a key factor in business success, ensures that the company is able to dominate the market with differentiated products and services over a long period of time. This advantage is especially achieved through business intelligence, since smart decisions, leveraging meaningful data and analytics, and continuous process improvement help the company maintain this advantage and experience sustainable growth. The aim of this study is to rank the factors influencing sustainable competitive advantage from a business intelligence standpoint. The research methodology consists of two stages: qualitative and quantitative. In the first step, content analysis was performed to extract indicators from previous studies. In the second step, indicators were ranked using the F-TOPSIS method. Factors affecting sustainable competitive advantage from the business intelligence viewpoint were categorized into 5 criteria, including 27 sub-criteria. The 5 main criteria are customer relationship management, smart marketing, soft and hard organizational factors, and the mental image of the product, respectively. In the second step, the sub-criteria in each criterion were ranked. In customer relationship management, the most important sub-criterion is effective interaction with customers. In smart marketing, the most important sub-criterion is feedback and continuous improvement. Among the soft and hard organizational factors, the most important sub-criteria are support from senior management and technology and infrastructure. In the mental image of the product, the most important sub-criterion is social responsibility.

1. Introduction

Competitive advantage is a fundamental element in the success of any business and organization. In today's dynamic and competitive world, the concept of competitive advantage has taken on a broader meaning. This advantage plays a vital role in determining a company's position in the market,

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attracting customers, increasing market share, and ultimately ensuring the long-term survival of the business. It allows companies to surpass their rivals and be recognized as elite and unique in the market. This is an important issue in strategic decision making and is known as a strategic tool for success in competitive markets. In fact, sustainable competitive advantage allows companies to maintain a greater and more distinct advantage against competitors over a longer period of time and gradually secure themselves a prominent and unattainable position in the market [1].

To achieve a sustainable competitive advantage, companies need to achieve continuous improvement in several factors including strategic management, technology, human resources, processes, and resource management. These improvements not only have a positive impact on business efficiency, but also enable the company to outperform competitors [2]. The concept of sustainable competitive advantage benefits from deeper meanings that are not limited to superiority in price or product features. This concept refers to the ability of a company or organization to maintain and strengthen its competitive advantage continuously and sustainably [3]. This concept shows that the company is able to withstand changes in the market, competition, and external conditions while maintaining its advantage over time.

Sustainable competitive advantage does not only refer to short-term advantages. This advantage is a fundamental factor in the company's strategic success, which can be strengthened over time. More precisely, sustainable competitive advantage allows companies to achieve sustained long-term success while gradually becoming an elite in their industry or market [4]. In fact, sustainable competitive advantage allows companies to achieve success and growth in a competitive world by creating value for customers and establishing sustainable relationships with them [5,6].

In order to achieve a sustainable competitive advantage, it is necessary to carefully examine the internal and external environment of the company [6, 7]. These two aspects provide the company with key information and enable the company to make more effective strategies and decisions. Examining the internal environment allows the company to identify its strengths and weaknesses. Strengths can be financial resources, expertise, technology [8], and unique capabilities, while weaknesses include process issues, technology development needs or management problems [9]. In the same way, examining the external environment allows the company to identify the opportunities and threats in the market and the external environment [10]. Opportunities may arise from changes in customer needs, competitor behavior, alterations in laws and regulations, or technological advances, while threats can come from intense competition, unanticipated economic shifts, changes in customer preferences, or technological issues. These inspections enable the company to compose its strategies and decisions based on more accurate information and ultimately assist with performance improvement and achievement of a competitive advantage in the market [11].

In order to achieve a sustainable competitive advantage in a dynamic and complex environment, it is necessary to adopt new approaches. To this end, business intelligence, as a key factor of success, plays an essential role [12, 13]. Business intelligence refers to the use of advanced technologies such as artificial intelligence (AI) in the decision making and business management process. Data management tools such as Business Intelligence (BI) provide the possibility to extract, organize, and analyze large volumes of data which is impossible to perform manually [14, 15]. In this way, companies can easily adapt to market changes and customer needs, react quickly, and take advantage of new opportunities. Business Intelligence provides critical information about market trends, customer preferences, and competitor activities. This data allows businesses to make informed decisions, improve their strategies, and optimize their performance [16, 17].

In this article, the factors affecting sustainable competitive advantage have been identified from the business intelligence perspective. An attempt has been made to identify factors affecting sustainable competitive advantage by analyzing the content of related research. These factors are

then sorted in order of importance, using the fuzzy ranking method. This intelligent approach to the analysis of the factors affecting competitive advantage has helped companies reach the best strategies for sustainable competitive advantage by considering various parameters and the complex relationships between them.

1.1 Literature review and Research Background

1.1.1 Sustainable competitive advantage

In today's world, global economy conditions are such that most countries seek to create a strong competitive position at the international level, but the modern world competition is very dynamic and complex. This complexity has caused new technologies, new products, market boundary shifts, new manufacturing processes, and innovative management concepts to rapidly impact or even destroy the companies' competitive advantage [18, 19]. Management theories present two main approaches for the acquisition of competitive advantage: the environmental approach which emphasizes environmental opportunities, and the internal approach that focuses on the organization's internal capabilities and resources. Recent studies have shown that competitive advantages based on an organization's internal capabilities are the best source for acquiring competitive advantage. In this context, various definitions have been provided, all of which deal with the concept of competitive advantage to some extent [20, 21]. Competitive advantage means the attractiveness of a company's offerings relative to its competitors from the customers' point of view. This definition refers to a company's ability to attract customer attention over its competitors by using its internal capabilities and capacities [22]. In other words, competitive advantage represents the values that a company offers to customers in such a way that the value of these offerings exceeds the customers' costs. These definitions refer to the ability of a company to attract and keep customers and ultimately increase revenue and market share.

Competition is actually about gaining a larger share of the market, which is often associated with earning a profit that is higher than the current average profit of companies. In reality, competitive advantage is the value that a company offers to its customers [23]. A competitive advantage becomes a sustainable competitive advantage when a company implements a value-creating strategy in a way that competitors cannot imitate it or take advantage of its benefits to the same extent [19]. These competitive advantages usually originate from various sources and factors such as assets, capabilities, organizational processes, specific characteristics, as well as information and knowledge under the organization's control and enable the organization to develop and implement strategies to improve its efficiency and efficacy.

The concept of competitive advantage is directly related to the values desired by customers. In other words, when an organization has the ability to provide value to customers that its competitors cannot fulfill from the customers' point of view, it gains a competitive advantage. Competitive advantage enables an organization to offer its customers something that the competitors cannot provide now or in the future [24]. This means that the values offered by the organization to customers are so important and valuable that customers are willing to pay more for it. In fact, competitive advantage becomes an attractive feature for customers, and this ensures the survival of the organization. When an organization is able to survive based on its competitive advantage, it can continue be successful over time.

Sustainable competitive advantage means using a unique strategy that creates value and cannot be easily imitated by current and future competitors. This advantage allows the organization to meet current and future competitive needs, and to maintain this trend, apply a unique combination of resources and capabilities that cannot be easily imitated [25]. Among the important factors capable of creating this competitive advantage are the use of intangible resources and distinct approaches.

The experience of countries such as China and Japan clearly show that their success is not solely due to progress and commitment to the competition. Through creating scientific and technological innovations, increasing the scale of production and developing international trade, these countries were able to anticipate and overcome the limitations of their resources [26]. They rightfully understood that a sustainable competitive advantage can be created by enhancing skills, investments and the ability of employees, and that economic development can be achieved through floating structures that are compatible with the economic environment. It is also important to note that having a competitive advantage such as cheap labor will not be enough, as this advantage can easily be lost to a country with cheaper workforce.

1.1.2 Business intelligence

Business intelligence is defined as a decision-making process supported by the integration and analysis of an organization's data sources. In fact, business intelligence plays a vital role in several types of companies. Since information has been identified as the most valuable asset of a company, it is a fundamental resource for its development. Since data constitutes a new class of economic assets, like currency or gold [17, 27], business intelligence has become a challenge for information technology as well as an important management issue. Its importance is particularly recognized for the development of analytical decision-making capabilities reflected in software and computer systems [28]. Companies are facing many challenges due to the competitive and dynamic environment; Therefore, to provide quick responses in these dynamic markets, companies need innovations and advanced technologies [29]. In this context, technological tools such as business intelligence are helpful for both information processing and correct decision making at the company level. If this technological tool is implemented in an organization, it may bring several advantages such as architecture, efficient information and data management [30]. This way, the companies may better understand the importance of business intelligence in different environments. The highly unstable environment, as well as the opportunities in the economy, require a fast and efficient decision-making process. Tracking these dynamic changes inside and outside the organizations while maintaining sustainable goals is indeed a challenge. However, this is possible due to various modern concepts and tools available, such as business intelligence [28, 29].

The most prominent requirement of a manager is to make decisions. The decision-making process can be divided into three main parts, which are:

1. Access, collection and refinement of required data and information
2. Processing, analyzing and drawing conclusions based on knowledge
3. Applying the result and monitoring the consequences of its implementation

In each of the above cases, traditional organizations that do not use business intelligence face problems that often arise due to the volume of data, the complexity of analytics and the inability to track the consequences of decisions. By helping to solve the above problems and due to the structure, it establishes in the organization, business intelligence creates new opportunities for the organization [31, 32].

Through the smart use of information, business intelligence helps increase the profits of organizations in competitive markets. The greatest benefit of business intelligence is that it grants the possibility of direct access to data to decision makers at all levels of the organization. Thus, managers will be able to interact with data and through targeted data analysis, increase efficiency and manage the business.

In the simplest case, business intelligence provides managers with information about the current state of the business. It delivers information to the managers at the right time. In case a business indicator is absent or missing from the planning, business intelligence allows users to analyze the

details and make proper decisions to compensate for the existing situation. In today's turbulent and changing world, in order to face and keep pace with the environmental transformations [24], it is necessary to create a suitable context and platform for the emergence of innovative ideas and responses in the organizations. New thoughts and opinions are the spirit of the organization and save it from destruction and annihilation. Therefore, innovation in organizations is necessary for progress and continuity.

1.1.3 Research background

Through a review of the literature, various gaps become apparent. Most studies focused on competitive advantage but failed to consider sustainability. This research has mostly examined organizational variables and neglected the business intelligence. In a study, Salunke et al. [26] discussed the ability to integrate knowledge into service innovation based on competitive strategies. They considered the relationship between innovation and sustainable competitive advantage as a secondary variable. Guo et al. [33] explored the methods of knowledge integration, product innovation and investment performance. Their results indicated that knowledge integration has a positive effect on competitive advantage and product innovation. Yang [30] examined the integration of knowledge and innovation to achieve a new product advantage, which proved the positive effect of this relationship. Azeem et al. [11] studied the development and creation of competitive advantage through organizational culture, knowledge sharing and organizational innovation. Dixit et al. [23] investigated the antecedents of strategic thinking and its impact on competitive advantage. Al-Qatamin and Esam [25] discussed the impact of strategic thinking skills on the aspects of competitive advantage. Their results stated 4 dimensions including cost, quality, flexibility and service delivery for competitive advantage. Ejrami et al. [3] showed that marketing capabilities have a significant impact on the creation of competitive advantage. Jurksiene and Pundziene [2] discussed the relationship between dynamic capabilities and competitive advantage. Clauss et al. [1] examined the role of organizational agility on competitive advantage and confirmed its positive relationship. Al-Romeedy [10] studied the impact of strategic agility on competitive advantage in airlines. Arokodare et al. [34] investigated the impact of strategic agility on competitive advantage.

The second group of studies have examined sustainability in addition to the competitive advantage, but it is evident that their main focus was on hard and soft organizational factors and ignored the role of business intelligence. Muriithi [35] considered organizational culture to be the foundation of sustainable competitive advantage. Almuslamani and Daud [36] discussed the relationship between organizational culture and sustainable competitive advantage, their case study being SMEs. Al-Romeedy [10] explored the relationship between organizational culture, organizational learning, technological innovation and sustainable competitive advantage and proved a positive relationship among them. Baloch and Inam [19] consider strategic thinking as the main factor in achieving sustainable competitive advantage. Moran et al. [24] concluded that companies can achieve sustainable competitive advantage by reducing cultural complexity. Almuslamani and Daud [36] studied the impact of absorption capacity on sustainable competitive advantage and confirmed its positive impact. Nurcholis [9] investigated the mediating effect of knowledge utilization and organizational agility on the relationship between marketing adaptation strategy and sustainable competitive advantage. Kuncoro and Suriani [37] examined the effect of product innovation and market drivers on sustainable competitive advantage.

In general, it could be said that the historical trend of research reveals a lack of depth in the study of sustainable competitive advantage. Most research have quantitatively explored a limited number of variables and examined the relationships between them using the structural equations approach [2, 11, 23, 36, 37], failing to apply systematic reviews to arrive at these concepts. Although some

researches have addressed sustainable competitive advantage using qualitative methods, they have not considered business intelligence as a fundamental factor in achieving sustainable competitive advantage [24, 25] and it is not clear where business intelligence stands among the dimensions of the built model. The literature review of sustainable competitive advantage showed that there is no article measuring sustainable competitive advantage from the business intelligence perspective. In addition to sustainable competitive advantage and business intelligence, this research gap is also evident in the ranking of factors with the F-TOPSIS method, which requires the investigation of factors affecting sustainable competitive advantage from the business intelligence perspective using qualitative and quantitative methods combined together.

2. Methodology

A mixed method was used in this research. In the qualitative part, content analysis was applied to extract the codes and divide them into five criteria. Further, the criteria were ranked using F-TOPSIS method and the most effective ones were determined. The primary prerequisite of content analysis method is theoretical saturation, which considering the number of studies available in the field of sustainable competitive advantage and business intelligence, it is safe to say that theoretical saturation is achieved; Therefore, the content analysis method is suitable for creating consensus among research and researchers of sustainable competitive advantage and business intelligence. This method is used to integrate several studies and create interpretive and comprehensive results. In content analysis, the researcher conducts a thorough review and combines the results of related qualitative works. In other words, in the content analysis method, the main findings of the screened research are interpreted [17]. This method enables a deeper analysis of issues and increases the ability to employ different perspectives. By using content analysis, researchers can draw more effective and comprehensive conclusions and gain a better understanding of the phenomena under study.

2.1 Cohen's kappa index

To confirm the sub-criteria obtained from the content analysis method, the opinion of the researcher and an expert were compared. According to the expert, business intelligence is the stage where businesses use BI effectively and deeply, and BI is considered as part of the organization's strategic goal to achieve a sustainable competitive advantage. When two raters rate the factors, Cohen's kappa index is used to evaluate the degree of agreement. The value of this index fluctuates between 0 and 1. The closer the index gets to one, the more agreement there is between the two experts [13]. The significance number and kappa index were calculated using SPSS software. The significance number obtained was smaller than 0.05, which indicates the lack of independence for the extracted codes (Table 1). The value of the kappa index showed that the two raters have a high percentage of agreement on the factors. Based on the kappa index and significance percentage, it could be claimed that the extraction of the factors has good reliability.

2.2 F-TOPSIS method

Despite the popularity of TOPSIS, it has been criticized for its weakness in examining the perception of decision makers and the ambiguity in their opinion. F-TOPSIS is based on fuzzy logic, which was proposed against classical logic, and does not display the weaknesses of TOPSIS [38–40]. Fuzzy logic is a powerful and highly effective tool for solving complex problems that depend on inference, decision making and reasoning. The expert freely expresses his opinions in a range of values, showing his hesitant opinion with numbers [41–44]; Therefore, in this research, an attempt

has been made to use the F-TOPSIS method to account for the uncertain opinion of experts and to prioritize sustainable competitive advantage indicators by examining the existing uncertainty.

Expressing a definite value for each answer, distorts the experts' opinion on questions. Therefore, conveying the answers qualitatively and communicating their opinions in terms of verbal expressions would give them more freedom. In the present research questionnaire, experts determined the appropriateness of the indicators with the help of verbal variables (very low, low, medium, high and very high) [45–48]. Triangular membership function (TMF) was used to fuzzify verbal variables. The triangular membership function is often used when the researcher receives answers ranging from very low to very high.

2.2.1 Step one: Formation of the decision matrix

The first step of the fuzzy TOPSIS method is to form a decision matrix, which is developed from experts' opinions. At this stage, the number of experts and specialists in the target field should be determined and then their opinions should be taken via a questionnaire. These opinions are recorded quantitatively and qualitatively in the decision matrix. In the decision matrix, each cell represents the effect of different variables on the goals and parameters of the problem and are displayed using figures or fuzzy signs [31 ,32, 49]. The importance of variables and their effects on each other are also considered in this matrix. In this research, the number of experts is seven, and all opinions are collected quantitatively [44, 50]. Expert opinions are combined using Eq. (1). The investigated sub-criteria are the output variables of content analysis.

$$\widetilde{D} = \begin{bmatrix} \tilde{X}_{11} & \tilde{X}_{1j} & \tilde{X}_{1m} \\ \vdots & \ddots & \vdots \\ \tilde{X}_{n1} & \tilde{X}_{nj} & \tilde{X}_{nm} \end{bmatrix}$$

$$\tilde{X}_{ij} = \frac{1}{k}\left[\tilde{X}_{ij}^{1} + \tilde{X}_{ij}^{r} + \cdots + \tilde{X}_{j}^{k}\right] \quad (1)$$

2.2.2 Step two: Formation of the normalized matrix

In the second step of fuzzy TOPSIS, normalization is used to convert fuzzy numbers into a definite and dimensionless (no scale) format. This step helps with a more accurate analysis and process of fuzzy numbers and enables the comparison and decision making between fuzzy variables. This means that the defined fuzzy values are translated into a range of definite values between 0 and 1. This step of the study was done using Eq. (2). The normalization for the + and - criteria is different as specified in the equation.

$$\tilde{R} = \left[\tilde{r}_{ij}\right]_{m\times n}$$

$$\tilde{r}_{ij} = \left(\frac{l_{ij}}{u_j^+}, \frac{m_{ij}}{u_j^+}, \frac{u_{ij}}{u_j^+}\right) \; and \; u_j^+ = max_i u_{ij} \; (benefit \; criteria) \quad (2)$$

$$\tilde{r}_{ij} = \left(\frac{l_j^-}{u_{ij}}, \frac{l_j^-}{m_{ij}}, \frac{l_j^-}{l_{ij}}\right) \; and \; l_j^- = max_i l_{ij} \; (cost \; criteria) \quad (3)$$

2.2.3 Step three: Formation of the balanced normalized matrix

In this research, in order to account for the importance of each dependent variable, fuzzy weight was applied. These weights indicate the relative importance of each dependent variable in the problem. The output of this step is a matrix in which the index values are multiplied by fuzzy weights and the effect of each dependent variable's weight is considered. This step helps with better accuracy

and optimal decision making for the problem at hand. Fuzzy weights were obtained according to expert opinion.

$$\tilde{v}_{ij} = \tilde{r}_{ij} \otimes \tilde{w}_j, \tag{4}$$

$where\ \tilde{v} = \left[\tilde{v}_{ij}\right]_{m\times n}, i = 1,2,\dots,m; j = 1,2,\dots,n.$

2.2.4 Step four: calculation of the distance from positive and negative ideal

In the fourth step of the fuzzy Topsis, the distance from the positive and negative ideal is examined (Eq. 4). The positive ideal represents the desirable value and the negative ideal represents the undesirable value in fuzzy TOPSIS. These distances are used to evaluate the quality and importance of each fuzzy variable in decision making. Variables that are closer to the positive ideal and have a smaller distance from it are considered more important in the decision making, because they are closer to the desired values. In other words, these variables have a greater impact on decision making. On the contrary, the variables that are closer to the negative ideal and have a smaller distance from it, have less impact on decision making.

$$A^+ = \{\tilde{v}_1^+, \tilde{v}_2^+, \dots, \tilde{v}_n^+\}, A^- = \{\tilde{v}_1^-, \tilde{v}_2^-, \dots, \tilde{v}_n^-\}$$

$where\ \tilde{v}_j^+ = (1,1,1), \qquad \tilde{v}_j^- = (0,0,0)$

$$d_i^+ = \sum_{j=1}^{n} d\left(\tilde{v}_{ij}, \tilde{v}_j^+\right), i = 1,2,\dots,m; j = 1,2,\dots,n.$$

$$d_i^- = \sum_{j=1}^{n} d\left(\tilde{v}_{ij}, \tilde{v}_j^-\right), i = 1,2,\dots,m; j = 1,2,\dots,n.$$

$$d\left(\tilde{A}, \tilde{B}\right) = \sqrt{\frac{1}{3}[(a_1 - b_1)^2 + (a_2 - b_2)^2 + (a_3 - b_3)^2]} \tag{5}$$

2.2.5 Step five: Ranking of the options

In this step, the importance and priority between the options is determined. This step is conducted to determine the best choice among various options. This prioritization is calculated based on the ratio of distance from negative ideal to the sum of the distance from negative and the positive ideal. Thus, through this step of the fuzzy TOPSIS, the best alternatives are ranked according to the defined criteria and decision making is carried out in a rational and priority-based manner (Eq. 6).

$$CC_i = \frac{d_i^-}{d_i^+ + d_i^-} \tag{6}$$

3. Results

The results of the content analysis are presented in Table 1. According to the percentage of agreement obtained from the Cohen's kappa coefficient index, the sub-criteria obtained from the content analysis were confirmed.

Table 1
Content Analysis Results

Criteria	Sub-Criteria	Percentage of agreement	Reference
Customer Relationship Management	Effective interaction with customers	%90.23	[11,36]
	Adhering to customers' wishes	%82.01	[19]
	Forecasting customer needs	%84.03	[2, 25]
	Managing multiple interactions	%79.43	[23,35]
	Quick response to customer needs	%76.43	[16]
	Maintaining security and privacy	%87.25	[1,23]
Smart marketing	Feedback and continuous improvement	%82.18	[2,3]
	Improving differentiation and positioning	%79.65	[2,11]
	Marketing performance forecasting	%82.34	[4,19]
	Improved decision making	%86.36	[1,35]
	Marketing Personalization	%78.09	[23]
Soft organizational factors	Change management	%87.25	[35]
	Human resources management	%84.03	[3,19]
	Support of senior managers	%92.45	[1,11]
	Flexible organizational strategy	%79.65	[23]
	Optimizing processes	%88.65	[4,25]
	Organizational Culture	%79.65	[25]
Hard organizational factors	Optimal use of resources	%78.09	[19]
	Ability to analyze data	%86.36	[1,3]
	Development of expert team	%74.34	[35]
	Technology and infrastructure	%82.01	[12]
	Improvement in the quality of products and services	%78.65	[4,15]
Mental image of the product	Appropriate selection of brand elements	%82.57	[1,4]
	Better impact on the market and competitors	%74.34	[3]
	Social responsibility	%91.25	[11]
	Creating a distinctive and innovative image	%84.35	[13]
	Brand trust	%89.68	[3,25]

The results of step 5 of the F-TOPSIS method are given in Table 2. In this step, the sub-criteria were ranked in the main criteria and in general.

Table 2
Prioritizing factors affecting sustainable competitive advantage

Criteria	Sub-Criteria	cci	Rank in Criteria	Rank in general
Customer Relationship Management	Effective interaction with customers	0/85	1	4
	Adhering to customers' wishes	0/80	3	12
	Forecasting customer needs	0/75	5	24
	Managing multiple interactions	0/73	6	25
	Quick response to customer needs	0/78	4	17
	Maintaining security and privacy	0/82	2	9
Smart marketing	Feedback and continuous improvement	0/88	1	5

Criteria	Sub-Criteria	cci	Rank in Criteria	Rank in general
	Improving differentiation and positioning	0/81	4	20
	Marketing performance forecasting	084	3	15
	Improved decision making	0/86	2	8
	Marketing Personalization	0/77	5	26
Soft organizational factors	change management	0/83	3	11
	Human resources management	0/81	4	16
	Support of senior managers	0/92	1	1
	Flexible organizational strategy	0/85	2	7
	Optimizing processes	0/79	5	22
	Organizational Culture	0/77	6	23
Hard organizational factors	Optimal use of resources	0/83	3	14
	Ability to analyze data	0/86	2	6
	Development of expert team	0/80	4	18
	Technology and infrastructure	0/88	1	3
	Improvement in the quality of products and services	0/78	5	21
Mental image of the product	Appropriate selection of brand elements	0/79	4	19
	Better impact on the market and competitors	0/87	2	10
	Social responsibility	0/90	1	2
	Creating a distinctive and innovative image	0/74	5	27
	Brand trust	0/84	3	13

4. Conclusions

In this research, content analysis was used to identify the influencing factors on sustainable competitive advantage in the organization. Content analysis identified key factors affecting performance and the main theme. The sub-criteria, which demonstrate sustainable competitive advantage with regard to business intelligence, were derived from the review of related literature. Primary indicators were screened based on expert opinion. Cohen's index coefficient was used to screen the primary indicators, the results of which indicate that the factors obtained via content analysis were confirmed. Then, using fuzzy Topsis, these factors were evaluated and ranked more precisely.

By improving the status of these sub-criteria, it is possible to optimally address sustainable competitive advantage. Sustainable competitive advantage is one of the success requirements for new businesses. In today's era, the amount of data has increased tremendously, and it is not possible for a manager alone to analyze the data and achieve a sustainable competitive advantage. To achieve sustainable competitive advantage, business intelligence is essential. In the past, in order to deal with the increase in data volume, the first measure taken was the division of work. Thus, with the increase in the workload, more people were employed, but this was a temporary solution to the problem because with the increase in the workload, there was a greater need for labor and there was no effectiveness in the work.

Through content analysis, five main criteria were identified and confirmed. These criteria include: customer relationship management, smart marketing, soft organizational factors, hard

organizational factors, and the mental image of the product. Confirmation of these factors through Cohen's index shows that the content analysis was conducted carefully and all the criteria have been confirmed as essential factors. The ranking of factors using fuzzy Topsis is executed in two parts. In the first part, the indicators of each criterion were ranked separately. In the second part, all the sub-criteria were ranked together. In the criterion of customer relationship management, the most important sub-criterion is effective interaction with customers. By using business intelligence tools and technologies, businesses can collect detailed information on customer behavior and needs. This information enables companies to better identify customers and present their offerings in a targeted manner. Also, business intelligence can improve customer experience by developing solutions such as customer support systems and interactive customer services. Through data analysis, businesses can provide customers with special offers and discounts, thus increasing customer commitment and establishing long-term relationships with them. In general, business intelligence allows companies to experience greater growth and success by interacting more effectively with customers.

In the smart marketing criterion, the most important sub-criterion is feedback and continuous improvement. Business intelligence through the aggregation and analysis of various data and the use of advanced technologies can help feedback and continuous improvement in a company. By using artificial intelligence systems and data analysis, companies can more accurately analyze patterns, customer preferences, performance of the processes, as well as the existing problems and provide better information for strategic decision making. These technologies can also help monitor and track performance improvements and changes, and by analyzing real-time data, enable companies to make rapid corrections and continuous improvement. In this way, business intelligence plays a very important role in the continuous improvement and productivity of companies, from diagnosing problems to providing solutions based on accurate and timely data.

In the criterion of soft organizational factors, the most important sub-criterion is the support of senior management. Support from the senior management can significantly contribute to the effective use of business intelligence and help the company achieve sustainable competitive advantage. This support includes dedicating financial and human resources to business intelligence projects and activities. Senior management support facilitates the creation of an organizational culture eager to perform and benefit from data analysis. This type of support can motivate teams, help with the generation of innovative ideas along with the use of more sophisticated data analysis, and lead to improved data-driven decisions and strategies within the organization. As a result, these management measures can help increase the company's capabilities in creating a sustainable competitive advantage and enable the organization to reach its most competitive state in order to achieve success in dynamic and complex markets.

In the criterion of hard organizational factors, the most important sub-criterion is technology and infrastructure. Today's advanced technology and infrastructure have caused major changes in the way companies operate and can lead to the effective use of business intelligence, which helps in achieving sustainable competitive advantage. Advanced technologies enable the collection and analysis of large and complex data, which can help the company improve the decision making processes and optimize performance. Furthermore, modern technology offers the opportunity to improve customer communication and customer relationship management, which is fundamental to effective customer interaction. As a result, combining business intelligence with appropriate technology and infrastructure can help companies achieve sustainable competitive advantage in competitive markets and exploit competitive opportunities as much as possible.

In the product mental image criterion, the most important sub-criterion is social responsibility. Corporate social responsibility affects their ability to improve the mental image of their products. When a company pays attention to social and environmental issues and commits to sustainability

and ethics in business, these actions not only solve important social issues but also improve the mental image of the company's products. Today's consumers have greater consideration for social and environmental values, thus tend to cooperate with companies that, in addition to producing quality products, also take their social and environmental responsibilities seriously. These types of social commitments can boost customers' positive morale, elevate trust in the brand, and improve the mental image of the company's products, which ultimately leads to the company's long-term marketing and financial success.

Ranking the extracted factors in a company can help managers and decision makers achieve sustainable competitive advantage. This ranking allows them to focus on key and potent factors and use their energy and resources effectively. In this way, companies are able to achieve higher efficiency and improved productivity, thus achieving sustainable competitive advantage with less energy consumption. Ranking the factors enables decision makers to accurately determine strategic priorities and formulate plans accordingly, which directly contribute to performance improvement and competitive advantage in dynamic and changing markets.

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Conflicts of Interest
The authors declare no conflicts of interest.

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