

Prioritizing business strategies in electronic businesses based on competitive advantage (Application of Topsis and AHP methods integration)

Mohammad Hossein Hosseini^{a,*}, Azadeh al-Sadat Khodaei^b

^aDepartment of Industrial Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran

^bDepartment of Computer Engineering, Safadasht Branch, Islamic Azad University, Safadasht, Tehran, Iran

(Communicated by Asadollah Aghajani)

Abstract

Choosing the right strategies for the development of e-businesses, along with the development of new technologies and maintaining a competitive advantage, to simultaneously meet organizational expectations and customer expectations, is considered vital. Therefore, identifying and then ranking these strategies according to the rapid developments of the technology world is considered a very basic step in helping to manage this kind of activity. Therefore, in this study, using a descriptive-survey research method and the opinions of 10 food industry experts who had sufficient experience in this field, it were collected using the purposeful sampling method and then using integration of AHP and Topsis methods, the priority and rank of each of these strategies were determined. The final results of this survey showed that the strategies: of branding, marketing in social networks, competitive pricing, customer personalization and mobile optimization are the five priority strategies of e-businesses in the food and edible industries, according to the components They are a competitive advantage that can provide a basis for future studies on the competitiveness of electronic businesses in the food industry due to the comprehensiveness of the criteria and indicators.

Keywords: e-businesses, electronic businesses, business strategies, AHP method, TOPSIS method, prioritization
2020 MSC: 90B50

1 Introduction

The structural changes resulting from the use of information and communication technologies have confronted human societies with new challenges in all social fields have opened new horizons for mankind and forced the new generation to create the most suitable platform and the most dynamic tools in A rule-based and rule-based environment, to update all existing procedures, and to form extensive relationships by relying on information and communication technology in the context of electronic exchanges, and to create a new field called “electronic businesses ” [12].

Today, many companies are focusing on e-businesses and many of them have turned to e-businesses due to competition and competitive pressure from competitors or due to customer demand, and they use multiple strategies to succeed in achieving their goals. Therefore, these institutions should specify and ensure that the start of their

*Corresponding author

Email addresses: hosseim40@gmail.com (Mohammad Hossein Hosseini), aakhodaei@safaiu.ac.ir (Azadeh Khodaei)

e-businesses is aligned and coordinated with the macro strategy of their institution and also does not conflict with the company's current goals, ideals and values. Therefore, success in e-businesses will depend on having a strong and comprehensive strategy that can increase the chances of success in that business by considering appropriate criteria for the desired business.

Although it has sometimes been argued that the increasing importance of technology reduces the need for clear strategies and that companies should primarily focus on implementing the technology that underpins e-businesses, it should be noted that technology is not a substitute for strategy. And it cannot be. In fact, ignoring the strategy and how a company can create a sustainable competitive advantage is a possible recipe for failure in activities [9].

Competitive advantage is one of the most important topics in the theory of strategic management, which in organizations means better performance than competitors, which guarantees profitability in the short term and the survival and growth of the organization in the long term. With the emergence of electronic businesses and businesses, the importance of competitive advantage has become more vital, and a close relationship has emerged between the two, therefore, companies that want to maintain their competitive advantage in today's competitive world cannot ignore electronic businesses.

Since today, in the organizational dimension, the discussion of e-businesses is at the top of the priorities of various organizations, the use of appropriate e-businesses strategies has become an unavoidable necessity for economic enterprises, considering their importance and prioritization, and as economic enterprises, If they do not pay the necessary attention to this, they will be faced with the reduction of profitability and removal from the competition scene. Today, the food business industry is also facing different challenges in all sectors. For example, over 1,400 restaurants in the UK closed in 2018 alone, even well-known restaurants such as Jamie Oliver's. Therefore, it is very important to find the audience group and define a suitable brand for this group of industries gain profitability, and use new technologies. Therefore, for the success of food industry businesses in today's digital world, choosing the right strategy is considered very necessary.

Therefore, planning and conducting relationship studies to identify, select, and rank the existing strategies of e-businesses is one of the important and strategic actions of companies active in this sector, and this study, it is trying to identify and introduce the important strategies of this type of businesses should help the business managers of the country's food and edible industries to use this prioritization and maintain their competitive advantage in addition to determining their activity strategies and drafting their strategies. Therefore, the question that we are trying to provide an appropriate answer to in this study is: which strategies are important in e-businesses businesses in the field of industrial businesses such as food and edible industries and their prioritization according to the components of gaining advantage How competitive is it?

2 Theoretical foundations

2.1 Electronic businesses

Kalakota and whinston define electronic businesses from four different points of view [14]:

1. Communication point of view: According to this point of view, e- businesses is the delivery of goods, services, information or payment through computer networks or any electronic means.
2. Business process view: According to this view, electronic business is the use of technology to automate work flow and business exchange.
3. Service point of view: According to this point of view, e- businesses is a tool that pays attention to the desire of companies, customers and management based on cutting service costs, while improving the quality of customer service and increasing the speed of service delivery.
4. Online point of view: According to this point of view, electronic businesses provides the ability to buy and sell goods and information through the Internet and other online services.

E-businesses include all commercial activities that should be formed by using computers, the internet, and communication technologies such as telephone, telegraph, television, fax, e-mail, credit card, and credit money. This cycle includes several activities related to each other that complete the flow of this cycle together with each other, these activities include purchasing, e-businesses, supply chain management, electronic payment systems, advertising, marketing, order management, delivery, and after-sales service and support [8].

In e-business texts, there is a difference between this term and the term “Electronic Business”. An electronic business includes any process that a business enterprise conducts over computer networks. With this definition, it can be claimed that e-business includes all the actions of commercial companies such as human resource management, marketing, legal communications, government communications, etc.

“Mobile e-businesses” is also a subset of e-businesses. While it refers to online activities similar to those listed in the category of e-commerce, the technology is different because mobile commerce is limited to mobile communication networks that are conducted through handheld wireless devices such as cell phones and handheld computers. accessible We can see the close relationship between the three concepts of electronic, e-businesses and mobile e-commerce in fig 1.

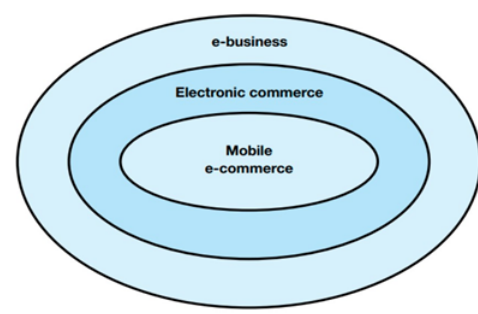


Figure 1: Electronic business includes electronic commerce and mobile electronic commerce Source: adapted from Chaffey [6]

2.2 Strategy and strategic management

Besides e-business, strategy is the second key point of this study. Basically, the term “strategy” means different things to different people. According to one of these definitions, strategy means what we want to do, the state we want our organization to be in, and the goal we intend to achieve. In simple words, strategy can be defined as doing different things in different ways, choosing a path other than the main flow of water and standing apart from the crowd. Accordingly, strategic management refers to the flow of decisions and activities that lead to the creation of one or more effective strategies to achieve goals [11].

The strategy is the concept of “determining the basic long-term goals and objectives of an economic enterprise and adopting the courses of action and allocating the necessary resources to achieve these goals”. “The deliberate search for an action plan that develops and combines the competitive advantage of a business” are vital, let’s say [9]:

- Strategy is related to the long-term direction of the company.
- Strategy deals with the overall plan for employing the resources that a company has at its disposal.
- Strategy requires a willingness to make trade-offs and to choose between different directions and between different ways of deploying resources.
- Strategy is about achieving a unique position against competitors.
- The main goal of the strategy is to achieve a sustainable competitive advantage over competitors and thus ensure sustainable profitability.

A term that is often used instead of strategy is the term “tactic”. Tactics are plans for individual and specific actions that are not necessarily related to each other. In general, specific actions can be directly programmed due to their limited complexity. For example, a company can have a specific tactic when launching a marketing campaign. Therefore, it should be kept in mind that strategies deal with a more comprehensive formulation that affects not only activity at a point in time but also all the activities of a company in a long time horizon. Therefore, to achieve compatibility between different activities over time, the inputs are usually not enough, and therefore, logical thinking is needed. Hence it can be said that while tactics are about winning a battle, strategy is mainly about winning the war. change of the e-business environment, it has become more difficult to formulate long-term strategies. How long-term can a strategy be when the technology environment is constantly changing? Obviously, this is a difficult question and therefore has no clear answer. When a disruptive innovation emerges and redefines the basis of competition, previous strategies become completely worthless and a newer strategy must be quickly adopted.

2.3 Necessity and reasons for using strategic business models

Basically, many of the existing models for businesses that have a combination of traditional components and e-businesses do not work well. The Internet and the growth of e-businesses have changed the rules of many distribution, sales, industry boundaries, communication and competition issues. In addition to new opportunities, e-business has also raised new challenges. Instrumental competition, reduced reputation and shortened product life cycle require strategies that have been introduced so far.

It is said that the main reason for the failure of management tools is their lack of alignment with the company's strategy. These management tools are often used separately in the company with little attention to the desired strategic direction of the organization. For example, if a company's strategy focuses on existing customers by offering products in chain stores, this is not compatible with selling products at a discount online. If the products usually reach the customers through a successful marketing channel, this channel may be cut off with online sales. Therefore, businesses that have failed to align their activities with their strategies have experienced difficult and unfortunate results such as reduced profitability, loss of competitive advantage, and even bankruptcy, therefore these strategies must be adjusted according to the main priorities. Businesses should be classified and used after prioritizing them [11].

2.4 Prominent business strategies in e-businesses

Basically, success in e-businesses depends on having a strong and comprehensive strategy. Therefore, it is possible to increase your chances of success by considering technical and specialized issues and choosing the right strategies for your business. Since e-businesses is a vast field, there are various strategies to succeed in this field. Basically, the right strategies for any business depend on various factors such as: type of products or services, target market and competitors, etc. There are some key strategies in e-businesses, which are summarized in a few of the most important ones in studies [1, 3, 4, 5] is observed, it is mentioned:

Table 1: Business strategies in e-businesses

Row	strategy	Key elements of strategy
1	Personalization	Personalized website experience, offering special content and products, sending personalized emails, special discounts for each customer, personalized support services, personalized advertising, providing a personalized shopping experience.
2	Customer segmentation	Determining the target market, paying attention to customers, allocating optimal resources, targeted advertising, providing special offers, diverse shopping experiences, analyzing data on purchasing behavior, adapting to customer needs.
3	Mobile optimization	Increasing the speed of uploads, special mobile design, compatibility with the screen size, improving the touch experience, optimizing images and multimedia.
4	Marketing in social networks	Communicating directly with customers, the beauty of targeted advertising, increasing brand awareness, accurate data analysis, more interaction with customers, using social network management tools
5	Content marketing	Providing valuable and attractive content, using various tools and techniques, creating specialized articles, educational videos, blog posts, sharing content on social networks, tracking competitors' progress and changes in customer behavior.
6	Search Engine Optimization (SEO)	Increasing the visibility and ranking of websites, optimizing the internal and external elements of the website, using the right keywords, optimizing the structure of links, page loading speed, creating quality content, continuously managing and updating algorithms, analyzing data and reporting on website performance.
7	Customer comments and recommendations	Active collection of customer opinions, management of some slanders, providing appropriate answers to questions and problems raised, encouraging to send recommendations and positive comments, increasing trust and loyalty of customers.
8	Email marketing	Sending e-mail messages to the audience, conducting e-mail advertisements, providing offers and announcements related to products and services, continuous communication with customers, designing attractive messages that suit the needs of the audience, accurate evaluation of results and feedback, accurate evaluation of the results of e-mail campaigns
9	Designing user-friendly websites	Launching websites that fully meet the needs and expectations of users, responsive design, logical and easy structure, attractive content and detailed information, using user tests, continuous user experience studies, improving customer experience and increasing their trust, using A website with an attractive, easy and updated user interface (UI).
10	Selling related products and increasing sales	Providing offers and packages related to main products, providing relevant and attractive content, using recommender algorithms, and optimizing the purchase process, creating more variety in products, using CRM tools, market and competition analysis, checking customer feedback.

Therefore, as can be seen in this table, for each strategy there are important elements in e-business that help businesses to better understand their target market and provide their customers with services and products that meet their needs and preferences. Be coordinated. These strategies allow companies in different ways to optimize their

11	Loyalty programs	Providing points, discounts, awards and unique experiences, creating continuous communication with customers, identifying and rewarding loyal customers, creating unique experiences, using new technologies to track and manage loyalty programs.
12	Live support (online)	Provide immediate and effective customer support through multiple communication channels including online chat, email, and phone; Creating automated systems to answer frequently asked questions and provide educational resources to customers; Utilizing advanced technologies such as artificial intelligence and speaking to the customer
13	Using block chain technology for security	Eliminating authentic intermediaries, protecting privacy, creating transparency and security, preventing identity fraud and theft of personal and identity information.
14	Shared models	Making it possible to consume, share information or rent services or products in a shared way instead of buying one time, increasing social communication.
15	Using chatbots and artificial intelligence	Fast communication with customers, answering questions automatically by chatbots and artificial intelligence systems, improving customer support capabilities, using natural language processing and machine learning technologies, quickly monitoring changes in customer demand and tastes.
16	Use of virtual and augmented reality	Using Virtual Reality (VR) and Augmented Reality (AR) technology, improving customers' shopping experience from online products and services, increasing customer confidence and relationship with the product brand, increasing purchase motivation
17	Using data analytics for business intelligence	Using various techniques and tools (data flow analysis, predictive analysis, geographic analysis, and clustering analysis) in data, accurately identifying patterns, relationships, and trends, making good decisions and determining more effective strategies, forecasting demand, and even reducing costs, developing Expert personnel skills
18	Competitive pricing	Determining appropriate prices for products and services, providing discounts and special offers, monitoring competitors' pricing.
19	branding	Creating a strong and well-known brand, providing unique brand experience to customers, building brand loyalty.
20	Commitment to sustainability	Using sustainable methods in business, providing environmentally friendly products and services, supporting the community

communication with customers and improve the customer's shopping experience. Therefore, regardless of the points of commonality or difference in the elements of each of these strategies, the main effort is to focus on a specific approach based on a deep understanding of needs, preferences, behaviours, and purchase history. customers, etc., to establish an optimal relationship with them and to meet the goals of the organization in the field of e-business.

2.5 Competitive advantage in e-businesses and its resources

The discussion of competitive advantage has been one of the most important issues in the world of strategic management and strategic marketing for a long time, and with the emergence of the new economy and the development of computer science and information technology, it has a special place. Technological advances in computer science and communication have made the business environment more turbulent by facilitating communication, increasing speed, reducing costs, removing location restrictions, removing time restrictions, and the success of these technologies can be clearly seen in the form of electronic businesses.

With the change in technologies, markets, the application of new business models, the structure of the industry and the nature of the competition are changing rapidly and enable them to achieve a competitive advantage if some principles are followed. Today, in order for companies to be able to gain a competitive advantage in electronic businesses, they must be able to create the necessary competence in themselves, so organization to obtain a competitive advantage in electronic businesses must take steps such as the presence of effective and expert people, initial presence on the web and setting up the website, it must go through creating an information structure, setting up an expanded national and global organization, business transformation according to the tastes and opinions of customers, and finally creating a strategic transformation. In e-businesses, there are four sources for gaining a competitive advantage that organizations can achieve a competitive advantage by achieving them:

1. Reduction in costs of wholesale and retail intermediaries. With the use of electronic technologies, the disintermediation process has been formed and customers can buy their products without referring to traditional intermediaries such as wholesalers and retailers and by referring to the website of the main seller (manufacturer).
2. The ability to reduce costs related to purchases by reducing the time and activity required in supply and logistics operations,
3. Improving the collection and processing of information that enables the improvement of supply chain management.

4. Expanding the market share and creating new markets by reducing the costs of collecting and processing information about the needs and demands of current and potential customers.

Therefore, in e-business, in order to gain a competitive position and achieve a competitive advantage, organizations can no longer focus only on the physical dimensions of their products, but must also integrate the two important factors of services and information with their supplied products. The shift from focusing on the product to focusing on the services that come with the product will separate the traditional economy from the digital economy. Business value, e-business in particular and information technology in general in the digital economy is an important contribution to the organization in integrating services and information with the product. This helps companies to be active in designing and distributing services that differentiate their products from competitors. There are three types of services that are considered the basis of competitive advantage. These services include:

1. Customer relationship management: Organizations must understand the needs and expectations of their customers, because the organization's better understanding of these needs and expectations and the appropriate response to them increases customer loyalty to the organization.
2. Supply chain management: This advantage comes from the organization's ability to pay attention to the special logistics needs of each customer, such as: quantity scheduling and localization of orders. Better and customized logistics increase the customer's understanding of the product's value.
3. Enterprise resource planning: If two products from two companies have the same value, an organization will gain a competitive advantage that has a better understanding of its cost and revenue than its competitors. This is achieved through enterprise resource planning.

At the same time, it should be noted that a competitive advantage in business will be effective when it is stable and not transient. Since in e-businesses, where the technology environment is considered a vital factor and is constantly and rapidly developing and changing, the competitive advantage becomes more critical and more difficult to maintain. For this reason, organizations should aim to find solutions and strategies that will lead them to obtain a sustainable competitive advantage. Therefore, paying attention to the factors of generating income and profitability, creating suitable opportunities, controlling costs and also the risk of activities will be among the important factors that, due to their various components, can be fruitful in choosing strategies and creating advantages. be considered a stable competition.

3 Research background

The review of the background of the research related to the prioritization of business strategies in e-businesses showed that, except for a few related studies at the level of a company, no comprehensive research has been conducted in this field so far, and the few available studies are related to the applied strategies of this field. It has also been mainly related to the description and expression of the characteristics or factors affecting the success of these strategies, some of the most recent ones are mentioned below. Ahmadian and Jafarinia [2] in a study to identify and prioritize the key success factors in the strategic planning of electronic businesses in Iran concluded that managerial dimensions, technology, and customers have the most influence, and cultural and social factors have the least influence. and the macroeconomic factor does not affect the success of electronic businesses in Iran. Kosha and Abtahi [10] in a study aimed at evaluating and prioritizing e-business strategies based on a multi-criteria decision-making approach at the level of an industrial company in Iran, according to the opinions of several experts, ranked nine e-business strategies have classified and concluded that the intelligence evaluation strategy with the highest weight is in the first rank, and the organizational strategic business evaluation strategies and the competitors' business evaluation strategies and technological intelligence are in the second and third ranks, respectively. Hamidi et al [7] in a study aimed at prioritizing strategies in e-businesses (Internet discount sites in Iran) using multi-criteria decision-making methods (MACDM), Topsis, D-ANP, VIKOR show that the results of These ranks are different and significantly different from each other in different ways. In another study to select an e-business strategy using fuzzy hierarchical analysis in Isfahan Alloy Steel Company, Sanyaei et al [13] E-business related to the development of the customer base and related to the improvement of customer services are the next priorities.

4 Research methodology

In terms of practical purpose and terms of data collection method, this research is carried out in a survey-descriptive manner, which was carried out at the level of the food and edible industry of Tehran province. Therefore, at first,

to study the theoretical foundations and background of the research the desired information was collected using the documentary-library method, and after extracting and counting the strategies proposed in the field of e-business, through a researcher-made questionnaire, the opinions and judgments of the number of 10 Tons of experts and experts of this industry who had enough experience in this field were collected using purposeful sampling method and direct reference to them, and then using Analytical Hierarchy (AHP) and Topsis method which is one of the most widely used methods. Most research methods are in soft operations, the weight and importance of each of these strategies is determined based on the opinions of experts; to be used and considered to achieve the goals of organizations. In addition, to determine the possible difference between the average ratings obtained in these two approaches, using SPSS software, a Mann-Whitney non-parametric test is performed. AHP and TOPSIS methods are used for the final ranking of strategies. In the TOPSIS method presented by Yun and Huang in 1981, options are ranked based on their similarity to the ideal solution, so that the more similar an option is, the smaller the distance from the positive ideal solution (the best possible state). or has the greatest distance with the negative ideal solution (the worst possible case), it will get a higher rank and priority. This decision-making method has strong mathematical support. The method can be used when the decision-making process is faced with several competing options and decision-making criteria. The AHP process makes it possible to combine qualitative criteria with quantitative criteria at the same time. The AHP method is based on pairwise or pairwise comparisons of alternatives and decision criteria. In the end, to ensure the results, the validity and reliability of the questionnaires are also evaluated.

Saaty [16] developed a strong and helpful tool for managing qualitative and quantitative multi-criteria elements involved in decision-making behaviour. This model is called the Analytical Hierarchy Process (AHP) and is based on a hierarchical structure. This procedure occupied an assortment of options in the decision and was capable of applying sensitivity analysis on the subsequent criteria and benchmarks. In addition, it makes judgments and calculations easy because of paired comparisons. Moreover, it demonstrates the compatibility and incompatibility decisions which is the recompense of multi-criteria decision-making [15]. The Analytical Hierarchy Process is one of the most inclusive systems and is considered to make decisions with multiple criteria because this method formulates the problem as a hierarchical and believes in a mixture of quantitative and qualitative criteria as well. The first step is to create a hierarchy of the problem. The second step is to give a nominal value to each level of the hierarchy and create a matrix of pairwise comparison judgment.

5 Research findings

To prioritize business strategies in e-business based on competitive advantage, after reviewing the theoretical foundations and background of the research and the statistics of important strategies, at first, using the interview method with selected experts, it was requested that all the parameters that Choose the business strategy in e-business based on the competitive advantage and list the effective ones. Therefore, after several revisions, the final list containing 13 evaluation criteria was obtained. These parameters can be classified into four main groups including profit, opportunity, cost and risk. The final list, which includes the main criteria and sub-criteria, is presented in Table 2. As a result, the structure of the problem of choosing the best strategy for business in electronic business based on competitive advantage is shown in Fig 2.

Since in this study, the questionnaires were designed based on theoretical principles, they had the required validity, but to increase the content validity of the questionnaires, the opinions of expert professors were also used, and this validity was confirmed. Further, to calculate the reliability, the inconsistency rate was also calculated, and therefore, assuming that there is no dependence between the determined main criteria (BOCR), the importance weight of the evaluation criteria was calculated. For this purpose, a questionnaire with the format of an AHP questionnaire was made and then the experts were asked to weight the decision matrix based on the scales of pairwise comparisons (from 1 for equal importance to 9 for extreme preference). Then, the compatibility rate was calculated, which shows that this rate is less than 0.1, so the validity of the questionnaire was also confirmed. The final comparison matrix obtained by the evaluation team is shown in Table 3. To validate the final questionnaire, the group compatibility ratio (GCR) was calculated using the following equation and its results are mentioned in the last line of the matrix, which is acceptable according to the 0.10 scale and the comparison matrix is also considered reliable.

As it was seen in Fig. 3, in order to calculate the weight and importance of each of the four criteria (BOCR), we refer to the output of the expert choice software. As can be seen in Fig. 3, the highest weight and importance are related to the profitability criterion, which is observed with a weight equal to 0.352. Although researchers thought that, in this type of business, other factors such as costs should have more priority, but according to experts, profitability factors are still more important and are completely different from other factors. After this criterion, respectively, the criteria of cost, opportunity creation, and risk with weights of 0.271; 0.253, and 0.125 are placed.

Table 2: Final list of criteria and sub-criteria

Target	Main criteria	Sub criteria	Strategies
Choosing the best business strategies in e-business and ranking them	Profitability factors (B)	C1-profit making	A1-Personalization A2-Customer segmentation A3-Mobile optimization A4-Marketing in social networks A5- Content marketing A6- Search engine optimization (SEO) A7- Customer comments and recommendations A8- Email marketing A9- User-friendly website design A10- Selling related products and increasing sales A11- Loyalty programs A12- Live support (online) A13- Using blockchain technology for security A14- Shared models A15- Using chatbot and artificial intelligence A16- Use of virtual and augmented reality A17- Using data analysis for business intelligence A18- Competitive pricing A19- Branding A20- Commitment to sustainability
		C2-Efficiency	
		C3-easy buying and selling	
		C4-production of credit	
	Opportunity creation factors (O)	C5-reliability	
		C6-ability of stability and continuity	
		C7-The ability to create financial strength	
	Cost invoices (C)	C8-Capital costs	
		C9-Taxes	
		C10-existence of competitors	
	Risk factors (R)	C11-Network security and data protection	
		C12-Political-Destiny	
		C13-Disappointment of future trends	

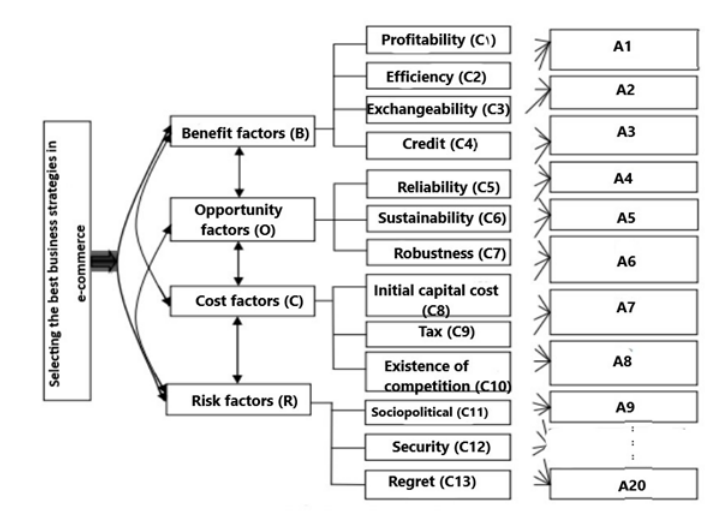


Figure 2: The structure of the problem of prioritizing business strategies in e- business based on competitive advantage

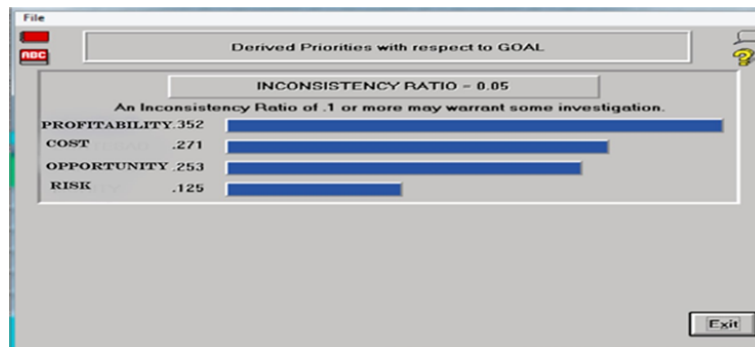


Figure 3: Weight and prioritization of the four criteria for choosing e-business strategies

Table 3: Matrix of final comparisons

	B				O			C			R		
B	1.00				3.54			1.31			3.15		
O	0.27				1.00			0.46			0.35		
C	0.75				2.21			1.00			2.00		
R	0.31				2.28			0.51			1.00		
GCR	0.04												
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
C1	1.00	1.13	2.62	3.67									
C2	0.87	1.00	2.31	2.88									
C3	0.42	0.42	1.00	2.11									
C4	0.28	0.35	0.46	1.00									
C5					1.00	1.30	2.21						
C6					0.77	1.00	2.16						
C7					0.44	0.45	1.00						
C8								1.00	7.35	4.49			
C9								0.12	1.00	0.31			
C10								0.21	3.11	1.00			
C11											1.00	5.32	3.20
C12											0.18	1.00	0.30
C13											0.13	3.33	1.00
GCR	0.009				0.003			0.018			0.03		

In the next step, we will calculate the weight of sub-criteria related to BOCR parameters according to the local weight factor obtained by the AHP model. The results obtained from this step are presented in Table 4.

Table 4: Final weights of evaluation indicators in AHP method

Criteria	Coefficients
Benefit factor (B)	0.352
cost (C)	0.271
Opportunity creation (O)	0.253
Risk (R)	0.125
C1	0.412
C2	0.041
C3	0.395
C4	0.152
C8	0.428
C9	0.351
C10	0.220
C5	0.325
C6	0.392
C7	0.283
C11	0.430
C12	0.290
C13	0.280

After calculating the weights of strategy selection indicators, we proceed to the final ranking of strategies. The results of this ranking show that in order of strategies: branding, personalization of customers, competitive pricing, marketing in social networks, and mobile optimization, five important strategies have obtained the first to fifth ranks. The final ranking and coefficients of the rest of the strategies are shown in Table 5.

According to the results of the AHP method, it was determined that the branding strategy with a normal score of 0.124 is the most important and the subscription model strategy with a normal score of 0.017 is the least important strategy of electronic businesses in the field of food and edible industries from the perspective of experts. In the following, the results of calculating the ranking of strategies with the TOPSIS method are also presented. According to the results of Table 6, it is clear that the rankings obtained for some of the selected strategies are different from the results of the AHP method and the rankings created are contrary to the results of the previous method.

According to the results of Table 6, it can be seen that the following strategies are: marketing in social networks, loyalty programs, branding, competitive pricing, and finally personalization of customers, which according to the proximity factor calculated for them, as strategies The most important ones have been identified.

Now, according to the results obtained from the comparison of the ranks in Table 7, to check the presence or absence of a statistically significant difference between the ranks obtained for these strategies, performing the non-parametric

Table 5: Ranking of e-business strategies of food and edible industries using AHP method

rank	Strategy	Weight	rank	Strategy	Weight
1	branding	0.124	11	Loyalty programs	0.043
2	Personalization of customers	0.092	12	Live support	0.039
3	Competitive pricing	0.086	13	Use of virtual and augmented reality	0.037
4	Mobile optimization	0.068	14	Data analytics for business intelligence	0.035
5	Marketing in social networks	0.062	15	Email marketing	0.031
6	Content marketing	0.060	16	Using blockchain technology	0.028
7	Search engine optimization	0.058	17	Customer segmentation	0.026
8	Opinions and recommendations of customers	0.054	18	Using chatbots and artificial intelligence	0.022
9	User-friendly website design	0.051	19	Commitment to sustainability	0.020
10	Selling related products	0.047	20	Shared models	0.017

Table 6: Ranking of e-business strategies of food and edible industries using the TOPSIS method

rank	Strategy	Proximity Coefficient +D	rank	Strategy	Proximity Coefficient +D
1	Marketing in social networks	0.010	11	Search engine optimization	0.041
2	Loyalty programs	0.011	12	Selling related products	0.048
3	branding	0.014	13	Data analytics for business intelligence	0.051
4	Competitive pricing	0.018	14	Customer segmentation	0.069
5	Personalization of customers	0.019	15	Commitment to sustainability	0.075
6	Opinions and recommendations of customers	0.020	16	Email marketing	0.081
7	User-friendly website design	0.021	17	Using blockchain technology	0.092
8	Content marketing	0.023	18	Using chatbots and artificial intelligence	0.104
9	Mobile optimization	0.032	19	Shared models	0.112
10	Live support	0.037	20	Use of virtual and augmented reality	0.119

Mann-Whitney test, should be determined that between these two approaches with the level 90% confidence, there is a statistically significant difference.

Table 7: Comparison of ranking of e-business strategies of food and edible industries with AHP-TOPSIS methods

AHP rank	TOPSIS rank	strategies	strategies	TOPSIS rank	AHP rank
1	3	branding	Loyalty programs	2	11
2	5	Personalization of customers	Live support	10	12
3	4	Competitive pricing	Use of virtual and augmented reality	20	13
4	9	Mobile optimization	Data analytics for business intelligence	13	14
5	1	Marketing in social networks	Email marketing	16	15
6	8	Content marketing	Using blockchain technology	17	16
7	11	Search engine optimization	Customer segmentation	14	17
8	6	Opinions and recommendations of customers	Using chatbots and artificial intelligence	18	18
9	7	User-friendly website design	Commitment to sustainability	15	19
10	12	Selling related products	Shared models	19	20

Now, by integrating both used methods, the average final ratings related to strategies are obtained, according to this new method presented in Table 8, it is determined that in this case, branding strategies, marketing in social networks, pricing Competitiveness, customer personalization, and mobile optimization are respectively the five priority strategies of electronic businesses in the food and edible industry sector, according to the components of competitive advantage.

6 Discussion and Recommendations:

The food industry and the field of distribution and distribution of food are facing a big change every day. This evolution can be seen in all aspects of raw materials, how to produce, and how to prepare packages. Basically, electronic

Table 8: The final ranking of electronic business strategies of food and edible industries based on competitive advantage

final rank	Average rank	AHP rank	TOPSIS rank	business strategies
1	2	1	3	branding
3	3.5	2	5	Personalization of customers
3	3.5	3	4	Competitive pricing
4	6.5	4	9	Mobile optimization
2	3	5	1	Marketing in social networks
5	7	6	8	Content marketing
7	9	7	11	Search engine optimization
5	7	8	6	Opinions and recommendations of customers
6	8	9	7	User-friendly website design
8	11	10	12	Selling related products
4	6.5	11	2	Loyalty programs
8	11	12	10	Live support
11	16.5	13	20	Use of virtual and augmented reality
9	13.5	14	13	Data analytics for business intelligence
10	15.5	15	16	Email marketing
11	16.5	16	17	Using blockchain technology
10	15.5	17	14	Customer segmentation
13	18	18	18	Using chatbots and artificial intelligence
12	17	19	15	Commitment to sustainability
14	19.5	20	19	Shared models

businesses related to sales, advertising, and Internet and online marketing have brought a lot of achievements for the distribution and distribution of the food industry. New marketing has created new models of economic activity in the core and margins of this industry. Although it is sometimes said that the best and most attractive way to prepare food for the customer is to buy from nearby sales centers, restaurants, and supermarkets, but in the age of machines and especially in large cities with large populations, due to the change in procedures Consumer life and culture, the way of buying and selling, urban traffic, people’s busyness, etc., online shopping has become one of the easiest, fastest and cheapest ways to buy food and snacks.

Therefore, in this study, by referring to the theoretical foundations and identifying the important strategies of this field, it was tried to prioritize these strategies according to the issue of competitiveness and the factors affecting it, using the opinions of experts in this field. To be paid in the field of electronic business. The results of this study showed that different strategies are identified and ranked using different AHP and TOPSIS methods. The results of ranking by the AHP method show that in order of strategies: branding, personalization of customers, competitive pricing, marketing in social networks and mobile optimization, five important strategies have obtained the first to fifth ranks. In the TOPSIS method, although four strategies: marketing in social networks, branding, competitive pricing and finally personalization of customers have been identified as priority strategies according to the proximity factor calculated for them, but they have non-identical prioritization with the ranking obtained by the AHP method, which was determined by performing the non-parametric Mann-Whitney test that this difference in rankings is statistically significant. Therefore, by integrating the ranking results of these two methods, it was finally determined that in this situation, branding strategies, marketing in social networks, competitive pricing, customer personalization and mobile optimization are the five priority strategies of electronic businesses in order. The food and edible industry sectors are ranked according to the components of competitive advantage, which are almost different from the results of previous methods, and it shows that the proposed model is more compatible with the nature of the real world. This causes a complex problem to be more realistically modelled and evaluated. Therefore, according to the findings of this study, some of the results are consistent with the findings of Kosha and Abtahi [10] and Hamidi et al [7].

Therefore, since this research has provided a basis for future studies in the field of competitiveness of electronic businesses of the food and edible industries due to the comprehensiveness of the factors and indicators, managers active in this sector of industries and businesses can have a better and more understanding of the relationship between factors and indicators of competitiveness in their business and as a result, get a clearer picture about the growth of their business and review and analyze the factors of their competitiveness.

Now, according to the findings of this research, the following suggestions are presented:

1. Any research is done to use its results to improve things or change conditions. Therefore, the results of this research can also be used by the managers of electronic businesses in the food and edible industries who are looking for a suitable strategy to improve their business. However regarding the evaluation criteria of strategies

in e-business, managers should note that in different environments and different conditions, the importance of criteria in adopting strategies and tactics will be different in comparison with each other, so managers should be careful considering the environmental conditions. It is necessary to have criteria in the evaluation of strategies.

2. The connections and overlap between the standards and their constituent components are also worthy of attention. Therefore, with a general view, it can be seen that the standards are tied together with many connections and influences, and no redundant or unimportant standards are found among them, therefore, no matter how little attention is paid to a standard, the result is that the adoption of a suitable strategy is effective.
3. It is suggested that other prioritization and ranking methods should be used to determine the strategy for electronic businesses.

References

- [1] M. Adams, *Email Marketing Rules: Checklists, Frameworks, and 150 Best Practices for Business Success*, Create Space Independent Publishing Platform, 2019.
- [2] A. Ahmadian and S. Jafarinaia, *Identifying and prioritizing the key factors of strategic planning success in Iran e-businesses*, *Strategic Manag. Stud.* **10** (2018), no. 38, 47–68.
- [3] F. E. Albee, *Marketing Strategies for the Complex Sale*, McGraw-Hill Education, 2010.
- [4] D. Alsher and C. Rudder, *The Art of SEO: Mastering Search Engine Optimization*, O'Reilly Media, 2013.
- [5] M. Brown, N. Black, and E. Laurier, *Mobile methods: exploring the mobile in the research process*, *Mobile Media Commun.* **4** (2016), no. 3, 361–381.
- [6] D. Chaffey, *E-Business and E-Businesses Management*, FT Prentice Hall, 2002.
- [7] N. Hamidi, A. Rahchamani, and S. Mortazavi, *Prioritization of strategies in electronic commerce (in Iranian internet discount offering websites)*, *Commerc. Strateg.* **11** (2020), no. 3, 11–24.
- [8] S.S. Hosseini Ghancheh, *Electronic Business*, Tehran, Nagoos Publications, 2010.
- [9] T. Jelassi and A. Enders, *Strategies for E-Business, Creating Value through Electronic and Mobile Commerce*, E-Book, Pearson Education Limited, First published 2004.
- [10] Sh. Kosha and F. Abtahi, *Evaluating and prioritizing e-commerce strategies based on a multi-criteria decision-making approach*, *First Int. Conf. New Res. Ideas Manag. Ind. Engin.*, 2018.
- [11] H. Mirza pour, *Strategic management approach in e-commerce*, *Payam Quart. J. Tech. Execut. Manag.* **14** (2007), no. 23, 86–80.
- [12] F. Qannad, *Properties of and practical ways for e-commerce*, *Fiqh Law J.* **5** (2008), no. 20, 150–170.
- [13] A. Sanyaei, A. Emami, and S. Shirin, *Choosing an e-businesses strategy using the fuzzy hierarchical analysis process, a case study of Isfahan Alloy Steel*, 4th Int. Market. Manag. Conf., Tehran, Ariana Research Group, 2008.
- [14] R. Kalakota and A.B. Whinston, *Frontiers of Electronic Commerce*, Addison Wesley, 1996.
- [15] M.C. Lee, *A method of performance evaluation by using the analytic network process and balanced score card*, *Int. Conf. Converg. Inf. Technol.*, 2007.
- [16] T.L. Saaty, *The Analytic Hierarchy Process*, McGraw-Hill, New York, 1980.