

Matrix analysis of the process of integrating sustainable brand equity in the automotive industry

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Abstract

The automotive industry is one of the most important industries in the economy of countries due to its extensive relationship with other industries; High production and employment rates play a significant role in the sustainable development of countries. Therefore, the improvement of brand equity integration strategies in this industry is significant because it is related to the level of economic sustainability of countries. This study aims to analyze the integration matrix of the process of creating sustainable value in the automotive industry. This research is a development / mixed methodology that aims to symmetrically combine the relationship between the components of sustainable brand equity integration through Mick Mac matrix analysis to identify the most effective drivers of the research subject in the Iranian automotive industry. Therefore, in this study, first, in the qualitative part, meta-synthesis analysis and Delphi analysis were used to identify the thematic components of the integration of the process of creating sustainable value and to determine the theoretical adequacy of the components. Then, in a small part, an attempt was made to explain the approved components, based on the symmetric matrix analysis in the Mic Mac diagram, in the automotive industry to determine more stimulus for integrating the sustainable brand equity process, with the participation of 16 automotive executives. Based on the results in the qualitative section, 8 thematic components were identified to evaluate the integration of the sustainable brand equity process, and after Delphi's approval, these components were approved in terms of theoretical adequacy. The results in the quantitative part based on matrix analysis showed that the most motivating component in integrating the process of creating sustainable value in the automotive industry is the development of innovative ideas. To create integration in creating sustainable value, it is necessary to create a positive impact of creative ideas in the three components of balancing performance with the changing needs of K3 customers, the dynamics of communication with K8 suppliers, and reducing the diversity of materials used in K5 production.

Keywords: sustainable value, Integration process, Automotive Industry
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1 Introduction

Changes in markets and the development of competition between companies in different industries, today has moved away from its traditional form and has become a place of strategies and programs to achieve a level of sustainability

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in creating value for customers. The requirement of companies' strategic functions in such an environment is to better understand the market and customers in order to achieve a greater share of the competitive market [36]. In fact, companies and industries must be able to make the right decision and choose the right option from among the many options in various fields such as choosing the best manufacturer; the best distributor; the best area to attract customers; be the best business partners in the formation of integrations and the like, in order to create the level of inclusive values of sustainability in a competitive market [56]. Considering that Bobby's conquest can be related to the better understanding of the issue, the existence of competitive changes in recent decades has led companies to be in a new and complex competitive environment in which customers are constantly seeking brand equity and companies are constantly increasingly, they have to create value for them [26], because brand equity is a key factor in achieving and maintaining a competitive advantage [12, 52]. In other words, today these issues have led to the growth of tendencies to create and deliver superior and more sustainable value by companies [34, 50, 55]. But the question is, what criteria help to create sustainable value in a competitive market? Are there basically uniform criteria for evaluating it? In answer to these questions, it must be stated that the creation of sustainable values depends on competitive position and the position of the company in the market in terms of external functions; and the company's macro strategies and visions can be different in terms of internal functions, therefore, a single basis for measuring the sustainability of competitive values can not necessarily be considered, at least in the long run, but depending on the industry, by identifying sustainable brand equity integration criteria while emphasizing these criteria, can help create better competitive strategies in this space [44]. Criteria that can play a very important role in developing competitive effectiveness depending on the integration of brand equity processes, both in terms of customer expectations and competitive situations [25]. Automotive as one of the active industries in the country in this study in terms of identification and analysis matrix integration of the process of creating sustainable value is considered. An industry that has tried over the past decades to survive even in the worst economic conditions due to government support and the existence of monopolies in the Iranian market, and an important part of the country's car is produced by this industry and sent to domestic and even foreign markets. It is noteworthy that this industry, even in terms of support and monopoly in the country's market, has not been able to achieve much compared to the world car industry. Although the country's macro-strategies, such as Vision 1404, on the existence of self-sufficiency in this industry beyond domestic markets based on innovation and knowledge enhancement, but the result of industry performance evaluation by studies such as [45, 32, 39, 53]; and statistics show that the industry has not been able to create sustainable value in a competitive market. On the other hand, by analyzing the vision document of the Islamic Republic of Iran on the horizon of 1404, a statement issued by the Supreme Leader; it is determined by achieving the first economic position by emphasizing the software and science production movement; science and technology in the Southwest Asia region is one of the most important goals of this document and the automotive industry is considered as a factor to achieve important by the country's managers. But really lack of capabilities; scientific and technical capabilities have made this important industry in the country not successful in achieving the relevant vision. Therefore, this study understands the importance of scientific approaches regarding the integration of the process of creating sustainable value and based on applied facts in the automotive industry, tries to be based on analytical processes in the qualitative sector. First, identify the criteria for the integration of the process of creating sustainable value and explain it in the automotive industry, to create a cognitive/ practical basis for developing a model of matrix analysis, to fill the theoretical and practical gap in this area to some extent. Therefore, the purpose of this study is to provide a model of matrix analysis in order to integrate the process of creating sustainable value in the automotive industry.

2 Literature Review

Research into new product design shows that products that offer superior value to the customer over competitors are more successful than products that offer the customer less value or at the same level as competitors [7]. Also, according to the sustainable value paradigm, the goal of all companies is to create value for customers at a time when their current efforts to meet their needs are not effective and efficient [9, 3, 16]. Therefore, according to this view, the goal of companies is to achieve individual goals; Organizational and social through the creation and exchange of sustainable value for one or more market segments is based on a business strategy in a competitive market [49]. According to some researchers, the creation of value by the company, the perception of value by the customer and the acquisition of value from the market by the company are concepts. That companies need in order to build a competitive position in the market and achieve superior performance [30, 10, 41]. A group of researchers also believe that not only creating sustainable value helps the company to succeed in the market, but also customers' perception of the company's value proposition and the company's ability to acquire the value created by customers in the market (Strategic Perspective) can be an effective competitive position of the company in the market and long-term success

[15]. Accordingly, due to the turmoil and constant changes in the economic and competitive environment, this group of researchers believe that the business strategy of organizations will be effective when it creates sustainable value with three perspectives; customer perception of value and acquisition of market value by the company is consistent [31, 8, 24].

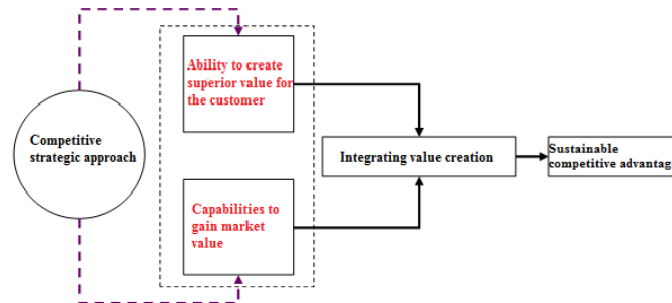


Figure 1: Company marketing strategy and sustainable competitive advantage.

According to Mizik and Jacobson [31], the concept of brand equity affects the size of companies’ potential competitive advantage, while the concept of brand equity affects the amount of advantage (profit) that a company can gain from the market and its duration. They also believe that brand equity focuses on producing new or improved products. Value acquisition, on the other hand, refers to a company’s ability to make a profit and other competitive indicators. On the other hand, some researchers believe that due to market dynamics and uncertainty, the values created by companies are temporary, so in addition to constantly creating new values, companies should pay special attention to maintaining their previously created values [40, 33, 48]. According to Mizik and Jacobson [31], companies should divide their limited resources between two basic processes: 1) brand equity and 2) value acquisition in a way that leads to a sustainable competitive advantage for them. In this regard, companies must decide how much they focus on each of these processes. Therefore companies facing a strategic task of balancing these two processes in formulating their business strategies and determining the appropriate amount of support for them. In other words, due to limited resources, they are required to prioritize between these two processes based on their competitive goals in the market. Therefore, the basis of a company’s competitive strategies is on the one hand limited domestic resources and on the other hand the nature of competition in the market. The company’s competitive strategy should also include two components: 1) the ability to create superior value for customers and 2) the ability to gain value from the market, which leads to the integration of brand equity and ultimately gaining a sustainable competitive advantage [31]. On the other hand, deals with brand equity as a strategic capability that, along with the ability to acquire value to achieve a sustainable competitive advantage. Therefore, in his opinion, companies that are superior in the field of competition and are unique not only rely on the process of brand equity, but also pay special attention to the ability to acquire value created in the market in the form of some financial indicators such as profit, sales volume and so on.

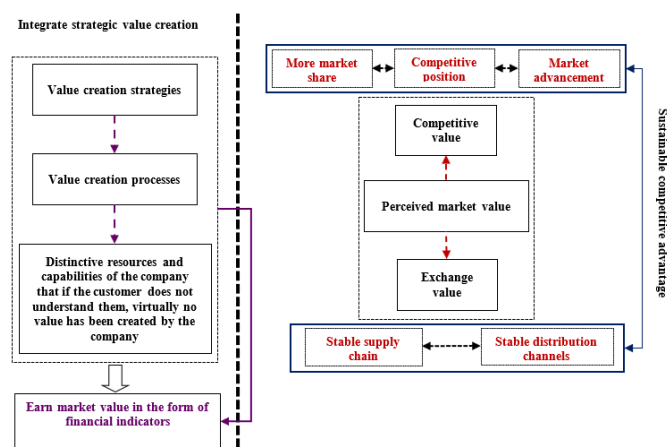


Figure 2: the process of integrating strategic brand equity and its implications

In line with this framework, a group of researchers believe that in the category of brand equity by the company, the subject of perceiving the value created in the competitive market is of vital importance [51, 5, 17]. But in order to create such a perception, brand equity strategies must first be examined in line with the processes of creating such values by the company according to the capacities and resources available to the company in a competitive market. In this way, while gaining small values in the market such as higher financial indicators of sales and profits, to achieve the consequences of perceived value in the market in the form of two competitive and exchange bases. As a result of competitive value, companies with brand equity integration capabilities are able to gain more market share and gradually, while maintaining their competitive position, achieve a sustainable competitive advantage by advancing in the market. On the other hand, based on exchange value, it can achieve a stable supply chain for dynamism in quality production processes and sustainable distribution channels to market products [6]. Based on the presented theoretical foundations, the research questions are:

- 1. What are the components of the integration process of sustainable brand equity?
- 2. What are the most motivating components in integrating the process of creating sustainable value in the automotive industry?

2.1 Research Background

Berge and Kindestrom (2021) conducted a study entitled “Responsible functions in brand equity: a strategic concept in the market.” In this research, which was based on the analysis of strategic reference points in terms of qualitative methodology and analysis process, to model the research path, the researchers examined market strategies as a coherent set of value-added activities from similar research with the aim of creating a strategic framework. The researchers stated that while the types of activities within the market strategy are influenced by the strategic orientations of the company, but how these activities are performed are influenced by the logic of brand equity. Using this basis, in this research, a kind of concept of market archetypes strategies were determined that affect the competitive functions of companies based on different regions of brand equity. The results showed that, based on the matrix model obtained in this study, four distinct market strategies including normal strategies; ideal strategies; adaptive strategies and two-way learning strategies play a crucial role in creating sustainable value for companies. Simmonds and Gazley [46] conducted a study entitled “The Impact of Value and Sustainability of Welfare-Based Service Systems”. This research, which was qualitative in terms of methodology, attempted to provide a conceptual framework regarding the role of effective values in the complex ecosystems of sustainable welfare services. The results showed that the effect of value has a constructive role in increasing or decreasing the potential of attracting stakeholders so that through absorption; Institutionalization and knowledge transfer will be able to drive complex welfare ecosystems towards sustainability and pave the way for competitive advantage. Hernandez-Ortega and Franco [18] conducted a study entitled “Creating a New Conceptual Framework for Creating Value”. This research focused on 16 brand equity propositions based on theoretical screening of similar researches through meta-synthesis analysis method. The results in the form of a conceptual framework created, three potential source value propositions; the process of value institutionalization and the application and accumulation of value are the most important dimensions of this model that play a role in brand equity and development in complex competitive systems. Based on this research framework, it concludes that structures are formed based on re-engineering and cause a change in the competitive basis against other competitors. Isolino and Lacey conducted a study entitled “Creating Value and Sustainability based on Strategic Knowledge.” This research used cross-sectional methodology and partial least squares to analyze the data. This study used the criterion of economic value added to measure brand equity and to measure strategic knowledge based on criteria such as social capital; human capital and structural capital sought to establish a basis for assessing the sustainability of strategic knowledge. The results showed that economic added value in any firm requires the alignment of all three dimensions of social capital; human capital and structural capital are the basis of strategic knowledge sustainability in order to gain a competitive advantage for companies. Kejoury et al. conducted a study entitled “Providing a model of brand equity model for bank customers in the process of joint creation of brand value (studied by Bank Shahr). This study is among the mixed studies of the statistical community of a small part including all subscribers of Bank Shahr located in Tehran province. Due to the unlimited population using Morgan and Krejcie table, 384 people were selected as the sample size according to the simple random sampling method. For data collection in the qualitative part of the interview and in the quantitative part of the questionnaire was used, the validity of which was confirmed by the opinions of experts and the reliability by Cronbach’s alpha. In order to analyze the data, qualitative content analysis and structural equations were used with PLS software. The results showed that the dimensions of the model include customer motivation; customer value; organizational factors; customer experience; customer loyalty and customer image are the model and the model has a good fit. Sardari and Amiri [42] conducted

a study entitled “Study of the Effect of Innovation Strategy on the Performance of New Product Development with Emphasis on the Role of Shared Brand equity Strategy (Case study: private insurance companies)”. The research population was the senior managers of five insurance fields in Tehran. In this research, from simple random sampling method, 80 managers were selected as a sample. Data were distributed and collected through a standard questionnaire of 48 questions from 79 managers and experts in 17 companies active in the insurance industry in Tehran. The validity of the research questionnaire was confirmed by experts and the reliability of the questionnaires was confirmed based on Cronbach’s alpha coefficient. The conceptual model consists of five variables and ten hypotheses. Descriptive statistics were analyzed by SPSS24 quantitative software. SMART-PLS software was used to test the hypotheses. The results show that there is a significant and direct relationship between innovation strategy and new product development performance and the mediating role of shared brand equity strategy has not been confirmed. Also, the mediating effect of two variables of design strategy and marketing strategy between the relationship between innovation strategy and new product development performance has not been confirmed.

3 Methodology

In terms of purpose, this research is in the category of descriptive research with the aim of explaining the phenomenon in question, namely the integration of the process of creating sustainable value in the automotive industry. In terms of results, it is part of developmental research, because first the concepts related to the integration of the process of creating sustainable value in the automotive industry based on related research and relying on various theories are identified and, then, based on the analysis of the polar matrix, which seeks to determine the causal relationship in two directions, ie pairwise comparison and determination of symmetry between the components with the aim of determining “+ve” (positive) or “-ve” (negative), a graph and analytical model are developed and Makes a diagram and analytical model of Mic Mac. Therefore, relying on the fact that there is no coherent framework in the field of integration of the process of creating sustainable value in the automotive industry, this study tries to create a coherent model through development functions. Finally, in terms of data collection logic, this research is inductive-deductive. Because in the qualitative part, first relying on the inductive approach, the theoretical foundations of integration of the process of creating sustainable value in the automotive industry are analyzed and then based on induction, the themes of the propositions identified in the target community, ie managers of different layers of the automotive industry. In this research, which is a mixed method research, meta-synthesis is used in the qualitative part. Meta-synthesis includes steps to reach components and propositions that perhaps the most important way to do is process steps, which range from recognizing the root cause of the problem in the form of research question to providing a specific model based on identifying propositional themes from previous research based on member participation includes the panel. Then, based on Delphi analysis, in order to determine the theoretical adequacy according to the two criteria of Mean and coefficient of agreement, an attempt is made to confirm the propositions in terms of theoretical adequacy. Finally, in the quantitative section, an attempt is made to explain the dimensions of the theoretical framework identified in the qualitative section in the target community of the quantitative section in order to examine the most coherent understanding of the model dimensions in the target community.

3.1 Statistical population and research sampling method

Based on the nature of the research, which is mixed method, the target population in the qualitative section includes the research on the subject and 12 management experts at the university level who identify the content propositions of the research based on the process of meta-synthesis, critical evaluation and Delphi analysis. In order to select these individuals, a homogeneous qualitative sampling method was used in the form of panel group members. In this sampling method, the researcher tries to select the research participants in order to gain in-depth knowledge, to select experts who have the necessary experience and analytical knowledge in relation to the research topic. The target population in the quantitative sector is 16 managers in the automotive industry who, based on the nature of the analysis based on the limited number of research participants, try to explain the components and propositions identified in the qualitative sector in the industry through polar matrix analysis. Because the purpose of quantitative analysis is to use cross-matrix questionnaires with the participation of 15 to 30 people according to [47, 38, 4] confirmed the optimal sample size selection in the range of 15 to 30 people.

4 Research Findings

In this section, according to the nature of the research methodology, the analyses are presented in two parts, qualitative and quantitative, in order to create a more coherent understanding of the research findings.

4.1 Qualitative section analyzes

In this section, two meta-synthesis and Delphi analyzes have been used. First, in doing this section, it is necessary to review the valid scientific databases to select similar research in the period 2018 to 2021 in domestic and foreign research. This will help to obtain newer research on the research phenomenon. Therefore, in order to achieve research related to the field of research, in the next step, screening should be done in the first three stages, including title screening; content and action analysis. To create a more specific perception, Figure (3) is used to perform the second step.

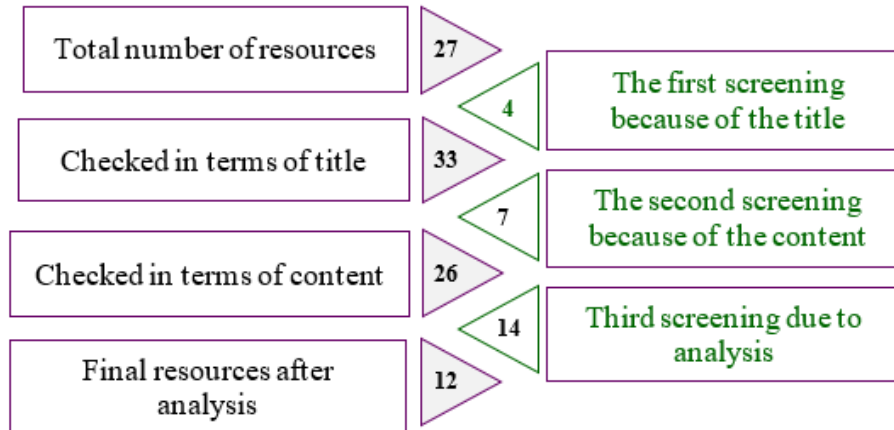


Figure 3: Screening analysis process of research appropriate to the purpose of the research to identify topics

It should be noted that the first 12 researches should be analyzed in the third step in terms of critical evaluation with the participation of research experts. This process includes the following 10 criteria, which are examined based on a minimum score of (1) and a maximum of (5). The total score based on 10 criteria can be 50, and if a research score of 30 or more, it enters the fourth step.

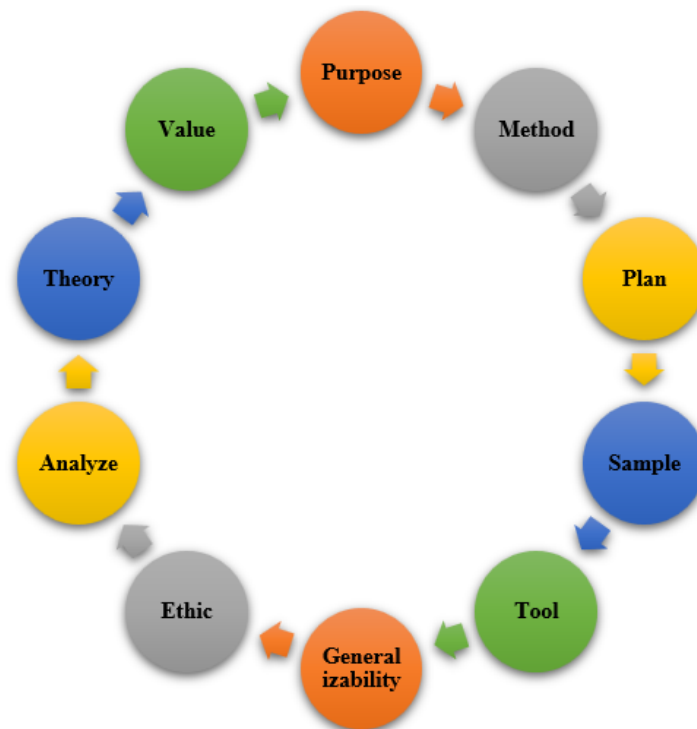


Figure 4: Criteria for the critical appraisal process

Now, based on a better understanding of the analysis process in this step, with the participation of research experts, 12 approved initial researches will be analyzed for points based on critical appraisal analysis.

Table 1: Critical evaluation analysis

		International researches								Internal researches			
		1	2	3	4	5	6	7	8	9	10	11	12
Approved researches		Almeida Costa & Zemsky (2021)	Lin et al. (2021)	Kern & Gospel (2020)	Mzebe (2020)	Ekkayokkaya & Paudyal (2019)	Hillier et al. (2019)	Sejodin et al. (2019)	Dyer et al. (2018)	Arnold (2018)	Kajouri et al. (2020)	Fallah et al. (2020)	Sardari & Amiri (2019)
Critical appraisal criteria	Purpose	3	3	4	2	3	2	3	2	2	4	0	3
	Method	3	3	3	1	4	2	3	1	3	1	1	1
	Plan	4	4	4	3	4	3	3	2	2	3	4	3
	Sample	3	3	3	2	4	3	4	3	3	3	3	3
	Collecting	5	4	3	3	4	3	3	2	2	2	4	3
	Generalization	4	3	3	2	4	3	4	3	3	3	3	4
	Ethic	3	3	0	3	4	2	4	3	3	2	3	3
	Analyze	4	3	4	2	4	3	3	3	3	3	3	3
	Theoretical	0	3	3	2	4	3	4	2	3	2	4	3
	Value	4	4	4	3	4	3	4	2	3	3	4	3
	Total	38	33	36	23	36	27	34	23	27	28	36	32

After performing the critical evaluation process, 4 researches were identified in row “4”; “6”; “8” and “10” were excluded from the approved studies because they scored below 30. In order to determine the themes of integration of the sustainable brand equity process, the process of selecting the largest number of distributions by content analysis in the heart of validated research is used. Therefore, based on the approved researches, first all the criteria related to the integration of the sustainable brand equity process are determined and given in column (2) to put a “☑” sign in front of each research, to determine which is the most common stock valuation component. In other words, based on each researcher’s use of the sub-criteria written in the table column, the symbol “☑” is inserted, then the scores of each “☑” are added together in the sub-criteria column, and the scores above the Mean of the researches performed as research components are selected.

Table 2: the process of determining the components of the integration of the process of creating sustainable value

		Assessment criteria											
		Customer interaction dynamics	Reduce waiting time and on-time delivery	Development of innovative ideas	Dynamics of relationship with suppliers	Decrease in material diversity	Reduce market and process conflicts	Demand-based management	Dynamics of warehousing management	Reduce startup time	Responsibility and accountability	Balancing functions with changing needs	
Location of approved research	International researches	Almeida Costa & Zemsky (2021)	-	✓	✓	-	-	-	✓	✓	-	✓	-
		Lin et al. (2021)	-	✓	-	✓	✓	✓	-	-	✓	✓	✓
		Kern & Gospel (2020)	-	-	✓	-	✓	-	✓	-	✓	✓	✓
		Ekkayokkaya & Paudyal (2016)	-	-	✓	✓	✓	-	-	-	-	✓	✓
		Sejodin et al. (2016)	-	✓	✓	✓	✓	-	✓	-	✓	-	-
		Arnold (2018)	-	-	-	-	✓	-	-	-	✓	-	-
	Internal researches	Fallah et al. (2020)	✓	✓	-	✓	-	-	✓	-	-	✓	✓
		Sardari & Amiri (2019)	-	✓	✓	✓	-	-	-	✓	-	✓	✓
Total		1	5	5	5	5	2	4	2	4	6	5	

Based on this analysis, it was also identified that there are eight statements of reduction of waiting time and timely delivery; Balancing performance with changing customer needs; demand-based management; development of innovative ideas; dynamics of relationship with suppliers; reduce driving time; responsibility, responsiveness and reduction in the variety of materials used in the manufacture of the product are most common. In this section, after analyzing the basics of the approved components of the above researches, the themes for each main component are determined separately.

Table 3: the process of determining the themes of the integration of the process of creating sustainable value.

		7-point rating scale							
		1	2	3	4	5	6	7	
Research evaluation topics	Reduce waiting time and on-time delivery								Integrating the process of creating sustainable value
	Balancing functions with changing customer needs								
	Demand-based management								
	Development of innovative ideas								
	Dynamics of relationship with suppliers								
	Reduce startup time								
	Responsibility and accountability								
	Reduction in the variety of materials used in the manufacture of the product								

In the next step, in order to determine the consensus of experts for the appropriateness of research propositions with the main components, Delphi analysis based on two criteria of mean and coefficient of agreement is used. Therefore, according to Table (4), the results of Delphi analysis are presented to perform this section according to the scale of 7 evaluation options.

Table 4: Delphi analysis process to determine the consensus of experts.

	First round of Delphi		Second round of Delphi		Result		
	Mean	Coefficient of agreement	Mean	Coefficient of agreement			
Integrating the process of creating sustainable value	5.30	0.65	5.50	0.75	Confirm	Reduce waiting time and on-time delivery	Research evaluation topics
	5.20	0.60	5.30	0.65	Confirm	Balancing functions with changing customer needs	
	6	0.80	6.20	0.85	Confirm	Demand-based management	
	5	0.50	5.10	0.55	Confirm	Development of innovative ideas	
	5.30	0.65	5.50	0.75	Confirm	Dynamics of relationship with suppliers	
	5	0.50	5.10	0.55	Confirm	Reduce startup time	
	5.20	0.65	5.50	0.75	Confirm	Responsibility and accountability	
	5.50	0.75	6.10	0.82	Confirm	Reduction in the variety of materials used in the manufacture of the product	

The results after two rounds of analysis in the Delphi step showed that all themes related to the integration of the sustainable brand equity process were approved, given that they had a higher agreement coefficient of 0.5 and an Mean of 5 and higher. Therefore, all eight themes of integrating the process of creating sustainable value for quantitative analysis were first presented in the form of a theoretical research model in the following order to create a more coherent

understanding of the subject.

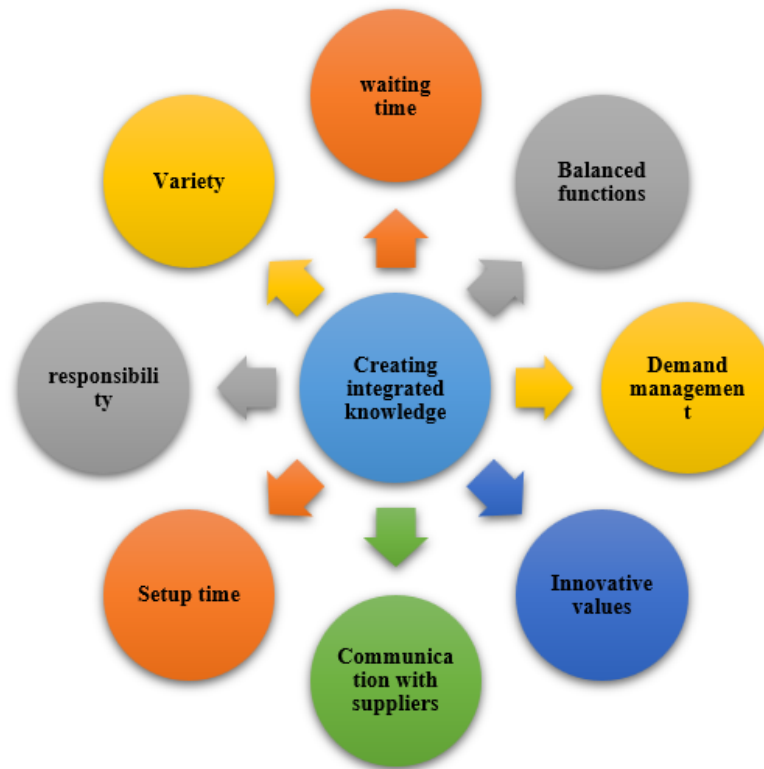


Figure 5: Theoretical model of research

4.2 Qualitative section analyzes

Polarity matrix analysis is a method for interpretive development of components of the studied phenomenon that makes it possible to select the best criterion from the identified criteria [45]. According to this method, as it turned out, in the qualitative part, the components of sustainable brand equity integrity were determined, and in this part, an attempt is made to decide on the selection of the best criterion in this field based on the analysis of the polar ranking matrix. Therefore, based on the randomization of the components, the identified components are coded to explain it in the automotive industry. This helps to randomly measure the level of component composition to measure matrix symmetry and to score concepts extensively in the achievement matrix table.

After assigning specific codes, then, based on the analysis of the polar matrix to determine the symmetry relations between the research components through the criterion of “+ve” (positive) or “-ve” (negative) as the basis of the symmetry relationship of the components in the matrix analysis. Explains pairwise and symmetrical comparisons between them. For this comparison, the *i*-th pair of components are compared in pairs with all elements from (*i* + 1) to *n*. For each relationship, the answer is yes “Y” or “N” and if the answer is yes, the reason is stated. But if the answer is “N”, participants must comment on the desired component pair.

In linear algebra, it is a polarity matrix (usually a square matrix) in which all objects outside the principal diameter (\setminus) are all zero. The values of the original diameter can be zero or not. Therefore, the matrix $D = (d_{ij})$ has *n* rows and *n* columns if: $d_{ij} = 0$ if $\rightarrow i \neq j \forall ij \in \{1, 2, \dots, n\}$

Table 5: Encoding the thematic components of the sustainable brand equity process integration

		Thematic components of research
Abbreviation	K1	Reduce startup time
	K2	Demand-based management
	K3	Balancing functions with changing customer needs
	K4	Responsibility and accountability
	K5	Reduction in the variety of materials used in the manufacture of the product
	K6	Development of innovative ideas
	K7	Reduce waiting time and on-time delivery
	K8	Dynamics of relationship with suppliers

Table 6: Parallel comparison between components based on matrix form

		$(j \leftarrow i)$	$(j \rightarrow i)$	$(j = i)$	$(j \neq i)$		
A pairwise comparison between thematic components of sustainable brand equity integration in the automotive	K1, K2	K1-K2	K2-K3	K1=K2	0	+ve -ve	
	K2, K3	K2-K3	K3-K2	K2=K3	0	+ve -ve	
	K1, K3	Is the index relationship between K1 and K3 transferable?			Yes	■	No □
		K1-K3	K3-K1	K1=K3	0	+ve -ve	
	K3, K4	K3-K4	K4-K3	K3=K4	0	+ve -ve	
		Is the index relationship between K2 and K4 transferable?			Yes	■	No □
	K2, K4	K2-K4	K4-K2	K2=K4	0	+ve -ve	
		Is the index relationship between K1 and K4 transferable?			Yes	■	No □
	K1, K4	K1-K4	K4-K1	K1=K4	0	+ve -ve	
		K4, K5	K4-K5	K5-K4	K4=K5	0	+ve -ve
	K3, K5	Is the index relationship between K3 and K5 transferable?			Yes	□	No ■
		K3-K5	K5-K3	K3=K5	0	+ve -ve	
	K2, K5	Is the index relationship between K2 and K5 transferable?			Yes	□	No ■
		K2-K5	K5-K2	K2=K5	0	+ve -ve	
	K1, K5	Is the index relationship between K1 and K5 transferable?			Yes	■	No □
		K1-K5	K5-K1	K1=K5	0	+ve -ve	
	K5, K6	K5-K6	K6-K5	K5=K6	0	+ve -ve	
	K4, K6	Is the index relationship between K4 and K6 transferable?			Yes	□	No ■
		K4-K6	K6-K4	K4=K6	0	+ve -ve	
	K3, K6	Is the index relationship between K3 and K6 transferable?			Yes	□	No ■
		K3-K6	K6-K3	K3=K6	0	+ve -ve	
	K2, K6	Is the index relationship between K2 and K6 transferable?			Yes	■	No □
		K2-K6	K6-K2	K2=K6	0	+ve -ve	
	K1, K6	Is the index relationship between K1 and K6 transferable?			Yes	■	No □
		K1-K6	K6-K1	K1=K6	0	+ve -ve	
	K6, K7	K6-K7	K7-K6	K6=K7	0	+ve -ve	
	K5, K7	Is the index relationship between K5 and K7 transferable?			Yes	□	No ■
		K5-K7	K7-K5	K5=K7	0	+ve -ve	
	K4, K7	Is the index relationship between K4 and K7 transferable?			Yes	■	No □
		K4-K7	K7-K4	K4=K7	0	+ve -ve	
	K3, K7	Is the index relationship between K3 and K7 transferable?			Yes	□	No ■
		K3-K7	K7-K3	K3=K7	0	+ve -ve	
	K2, K7	Is the index relationship between K2 and K7 transferable?			Yes	□	No ■
		K2-K7	K7-K2	K7=K2	0	+ve -ve	
	K1, K7	Is the index relationship between K1 and K7 transferable?			Yes	□	No ■
		K1-K7	K7-K1	K1=K7	0	+ve -ve	
	K7, K8	K7-K8	K8-K7	K7=K8	0	+ve -ve	
	K6, K8	Is the index relationship between K6 and K8 transferable?			Yes	□	No ■
		K6-K8	K8-K6	K6=K8	0	+ve -ve	
	K5, K8	Is the index relationship between K5 and K8 transferable?			Yes	□	No ■
K5-K8		K8-K5	K5=K8	0	+ve -ve		
K4, K8	Is the index relationship between K4 and K8 transferable?			Yes	■	No □	
	K4-K8	K8-K4	K4=K8	0	+ve -ve		
K3, K8	Is the index relationship between K3 and K8 transferable?			Yes	□	No ■	
	K3-K8	K8-K3	K3=K8	0	+ve -ve		

Symmetrical relationship between thematic components of sustainable brand equity integration in the automotive

After determining the symmetrical relationship between the thematic components of sustainable brand equity integration in the automotive industry, the relationship is achieved in the form of an achievement matrix. According to this matrix, the relationship between research components is specified as “+1”, “-1” or “0”. Colors describing analytical situations have also been used to create a more coherent perceptual relationship than the relationship between research components.

Table 8: the matrix of achieving the relationship between the thematic components of sustainable brand equity integration in the automotive industry

		Proposal contents in column “i”								Influence power
		K1	K2	K3	K4	K5	K6	K7	K8	
Reduce startup time	Proposition contents in line “j”	K1	1	0	0	0	0	0	0	1
Demand-based management		K2	1	1	0	0	0	0	0	2
Balancing functions with changing customer needs		K3	-1*	-1	1	0	-1	0	-1*	6
Responsibility and accountability		K4	-1*	-1*	+1	1	-1	0	-1*	7
Reduction in the variety of materials used in the manufacture of the product		K5	+1*	+1	0	0	1	0	+1	4
Development of innovative ideas		K6	+1*	+1*	-1	0	+1	1	+1	7
Reduce waiting time and on-time delivery		K7	+1*	+1	0	0	0	0	1	3
Dynamics of relationship with suppliers		K8	-1*	-1*	+1	0	-1	0	-1	7
			8	7	4	1	5	1	6	4
		Dependency power								

Based on the determination of the power of influence and dependence, the nodes and links of each of the sub-components are analyzed in the form of Mic Mac diagram analysis. Therefore, based on the power of influence and dependence by combining the symmetry of the thematic components of integration, creating sustainable value in the automotive industry, Based on 4 dimensions of positive stimulus indices “+ve”; Link Indices “+ve*”; The dependent indices (outcome) “ve*” and the negative stimulus indices “-ve” attempt to place each of the thematic components in a quadratic matrix of the Mic Mac analysis.

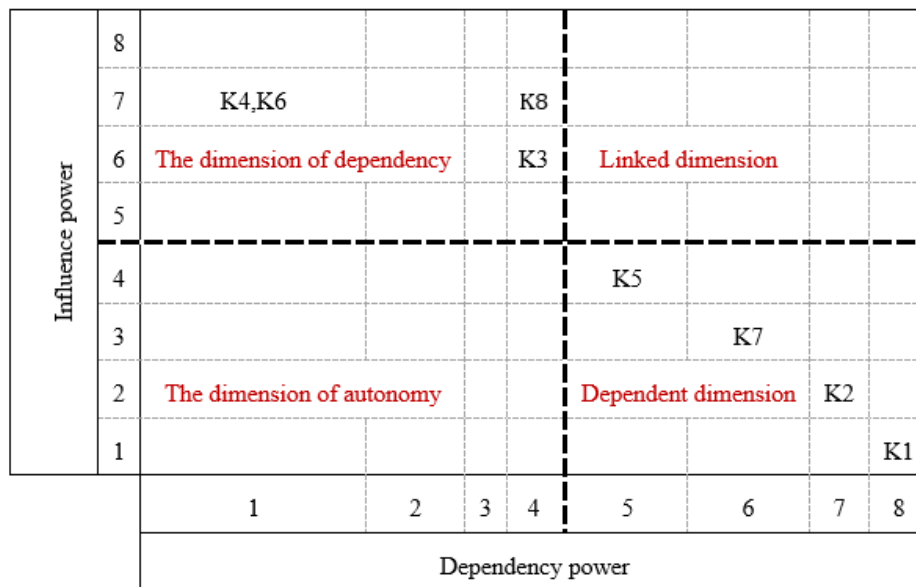


Figure 6: (MIC MAC) Placement of research components based on influence and dependency

The results presented in Mic Mac’s analysis diagram showed that none of the thematic components of sustainable

brand equity integration in the automotive industry are in the first quarter, ie the category of autonomy. This means that none of the identified components, based on the criterion of the autonomic dimension of the microcosm, have no driving force and low dependence, or have a positive stimulus relative to other components, or are dependent on other components. On the other hand, it was also found that none of the components of the research are in the relational dimension of Mic Mac analysis, ie the third quarter. This result also shows that the components do not have high dependency or high influence to be affected and effective. On the other hand, it was found that the reduction in the variety of materials used in the manufacture of the product “K5”; reduce waiting time and timely delivery of “K7”; demand-based management “K2” and reduction of operating time “K1” are in the second quarter, the dependent dimension of Mic Mac analysis. All components of this dimension have the positive pole “*ve**”, the symbol “1” and “+1” in terms of being influenced by other components. Finally, the components of balancing performance with the changing needs of K3 customers were identified; “K4” responsibility and accountability; the dynamics of communication with K8 suppliers and the development of innovative K6 ideas were in the fourth quarter, ie independent. Components of this dimension are classified as “+*ve*” positive stimulus indicators because of their high permeability. Because they are a driving force for the formation of other components of sustainable brand equity integration in the automotive industry. But in order to determine the intensity of the effect, it shows the result, creating innovative “K6” values with more positive driving force (4 positive driving forces) has a higher impact on other components than negative driving force (2 negative driving forces). This result shows that responsibility and accountability due to the positive stimulus in this dimension is the main factor in integrating sustainable brand equity in the automotive industry. A summary of the results can be seen in the table below, which shows the relationship path of the components:

Table 9: the path of communication between the components

		Codes	Route	Path symmetry	
Influential components	Responsibility and accountability	K4	Balancing functions K3, dynamic relationship with suppliers K8, reduction in material diversity K5	<i>-ve, -ve, -ve</i>	Path symmetry
	Balancing functions	K3	K8 communication dynamics, reduction in K5 material diversity	<i>-ve, -ve, -ve</i>	
	Dynamics of relationship with suppliers	K8	Balancing functions K3, reduction in material diversity K5	<i>-ve, -ve, -ve</i>	
	Development of innovative ideas	K6	Balancing functions K3, communication dynamics K8, reduction in material diversity K5	<i>+ve, +ve, +ve</i>	

In fact, this result shows that the development of K6 innovative ideas is a positive stimulus in integrating sustainable brand equity in the automotive industry, by balancing performance with the changing needs of K3 customers, promoting relationships with K8 suppliers, reducing the variety of materials used in product manufacturing. K5 has a positive impact on the competitive advantage of companies operating in the automotive industry. Also, components of balancing performance with the changing needs of K3 customers, dynamic relationships with K8 suppliers, and reducing the diversity of materials used to build the K5 product, although important in integrating sustainable brand equity in the automotive industry, are not the drivers of competitive advantage. To achieve the integration of sustainable brand equity, they have no choice but to focus on developing innovative ideas so that they can attract positive market feedback.

5 Conclusion

In today’s competitive market environment, organizations are increasingly faced with the challenges of improving products and enhancing their services, and perhaps one of the most important failures in this area is the lack of focus on integrating sustainable values [10]. In fact, if industries in an economy do not have the ability to create sustainable values, that industry in the economy becomes an external dependent industry that can increase the cost of production can have many social consequences for society. Therefore, sustainable competitive values lead to the formation of a new approach in the field of strategic effectiveness, which can provide the basis for self-sufficiency of production and the economy in the long run [27]. The purpose of this study was to analyze the matrix of integration of the process of creating sustainable value in the automotive industry. In fact, in the first question of the research, an attempt was made to identify the thematic components of sustainable brand equity integration process and then, based on Mic Mac matrix analysis, based on the symmetrical relationship between each component, to be the most

motivating component to facilitate the brand equity integration process in automotive industry. Based on the results, it was determined that the development of innovative K6 ideas is a positive stimulus in integrating sustainable brand equity in the automotive industry by influencing performance with the changing needs of K3 customers, promoting relationships with K8 suppliers, reducing the diversity of materials used to build K5 products. It has a positive effect on gaining the competitive advantage of companies active in the automotive industry. This result reflects the fact that automotive companies need to focus on the capacity to develop innovative and new ideas in order to enhance their competitiveness in the marketplace in order to achieve sustainable brand equity integration. In other words, this clear result, creative ideation at the structural levels of the company, both individually and organizationally, and in the form of strategic strategies in the form of consortium plans with other companies, even international, helps to due to product changes and their development as new automotive products to the market, to attract more customer attention and thus be able to gain more market share than other competitors due to gaining a competitive advantage. In fact, the ideation of companies in the automotive industry due to social changes and changing the nature of the car, from just a vehicle to a valuable product, has paved the way for the creation of sustainable values in this industry, and companies are able to be more successful in this space if they have the capacity and capabilities to integrate it. Therefore, he confirmed the result of Mic Mac matrix analysis in his other section, to integrate sustainable brand equity, the automotive industry needs to make a positive impact of the three components of balancing performance with the changing needs of K3 customers, promoting relationships with K8 suppliers, reducing the diversity of materials used to build K5, and creative innovations in the industry. In other words, innovative ideas are through the above three components which can achieve sustainability to gain a competitive advantage. In fact, this result suggests that, given the new ideas in the automotive industry, companies need to be able to balance their operations with the changing needs of customers. This means that the ideas presented for implementation require social localization in the Iranian market environment and even international markets in order to offer products to customers in terms of social levels such as income; coloring; facilities and ... be tailored to the needs of customers. For example, the high age of a society may make sports cars less popular, and in return, family cars with higher power and strength will be accepted in the market. On the other hand, the development of innovative ideas requires a stable relationship with suppliers of raw materials in the form of a stable supply chain, because if an idea does not have access to suppliers of parts or after-sales service, buying such cars is not in the public interest. Exactly the conditions that the Iranian market is facing due to sanctions with cars assembled by car companies. This has caused the industry to face a very serious challenge in this area, in case of the need for a piece due to the lack of effective and continuous communication with suppliers and the anonymity of the supply chain. Finally, the development of innovative ideas without reducing the diversity of materials used in the manufacture of the product, cannot effectively promote the integration of sustainable brand equity. In fact, maintaining the quality of products without differences in the use of raw materials can bring confidence and trust in the market for the company and cause the level of conflict and duality in the market to be controlled as much as possible due to the variety of raw materials used in manufacturing products. In other words, the lack of quality raw materials and companies' access to the market can cause any problem in the contract with companies supplying raw materials or parts in unbalanced economic conditions, the implementation of an evaluated idea for the company to face a serious challenge. Results obtained by the researches of [1, 22, 13, 43, 42] correspond. Based on the obtained results, it is suggested that companies active in the automotive industry, with contracts with Ideh Pardaz companies, such as designing new automotive products inside and outside, while increasing their innovation capacities, try to offer products that are more competitive based on social changes and changing customers' tastes. The market will further strengthen the community's desire to adopt domestic cars in line with the 1404 vision. In the meantime, measuring innovative ideas and implementing them based on the use of financial evaluation plans can also help to realize this proposal in line with the income level of the society and prevent the implementation of a proposal plan for building new cars. Automotive companies, on the other hand, are encouraged to invest in branding strategies to expand their markets and avoid market monopolies that weaken a sustainable economy. In this way, if the diplomacy of the automotive industry is not strengthened, the production of new products will not face the general success of the market, and even if there are new innovative ideas, customers will be in the monopoly of this industry will not want to use cars whose prices are not different from the cars of the day in the world. Finally, it is suggested that supply chain channels as one of the criteria to facilitate the integration of sustainable values be seriously pursued through concluding contracts with parts suppliers in order to produce new products, the market will not face a shortage of after-sales service and car dealerships will be out of the recession and monopoly.

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