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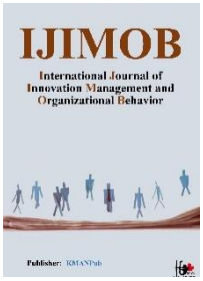

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Identification, Weighting, and Prioritization of Components and Indicators Determining the Circular Economy with a Marketing Approach

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A B S T R A C T

Objective: The goal of this study is to identify the components and indicators determining the circular economy with a marketing approach.

Methodology: This study utilized a multi-criteria decision analysis (MCDA) approach, employing pairwise comparisons to assess the relative importance of different criteria and sub-criteria. The MCDA process was conducted using expert judgments gathered through structured questionnaires. The experts included professionals and academics from various fields related to business management, sustainability, and marketing. The weights and rankings of the criteria were determined using the Analytic Hierarchy Process (AHP) method, with consistency ratios calculated to ensure the reliability of the results. The findings were then analyzed and discussed in light of existing literature.

Findings: The results revealed that among the criteria, entrepreneurial marketing (weight = 0.486) and product innovations (weight = 0.193) were identified as the most influential in enhancing organizational performance. Within entrepreneurial marketing, the sub-criterion increased competition, creativity, and innovation (weight = 0.601) was ranked highest. Sustainable development and cultural and attitudinal changes were also found to play significant roles, with energy sustainability (weight = 0.727) and cultural patterns and social welfare improvement (weight = 0.602) being the top-ranked sub-criteria. Environmental changes, though important, ranked lower in comparison.

Conclusion: This study highlights the central role of entrepreneurial marketing and product innovations in organizational success, followed by sustainability efforts and cultural changes. The findings suggest that businesses should prioritize innovation, competition, and sustainability to remain competitive in a rapidly changing global market.

Keywords: *Circular economy, marketing approach, sustainable development, cultural changes*

1 Introduction

The global economy is increasingly interconnected, with businesses and industries adapting to rapid technological, environmental, and social changes. Globalization has led to greater interdependence among economies, requiring systemic approaches to address challenges such as climate change, resource depletion, and economic inequality (Lei, 2024; Owolabi, 2024). As the pressure on natural resources intensifies, industries must transition from traditional models of production and consumption to more sustainable systems. One such approach is the circular economy, which has gained significant attention as a transformative model that aims to decouple economic growth from resource consumption and environmental degradation (Lu et al., 2024).

The circular economy (CE) offers a paradigm shift in how businesses view their products, services, and resources. Unlike the traditional linear economy, which follows a "take, make, dispose" approach, the circular economy promotes a closed-loop system that prioritizes resource efficiency, waste reduction, and the regeneration of products and materials (Dovgal et al., 2024; Galarza-María et al., 2024). In recent years, the adoption of circular economy principles has been accelerating, particularly in Europe, where the European Union (EU) has made substantial efforts to integrate circularity into its policy frameworks. In 2020, the EU unveiled its Circular Economy Action Plan, positioning it as the most effective strategy for achieving long-term sustainability through enhanced environmental stewardship, reduced waste, and improved societal well-being (Abidin et al., 2023; Ghaithan et al., 2023; Lu et al., 2024; Sahoo & Jakhar, 2024).

Despite the growing recognition of the importance of the circular economy, its adoption has been slow, particularly in emerging economies like Iran. This delay in implementation can be attributed to several factors, including limited awareness of circular principles, inadequate infrastructure, and a lack of supportive policy frameworks. Nevertheless, the growing urgency of environmental challenges—such as resource scarcity, biodiversity loss, and climate change—has underscored the need for a paradigm shift. The circular economy provides a viable solution to these issues by transforming how goods and services are designed, produced, consumed, and disposed of (Singh et al., 2022).

The role of marketing in advancing the circular economy cannot be overstated. Marketing strategies play a pivotal role in shaping consumer behavior, influencing industry practices, and driving the adoption of sustainable solutions (Singh et al., 2022). With the shift toward a circular economy, marketing professionals are being tasked with rethinking traditional marketing approaches to incorporate sustainability into their strategies. In this regard, circular marketing has emerged as an essential tool for businesses looking to align their operations with sustainability goals, attract eco-conscious consumers, and enhance their competitive advantage (Chamberlin & Boks, 2018). Circular marketing involves not only promoting products and services that align with circular principles but also fostering consumer engagement in sustainable practices, such as recycling, product reuse, and waste reduction (Alonso-Almeida et al., 2020; Bressanelli et al., 2018).

The importance of circular economy principles in the realm of marketing is evident in the growing trend of corporate social responsibility (CSR) and environmental marketing. Many companies have already begun to integrate sustainability into their marketing messages, adopting circular practices that emphasize the longevity of products, the use of renewable materials, and the reduction of waste. The transition from a linear to a circular model, however, requires a fundamental shift in how businesses operate, communicate with consumers, and approach product design (De Oliveira Santini et al., 2024; Douvis & Kyriakis, 2022). To support this transition, firms must design marketing strategies that not only promote their products' environmental benefits but also address the systemic changes needed to make the circular economy work effectively.

The transition to a circular economy is particularly timely in light of global environmental crises. The depletion of non-renewable resources, the overconsumption of raw materials, and the mounting pressure on waste management systems have highlighted the unsustainability of the traditional linear model (Lu et al., 2024; Sahoo & Jakhar, 2024; Yu et al., 2024). Circular economy practices aim to alleviate these issues by extending product lifecycles, promoting the use of renewable energy, and reducing waste generation through design for longevity and recyclability (Hosseinpour et al., 2024). A circular economy not only reduces the environmental footprint of production and consumption but also offers economic benefits, such as cost savings, new revenue streams, and improved market positioning (Dovgal et al., 2024; Galarza-María et al., 2024).

The adoption of circular economy principles has the potential to revolutionize industries across the globe. However, for businesses to capitalize on the opportunities

IJIMOB
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that circularity offers, they must address several key components and indicators that underpin the circular economy framework. These components include product innovation, sustainable development, environmental changes, cultural and attitudinal shifts, and entrepreneurial marketing strategies (Hosseinpour et al., 2024; Lu et al., 2024; Sahoo & Jakhar, 2024; Yu et al., 2024).

Product innovation is a central element of the circular economy. Innovation is not just about creating new products but about designing products that can be reused, refurbished, or recycled at the end of their life cycle. By focusing on the durability, reparability, and recyclability of products, companies can reduce waste and promote the efficient use of resources (Chaudhuri et al., 2021; Cuvero et al., 2022). Product innovation in the circular economy goes beyond mere technological advancements to include innovations in business models, materials, and processes that support a circular flow of goods (Liu et al., 2020; Murat Ar, 2012). According to Kotler (2003), innovation is a crucial driver of competitiveness and market differentiation, which is especially relevant in the context of circular business models (Santos et al., 2022).

Sustainable development is another critical aspect of the circular economy. As defined by the Brundtland Commission (1987), sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The circular economy aligns closely with this definition, as it promotes sustainable practices that ensure the long-term availability of resources, minimize environmental harm, and create value for society. Sustainable development within the circular economy context requires businesses to rethink their entire value chain, from sourcing raw materials to product end-of-life management (Anser et al., 2018; Avrampou et al., 2019).

Environmental changes, such as climate change, resource depletion, and ecosystem degradation, are central to the drive toward a circular economy. The traditional linear economy model, which relies heavily on the extraction of finite resources, has contributed significantly to environmental degradation. The circular economy, on the other hand, offers a solution by focusing on resource efficiency and reducing environmental impacts through closed-loop systems (Bui, 2005; Miller, 2003). By adopting circular principles, businesses can minimize waste, reduce carbon emissions, and help mitigate the effects of climate change (Alonso-Almeida et al., 2020; Appiah et al., 2022; Atisa & Zemrani, 2021; Babanyara et al., 2010).

Cultural and attitudinal shifts are essential for the successful implementation of circular economy practices. As consumer awareness of environmental issues grows, there is increasing demand for sustainable products and services. In response, businesses are being forced to rethink their marketing strategies to meet the expectations of eco-conscious consumers. This shift requires a cultural change within organizations, where sustainability is no longer seen as a peripheral concern but as an integral part of business operations (Frey & Briviba, 2021; Soltani Nejad & Vosoughi, 2015). Attitudes toward sustainability and circularity are evolving, and businesses that fail to adapt may find themselves at a competitive disadvantage.

Entrepreneurial marketing, which emphasizes innovation, risk-taking, and the pursuit of new market opportunities, is crucial for the success of circular economy models. Circular business models often involve new value propositions and customer engagement strategies, which can challenge traditional marketing paradigms. Entrepreneurial marketing in the circular economy requires businesses to embrace new business models that prioritize sustainability, such as take-back schemes, product-as-a-service offerings, and sharing platforms (Gilmore, 2011; Hills & Hultman, 2011; Jones & Rowley, 2011; Kraus et al., 2012; Miles et al., 2015; Whalen & Akaka, 2015). These models allow businesses to tap into new revenue streams while promoting circular practices.

This study aims to design a comprehensive quantitative and qualitative model for integrating circular economy principles into marketing strategies. By identifying the key components and indicators of the circular economy, the study will explore how businesses can leverage marketing strategies to drive circular practices.

2 Methods and Materials

2.1 Study Design

This study employs a qualitative research design based on content analysis to explore and categorize the core components and indicators of circular economy (CE) in a comprehensive manner. The aim is to identify and evaluate the essential factors that shape the understanding and implementation of the circular economy within industrial sectors. The research utilizes definitions and analyses drawn from various sources, including books, articles, and case studies, to construct a clear view of the indicators and components that characterize the circular economy. This methodology is designed to identify and prioritize the factors

IJIMOB
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influencing circular economy strategies and their potential application in industrial settings, facilitating a better understanding of the structural components of circular practices in different industries.

2.2 Research Approach

This study adopts a systematic and grounded theory approach, utilizing both qualitative and quantitative methods for data collection and analysis. The research is grounded in the paradigm of Strauss and Corbin's grounded theory methodology, which emphasizes continuous comparison and theory building (Strauss & Corbin, 1998). Grounded theory allows for the emergence of theories based on data derived from real-world contexts. The specific application of this approach enables the research to identify key themes and categories within the concept of circular economy by analyzing data from multiple sources and perspectives.

To conduct a detailed analysis of circular economy indicators and components, the study initially reviewed key definitions and frameworks from the literature. The study focuses on five primary aspects of the circular economy: product innovation, sustainable development, environmental changes, cultural and behavioral shifts, and entrepreneurial marketing. These five dimensions were chosen as the core areas for analysis based on their relevance to the practical application of circular economy principles in various industries. The methodology includes an evaluation of these dimensions through qualitative content analysis, followed by a prioritization process using the Best-Worst Method (BWM), a multi-criteria decision-making technique. This approach is useful for determining the relative importance of various components based on expert judgment and theoretical saturation.

2.3 Data Collection

The data for this study were collected from secondary sources, primarily academic papers, industry reports, books, and relevant case studies, to ensure that the theoretical foundation of the research is comprehensive. The research design ensures that the sample size is based on theoretical sufficiency, meaning that data collection continues until no new components or indicators emerge from the analysis. This approach ensures that the study captures the most comprehensive set of components relevant to the circular economy. The research makes use of both library research and web browsing tools to identify the relevant sources and ensure a rich database of information. The findings are drawn from a wide array of disciplines, including business management, environmental studies, and marketing, to capture a broad understanding of the circular economy and its impact on various sectors.

2.4 Analytical Tools and Techniques

The study uses MAXQDA, a software program designed for qualitative data analysis, to analyze and code the data. MAXQDA is an advanced tool that enables researchers to handle both qualitative and quantitative data, making it particularly effective for content analysis, grounded theory, and the development of conceptual models. MAXQDA's functionality allows the researchers to organize, code, and analyze the data systematically, facilitating the identification of key concepts and themes related to circular economy principles. This software is particularly useful for creating a detailed representation of the data and visualizing the interrelationships between various components and themes.

In the qualitative content analysis process, the research follows a step-by-step procedure of open coding, axial coding, and selective coding. In open coding, initial categories and concepts are identified from the data. These concepts are then grouped into broader categories during axial coding, which helps in understanding the connections and relationships between different themes. Finally, selective coding is used to refine and narrow down the key components that are central to the circular economy. This process leads to the formation of a set of well-defined categories that reflect the core principles and practices of the circular economy. The MAXQDA software's visual modeling tool, MAXMaps, was employed to develop a paradigmatic model that illustrates the relationships between the components of the circular economy. The findings are presented in a visual format that highlights the interconnections between different indicators and categories, providing a clearer understanding of how these components function in practice.

2.5 Analysis of Components and Indicators

The study identifies five main dimensions of the circular economy: product innovation, sustainable development, environmental changes, cultural and behavioral changes, and entrepreneurial marketing. Each of these components was analyzed separately, using MAXQDA to examine their prevalence and significance across the literature.

Product Innovation: This dimension includes concepts such as extending the lifespan of products, redesigning

IJIMOB
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products for reuse, and developing new products from recycled materials. Product innovation is central to the circular economy, as it facilitates the shift from linear consumption to a more sustainable and regenerative model. The research categorizes various strategies for product innovation, such as designing for durability, using sustainable materials, and promoting the use of recycled inputs in production processes.

Sustainable Development: This dimension focuses on the responsible management of natural resources, energy sustainability, and the minimization of waste. Sustainable development plays a crucial role in the circular economy, as it emphasizes the need for long-term environmental and economic balance. The research examines various sustainability strategies employed by businesses, such as optimizing resource extraction, implementing energy-efficient practices, and adopting sustainable business models.

Environmental Changes: This dimension refers to the broader environmental impacts of the circular economy. It encompasses issues such as climate change, environmental ethics, and the recycling of organic waste. The study finds that circular economy practices can have a significant positive impact on the environment, particularly through waste reduction, resource efficiency, and the promotion of environmental awareness. The research identifies key environmental challenges, such as climate change and resource scarcity, and assesses the role of circular economy practices in addressing these issues.

Cultural and Behavioral Changes: Circular economy principles also require shifts in consumer behavior and cultural attitudes. This dimension explores how societal norms and attitudes towards consumption, recycling, and sustainability can influence the success of circular economy strategies. The study finds that cultural attitudes towards sustainability are a key barrier to the widespread adoption of circular economy practices, highlighting the need for education and awareness campaigns.

Entrepreneurial Marketing: Marketing strategies play a significant role in the circular economy by promoting sustainable products and services, raising consumer awareness, and facilitating the transition to more sustainable business models. The research focuses on how businesses can use entrepreneurial marketing to promote circular economy principles and enhance their competitive advantage. It identifies key marketing strategies such as market differentiation, value creation through sustainability, and building customer loyalty through sustainable practices.

2.6 Theoretical Saturation and Sample Sufficiency

The principle of theoretical saturation is employed in this study, meaning that the data collection process continues until no new themes or categories emerge from the analysis. The sample size is not determined by a fixed number of participants or sources, but by the emergence of theoretical saturation, which ensures that the study captures all relevant dimensions of the circular economy. This approach is in line with grounded theory methodology, which emphasizes the importance of data richness and depth over sample size. The research findings are based on the analysis of a wide range of academic sources, reports, and case studies, ensuring a comprehensive understanding of the circular economy and its application in various sectors.

The methodology adopted for this study provides a robust framework for analyzing the core components and indicators of the circular economy. By combining qualitative content analysis with grounded theory and using advanced software tools such as MAXQDA, the study generates valuable insights into the factors that influence the implementation of circular economy practices in different industries. The findings contribute to a deeper understanding of the circular economy and offer practical recommendations for businesses seeking to adopt sustainable and circular practices in their operations.

3 Findings and Results

In this article, the circular economy indicators are first introduced. Then, to identify the components and indicators of the circular economy, these criteria were initially assessed and prioritized based on global standards. Using MAXQDA software, the criteria were analyzed. Subsequently, the Best-Worst Method (BWM) was applied to prioritize these criteria. The BWM calculations were performed using the Lingo software.

This section describes the demographic characteristics of the respondents to the pairwise comparison questionnaire, including gender, age, work experience, and education. Of the respondents, 73.33% were male, and 26.67% were female. Regarding educational qualifications, 46.66% held a bachelor's degree, 26.67% had a master's degree, and 26.67% had a doctoral degree. Age-wise, 40% of the respondents were aged between 30 and 40 years, 46.67% were between 40 and 50 years old, and 13.33% were older than 50 years. Regarding work experience, 40% had between 5 and 15 years of experience, 40% had between 15 and 20 years, and 20% had over 20 years of experience.

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This research addresses the identification of components and indicators of the circular economy within the manufacturing industries of the country, particularly from a marketing perspective. The significance of raw materials and primary elements in the production cycles of various industries, such as the apparel and fashion industry, the food industry, the automotive industry, agriculture, and fossil energy, is of paramount importance. To this end, experts and specialists in the field of the circular economy were consulted, and relevant components and indicators were selected based on a list of global criteria for expert evaluation.

Initially, a questionnaire containing 19 indicators categorized into five groups was designed. This questionnaire was distributed to 15 experts, who were asked to rate each indicator on a 5-point Likert scale. After the responses were collected, the average ratings were calculated. A threshold value of 3 was considered, meaning that if the average score was below 3, the indicator would be eliminated; otherwise, it would be approved. The results, as shown in Table 1 indicate that all indicators were confirmed.

Table 1

Factors Influencing the Circular Economy

Criteria	Sub-criteria	Average Score
Environmental Changes	Climate Change	3.067
	Environmental Ethics of Products	3.733
	Recycling of Organic Waste and Agricultural Waste	3.333
	Environmental Challenges	3.333
Cultural and Attitudinal Changes	Optimizing Living Conditions	3.533
	Security, Welfare, and Health	3.733
	Cultural Patterns and Social Welfare Improvement	3.933
	Attitudes towards Consumer Remanufacturing	3.333
Sustainable Development	Optimal Extraction and Storage of Limited Resources	3.200
	Product Sustainability	3.667
	Energy Sustainability	4.000
Entrepreneurial Marketing	New Employment Model Design, Market Approach Index	3.867
	Increased Competition, Creativity, and Innovation	4.333
	Systematic Thinking Solutions	4.067
	Interaction Between Market and Organizational Structures	3.667
Product Innovations	Extending the Lifespan of Materials and New Products	3.733
	Remanufacturing from Recycled Materials	3.133
	Competitive Advantage	3.933
	Redesign and Product Reconstruction	3.467

This section focuses on determining the weight and importance of the main criteria and sub-criteria of the research using the BWM model. The initial step in this method is to identify the most and least important criteria and sub-criteria. Based on the experts' opinions, as shown in Table 1, the most and least important criteria and sub-criteria were extracted and are presented in Table 2.

Table 2

Best and Worst Criteria and Sub-criteria

Variable	Criteria	Best/Worst	Sub-criteria	Best/Worst
Institutional and Social Variables	Environmental Changes	Best	Climate Change	Best
		Worst	Environmental Ethics of Products	Worst
			Recycling of Organic Waste and Agricultural Waste	
			Environmental Challenges	
	Cultural and Attitudinal Changes		Optimizing Living Conditions	
			Security, Welfare, and Health	
		Worst	Cultural Patterns and Social Welfare Improvement	Worst
		Best	Attitudes towards Consumer Remanufacturing	Best

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Technical and Economic Variables	Sustainable Development	Best	Optimal Extraction and Storage of Limited Resources	Best
		Worst	Product Sustainability	Worst
			Energy Sustainability	Best
	Entrepreneurial Marketing	Worst	New Employment Model Design, Market Approach Index	Worst
		Best	Increased Competition, Creativity, and Innovation	Best
			Systematic Thinking Solutions	
		Worst	Interaction Between Market and Organizational Structures	Worst
	Product Innovations	Best	Extending the Lifespan of Materials and New Products	Best
		Worst	Remanufacturing from Recycled Materials	Worst
			Competitive Advantage	Best
			Redesign and Product Reconstruction	

The next step involved performing pairwise comparisons between the best criteria and other criteria (Best-Opposite), and pairwise comparisons between other criteria and the worst criterion (Worst-Opposite). These comparisons were given to 15 experts for evaluation. After receiving the responses, the pairwise comparisons were integrated using the geometric mean method to determine the weight, which was then entered into the BWM algorithm for further analysis.

To calculate the weights of the main criteria, we first perform pairwise comparisons between the best criterion, namely entrepreneurial marketing, and the other criteria. Similarly, pairwise comparisons are made between the other criteria and the worst criterion, environmental changes.

The model was implemented using Lingo software, and the results of these comparisons are presented in Table 3. Similarly, these steps are applied to all sub-criteria.

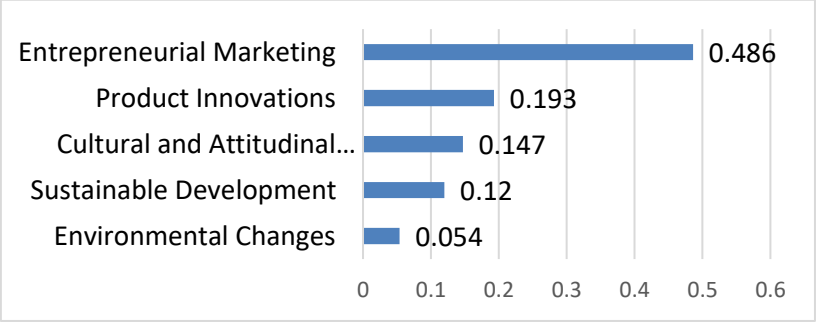
Table 3

Weights of Main Criteria

Code	Criteria	Weight	Rank
A	Environmental Changes	0.054	5
B	Cultural and Attitudinal Changes	0.147	3
C	Sustainable Development	0.120	4
D	Entrepreneurial Marketing	0.486	1
E	Product Innovations	0.193	2

Figure 1

Weights of Main Criteria



According to Table 3, the entrepreneurial marketing criterion, with a weight of 0.486, ranks first. The product innovations criterion, with a weight of 0.193, ranks second, and the cultural and attitudinal changes criterion, with a weight of 0.147, ranks third. Additionally, the consistency ratio (Z) for this pairwise comparison is 0.022, indicating high consistency.

IJIMOB
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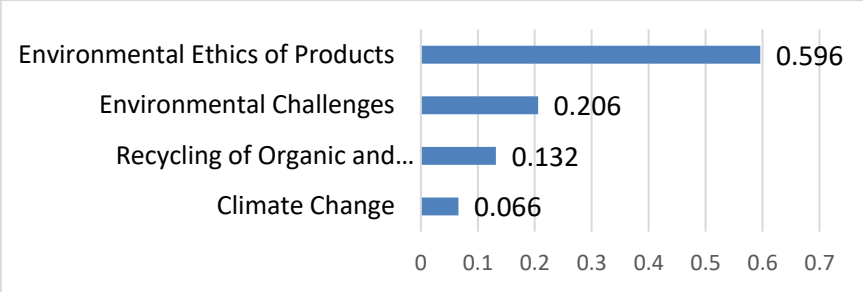
Table 4

Weights of Sub-criteria for Environmental Changes

Code	Criteria	Weight	Rank
A1	Climate Change	0.066	4
A2	Environmental Ethics of Products	0.596	1
A3	Recycling of Organic and Agricultural Waste	0.132	3
A4	Environmental Challenges	0.206	2

Figure 2

Weights of Sub-criteria for Environmental Changes



According to Table 4, among the sub-criteria for environmental changes, the environmental ethics of products ranks first with a weight of 0.596. Environmental challenges rank second with a weight of 0.206, and recycling of organic and agricultural waste ranks third with a weight of 0.132. Additionally, the consistency ratio for this pairwise comparison is 0.024.

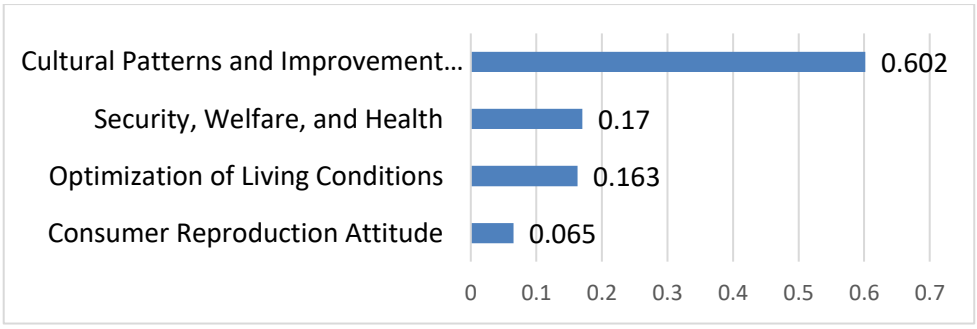
Table 5

Weights of Sub-criteria for Cultural and Attitudinal Changes

Code	Criteria	Weight	Rank
B1	Optimization of Living Conditions	0.163	3
B2	Security, Welfare, and Health	0.170	2
B3	Cultural Patterns and Improvement of Social Welfare	0.602	1
B4	Consumer Reproduction Attitude	0.065	4

Figure 3

Weights of Sub-criteria for Cultural and Attitudinal Changes



According to Table 5, among the sub-criteria for cultural and attitudinal changes, cultural patterns and improvement of social welfare rank first with a weight of 0.602. Security, welfare, and health rank second with a weight of 0.17, and optimization of living conditions ranks third with a weight

IJIMOB
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of 0.163. Additionally, the consistency ratio for this pairwise comparison is 0.031.

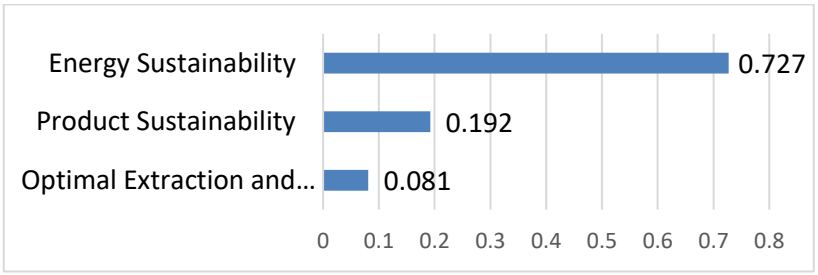
Table 6

Weights of Sub-criteria for Sustainable Development

Code	Criteria	Weight	Rank
C1	Optimal Extraction and Conservation of Limited Resources	0.081	3
C2	Product Sustainability	0.192	2
C3	Energy Sustainability	0.727	1

Figure 4

Weights of Sub-criteria for Sustainable Development



According to Table 6, among the sub-criteria for sustainable development, energy sustainability ranks first with a weight of 0.727. Product sustainability ranks second with a weight of 0.192, and optimal extraction and conservation of limited resources rank third with a weight of 0.081. Additionally, the consistency ratio for this pairwise comparison is 0.034.

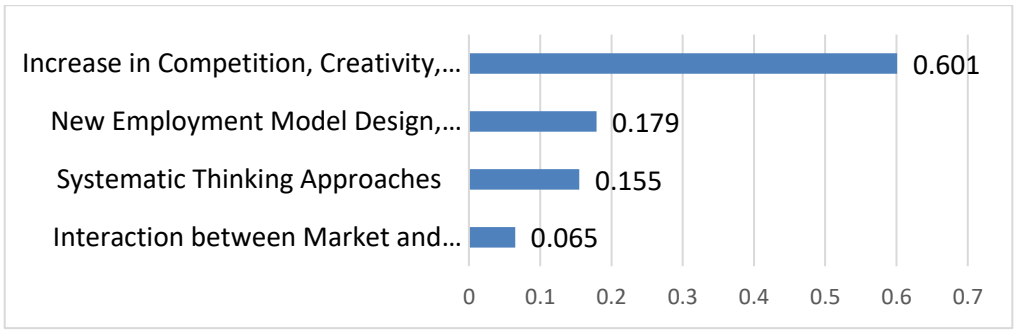
Table 7

Weights of Sub-criteria for Sustainable Development

Code	Criteria	Weight	Rank
D1	New Employment Model Design, Market Approach Index	0.179	2
D2	Increase in Competition, Creativity, and Innovation	0.601	1
D3	Systematic Thinking Approaches	0.155	3
D4	Interaction between Market and Organizational Structures	0.065	4

Figure 5

Weights of Sub-criteria for Entrepreneurial Marketing



According to Table 7, among the sub-criteria for entrepreneurial marketing, increasing competition, creativity, and innovation ranks first with a weight of 0.601. The new employment model design, market approach index ranks second with a weight of 0.179, and systematic thinking approaches rank third with a weight of 0.155. Additionally, the consistency ratio for this pairwise comparison is 0.021.

IJIMOB
E-ISSN: 3041-8992

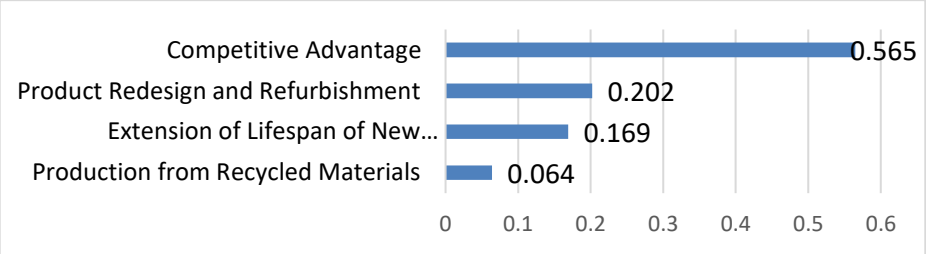
Table 8

Weights of Sub-criteria for Product Innovations

Code	Criteria	Weight	Rank
E1	Extension of Lifespan of New Materials and Products	0.169	3
E2	Production from Recycled Materials	0.064	4
E3	Competitive Advantage	0.565	1
E4	Product Redesign and Refurbishment	0.202	2

Figure 6

Weights of Sub-criteria for Product Innovations



According to Table 8, among the sub-criteria for product innovations, competitive advantage ranks first with a weight of 0.565. Product redesign and refurbishment rank second with a weight of 0.202, and extension of the lifespan of new materials and products ranks third with a weight of 0.169. Additionally, the consistency ratio for this pairwise comparison is 0.011.

Table 9

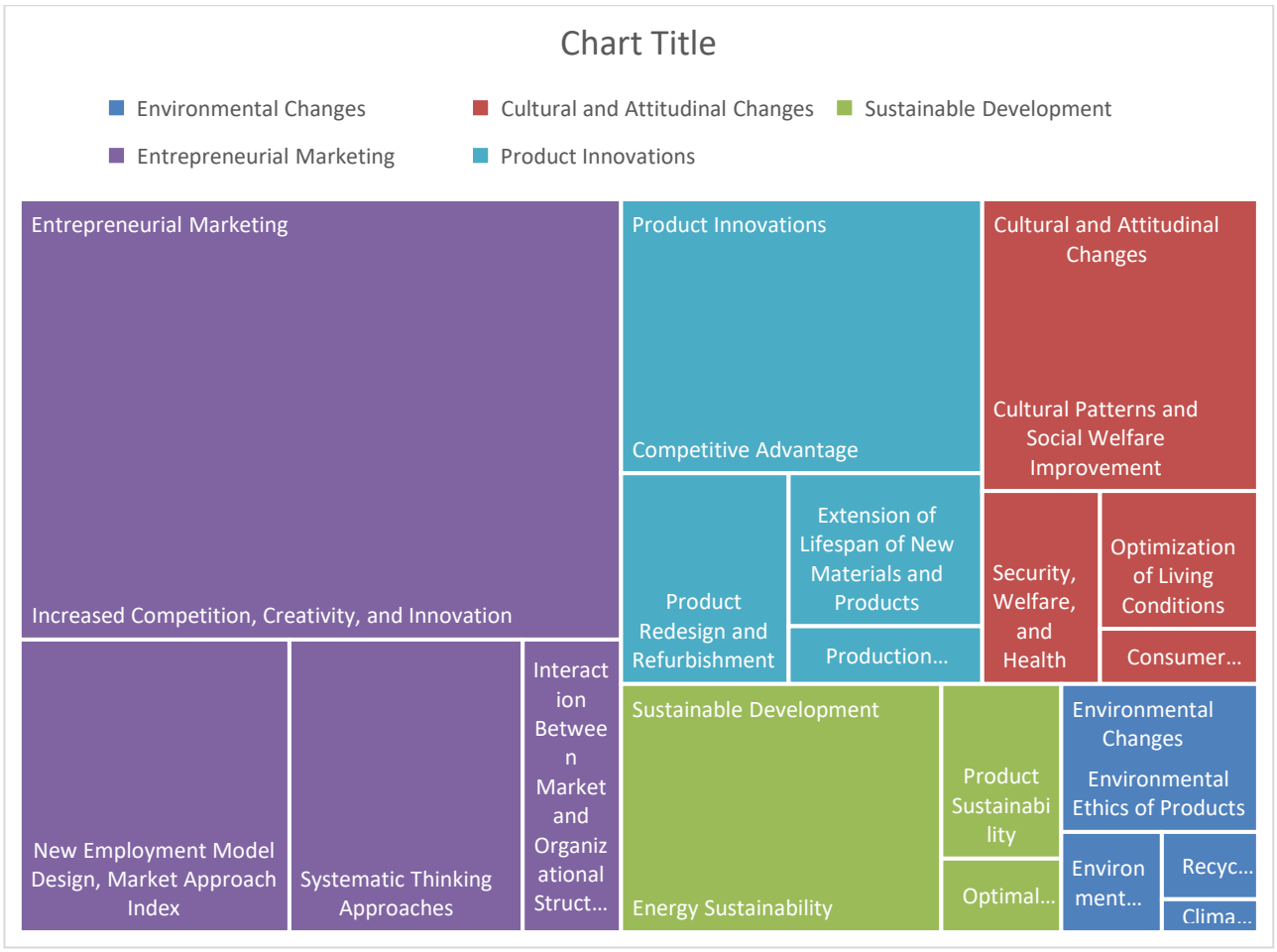
Final Weights and Rankings of Criteria and Sub-criteria

Criteria	Weight of Criterion	Sub-criteria	Relative Weight of Sub-criteria	Final Weight of Sub-criteria	Final Rank of Sub-criteria
Environmental Changes	0.054	Climate Change	0.066	0.0035	19
		Environmental Ethics of Products	0.596	0.0321	9
		Recycling of Organic Agricultural Waste	0.132	0.0071	18
		Environmental Challenges	0.206	0.0111	15
Cultural and Attitudinal Changes	0.147	Optimization of Living Conditions	0.163	0.0240	12
		Security, Welfare, and Health	0.170	0.0250	11
		Cultural Patterns and Social Welfare Improvement	0.602	0.0886	3
		Consumer Reproduction Attitude	0.065	0.0096	17
Sustainable Development	0.120	Optimal Extraction and Conservation of Limited Resources	0.081	0.0097	16
		Product Sustainability	0.192	0.0231	13
		Energy Sustainability	0.727	0.0876	4
Entrepreneurial Marketing	0.486	New Employment Model Design, Market Approach Index	0.179	0.0870	5
		Increased Competition, Creativity, and Innovation	0.601	0.2917	1
		Systematic Thinking Approaches	0.155	0.0753	6
		Interaction Between Market and Organizational Structures	0.065	0.0317	10
Product Innovations	0.193	Extension of Lifespan of New Materials and Products	0.169	0.0327	8
		Production from Recycled Materials	0.064	0.0123	14
		Competitive Advantage	0.565	0.1090	2
		Product Redesign and Refurbishment	0.202	0.0389	7

IJIMOB
E-ISSN: 3041-8992

Figure 7

Final Model of The Study



4 Discussion and Conclusion

This study aimed to explore and rank the criteria and sub-criteria affecting various organizational practices in the fields of environmental changes, cultural and attitudinal changes, sustainable development, entrepreneurial marketing, and product innovations. The results revealed distinct differences in the relative importance and ranking of these criteria, suggesting that while some areas, such as entrepreneurial marketing and product innovation, are considered highly influential, others, like environmental challenges and the optimization of living conditions, appear to be less significant. These findings are aligned with current literature, which has emphasized the increasing importance of entrepreneurial strategies and innovations in enhancing organizational competitiveness, while also highlighting the role of sustainability in long-term business success.

The highest-ranked criterion in this study was entrepreneurial marketing (weight = 0.486), followed by product innovations (weight = 0.193), underscoring the central role that marketing and innovation play in shaping organizational performance. The sub-criterion increased competition, creativity, and innovation under entrepreneurial marketing (weight = 0.601) received the highest weight across all sub-criteria, which aligns with previous studies that stress the importance of these factors in enhancing organizational success (Zhao & Chen, 2022). This result corroborates the findings of scholars like Schindehutte et al. (2008) and Morris et al. (2002), who argue that entrepreneurial marketing strategies, particularly those focused on creativity and innovation, provide firms with a competitive edge. Furthermore, the competitive advantage sub-criterion under product innovations (weight = 0.565) emphasized the strategic importance of innovation in gaining market leadership, aligning with the views of Tushman and O'Reilly (1996) who assert that innovation drives a firm's ability to stay competitive in a dynamic market environment.

IJIMOB
E-ISSN: 3041-8992

The high ranking of product innovations also reflects the growing recognition of product development as a critical driver of business sustainability. As emphasized by previous studies firms that innovate their products can maintain competitive advantage and foster consumer loyalty, ultimately enhancing long-term financial performance. The sub-criteria such as redesign and refurbishment of products and extension of lifespan of new products further illustrate the importance of continuous improvement in product offerings to meet evolving consumer demands, a viewpoint supported by studies on product lifecycle management (Alonso-Almeida et al., 2020; Murat Ar, 2012).

Sustainable development emerged as a crucial factor in this study, with the sub-criterion energy sustainability (weight = 0.727) ranking the highest within this criterion. This highlights the growing emphasis on energy-efficient practices within organizations, which is consistent with the increasing global focus on environmental responsibility and climate change mitigation. The high ranking of energy sustainability also reflects the substantial body of research indicating that energy-efficient practices not only contribute to reducing environmental impact but also offer organizations cost-saving opportunities (Appiah et al., 2022; Murat Ar, 2012; Sahoo & Jakhar, 2024).

The emphasis on sustainability is particularly relevant in the context of the growing consumer demand for environmentally friendly products and services. This trend aligns with the research by Cheung et al. (2020), which notes that consumers are increasingly making purchase decisions based on sustainability considerations. Furthermore, the ranking of energy sustainability over other sub-criteria under sustainable development reflects the critical role that energy plays in both environmental impact and operational costs, aligning with the prior findings (Ghaithan et al., 2023; Lu et al., 2024; Yu et al., 2024).

Cultural and attitudinal changes were also identified as a key criterion in this study, with the sub-criterion cultural patterns and improvement of social welfare receiving the highest weight (0.602). This result is consistent with the previous works arguing that cultural values and social welfare are integral to shaping organizational behavior and societal well-being (Abidin et al., 2023; Anser et al., 2018; Chaudhuri et al., 2021; De Oliveira Santini et al., 2024; Douvis & Kyriakis, 2022; Frey & Briviba, 2021; Galarza-María et al., 2024; Murat Ar, 2012; Soltani Nejad & Vosoughi, 2015). The other sub-criteria under cultural and attitudinal changes, such as security, welfare, and health and optimization of living conditions, while important, were ranked lower in comparison. This suggests that while these factors contribute to overall societal well-being, they may not have as direct an impact on organizational success, reflecting a nuanced understanding of the role of cultural factors in organizational strategy.

The results also underline the growing importance of security, welfare, and health within organizational practices, particularly in the wake of global health crises like the COVID-19 pandemic. This is consistent with the prior research emphasizing the increasing significance of health and welfare in consumer decision-making and corporate strategy (Chaudhuri et al., 2021). As organizations become more attuned to the importance of these issues, they may develop more comprehensive approaches to integrate health, security, and welfare considerations into their operational strategies.

Environmental changes, although ranked lower in comparison to other criteria, remain an important factor in shaping organizational practices. The sub-criterion environmental ethics of products (weight = 0.596) received the second-highest weight under environmental changes, reflecting the increasing demand for environmentally ethical practices in product development and marketing (Alonso-Almeida et al., 2020; Anser et al., 2018; Appiah et al., 2022; Atisa & Zemrani, 2021; Babanyara et al., 2010; Bui, 2005; Ghaithan et al., 2023; Miller, 2003; Murat Ar, 2012; Sahoo & Jakhar, 2024). This result aligns these findings arguing that ethical consumption and environmental responsibility are central to contemporary business practices. The ranking of climate change and recycling of organic agricultural waste as lower in comparison suggests that while these factors are important, they may be less directly linked to organizational competitiveness than the other criteria explored in this study.

Despite the valuable insights provided by this study, several limitations should be acknowledged. First, the study's reliance on expert opinion may introduce subjectivity, as experts may have personal biases or limited perspectives on certain criteria. While efforts were made to include a diverse range of experts, the findings might not fully represent the broader views of organizational managers across industries. Second, the study focused on specific criteria and sub-criteria within a particular context, which may limit the generalizability of the results to other industries or geographical regions. Further research is needed to explore whether similar findings can be replicated in different sectors or cultural contexts. Additionally, the study did not account for potential changes in the external environment, such as shifts in government policy or market

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trends, which could influence the relative importance of these criteria over time.

Future research could extend the findings of this study by exploring the dynamic relationships between the identified criteria and organizational performance. Longitudinal studies could provide a more comprehensive understanding of how these criteria evolve over time and how they interact with changing market conditions, consumer preferences, and regulatory frameworks. Furthermore, research could investigate the impact of these criteria on organizational outcomes such as financial performance, market share, and brand equity. Comparative studies across different industries or countries would also be valuable in assessing the universality of these findings and identifying industry-specific trends.

Another area for future research is to explore the role of digital transformation and technological advancements in shaping the relative importance of these criteria. With the increasing adoption of digital tools and technologies, factors such as digital marketing, automation, and artificial intelligence may become more influential in determining organizational success. Investigating how digital innovation intersects with traditional criteria such as marketing and sustainability would provide a more holistic view of modern business practices.

For practitioners, the findings of this study suggest that focusing on entrepreneurial marketing and product innovations should be a top priority, as these factors significantly influence competitive advantage and organizational success. Investing in creative and innovative marketing strategies, as well as continuously improving product offerings, will help organizations differentiate themselves in a crowded marketplace. Additionally, organizations should prioritize energy sustainability and product sustainability to meet growing consumer demand for environmentally responsible practices.

Furthermore, cultural and attitudinal changes, particularly those related to social welfare and security, should be integrated into organizational strategies to build trust and loyalty among consumers. As societal expectations evolve, businesses must adapt their practices to reflect these changes in order to maintain a positive reputation and foster long-term customer relationships. Finally, while environmental changes are ranked lower in this study, they should not be neglected. Organizations must adopt ethical and environmentally responsible practices, as consumers increasingly expect companies to take action on climate change and sustainability issues.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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