

The Effect of Business Activity Type on the Relationship Between Marketing Innovation and Firms' Environmental Orientation

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Abstract

In today's business world, organizational success depends largely on innovation and the ability to capitalize on new market opportunities. Therefore, developing strategies to strengthen these capabilities is of considerable importance. Innovation enables organizations to adapt rapidly to change, develop new products, and identify new markets, thereby helping them protect themselves against environmental uncertainties. Companies that take the lead in adopting innovative marketing practices and generating new ideas to improve customer satisfaction can gain a competitive advantage over other firms and attract substantial resources. Conversely, failure to keep pace with changing customer needs or the ineffective delivery of services may undermine an organization's strategic direction and competitive position. The application of marketing innovation enables organizations to identify and respond to customers' evolving needs, which are continuously influenced by technological developments, changing preferences, and broader social conditions. Through innovative marketing practices, firms can improve their ability to meet customer expectations and strengthen their market position. Moreover, marketing innovation can help organizations respond more effectively to changes in the business environment and develop sustainable competitive advantages. In this context, firms' environmental orientation may play an important role in shaping their strategic decisions and approaches to innovation. Accordingly, examining the relationship between marketing innovation and firms' environmental orientation, while considering the moderating role of business activity type, can provide valuable insights into how organizations adapt to changing market conditions. Understanding these relationships can help firms formulate more appropriate strategies, improve their responsiveness to environmental challenges, and achieve more sustainable competitive advantages.

Keywords: Business Activity Type, Relationship, Marketing Innovation, Environmental Orientation.

Introduction

In today's dynamic business environment, organizations seeking to maintain competitive advantage, improve performance, and sustain their operations must pay attention not only to their financial and human resources but also to their strategic orientations and ability to adapt to environmental changes. Technological developments, market transformations, changing customer preferences, intensifying competition, and increasing environmental requirements have made strategic decision-making increasingly complex. Under these circumstances, environmental orientation and marketing innovation can play important roles in identifying new opportunities, responding to customer needs, and developing competitive advantages. However, the effectiveness of these approaches depends on environmental conditions, organizational characteristics, and the nature of firms' business activities (Peng et al., 2021; Shaukat et al., 2023).

Environmental orientation can be defined as the extent to which an organization pays attention to environmental issues and incorporates environmental considerations into its managerial decisions and practices. In this study, it is important to distinguish between the general concept of the business environment and the more specific concept of the natural environment. An orientation toward the competitive, market, and technological environment is not equivalent to environmental orientation in the ecological sense, which emphasizes reducing the adverse effects of organizational activities on nature. This conceptual distinction is essential for accurately explaining the relationships among the research variables. Previous studies suggest that a strategic focus on the natural environment can facilitate the development of green innovations and strengthen organizational performance, although the achievement of these outcomes depends on how strategies are implemented and on the conditions under which firms operate (Hart, 1995; Zehir & Ozgul, 2020).

Marketing innovation, meanwhile, is an important approach through which organizations respond to market developments and create value for customers. This type of innovation may involve significant changes in marketing methods, product design and delivery, pricing, promotion, and market access strategies. Unlike technological innovation, which primarily focuses on products or production processes, marketing innovation emphasizes new ways of creating, communicating, and delivering value to customers. Implementing this approach can help organizations identify new market segments, improve their competitive positioning, and increase the effectiveness of their commercial activities. Nevertheless, its effects on firm performance are not uniform across all circumstances and may be influenced by factors such as market uncertainty, competitive intensity, and technological change (Peng et al., 2021).

The importance of this issue becomes more pronounced as firms face growing stakeholder expectations regarding environmental responsibility and the efficient use of resources. Climate change, pollution, and the depletion of natural resources have highlighted the need to reconsider existing production and consumption patterns. In response to these challenges, organizations can reduce the adverse environmental effects of their activities by minimizing waste, improving resource efficiency, developing more environmentally friendly products, and adopting clean technologies. From the perspective of Porter and van der Linde (1995), environmental requirements, when appropriately designed and implemented, may strengthen firms' competitiveness by stimulating innovation and improving resource productivity.

Therefore, environmental protection does not necessarily conflict with organizations' economic objectives; under suitable conditions, it can create opportunities for value creation and the achievement of competitive advantage.

Nevertheless, the relationship between environmental practices, innovation, and economic performance requires further examination across different contexts. Implementing environmental strategies may require initial investment, changes in production processes, employee training, and technological development, potentially increasing firms' costs in the short term. Conversely, these practices may generate long-term economic benefits through resource savings, improved brand image, a stronger response to customer expectations, and the development of new products. Accordingly, the relationship between environmental orientation and organizational performance cannot be assumed to be universally positive or negative, irrespective of market conditions and firm capabilities. Empirical research also emphasizes the role of green innovation as a mediating mechanism and the influence of environmental conditions and stakeholder pressures in explaining this relationship (Zehir & Ozgul, 2020; Guo & Wang, 2022).

In this context, marketing innovation can serve as a mechanism for translating strategic orientations into market-related outcomes. Firms that consider environmental requirements must be able to identify the environmental value of their products and services and communicate that value effectively to customers. Revising product communication strategies, using credible environmental messages, developing appropriate distribution channels, and understanding customer preferences can strengthen the connection between environmental objectives and marketing activities. However, the effectiveness of these initiatives depends on the credibility of firms' environmental claims, the compatibility of their products with market needs, and customers' willingness to adopt environmentally friendly products. Research suggests that environmental orientation can strengthen environmental marketing activities, although translating this orientation into improved performance depends on contextual factors (Environmental orientation, sustainable behaviour at the firm-market interface and performance, 2020).

At the same time, environmental conditions and firm characteristics can determine the extent to which an innovative strategy is effective. One of the most important of these conditions is environmental uncertainty, which refers to the difficulty of predicting changes in markets, technology, competitors, and other external factors. When decision-makers have limited information and environmental changes occur rapidly, organizations may face difficulties in selecting and implementing appropriate strategies. Under such circumstances, understanding environmental conditions and adapting marketing activities to market characteristics become increasingly important. Research on marketing innovation also indicates that factors such as market uncertainty, competitive intensity, and technological dynamism can influence the outcomes of marketing innovations (Peng et al., 2021).

In addition to environmental uncertainty, the type of business activity undertaken by a firm may influence the nature and effectiveness of the relationship between marketing innovation and environmental orientation. Firms operating in different industries vary in terms of product characteristics, production processes, dependence on natural resources, market structures, customer types, and regulatory requirements. For example, the importance of environmental considerations in an energy-intensive

manufacturing company may differ from their importance in a service-oriented organization. Similarly, the nature of a firm's business activity may affect its need for product innovation, distribution strategies, customer communication methods, and approaches to communicating the environmental attributes of its products. Therefore, examining business activity as a contextual factor can provide a more precise understanding of differences among firms and help explain the conditions under which marketing strategies are effective. This argument is consistent with the contingency approach to management, which emphasizes that the outcomes of managerial strategies depend on organizational characteristics and the conditions of the operating environment (Aragón-Correa & Sharma, 2003).

Despite the growing body of research on environmental orientation, innovation, and firm performance, the relationships among these variables under different business conditions remain important areas for investigation. Some studies have focused on the economic consequences of green innovation, whereas others have examined the role of strategic orientations and environmental conditions in shaping such innovations. However, research findings indicate that the effects of environmental innovation on economic performance are not always consistent and may depend on firm characteristics and environmental conditions (Guo & Wang, 2022; Appiah & Essuman, 2024). Accordingly, examining the role of firm business activity in the relationship between different types of marketing innovation and environmental orientation may contribute to the existing literature and clarify potential differences among various groups of firms.

On this basis, the main problem addressed by the present study is whether the relationship between the type of marketing innovation and firms' environmental orientation remains consistent across different types of economic activity, or whether the nature of a firm's business activity leads to variations in this relationship. Answering this question may contribute theoretically to a more precise understanding of the contextual conditions underlying the relationship between marketing strategies and environmental orientation. From a practical perspective, the findings may provide a basis for selecting approaches that are appropriate to the characteristics of different industries and markets.

Accordingly, the main research question is formulated as follows:

How does the type of a firm's business activity affect the relationship between the type of marketing innovation and the firm's environmental orientation?

Research background

In today's competitive business environment, organizational performance is influenced by a combination of strategic, managerial, and environmental factors. Technological changes, evolving customer needs, intensifying competition, and growing concern about environmental sustainability have encouraged organizations to develop innovative capabilities and reconsider their approaches to production, marketing, and resource management. Under these conditions, financial and human resources alone are insufficient to achieve a competitive advantage. Organizations must also be able to identify market opportunities, allocate resources effectively, and align their products and services with changing customer needs.

From a strategic management perspective, organizational orientations provide a framework for managerial decision-making, resource allocation, and the establishment of business priorities. Entrepreneurial orientation and environmental orientation are particularly important in this regard. Entrepreneurial orientation emphasizes innovation, proactiveness, and calculated risk-taking, whereas environmental orientation incorporates environmental protection and the consequences of economic activities into organizational decision-making (Lumpkin & Dess, 1996; Banerjee, 2002).

However, the adoption of strategic orientations does not necessarily lead to improved performance. Organizations must translate these orientations into measurable outcomes through innovation, marketing capabilities, and effective implementation. A Persian study by Gholamzadeh, Maleki Minbash Razgah, and Zangian (2025) examining entrepreneurial marketing orientation and firm performance also highlights the importance of investigating the relationship between entrepreneurial orientations and performance outcomes in small and medium-sized enterprises.

Accordingly, this literature review focuses on four main areas: environmental orientation, corporate entrepreneurship and entrepreneurial orientation, marketing innovation, and organizational performance. Examining the relationships among these concepts can help explain how organizational attitudes and strategies are translated into improved market outcomes and economic performance.

Environmental Orientation and Environmental Ethics

Environmental orientation refers to the extent to which an organization emphasizes environmental protection and incorporates environmental considerations into managerial and strategic decisions. This orientation may be limited to compliance with laws and regulations or may extend beyond regulatory requirements to become an integral part of the organization's values, culture, and strategy. In the latter case, environmental considerations influence product design, raw material selection, energy consumption, waste management, and improvements in production processes.

Banerjee (2002) examined corporate environmentalism in relation to the integration of environmental issues into organizational decision-making. The study distinguished between an organization's environmental orientation and its strategic focus on environmental issues. From this perspective, a positive attitude toward environmental protection becomes practically significant when it is reflected in managerial decisions and operational strategies (Banerjee, 2002).

Environmental ethics examines the moral and value-based foundations of the relationship between humans, organizations, and nature. From an anthropocentric perspective, the environment is primarily evaluated in terms of its contribution to human needs and well-being. In contrast, non-anthropocentric approaches emphasize the intrinsic value of nature and living organisms, independent of their direct benefits to humans. These different perspectives can influence how organizations evaluate the consequences of economic activities and their responsibilities toward natural resources.

At the operational level, environmental orientation may lead to reduced production waste, more efficient energy and material use, improved waste management, and the development of products that are more environmentally compatible. Nevertheless, implementing these practices may require initial investment,

employee training, and modifications to production processes. Consequently, their economic effects depend on implementation costs, potential savings, environmental regulations, and market responses.

In a Persian study, Seifollahi, Rahimi Kalour, and Hojjati Nakhodchari (2023) examined the relationship between environmental orientation, green packaging, and social capital. The findings reported in the study's abstract indicated a significant relationship between environmental orientation and social capital, whereas the effect of green packaging was not statistically significant. This finding suggests that different components of a green orientation do not necessarily produce identical outcomes and should therefore be evaluated separately.

Similarly, Motaki and Meftah (2024) investigated the relationships among management support, environmental orientation, and organizational performance, considering the mediating roles of green human resource management and environmental performance. The focus of this study highlights the importance of examining managerial factors and potential mediating mechanisms when explaining the relationship between environmental orientation and organizational performance.

Overall, environmental orientation can become an effective organizational capability when it extends beyond symbolic commitments and is incorporated into planning, resource allocation, and daily operations. Nevertheless, its effects on financial and market performance should be assessed in relation to industry characteristics, implementation costs, and stakeholder expectations.

Corporate Entrepreneurship and Entrepreneurial Orientation

Corporate entrepreneurship refers to the activities and processes through which established organizations identify new opportunities and seek to create value by developing new products, services, processes, or business activities. The concept is associated with an organization's ability to renew itself, exploit emerging opportunities, and develop innovative initiatives.

Entrepreneurial orientation is a related concept that describes an organization's strategic approach to entrepreneurial activities. Lumpkin and Dess (1996) conceptualized entrepreneurial orientation as a multidimensional construct that includes innovativeness, proactiveness, risk-taking, autonomy, and competitive aggressiveness. They also emphasized that the relationship between entrepreneurial orientation and performance should be examined in light of organizational characteristics and environmental conditions (Lumpkin & Dess, 1996).

Entrepreneurial orientation can affect organizational performance through several mechanisms. Product and process innovation may improve quality or reduce production costs. Proactiveness may help organizations identify opportunities and threats earlier, while calculated risk-taking may facilitate entry into new markets. However, these outcomes depend on the quality of managerial decisions, available resources, and the organization's ability to implement new ideas.

Covin and Slevin (1989), in their study of small manufacturing firms, demonstrated the importance of considering environmental conditions when examining the relationship between entrepreneurial strategic

posture and performance. Their work suggests that stronger entrepreneurial behavior does not necessarily produce superior performance across all industries and operating environments (Covin & Slevin, 1989).

In a Persian study, Gholamzadeh et al. (2025) investigated the effect of entrepreneurial marketing orientation on firm performance, considering the mediating roles of new product creativity and competitive advantage. According to the published abstract, entrepreneurial marketing orientation had a positive and statistically significant direct effect on firm performance. However, the proposed mediating roles of new product creativity and competitive advantage were not supported. This finding is relevant because it demonstrates that even when a direct relationship exists between entrepreneurial orientation and performance, indirect relationships should not be assumed without empirical testing.

Accordingly, entrepreneurial orientation should be viewed as a foundation for opportunity recognition and innovation rather than an independent guarantee of success. Organizations are more likely to benefit from this orientation when they also possess effective implementation and marketing capabilities.

Innovation and Marketing Innovation

Innovation is an important factor in developing organizational capabilities, creating differentiation, and sustaining competitive advantage. According to the Oslo Manual, business innovation refers to a new or improved product or business process that differs significantly from the firm's previous products or processes and has been introduced to the market or brought into use by the firm. Therefore, generating an idea alone does not constitute innovation; implementation and the realization of a distinguishable change are also essential (OECD/Eurostat, 2018).

Innovation can be classified according to the area of activity into product innovation and business process innovation. Product innovation involves introducing a new good or service or significantly improving its characteristics. Business process innovation refers to significant changes in production, distribution, marketing, or other business activities. Innovation can also be distinguished according to the degree of change. Radical innovation involves substantial changes in technology or business practices, whereas incremental innovation develops through continuous improvements to existing products and processes.

Marketing innovation refers to significant changes in marketing practices, including product design and packaging, advertising, pricing, and distribution methods. In the fourth edition of the Oslo Manual, many activities previously classified as marketing innovation are incorporated into the broader category of business process innovation, while product-design changes are classified as product innovation. This distinction is important when defining research variables and selecting appropriate measurement instruments (OECD/Eurostat, 2018).

In practical terms, marketing innovation may involve new advertising approaches, distinctive packaging, revised distribution channels, the development of online sales, or new pricing strategies. However, not every minor change in marketing practices qualifies as innovation. A change should differ significantly from the organization's previous practices and should be implemented rather than remaining merely a proposal.

Marketing innovation is most likely to be effective when it is based on an understanding of customer needs and market conditions. For example, new packaging can create value when it improves the customer experience, increases usability, reduces product damage, or strengthens competitive differentiation. Similarly, a new advertising approach is more likely to succeed when it is appropriate for the target market and consistent with the organization's available resources.

Consequently, marketing innovation should be viewed as a systematic process that begins with identifying market opportunities, continues through the development and evaluation of new ideas, and progresses to implementation and performance assessment. This process can help organizations translate entrepreneurial orientation into value that can be offered to customers.

Organizational Performance and Its Determinants

Organizational performance is a multidimensional concept that reflects the extent to which an organization achieves its economic, market-related, and managerial objectives. It can be assessed using financial indicators, such as profitability, sales growth, and return on investment, as well as nonfinancial indicators, including customer satisfaction, market share, customer loyalty, product quality, and competitiveness.

Financial indicators alone may not provide a complete picture of organizational performance because financial results often reflect the consequences of earlier decisions and activities. Nonfinancial indicators, in contrast, can provide information about market position, customer relationships, and an organization's ability to remain competitive in the future. Therefore, combining financial and nonfinancial measures can provide a more comprehensive assessment of performance.

Entrepreneurial orientation may influence performance through opportunity recognition, product development, and entry into new markets. Environmental orientation may also affect organizational outcomes through resource efficiency, waste reduction, and responsiveness to customers' environmental expectations. Nevertheless, the strength and direction of these relationships depend on environmental conditions, organizational resources, and the quality of strategy implementation (Lumpkin & Dess, 1996; Banerjee, 2002).

In the study by Gholamzadeh et al. (2025), a positive and statistically significant relationship between entrepreneurial marketing orientation and firm performance was reported. In contrast, the study by Seifollahi et al. (2023) suggests that the effects of different environmental initiatives may vary. Their findings indicated a significant relationship between environmental orientation and social capital, whereas the relationship involving green packaging was not statistically significant. Social capital, however, is not equivalent to organizational performance; the study is cited here to illustrate that different environmental variables may have different outcomes.

Therefore, organizational performance should not be attributed to a single factor. Rather, it reflects the interaction of strategic orientations, resources, marketing capabilities, innovation processes, and environmental conditions. Furthermore, increases in sales or market share do not necessarily result in

higher net profits, since innovation, advertising, distribution, and implementation costs must also be considered.

The Role of Marketing Capabilities in the Relationship Between Organizational Orientations and Performance

Marketing capabilities refer to an organization's ability to identify market needs, analyze customer behavior, develop marketing strategies, and coordinate resources to deliver products and services effectively. These capabilities may include market research, brand management, distribution-channel development, customer relationship management, and sales performance evaluation.

From a resource-based perspective, possessing financial, human, and technological resources does not automatically create a competitive advantage. An organization's ability to combine and deploy these resources effectively is equally important. A firm may develop new products or correctly identify market opportunities, but it may fail to achieve the expected economic outcomes if it cannot communicate product value, select appropriate target markets, or establish effective customer relationships.

Ngo and O'Cass (2012) examined market orientation, marketing resources, marketing capabilities, and performance. Their research highlights the importance of marketing capabilities in explaining organizational outcomes and emphasizes the mechanisms through which organizational resources and orientations may be translated into market-related results (Ngo & O'Cass, 2012).

In the present study, marketing capabilities may therefore be considered a potential explanatory mechanism linking organizational orientations, marketing innovation, and organizational performance. For example, entrepreneurial orientation may encourage the development of a new product, while marketing capabilities determine how effectively the organization aligns that product with customer needs and introduces it to the market. Similarly, environmental orientation may encourage the production of more environmentally compatible products, but achieving favorable market outcomes also depends on the organization's ability to communicate product attributes credibly and understand customer preferences.

However, the mediating role of marketing capabilities must be established in accordance with the conceptual model and research hypotheses. A theoretical relationship between variables is insufficient to establish mediation; the proposed mediating effect must be tested empirically.

Review of Previous Domestic and International Studies

International Studies

Lumpkin and Dess (1996), in their article *Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance*, examined the dimensions of entrepreneurial orientation and developed a contingency-based framework for analyzing its relationship with performance. Their contribution lies in emphasizing the multidimensional nature of entrepreneurial orientation and the importance of contextual factors in explaining its outcomes (Lumpkin & Dess, 1996).

Covin and Slevin (1989) investigated strategic management and performance among small manufacturing firms operating in different environmental conditions. Their study emphasized the importance of alignment between organizational strategy and the competitive environment, suggesting that strategic orientations should be evaluated in relation to the conditions under which organizations operate (Covin & Slevin, 1989).

Banerjee (2002), in his study of corporate environmentalism, examined how environmental concerns are incorporated into organizational decision-making. By distinguishing environmental orientation from strategic environmental focus, the study provides a theoretical basis for differentiating an organization's general environmental attitudes from their practical incorporation into strategy (Banerjee, 2002).

The Organisation for Economic Co-operation and Development and Eurostat (OECD/Eurostat, 2018) developed definitions and measurement frameworks for innovation in the Oslo Manual. By distinguishing innovation activities from implemented innovations, the manual provides a methodological foundation for defining and measuring innovation in organizational research.

Domestic Studies

Gholamzadeh, Maleki Minbash Razgah, and Zangian (2025), in their article *The Effect of Entrepreneurial Marketing Orientation on Firm Performance: The Mediating Role of New Product Creativity and Competitive Advantage*, examined these relationships among small and medium-sized enterprises located in the Semnan Industrial Estate in Iran. According to the published abstract, entrepreneurial marketing orientation had a positive and statistically significant direct effect on firm performance. However, the proposed mediating roles of new product creativity and competitive advantage were not supported. This finding is relevant because it illustrates the importance of testing direct and indirect relationships separately.

Seifollahi, Rahimi Kalour, and Hojjati Nakhodchari (2023), in their article *Examining the Effect of Environmental Orientation and Green Packaging on Social Capital*, investigated the relationships between two environmental variables and social capital. Their reported findings indicated a significant effect of environmental orientation on social capital, while the effect of green packaging was not statistically significant. This study is relevant to the present research because of its focus on environmental orientation and the distinction between different dimensions of green practices, although its dependent variable differs from organizational performance.

Motaki and Meftah (2024), in a study titled *Management Support, Environmental Orientation, and Organizational Performance: The Mediating Roles of Green Human Resource Management and Environmental Performance*, investigated relationships among management support, environmental orientation, and organizational performance. The study's focus highlights the importance of considering managerial factors and potential mediating variables when analyzing the relationship between environmental orientation and organizational performance. The full article should be consulted before reporting its specific statistical findings.

Together with the international literature, these domestic studies provide a basis for investigating the relationships among organizational orientations, innovation, and performance. Nevertheless, the review should be extended to include studies that closely match the variables, target population, and industry specified in the final research model.

Synthesis of Previous Studies and Research Gap

The review of theoretical literature and domestic and international studies indicates that entrepreneurial orientation, environmental orientation, marketing innovation, and marketing capabilities may all be relevant to explaining organizational performance. However, the relationships among these variables are not necessarily direct or uniform and may be influenced by organizational characteristics, available resources, and environmental conditions.

Entrepreneurial orientation creates a foundation for opportunity recognition, proactiveness, and the development of new ideas. Environmental orientation incorporates environmental protection into organizational decisions. Marketing innovation can improve product presentation, customer communication, and market differentiation, while marketing capabilities help organizations translate these orientations and innovations into market-related outcomes.

Based on these foundations, the conceptual framework may examine the relationships among entrepreneurial orientation, environmental orientation, marketing innovation, and organizational performance. If consistent with the theoretical model, marketing capabilities may also be included as a mediating or explanatory variable. However, the precise role of each variable depends on the research model and empirical testing.

The potential research gap lies in the need to examine these variables jointly and investigate how they relate to organizational performance. However, establishing that previous studies have not examined this particular combination requires a systematic review and direct comparison of existing research. The final research gap should therefore be formulated after reviewing the relevant domestic and international studies in relation to the target population, industry, and research variables.

Research method

Scope of the Research

The subject scope of this study is to examine the relationship between marketing innovation and firms' environmental orientation, with particular emphasis on the moderating role of firm activity type. The study was conducted from November 2020 to September 2021. The geographical scope includes the following companies: Pars Hayat Abhar, Sepidar System Asia, Zarma کارون (Zar Macaron), and Snapp.

Research Type and Method

In terms of purpose, this study is applied research, while in terms of data collection, it follows a descriptive-survey approach. Data were collected through questionnaires, and the study was conducted

using a cross-sectional design. In the conceptual model, firm activity type is considered a moderating variable in the relationship between marketing innovation and environmental orientation.

Research Variables and Their Measurement

The main variables of the study are as follows:

- **Environmental Orientation:** The extent to which a firm considers and commits to environmental concerns in its decision-making and organizational activities.
- **Marketing Innovation:** The use of new or improved methods in pricing, advertising, distribution, and the presentation of products and services.
- **Firm Activity Type:** The primary nature of a firm's economic activity, such as manufacturing goods or providing services. Its moderating role in the relationship between the other two variables is examined.

The variables are measured using questionnaire items and, where applicable, a five-point Likert scale. The items measuring firm activity type should be consistent with the conceptual definition of this variable.

Data Collection Methods

Data were collected through library-based and field research methods. The library-based method involved using academic books and articles to develop the theoretical foundations and review the research literature. The field research method relied on questionnaires as the primary instrument for collecting data from managers and employees involved in sales and marketing activities in the selected companies.

Statistical Population and Sample Size

The statistical population consists of managers and employees in the sales and marketing departments of the selected companies, estimated at approximately 1,000 individuals. The sample size was calculated using Cochran's formula for a finite population, with a 95% confidence level and a 5% margin of error. Accordingly, the required sample size was approximately 278 respondents. Based on the initial information, simple random sampling was used.

Measurement Scale

A five-point Likert scale was used to measure respondents' opinions, ranging from 1 (strongly disagree) to 5 (strongly agree). Demographic information and firm activity type were classified according to the nature of each variable.

Validity and Reliability of the Questionnaire

The validity of the measurement instrument is assessed using factor analysis, while its reliability is evaluated using Cronbach's alpha coefficient. If partial least squares structural equation modeling (PLS-SEM) is employed, additional indicators, including factor loadings, composite reliability, convergent validity, and discriminant validity, may also be examined. The final values of these indicators should be reported based on the actual statistical analysis results.

Data Analysis Methods

Data are analyzed using Excel, SPSS, and SmartPLS, as appropriate for the different stages of analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, are used to summarize the data. Inferential statistical methods appropriate to the research model are then applied to examine the relationships among the variables. Furthermore, the moderating role of firm activity type should be tested through an interaction effect or by comparing relationships across different activity groups.

Important note: Before finalizing the article, the operational definition of firm activity type, the bibliographic details of the questionnaire source, and the actual validity and reliability results should be verified. The number of questionnaires distributed, returned, and deemed valid for analysis should also be reported to ensure consistency between the methodology and the actual research procedures.

Data analysis

In this study, the collected data were analyzed using descriptive and inferential statistical methods. SPSS version 24 was used for descriptive data analysis, while SmartPLS version 2 was employed to examine the conceptual model and the relationships among the research variables.

Demographic Characteristics of the Respondents

The study sample consisted of 151 respondents, including 94 men (62%) and 57 women (38%). Regarding age, the largest group comprised respondents aged 31–40 years, with 78 individuals (52%). In addition, 40 respondents (26%) were aged 41–50 years, 24 (16%) were under 30 years of age, and 9 (6%) were over 50 years old.

In terms of educational attainment, 89 respondents (59%) held a bachelor's degree, 37 (24%) had a master's degree or higher, and 25 (17%) held an associate degree or a lower qualification. Regarding work experience, the largest group consisted of respondents with 5–10 years of professional experience. Overall, most respondents were male, aged 31–40 years, held a bachelor's degree, and had 5–10 years of work experience. The work-experience figures should be verified against the original dataset before the article is published.

Descriptive Statistics of the Research Variables

The descriptive analysis showed that the mean scores for marketing innovation, environmental orientation, and type of activity were 3.77, 4.02, and 4.04, respectively. These values indicate that the average responses for all three variables tended toward the higher end of the measurement scale. The corresponding standard deviations were 0.494, 0.549, and 0.490, respectively, indicating the degree of dispersion of responses around their means.

Testing the Normality of Data Distribution

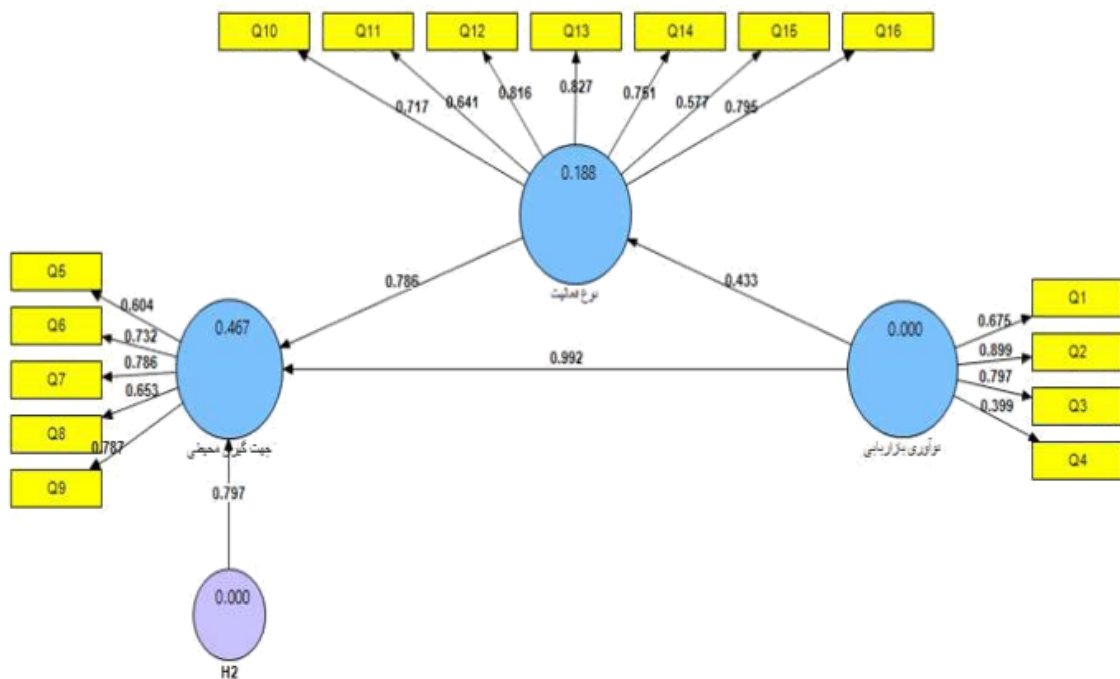
The Kolmogorov–Smirnov test was used to assess the normality of the research variables. The results showed that the significance levels for marketing innovation (0.053), environmental orientation (0.093), and type of activity (0.070) were all greater than 0.05. Therefore, the null hypothesis of normality was not rejected, indicating that the distributions of the research variables could be considered normal at the 5% significance level.

Assessing Sample Adequacy and the Suitability of Factor Analysis

The Kaiser–Meyer–Olkin (KMO) measure and Bartlett’s test of sphericity were used to assess sample adequacy and the suitability of factor analysis. The KMO value was 0.850, indicating that the sample was adequate for factor analysis. Bartlett’s test was also statistically significant ($\chi^2 = 282.02$, $df = 253$, $p < 0.001$), confirming that the correlation matrix was suitable for factor analysis.

Validation of the Measurement Models

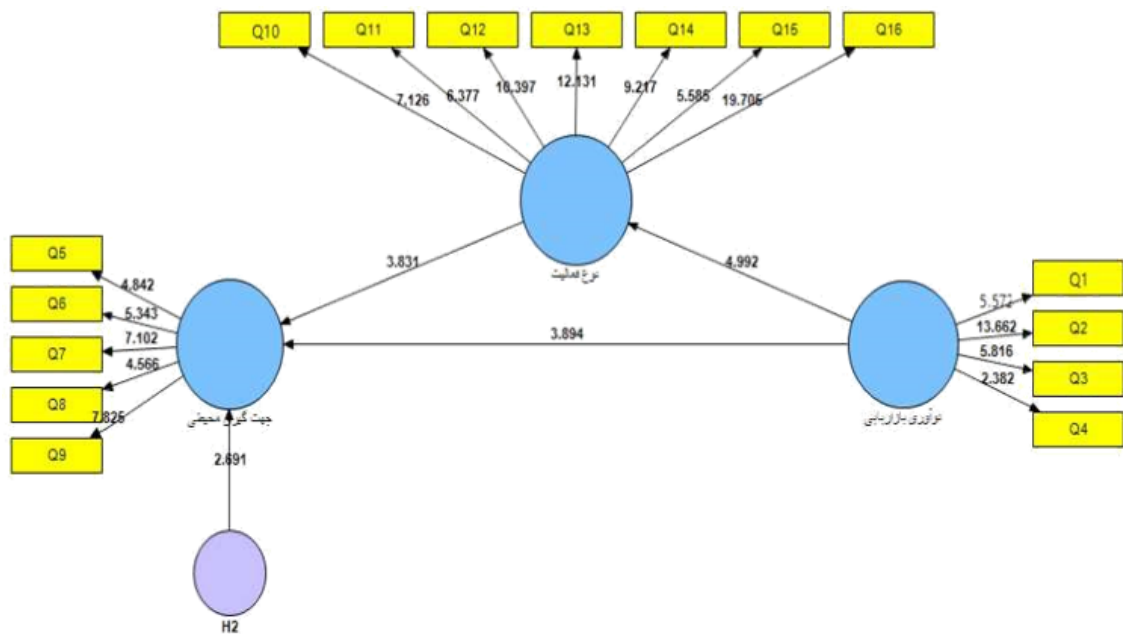
Before testing the research hypotheses and examining the conceptual model, the validity of the measurement models must be assessed. Confirmatory factor analysis is used to evaluate the extent to which observed indicators, such as questionnaire items, correspond to the underlying theoretical constructs. Construct validity indicates how accurately a measurement instrument represents the theoretical concept it is intended to measure. Accordingly, the relationships between questionnaire items and their respective constructs provide the basis for evaluating the measurement models.



The figure above illustrates the confirmatory factor analysis and structural equation model with estimated standardized coefficients. Organizational communication is the exogenous variable, while communication satisfaction, job satisfaction, and organizational commitment are the endogenous variables.

The coefficients in the figure are divided into two categories. The first category consists of measurement equations, which represent the relationships between latent variables (ellipses) and observed variables (rectangles). These relationships are commonly expressed as factor loadings. The second category consists of structural equations, which represent the relationships among latent variables and are used to test the research hypotheses. These coefficients are commonly referred to as path coefficients.

Factor loadings were used to analyze the structure of the questionnaire and identify the factors underlying each construct.



The figure above illustrates the confirmatory factor analysis and structural equation model using the absolute values of the t-statistics. This model tests all measurement and structural equations using the t-statistic. According to the model, all factor loadings and path coefficients are statistically significant at the 95% confidence level if their t-values exceed 1.96. As shown in the figure, all factor loadings and path coefficients are statistically significant, with their t-values falling within the significant range.

The significant coefficients estimated between the independent and dependent variables were used to accept or reject the research hypotheses. The results indicate that all the research hypotheses are supported. According to the factor-loading results presented in the corresponding table, all items have factor loadings greater than 0.40 and are statistically significant. Therefore, none of the questionnaire items needs to be removed. All items contribute to the research, and the questionnaire demonstrates the required validity.

Convergent Validity and Internal Consistency

Convergent validity and questionnaire reliability were assessed using factor loadings, average variance extracted (AVE), and composite reliability (CR). According to commonly used criteria, AVE should exceed 0.50 and CR should exceed 0.70. Factor loadings should also be statistically significant and preferably greater than 0.50.

Table 1. Criteria for Assessing Convergent Validity and Construct Reliability

Indicator	Acceptable Criterion	Purpose
Factor loading	Greater than 0.50	Assessing the relationship between an item and its construct
Average variance extracted (AVE)	Greater than 0.50	Assessing convergent validity
Composite reliability (CR)	Greater than 0.70	Assessing construct reliability
Cronbach's alpha	Greater than 0.70	Assessing internal consistency

Sources: Fornell and Larcker (1981); Hair et al. (2006).

The results indicate that the AVE values for marketing innovation, environmental orientation, and type of activity are 0.812, 0.612, and 0.773, respectively. The composite reliability values for all three constructs exceed 0.70. Therefore, the reported results indicate that the research instrument demonstrates acceptable reliability and convergent validity.

Table 2. Validity and Reliability Indices of the Research Constructs

Construct	AVE	Composite Reliability (CR)	Coefficient of Determination (R ²)
Marketing innovation	0.812	0.920	—
Environmental orientation	0.612	0.861	0.467
Type of activity	0.773	0.940	0.188

The results show that all three constructs meet the specified AVE and composite reliability criteria. The coefficient of determination for environmental orientation indicates that the model explains approximately 46.7% of the variance in this variable.

Goodness-of-Fit Index (GOF)

The goodness-of-fit index is used to assess the overall fit of the measurement and structural models. The study reports a GOF value of 0.489, which exceeds the threshold of 0.40 adopted in the original analysis.

Table 3. Goodness-of-Fit Index of the Research Model

Indicator	Reported Value	Criterion Used in the Study	Result
GOF	0.489	Greater than 0.40	Acceptable fit according to the study's criterion

This result suggests that, according to the criterion adopted in the study, the model demonstrates an acceptable fit and that the data are consistent with the proposed theoretical structure. However, this index should be interpreted alongside other model evaluation criteria and in light of the analytical method employed.

Structural Model Assessment and Hypothesis Testing

Following the assessment of the measurement model, the structural model was evaluated using path coefficients and t-statistics. According to the criterion reported in the study, an absolute t-value greater than 1.96 indicates statistical significance at the 5% significance level.

Table 4. Results of Research Hypothesis Testing

Hypothesis	Relationship Examined	Path Coefficient (β)	t-Statistic	Reported Result
Hypothesis 1	Effect of marketing innovation on environmental orientation	0.992	3.894	Supported; positive relationship
Hypothesis 2	Moderating role of type of activity in the relationship between marketing innovation and environmental orientation	0.797	2.691	Supported; negative moderating effect reported

The results indicate that the first hypothesis, concerning a positive and significant relationship between marketing innovation and environmental orientation, is supported. The second hypothesis, concerning the moderating role of type of activity, is also reported as supported. However, the sign of the interaction coefficient should be verified against the original statistical output to ensure an accurate interpretation of the direction of the moderating effect.

Conclusions

The present study aimed to examine the relationship between marketing innovation and environmental orientation and the moderating role of organizational activity type. To this end, four companies—Pars Hayat Abhar, Sepidar System Asia, ZarmaKarooon, and Snapp—were investigated. The study was applied in terms of its purpose and employed a descriptive-survey research design. Data were collected through questionnaires and analyzed using statistical methods and structural equation modeling. Of the 278 individuals selected as the sample, 148 completed questionnaires were considered valid and included in the final analysis.

The results of testing the first hypothesis indicated that the path coefficient for the relationship between marketing innovation and environmental orientation was 0.992, with a t-statistic of 3.894. Since the t-statistic exceeded the critical value of 1.96, the relationship between the two variables was found to be positive and statistically significant. Therefore, the first research hypothesis was supported. This finding suggests that innovation in marketing activities, identifying customer needs, improving market communication practices, and responding to environmental changes may be associated with stronger environmental orientation within organizations. This result was reported to be consistent with the studies by Medrano et al. (2020), Salvador et al. (2020), Maleki-Minbash-Rastegar et al. (2016), and Zamani et al. (2015).

The results of testing the second hypothesis showed that the t-statistic for the moderating effect of organizational activity type was 2.691. Since this value exceeded the critical value of 1.96, the moderating role of organizational activity type in the relationship between marketing innovation and environmental orientation was found to be statistically significant. Therefore, the second hypothesis was

supported. This finding indicates that the relationship between marketing innovation and environmental orientation may vary according to the nature of an organization's activities. Manufacturing and service companies differ in terms of product and service characteristics, customer interaction, and competitive conditions. Consequently, marketing innovation strategies should be designed and implemented in accordance with the specific characteristics of each organization. This finding was reported to be consistent with the studies by Guayé et al. (2019), Gupta et al. (2016), Sliwinski et al. (2012), and Naghizadeh et al. (2015). However, determining whether the moderating effect is positive or negative requires examining the sign of the interaction coefficient in the final model output.

Based on the research findings, managers are advised to foster an organizational culture that supports innovation and encourage employees to contribute new ideas. They should also use information derived from customer needs assessments, market trends, and competitor performance to inform marketing decisions. Furthermore, continuous employee training, stronger coordination among organizational departments, the development of marketing skills, and the adoption of digital tools may facilitate the effective implementation of innovations. Managers should align marketing innovation strategies with the organization's activity type, available resources, and target-market characteristics, avoiding the application of identical approaches across organizations with different operational contexts. Regularly evaluating innovative initiatives using indicators such as customer satisfaction, market performance, and the achievement of organizational objectives can also improve decision-making and resource allocation.

Overall, the findings highlight the importance of marketing innovation in relation to companies' environmental orientation and the need to consider organizational activity type when developing marketing strategies. Accordingly, strengthening innovation capabilities, effectively utilizing market information, encouraging employee participation, and adapting strategies to environmental conditions may help organizations respond more effectively to market changes and enhance the effectiveness of their marketing activities.

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