THE IMPACT OF MARKETING INFORMATION SYSTEMS ON MARKETING DECISIONS

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ABSTRACT
The purpose of this study is to determine the level of use of marketing information systems in TRNC enterprises and to examine their impact on marketing decisions. Relational survey model was used in the study conducted with quantitative research method. Data were collected from 323 business representatives who agreed to participate in the study. The measurement tool was developed based on İnce's (2023) doctoral thesis and structured by the researcher. The data were analysed with SPSS 26.0 software and descriptive statistics, correlation and regression analyses were applied.
As a result of the analyses, it was seen that structural variables such as type of enterprise, number of employees and duration of activity created significant differences in the level of use of marketing information systems. Especially joint stock companies, enterprises with more employees and enterprises that have been operating for a long time have been found to use information systems more effectively and extensively. When analysed at the level of sub-dimensions, significant differences were observed in the use of business records, information systems, marketing research and decision support systems. In addition, significant and positive relationships were found between marketing information systems and marketing decisions, and it was understood that the systems support decision-making processes and contribute to information-based decision-making. Regression analysis also reinforces these findings and reveals that decision support systems provide strong and significant contributions to the decision-making process.
Key Words: Marketing, Marketing Information Systems, Marketing Decisions, Organisational Structure.

1. INTRODUCTION
1.1. Problem
Today, businesses are faced with the necessity of making fast and accurate decisions due to the impact of global competition and digitalization. The marketing function has been one of the areas most affected by this change; the importance of data-based strategic approaches has increased (Turban, Pollard , & Wood , 2022). In this context, marketing information systems have become an important tool for businesses to manage their marketing activities more effectively. These systems, which consist of components such as decision support systems, news mechanisms, business records, and marketing research, facilitate decision-making processes by providing managers with analysis-based and consistent data (Türkmen, 2014; Aggarwal et al., 2025).
However, the effective use of marketing information systems is not limited to technological infrastructure. It is also directly related to factors such as organizational behavior, managerial approach and employee qualifications (Özkalp and Kırel, 2016). How information is processed and used within the organizational structure determines how strategically and consciously managers act in marketing decisions. The systematic use of information, especially in decision areas such as product development, pricing, distribution and promotion; directly affects marketing performance (Başar, 2015; Çetinkaya, 2018; Özdemir, 2016).
On the other hand, many businesses cannot fully integrate marketing information systems or cannot adequately reflect the system they have in their decision-making processes. Digitalization trends and content-based strategies in the field of marketing make this situation more complicated (Bubphapant and Brandão, 2024). In particular, intuitive approaches are at the forefront instead of systematic data use in SME-scale businesses. This causes the potential of information systems to be underutilized (Solomon, Marshall and Stuart, 2020).
In this context, the impact of marketing information systems on marketing decisions should be considered together with demographic factors and structural characteristics specific to the business. The determinant effect of variables such as the type, size and duration of activity of the business on the use of the system also shapes decision-making behaviors (Şimşek, Akgemci and Çelik, 2011). Therefore, not only the existence of the system but also its use and contribution to the decision-making processes should be the subject of research. The problem statement of the study was determined as: "Is there a significant relationship and effect between the level of use of marketing

information systems in businesses operating in the Turkish Republic of Northern Cyprus and the information-based marketing decisions?"

1.2. Purpose of the Research

The main purpose of this research is to determine the level of use of marketing information systems in businesses operating in the Turkish Republic of Northern Cyprus and to examine the impact of these systems on marketing decisions. In addition, the relationship between the demographic characteristics of business owners and managers and the structural characteristics of the business with marketing information systems and marketing decision processes was analyzed and the reflection of the information-based management approach on marketing strategies was evaluated.

1.2.1 Hypotheses

H_{01}: There is no significant difference in the sub-dimensions of marketing information systems according to the type of business.

H_{11}: There is a significant difference in the sub-dimensions of marketing information systems according to the type of business.

H_{02}: There is no significant difference in the sub-dimensions of marketing information systems according to the number of employees in the business.

H_{12}: There is a significant difference in the sub-dimensions of marketing information systems according to the number of employees in the business.

H_{03}: There is no significant difference in the sub-dimensions of marketing information systems according to the business's activity period.

H_{13}: There is a significant difference in the sub-dimensions of marketing information systems according to the business's activity period.

H_{04}: There is no significant difference in the sub-dimensions of marketing decisions based on business type.

H_{14}: There is a significant difference in the sub-dimensions of marketing decisions based on business type.

H_{05}: There is no significant relationship between marketing information systems and marketing decisions.

H_{15}: There is a significant relationship between marketing information systems and marketing decisions.

H_{06}: Marketing information systems do not have a significant effect on marketing decisions.

H_{16}: Marketing information systems have a significant effect on marketing decisions.

1.3. Importance of the Research

In today's rapidly increasing business world, the information-based decision-making process is of great importance for the sustainability of businesses. Marketing information systems facilitate the development of data-based marketing strategies and rationalize decision-making processes. This research demonstrates the impact of marketing information systems on business decisions with numerical data through a comprehensive field application carried out in the TRNC. Through analyses (normality, difference tests, correlation and regression) conducted with a large sample, the relationship between system usage levels and decision-making quality has been clearly examined. The findings both contribute to the academic literature and offer applicable suggestions for businesses to develop data-driven decision-making mechanisms.

2. THEORETICAL FRAMEWORK

2.1. Marketing Information Systems

In today's intensely competitive environment, businesses' ability to achieve sustainable success depends on making accurate and timely decisions based on information. Decisions taken in the marketing field in particular play a critical role in developing customer relations, evaluating market opportunities, and achieving strategic goals. Marketing Information Systems (MIS), developed within this framework, are an important management tool that enables marketing activities to be carried out more effectively and efficiently. Marketing information systems enable the systematic collection and analysis of information obtained from both the internal environment (sales reports, stock status, customer data) and the external environment (market research, competitive analysis, demographic trends) and provide decision support to managers (Kotler and Keller, 2016).

Marketing information systems perform three basic functions: data collection, data processing, and transformation into meaningful information. PIS increases the accuracy and reliability of the decision-making process by ensuring that marketing decisions are based on pure intuition, systematic, and analytical data (Cravens and Piercy, 2013). Businesses can both use their internal resources more efficiently and manage market uncertainties more easily. The components of PIS generally consist of four main elements: internal reporting system, marketing intelligence system, marketing research system, and decision support system. While the internal reporting system analyzes data from within the business, the marketing intelligence system monitors environmental changes and competitive conditions. The marketing research system produces new information by conducting special research, and the decision support system provides the processing and interpretation of this data (Dibb et al., 2016).

Advances in technology have further strengthened marketing information systems. In particular, digital technologies such as artificial intelligence, big data analytics, and cloud computing have increased the information processing capacity of PBS and made the systems more flexible and scalable. For example, customer relationship management (CRM) software and data mining techniques can be integrated with PBS, allowing for more in-depth analysis of customer behavior (Chaffey & Ellis-Chadwick, 2019). In this way, companies can gain competitive advantage by predicting current customer needs and future demands. In order for marketing information systems to be used successfully, it is not enough to have a sufficient technical infrastructure. It is also necessary for a culture of decision-making based on information to be developed within the company, managers to have high analysis and interpretation skills, and the system to be supported by senior management. Otherwise, the data provided by PBS cannot be effectively evaluated and the potential benefits of the system cannot be fully realized (Solomon, Marshall, & Stuart, 2020).

The effects of marketing information systems (MIS) on business management are among the important topics that have been researched in the literature for a long time. These systems provide strategic advantages to businesses by contributing to more rational marketing decisions. The theoretical infrastructure of marketing information systems is based on general information systems literature, but it is customized according to the data requirements specific to marketing functions (Kotler and Keller, 2016). In the literature, MIS is defined as decision support tools in dynamic market conditions and it is emphasized that it plays an important role in strategic planning processes.

2.2. Making Marketing Mix Decisions in Businesses

The marketing mix consists of the product, price, place and promotion (4P) elements that form the basic components of a company's marketing strategy. When making decisions regarding the marketing mix, businesses aim to gain competitive advantage in the target market by taking into account both internal environmental factors and external environmental dynamics (Kotler and Keller, 2016). Marketing mix decisions have strategic importance because they directly affect the positioning of the business in the market, and making the right decisions plays a critical role in the success of the business. Marketing mix decisions begin with the business's correct analysis of its target market and customer needs. Product decisions take shape in a wide range from product design to quality, variety and branding strategy. Businesses must determine product features that will meet customer expectations and differentiate from competitors (Gürbüz and Aytaç, 2017). Product decisions increase the competitiveness of the business and aim to create long-term customer loyalty. Pricing decisions are one of the most sensitive and complex dimensions of the marketing mix. Price is closely related to the perceived value of the product and the customer's willingness to pay. When determining pricing decisions, businesses must take into account costs, demand elasticity, competitor prices and market conditions (Çetinkaya, 2018). Pricing strategies should be flexible according to factors such as product life cycle and brand positioning. Incorrect pricing can cause both sales losses and damage to the brand image. The location (distribution) decision of the marketing mix aims to ensure that the product reaches the target market at the right time and in the right way. In this context, issues such as the selection of distribution channels, logistics, stock management and determination of sales points are important (Başar, 2015).

Effective distribution channels increase customer satisfaction while allowing the company to optimize its costs. Today, with the spread of e-commerce, the importance of digital distribution channels is also increasing. Promotion decisions are another basic element of the marketing mix. Promotion activities consist of tools such as advertising, sales promotions, public relations and personal sales. Businesses shape their promotion strategies with messages and channels suitable for the target audience. The effectiveness of these decisions is important in terms of creating brand awareness and influencing customer purchasing behavior (Özdemir, 2016). The development of digital marketing and social media tools has led to promotion decisions taking on a dynamic and interactive structure. In the process of making decisions regarding the marketing mix, businesses need to conduct comprehensive market research. Market research reveals the needs and expectations of the target audience, the activities of competitors and market trends (Yıldırım and Kaya, 2017). Decisions taken in the light of this information are more accurate and customer-focused. The flexibility of marketing mix decisions enables rapid adaptation to market conditions and customer preferences. In the decision-making process, businesses support data collection, analysis and interpretation activities by using marketing information systems (PBIS) (Kara, 2014). Especially in sectors where competition is intense, making decisions based on accurate and up-to-date information is indispensable for the survival and growth of the business. Making decisions regarding the marketing mix is a process that directly affects both the strategic and operational success of businesses. Managing product, price, place and promotion decisions in a harmonious and balanced manner provides a strong competitive advantage in the target market. Businesses should prioritize customer focus, flexibility and data-supported analysis when making these decisions. By effectively managing the marketing mix, the sustainable growth of the business is supported.

3. METHOD
3.1. Research Model
This study is a quantitative study, and the data were collected numerically and analyzed using statistical methods. Quantitative studies are types of research that aim to systematically collect data on observable and measurable phenomena and to reach generalizations based on these data. In such studies, the relationships between measurable variables are tested and evaluations are made in line with hypotheses (Büyüköztürk et al., 2016). The relational screening model was used within the scope of the research. This model is a screening type that aims to determine the level of relationship between two or more variables. The relational screening model describes the current situation and examines the direction and level relationship between the variables, revealing whether there is a significant connection between them. In this respect, this model, also called correlational research, is widely preferred especially in social sciences (Karasar, 2012).

3.2. Universe and Sample
The universe of this research consists of all businesses operating in the Turkish Republic of Northern Cyprus (TRNC). According to the 2020 Business Statistics report published by the TRNC Statistical Institute, there are a total of 16,787 enterprises (businesses) in the country. The total number of local units (branches, stores, offices, etc.) owned by these businesses is recorded as 18,792. The vast majority of enterprises operate with only one local unit; accordingly, 15,620 enterprises have only one local unit. In addition, 858 enterprises operate with two units, and 165 enterprises operate with three local units. The sample of the research consists of 323 business representatives (managers, partners or owners) selected from this universe and limited according to certain criteria. Purposive sampling was used as the sampling method. In this method, businesses that can provide information about marketing information systems and decision-making processes, are active and represent sectoral diversity were included in the scope of the research.

The following criteria were taken into account in selecting the businesses included in the sample group:
- They must be registered and still active within the borders of the TRNC,
- Having a staff or unit to carry out marketing activities,
- They have been operating for at least one year,
- Filling out the survey form completely and voluntarily.

In this context, data obtained from 323 business representatives who agreed to participate in the research and met the necessary criteria were used in statistical analyses. This sample size has a significant representative power compared to the total number of businesses in the TRNC and increases the generalizability of the research.

3.3. Data Collection Tools
In the study, the measurement tool for the level of use of marketing information systems was taken from the scale in the doctoral thesis developed by İnce (2023) and structured by the researcher using the scale development method. In this context, a pilot application was conducted in 102 enterprises in May 2021 and the comprehensibility, applicability and validity of the survey form were tested. It was determined that there was no question that was not understood by the participants and that there was no obstacle to moving on to the implementation phase of the measurement tool. Exploratory factor analysis was performed to determine the validity of the scale; the Kaiser-Meyer-Olkin (KMO) value was found to be 0.898 and the Bartlett sphericity test was significant. These results show that the sample adequacy and the suitability of the data for factor analysis were high. As a result of the factor analysis, it was determined that the scale developed for the level of use of marketing information systems in enterprises consisted of a total of 15 questions and four sub-dimensions (Business Records, News Retrieval Systems, Marketing Research and Decision Support Systems). The first factor measured the level of use of marketing information systems by 58.8%, the second factor contributed by 14.3%, the third factor by 7.1% and the fourth factor by 4.2%. Thus, these four factors in total show that the scale has an explanatory power of 84.67%. When the factor loading distributions were examined, it was seen that the factor loadings of all items were above 0.50 and the loading differences of the same item on different factors were at least 0.10. These findings revealed that the developed scale was a valid and reliable measurement tool.

In addition, the scale questions regarding the information-based marketing decisions were also used in the study prepared by İnce (2023). In this context, the extent to which businesses make product, price, distribution and promotion decisions based on customer, competitor and market information was measured through questions adapted from the scale originally developed by Keh, Mai Nguyen and Ng (2007). Within the scope of product decisions, it was evaluated whether features such as quality, shape, packaging and product variety were determined based on information. In price decisions, the effect of customer and market information was measured in the pricing process of products and services. In the distribution decisions section, the level of information use in the company's strategies for distribution channels was questioned; in the promotion decisions section, it was examined whether promotion, advertising and promotional activities were shaped in line with market information. Thus, comprehensive and valid data were obtained within the scope of the research on both the level of use of marketing information systems in businesses and the effect of these systems on marketing decisions. Cronbach's Alpha

reliability coefficient was calculated in order to determine the internal consistency of the measurement tool used in the research. The findings show that all subscales exhibit reliability above acceptable levels. The Alpha value for the sub-dimensions of the marketing information systems scale was calculated as .844 for "Business Records"; .942 for "Information Systems"; .904 for "Marketing Research"; and .882 for "Decision Support Systems". These values show that the scale items provide high-level consistent measurements.

In the sub-dimensions regarding information-based marketing decisions, "Product" has .807; "Price" has .871; "Distribution" has .915 and "Promotion" has .785 Cronbach's Alpha values. The fact that all sub-scales are above .70 shows that the internal consistency of the scales is strong and provides reliable data. Especially the values of .90 and above show that the measurement tool has a very high level of reliability. These results show that each sub-dimension in the questionnaire form measures the relevant structure reliably.

3.4. Analysis of Data

The research data were analyzed with SPSS 26.00 Program. In this context, first of all, normality test was performed. In order to test the normality of the data related to the measurement tools used in the research, Kolmogorov-Smirnov (KS) test was applied and skewness and kurtosis values were calculated within the scope of descriptive statistics. According to the Kolmogorov-Smirnov test results, the significance level (p) was found as .000 for all subscales, which shows that the assumption of normality was rejected from a statistical point of view. However, when the skewness and kurtosis values were examined, it was seen that all subscales were within the range of ±2. This value range supports that the distribution is quite close to the normal distribution in practice and that parametric tests can be applied. Especially in the "Business Records" subscale, skewness was calculated as .020 and kurtosis as -.002, and similarly symmetrical and moderately flat/sharp distributions were obtained in the other subscales. In this respect, it was concluded that the data related to the marketing information systems (Business Records, Information Systems, Marketing Research, Decision Support Systems) and marketing decision-making (Product, Price, Distribution, Promotion) scales have sufficient normality in terms of analysis and parametric statistical techniques can be used.

4. FINDINGS

Table 1. Socio-Demographic Distribution of Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Woman	136	42.1
	Male	187	57.9
Age	18–29	63	19.5
	30–40	91	28.2
	41–50	81	25.1
	51–60	47	14.6
	61–70	25	7.7
	71+	16	5.0
Educational Status	Primary/Secondary Education	17	5.3
	High school	64	19.8
	Associate Degree	78	24.1
	Licence	95	29.4
	Degree	48	14.9
	Doctorate	21	6.5
Position in the Business	Owner	124	38.4
	Partner	42	13.0
	Executive	122	37.8
	Other	35	10.8
		323	100

When the findings regarding the socio-demographic characteristics of the 323 business representatives who participated in the research are examined, it is seen that 57.9% of the participants are male and 42.1% are female. The densest group in terms of age distribution is the participants between the ages of 30–40 with 28.2%, followed

by the ages of 41–50 with 25.1% and the ages of 18–29 with 19.5%. 14.6% of the participants are between the ages of 51–60, 7.7% are between the ages of 61–70, and 5% are 71 and over. When the educational background is examined, the highest rate belongs to bachelor's degree graduates with 29.4%, followed by participants with an associate degree with 24.1%, high school with 19.8%, master's degree with 14.9%, doctorate with 6.5%, and primary/secondary education level with 5.3%. When the positions of the participants within the company were evaluated, it was determined that 38.4% of them were business owners, 37.8% were managers, 13% were partners and 10.8% were in other positions. These findings reveal that the sample exhibited a diverse and balanced distribution in terms of gender, age, education level and position in the company.

Table 2. Distribution of Business Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Business Type	Person	145	44.9
	Limited	112	34.7
	A.Ş.	40	12.4
	Other (ordinary partnership, cooperative etc.)	26	8.0
Number of Employees			
	1–9	157	48.6
	10–49	116	35.9
	50–249	38	11.8
	250+	12	3.7
Activity Period	Less than 1 year	13	4.0
	1–5 years	84	26.0
	6–10 years	95	29.4
	11–20 years	76	23.5
	21 years and above	55	17.0
Marketing Personnel / Department	Yes	203	62.8
	No	120	37.2

When the types of enterprises participating in the research are examined, it is seen that 44.9% of the participants are sole proprietorships, 34.7% are limited companies, 12.4% are joint stock companies, and 8% are ordinary partnerships, cooperatives or other similar enterprise types. When the distribution is examined according to the number of employees, the majority of the enterprises have the characteristics of micro and small-scale enterprises; in fact, 45.8% have 1-9 employees, and 34.1% have 10-49 employees. While the rate of enterprises with no employees is 5.6%, enterprises with 50-249 employees are 11.1%, and large-scale enterprises with 250 or more employees are only 3.4%. These data show that the research sample is predominantly composed of small and medium-sized enterprises (SMEs).

When the distribution of the businesses in terms of their operating period is examined, it is determined that 29.4% of them have been operating for 6-10 years, 26% for 1-5 years, and 23.5% for 11-20 years. In addition, 17% have been operating for 21 years and above, while only 4% have been operating for less than 1 year. These results show that a significant portion of the businesses in the sample have passed the institutionalization stage and have gained certain experience in the market. It was observed that 62.8% of the participants have a marketing department or only marketing personnel in their businesses, while 37.2% do not have such a unit. This finding shows that a large portion of the businesses in the sample carry out their marketing activities within a certain organizational structure and are open to data-based marketing decisions.

Table 3. Sub-dimensions of Marketing Information Systems by Business Type (ANOVA Results)

Sub Dimension	Business Type	n	Avg. ($\bar{X}$)	Ps.	f	p
Business Records	Person	145	3.46	0.51	23,850	**.000**
	Limited	112	3.83	0.48		2>1
	A.Ş.	40	4.13	0.44		
	Other	26	3.80	0.51		
Intelligence Systems	Person	145	3.38	0.49	47,751	.000 3>4

Sub Dimension	Business Type	n	Avg. ($\bar{X}$)	Ps.	f	p
	Limited	112	3.89	0.50		
	A.Ş.	40	4.22	0.47		
	Other	26	4.00	0.48		
Marketing Research	Person	145	3.29	0.58	21,160	.000 3>2.1
	Limited	112	3.61	0.62		
	A.Ş.	40	3.98	0.60		
	Other	26	3.72	0.65		
Decision Support Systems	Person	145	3.52	0.53	29,216	.000
	Limited	112	3.75	0.49		
	A.Ş.	40	4.09	0.48		2>1
	Other	26	4.00	0.49		

The results of one-way analysis of variance (ANOVA) conducted on four sub-dimensions measuring the level of use of marketing information systems according to business types revealed that there were statistically significant differences in all dimensions (p < .001). As a result of post-hoc (multiple comparison) analyses conducted to determine the direction of the difference, it was observed that certain business types had significantly higher scores in some sub-dimensions.

The result of f(3, 319) = 23.850, p < .001 obtained in the "Business Records" sub-dimension shows that there is a significant difference according to the type of business. In the comparisons made, limited companies stated that they use this system at a higher level than sole proprietorships (Limited > Private).

In the "Information Receiving Systems" dimension, the statistical significance at the level of f(3, 319) = 47.751, p < .001 shows that especially joint stock companies (Joint Stock Companies) use this system more effectively compared to other groups. As a result of post-hoc analyses, a significant difference was determined as Joint Stock Companies > Others group. In the "Marketing Research" sub-dimension, the result of f(3, 319) = 21.160, p < .001 shows significant differences. In this context, it was determined that joint stock companies have higher average scores than both limited companies and sole proprietorships (Joint Stock Companies > Limited, Private Company). In the "Decision Support Systems" dimension, the significant difference determined as f(3, 319) = 29.216, p < .001 again shows that joint stock companies use these systems more intensively compared to other business types. It was observed that especially joint stock companies received higher scores than limited and sole proprietorships (Joint Stock Companies > Limited, Private Company).

Table 4. Sub-dimensions of Marketing Information Systems According to Number of Employees (ANOVA Results)

Sub Dimension	Number of Employees	n	Avg. ($\bar{X}$)	Ps.	f	p
Business Records	1–9	157	3.48	0.47	19,968	.000
	10–49	116	3.78	0.53		4> 1
	50–249	38	4.05	0.55		
	250+	12	4.19	0.54		
Intelligence Systems	1–9	157	3.54	0.48	30,050	.000
	10–49	116	3.90	0.50		4> 1.2
	50–249	38	4.23	0.48		
	250+	12	4.32	0.45		
Marketing Research	1–9	157	3.38	0.51	23,874	.000
	10–49	116	3.71	0.55		
	50–249	38	4.06	0.53		4> 1.2
	250+	12	4.20	0.48		
Decision Support Systems	1–9	157	3.51	0.49	18,362	**.000**
	10–49	116	3.77	0.50		

Sub Dimension	Number of Employees	n	Avg. (X^-)	Ps.	f	p
	50–249	38	4.04	0.47		4> 1
	250+	12	4.13	0.51		

As a result of the one-way variance analyses (ANOVA), significant differences were identified in the sub-dimensions of marketing information systems according to the number of employees in the enterprises (p < .001). As a result of the post-hoc (multiple comparison) analyses conducted in order to determine the direction of these significant differences, it was understood that enterprises with a high number of employees use marketing information systems more intensively. The result of f(3, 319) = 19.968, p < .001 obtained in the "Business Records" sub-dimension revealed that enterprises differ according to the number of employees. According to the post-hoc analysis results, enterprises with 250 or more employees use this system at a significantly higher level compared to those with 1–9 employees (4 > 1). Similarly, significance was obtained in the "Information Receiving Systems" sub-dimension at the level of f(3, 319) = 30.050, p < .001. Post-hoc comparisons showed that businesses with 250+ employees had higher scores than those with both 1–9 and 10–49 employees (4 > 1.2). A significant difference was also found in the "Marketing Research" dimension (f(3, 319) = 23.874, p < .001), and again the highest mean scores belonged to businesses with 250 or more employees. It was found that these businesses used marketing research more extensively compared to smaller businesses (4 > 1.2). Statistical significance was also found in the "Decision Support Systems" sub-dimension at the level of f(3, 319) = 18.362, p < .001. Post-hoc analysis results showed that businesses with 250+ employees used these systems more effectively than those with 1–9 employees (4 > 1).

Table 5. Sub-dimensions of Marketing Information Systems According to Activity Duration (ANOVA Results)

Sub Dimension	Activity Period	n	X^-	Ss.	f	p
Business Records	Less than 1 year	13	3.55	0.57	6,174	.000
	1–5 years	84	3.59	0.52		5 > 1,2,3,4
	6–10 years	95	3.63	0.55		
	11–20 years	76	3.81	0.55		
	21 years and above	55	3.99	0.53		
Intelligence Systems	Less than 1 year	13	3.51	0.49	2,174	.073
	1–5 years	84	3.63	0.47		
	6–10 years	95	3.66	0.46		
	11–20 years	76	3.71	0.45		
	21 years and above	55	3.75	0.43		
Marketing Research	Less than 1 year	13	3.50	0.54	8,592	**.000**
	1–5 years	84	3.70	0.52		
	6–10 years	95	3.91	0.53		5> 1,2,3,4
	11–20 years	76	4.00	0.48		
	21 years and above	55	4.20	0.50		
Decision Support Systems	Less than 1 year	13	3.43	0.48	1,964	.099
	1–5 years	84	3.53	0.49		
	6–10 years	95	3.64	0.50		
	11–20 years	76	3.70	0.52		
	21 years and above	55	3.81	0.47		

As a result of the one-way variance analyses, some significant differences were found in the marketing information systems sub-dimensions according to the duration of activity of the enterprises. The difference between the groups was found to be statistically significant especially in the "Business Records" and "Marketing Research" dimensions (p < .001). The f(4, 318) = 6.174, p < .001 result obtained in the "Business Records" sub-dimension shows that as the duration of activity of the enterprises increases, the level of use of the business records system also increases. As a result of the post-hoc analyses, it was seen that the enterprises that have been in operation for 21 years or more use this system at a significantly higher level compared to all other groups that have been in

operation for a shorter period (5 > 1, 2, 3, 4). Similarly, a significant difference was obtained in the "Marketing Research" sub-dimension at the level of $f(4, 318) = 8.592$, $p < .001$. According to the post-hoc analysis results, businesses with an operating period exceeding 21 years have significantly higher average scores in the use of marketing research than all other groups (5 > 1, 2, 3, 4).

Table 6. Sub-dimensions of Marketing Decision Making by Business Type (ANOVA Results)

Sub Dimension	Business Type	n	$\bar{X}$	Ps.	f	p
Product	Person	145	3.71	0.49	8,369	**.000**
	Limited	112	3.97	0.50		3>1
	A.Ş.	40	4.01	0.42		
	Other	26	3.71	0.43		
Price	Person	145	3.68	0.47	9,799	**.000**
	Limited	112	3.93	0.52		
	A.Ş.	40	4.03	0.50		3>2.4
	Other	26	3.63	0.47		
Distribution	Person	145	3.84	0.48	6,991	**.000**
	Limited	112	4.00	0.52		
	A.Ş.	40	4.02	0.52		3>2.4
	Other	26	3.69	0.53		
Promotion	Person	145	3.82	0.48	8,280	**.000**
	Limited	112	4.03	0.51		
	A.Ş.	40	4.13	0.47		3>1
	Other	26	3.79	0.48		

As a result of the post-hoc analyses, significant differences were found in all sub-dimensions related to marketing decisions according to business type. The result obtained in the "Product" sub-dimension as $f(3, 319) = 8.369$, $p < .001$ shows that there is a significant difference between the groups. According to the post-hoc analyses, the level of information-based product decisions in businesses with the status of joint-stock companies (JSC) is significantly higher compared to sole proprietorships (3 > 1). Significant differences emerged in the "Price" sub-dimension with $f(3, 319) = 9.799$, $p < .001$. Joint-stock companies exhibit a higher level of information-based approach in pricing decisions compared to limited companies and other business types (3 > 2, 4). Similarly, it was seen that joint-stock companies had higher average scores in the "Distribution" sub-dimension ($f = 6.991$, $p < .001$). Here too, JSC It was determined that the companies were significantly different from the limited and other types of companies (3 > 2, 4). A significant difference was also found in the "Promotion" sub-dimension ($f = 8.280$, $p < .001$) and it was observed that joint stock companies made more information-based promotional decisions than sole proprietorships (3 > 1).

Table 7. Correlation Analysis between Marketing Information Systems and Marketing Decisions (Pearson r)

PBS Size	Decision Dimension	r	p
Business Records	Product	−0.061	.273
	Price	0.351	**.000**
	Distribution	−0.045	.416
	Promotion	0.048	.392
Intelligence Systems	Product	0.013	.810
	Price	−0.006	.898
	Distribution	0.423	**.000**
	Promotion	0.023	.686
Marketing Research	Product	0.037	.499
	Price	−0.011	.844
	Distribution	−0.021	.707
	Promotion	0.458	**.000**

PBS Size	Decision Dimension	r	p
Decision Support Systems	Product	0.550	**.000**
	Price	−0.009	.872
	Distribution	0.024	.674
	To know	−0.015	.780

As a result of the Pearson correlation analysis, some significant relationships were found between the marketing information systems sub-dimensions and the marketing decision-making sub-dimensions. This analysis provides important findings in terms of evaluating the impact of information systems on decision-making processes. First of all, a moderately positive and significant relationship was found between the Business Records dimension and the Price decision ($r = 0.351$, $p < .001$). This finding shows that businesses that follow their business records regularly and systematically contribute to making more conscious pricing decisions. A significant relationship was also found between the News Receiving Systems dimension and the Distribution decision ($r = 0.423$, $p < .001$). This situation shows that environmental information gathering systems are effective in preferring information-based strategies, especially in distribution channels and logistics decisions. The Marketing Research dimension was found to be significantly related to Promotion decisions ($r = 0.458$, $p < .001$). This finding reveals that decision-making processes based on market research play a decisive role in shaping promotion and advertising strategies. A highly positive and significant relationship was found between Decision Support Systems and Product Decision ($r = 0.550$, $p < .001$). This result shows that when businesses use decision support technologies, they can make strategic decisions such as product development, diversification and positioning more effectively.

Table 8. The Impact of Marketing Information Systems on Marketing Decisions: Regression Analysis Results

Variable	B (β)	Std . Error	t	p	95% CI Lower	95% CI Upper
Constant (Const)	2,226	0.217	10,280	**.000**	1,800	2,652
Business Records	0.080	0.026	3,043	**.003**	0.028	0.131
Intelligence Systems	0.145	0.026	5,647	**.000**	0.094	0.195
Marketing Research	0.129	0.026	4,881	**.000**	0.077	0.182
Decision Support Systems	0.171	0.026	6,442	**.000**	0.119	0.224

$R^2 = 0.214$ Adjusted $R^2 = 0.205$ $F(4, 318) = 21.71$, $p < .001$

The overall significance of the model is quite high; $F(4, 318) = 21.71$, $p < .001$ was calculated and the R^2 value was found as 0.214. This shows that the marketing information systems sub-dimensions explain approximately 21% of the variance in marketing decisions. In other words, marketing information systems have an important and explanatory role in decision-making processes. When the variables are examined individually, each one is statistically significant and has a positive effect. The Decision Support Systems variable has the highest effect coefficient ($β = 0.171$, $p < .001$), indicating that systematic analysis is a strong determinant in decision-making processes. The variables Information Receiving Systems ($β = 0.145$, $p < .001$) and Marketing Research ($β = 0.129$, $p < .001$) also emphasize the effect of information gathering and research-based approaches in marketing decisions. Although the effect of the Business Records dimension was relatively lower, it was found to be significant ($β = 0.080$, $p = .003$), demonstrating the contribution of record keeping and organizational memory in decision-making processes.

4. CONCLUSION

The research findings revealed that the level of use of marketing information systems differs significantly according to the structural characteristics of the enterprises. In particular, the variables of type of enterprise, number of employees and duration of activity significantly affect the usage levels of the four basic sub-dimensions of marketing information systems (business records, information systems, marketing research, decision support systems). While it is seen that joint stock companies use these systems more intensively and systematically than other types of enterprises, significant increases are observed in the usage levels of information systems as the number of employees increases and the duration of the enterprise extends. For example, it has been determined that enterprises with more than 250 employees and operating for more than 21 years use marketing information systems, especially the dimensions of business records and marketing research, at a higher level. This situation suggests that the need for information-based decision-making increases in parallel with the increase in the level of institutionalization.

In addition, strong and significant relationships were found between marketing information systems and marketing decision making. The impact of business records on pricing decisions, news systems on distribution decisions, marketing research on promotion decisions and decision support systems on product decisions is significant. It

was determined that decision support systems, in particular, play an effective role in product strategies. Regression analyses also show that marketing information systems provide a significant and statistically strong model in explaining marketing decisions. In this context, it was concluded that information systems are used as a functional tool in decision making processes and help decisions to be made more rationally and systematically.

In light of these findings, a number of strategic recommendations should be developed to ensure that marketing information systems are used more effectively, especially in small and medium-sized enterprises. First, training programs should be organized to raise awareness about the advantages of information systems, and technical support should be provided on how to install and operate these systems. In addition, increasing state-supported incentives, making investments to facilitate access to information technologies, and providing consultancy services in digitalization processes will contribute to the dissemination of systems. Finally, it should be emphasized that marketing information systems are not a resource specific to large enterprises only, but also a strategic tool that increases the competitiveness of enterprises of all sizes; public, private sector and academic collaborations should be encouraged in this direction.

REFERENCES

Başar, H. (2015). *Marketing principles* . Istanbul: Beta Publications.

Bubphapant , J., & Brandão , A. (2024). Content marketing research : A review and research agenda *International Journal of Consumer Studies , 48* (1), e12984.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016). *Scientific research methods* (21st ed.). Ankara: Pegem Academy.

Chaffey , D., & Ellis-Chadwick , F. (2019). *Digital marketing* (7th ed.). Pearson Education Limited.

Cravens , D. W., & Piercy , N. F. (2013). *Strategic marketing* (10th ed.). McGraw-Hill Education .

Çetinkaya, A. (2018). Pricing strategies and applications. *Journal of Business Research, 10* (1), 45–62.

Dibb , S., Simkin , L., Pride , W. M., & Ferrell , O. C. (2016). *Marketing: Concepts and strategies* (7th ed.). Cengage Learning.

Gürbüz, G., & Aytaç, S. (2017). The effects of product strategies on marketing success. *Journal of Marketing and Management, 34* (2), 89–105.

İnce, M. (2023). *The impact of entrepreneurial marketing and marketing information systems on marketing decisions* (Doctoral thesis). Karabük University, Institute of Social Sciences.

Kara, A. (2014). Marketing information systems and decision making process. *Istanbul University Faculty of Business Journal, 43* (1), 123–138.

Karasar , N. (2012). *Scientific research methods: Concepts, principles, techniques* (23rd ed.). Ankara: Nobel Publishing Distribution.

Kotler , P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education .

Ozdemir, O. (2016). The role of digitalization in promotion strategies. *Journal of Marketing and Communication Research, 5* (1), 55–70.

Ozkalp, E., & Kirel , C. (2016). *Organizational behavior* . Eskisehir: Anadolu University Publications.

Solomon, M.R., Marshall, G.W., & Stuart , E.W. (2020). *Marketing: Real people , real Choices* (10th ed.). Pearson.

Simsek, MS, Akgemci , T., & Celik, A. (2011). *Management and organization* . Konya: Nobel Publishing Distribution.

Turban, E., Pollard , C., & Wood , G. (2022). *information technology for management : On- demand strategies for performance , growth , and sustainability* (12th ed.). Wiley .

Yıldırım, H., & Kaya, F. (2017). The effect of market research on marketing decisions. *Ege Academic Review, 17* (2), 243–256.