

## **The Impact of the Internet of Things, Customer Relationship Management, Customer Experience Management, and Marketing Intelligence on Achieving Sustained Competitive Advantage (case study: Snowa Company)**

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### **Abstract**

Despite the importance of Marketing Intelligence (MI) and the Internet of Things (IoT), Customer Relationship Management (CRM), and Customer Experience Management (CEM) in the competitive context, more research on the integration of these concepts for sustained competitive advantage is necessary. Thus, Snowa Company must effectively utilize these concepts to establish a sustained competitive advantage. Therefore, this study investigates the impact of IoT, CRM, CEM, and MI on attaining sustained competitive advantage. By employing a structural equation model and Smart-PLS software, we analyzed data collected from 186 managers and employees of Snowa Company. Our findings indicate that integrating IoT, CRM, and CEM concepts into marketing intelligence is the most beneficial strategic approach for achieving sustained competitive advantage for Snowa Company. Through this integration, company managers can enhance their marketing and innovation capabilities, strengthen strategic solutions, and achieve sustained competitive advantage.

**Keywords:** Internet of Things, Customer Relationship Management, Customer Experience Management, Marketing Intelligence, Sustained Competitive Advantage.

### **Introduction**

Automating marketing-related processes, developing IoT-related technologies, and managing customer relationships and experiences have become indispensable competitive concepts (Jensen, Wakefield, Cobbs & Turner, 2016; Kumar, Kumar, Vandana & Batra, 2023). Many researchers have confirmed that IoT-related technologies profoundly impact companies' management models, strategies, and prospects (Lee & Lee, 2015; Sanayei, Westland & Adelpnah, 2023). Moreover, IoT provides a strategic framework for managing risks, identifying opportunities, and addressing unexpected challenges (Rejeb, Rejeb, Zailani,

Treiblmaier & Hand, 2021). By harnessing the power of the IoT, companies can gather marketing intelligence and maintain their competitive advantage (Nozari, Szmelter-Jarosz & Ghahremani-Nahr, 2022). On the other hand, the importance of CRM and CEM concepts cannot be overlooked. Indeed, these concepts are critical in helping companies differentiate themselves from their competitors and succeed in a highly competitive marketplace (Dewnarain, Ramkissoon & Mavondo, 2021). They also provide insights into customer behavior and journey (Makudza, 2020). In addition, these concepts play a central role in fostering creativity, innovation, and knowledge creation, making them essential in today's business environment (Jensen et al., 2016).

Furthermore, these concepts can improve marketing intelligence and help achieve a sustainable competitive advantage (Quaye & Mensah, 2019; Aripin, Suganda & Kusumah, 2022). As Snowa Company is one of the best high-end home appliance manufacturers in Iran, it has been selected to implement this research. Therefore, managers must collect and analyze data and information about the competitive environment and their competitors' activities. They can then use this valuable information to design their marketing strategy, develop effective CRM systems, and deliver exceptional customer experiences. Managers should also continuously review their capabilities in managing information and integrating channels to reach customers in different segments. This approach ensures consistent performance and attention, enabling meaningful communications, relevant data, personalized products, and superior customer service. This study is essential to understand the impact of these concepts on business success and the value of aligning them with marketing intelligence. This correlation is critical to achieving a sustainable competitive advantage, which has yet to be explored in previous research studies.

IoT and marketing intelligence are reengineering factors for business processes, products, and services. Digital transformation and the use of new technologies such as IoT require companies to undergo both cultural and technological changes, necessitating fundamental shifts in their strategies (Sestino, Prete, Piper & Guido 2020; Mahboobi Renani, Amiri Aghdaie, Mohammad Shafiee & Ansari, 2021; Aripin et al., 2022). Although marketing intelligence is one of the critical factors for companies to gain a better competitive advantage, many researchers question whether simply possessing marketing intelligence can truly provide companies with a sustainable competitive advantage and excellent performance. They also argue that the concept needs to be re-evaluated (Wu, Chen & Dou, 2017; Helm, Krinner & Endres, 2020). Hence, there is a lack of guidance on how to utilize and implement marketing intelligence effectively.

Additionally, previous research has yet to address the benefits of integrating marketing intelligence and IoT data as an effective mechanism for increasing the company's competitive capacity. Therefore, IoT's slow adoption and integration with marketing intelligence will be a major concern for Snowa Company and could lead to undesirable results. This will result in Snowa Company's products being different from those of foreign competitors in terms of technology and modern design.

On the other hand, CRM and CEM are the most crucial factors for gaining a competitive advantage in highly turbulent market conditions. They enable companies to continuously develop themselves to adapt to the changing market environment (Makudza, 2020; Taylor, Reilly & Wren., 2020; Helm & Graf, 2018). Previous studies have primarily focused on the direct relationship between marketing intelligence and CRM and CEM or between CRM and

CEM in achieving a competitive advantage (Helm & Graf, 2018; Dewnarain, Ramkissoon & Mavondo, 2019; Helm et al., 2020). However, despite the importance of CRM and CEM, previous studies have not explained how to integrate marketing intelligence into these capabilities in one model to gain a sustained competitive advantage. Moreover, despite the need for IoT solutions to revamp business models for Iranian home appliance companies to effectively generate customer value and capture value for the company, the significance of connecting IoT to CRM and CEM to attain a competitive advantage has not been thoroughly researched. Consequently, there is still a limited understanding of how to apply IoT to develop concrete capabilities that can lead to sustainable competitive advantage. As a result, there is a lack of research models that attempt to examine and integrate marketing intelligence, IoT, CRM, CEM, and competitive advantage in one model. Therefore, more research on this topic is required.

Considering the importance of implementing, expanding, and showcasing the effects of IoT, MI, CRM, and CEM to enhance Snowa Company processes, we propose a model that evaluates the influence of these concepts on attaining sustained competitive advantage. This model incorporates existing insights into IoT, marketing intelligence, CRM, and CEM. Furthermore, we demonstrate a more tangible approach to intelligence by integrating IoT, MI, CRM, and CEM and dividing it into specific actionable activities. This offers recommendations for Snowa Company on leveraging available market information to enhance product attributes. Additionally, our research establishes a connection between MI and a company's specialized IoT, CRM, and CEM systems as pivotal components in developing intelligent marketing strategies. Utilizing IoT, MI, CRM, and CEM frameworks, we focus on organizational activities to achieve the SCA. Consequently, this study stands out as one of the first to integrate and examine the interrelationships among IoT, CRM, CEM, MI, and SCA, given the increasing significance of these concepts.

This research has been organized as follows: The development of the hypotheses that support the relationships among the examined variables (IoT, marketing intelligence, CRM, CEM, and sustained competitive advantage), have been presented in the next section. The next section briefly explains the research methodology adopted in this research. Then, the data analysis and the testing of the hypotheses were done using structural equation modeling (SEM). Finally, it describes in detail the results of the present research and provides theoretical and practical implications with limitations and future scope of this research.

### **Literature Review**

Recently, IoT has gained significant importance and become an essential part of various organizations' operations and services (Baucas & Spachos, 2020; Abbass & Mehmood, 2023). IoT refers to a network of digitally connected physical devices within an organization and its supply chain that can sense, monitor, and interact. This interconnectedness enables agility, visibility, monitoring, and data sharing, ultimately facilitating efficient planning, management, and coordination of supply chain processes (Wu et al., 2017; Taylor et al., 2020). Many researchers have confirmed that IoT offers advancements such as connected products and notifications for product changes, enabling companies to become more intelligent and establish new customer relationships (Wu et al., 2017). Therefore, it is crucial to explore the necessary skills for IoT adoption in organizations, especially for those striving to be innovative and

market-oriented (Quaye & Mensah, 2019). Hence, as IoT devices constantly stream data, they can enhance companies' marketing intelligence by efficiently collecting and analyzing data. This provides a deeper understanding of customers and competitors, enabling managers to develop and align their marketing plans and provide valuable insights for decision-making (Taylor et al., 2020; Migdadi, 2021; Nozari et al., 2022). Therefore, we propose the following hypothesis:

**H1: IoT has a positive effect on MI**

IoT is known for its extensive collection of customer data, which has the potential to enhance significantly CRM and CEM (Wang, 2023). By utilizing connected devices that continuously share a wide range of information, such as customer behavior, activities, and preferences, with intelligent systems, the IoT offers businesses a valuable opportunity to gain profound insights and high-quality data. The integration of devices and intelligent systems will open up a completely new realm and encourage innovative possibilities for delivering services and products, while also enabling superior and simultaneous support (Obaid & Nozari, 2022; Bagheri, Seyed Naghavi, Ghorbanizadeh & Aslipour, 2023). Therefore, companies will continuously receive data from these devices and use AI and advanced analytics to analyze it, acquiring knowledge about customer desires without direct communication. The key lies in anticipating customer needs through data interpretation, which requires companies to learn how to communicate and establish customer experiences through devices and communication platforms rather than through direct means (Cesay, 2020).

Consequently, the future of CRM and CEM will heavily rely on cognitive computing, big data analysis, and the development of deep organizational knowledge (Nozari et al., 2022). Thus, companies must harness IoT for analytics and ensure swift and consistent communication management with customers. This enhances the efficiency of CRM and CEM systems and focuses on improving customer experience programs and developing more customer-centric products. These efforts will optimize marketing strategies, gain a competitive advantage, and achieve sustained growth (Abbass & Mehmood, 2023; Baucas & Spachos, 2020; Lo & Campos, 2018; Taylor et al., 2020). Consequently, we propose the following hypotheses:

**H2: IoT has a positive effect on CRM.**

**H3: IoT has a positive effect on CEM.**

**H4: IoT has a positive effect on SCA.**

CRM is a comprehensive business concept that enables a company to identify, acquire, enhance, and retain customer value through co-creation. Implementing a successful CRM strategy requires a holistic approach that considers technology, processes, and people (Chatterjee, Ghosh & Chaudhuri, 2020; Nguyen, Chen, Foroudi, Yu, Chen & Yen, 2020; Khan, Salamzadeh, Iqbal & Yang, 2022). Research has demonstrated that the implementation of CRM activities has a positive impact on the development of long-term relationships, innovation capabilities, and MI collection (Migdadi, 2021). Hence, obtaining data from CRM systems helps companies gain a comprehensive understanding of their customers, effectively manage their operations, foster enduring customer relationships, and make well-informed plans and decisions (Dewnarain et al., 2019; Migdadi, 2021; Dewnarain et al., 2021). Therefore, successful CRM implementation requires a customer-focused structure and a culture that

rewards customer-centric practices (Dubey & Sangle, 2019; Nguyen et al., 2020). Shukla and Pattnaik (2019) emphasize the importance of aligning the entire company structure with customer-centric practices. Migdadi (2021) and Mohammad Shafiee (2022) also found that companies must strive to gather customer data and convert it into actionable intelligence to comprehend their customers' needs, preferences, and perspectives. Incorporating concepts such as MI and CRM into marketing strategies enhances competitive advantage and evaluates strategic plans (Dubey & Sangle, 2019). Therefore, we propose the following hypothesis:

**H5: CRM has a positive effect on MI.**

CEM is a critical factor for a company's success. It involves planning and overseeing the emotions and mental images that customers develop after interacting with a product or service (Homburg, Jozić & Kuehnl, 2017). The customer experience is established when the company fulfills its promises during customer interactions. The efficiency of CEM can be significantly enhanced by using big data analytics and artificial intelligence in CRM (Rafiki, Hidayat & Al Abdul Razzaq, 2019; Sigala, Rahimi & Thelwall, 2019). These advanced technologies empower businesses to establish more personalized marketing approaches, targeted promotions, improved customer service, and streamlined communication. Ultimately, this leads to an amplified customer experience and increased customer loyalty (Holmlund, Van Vaerenbergh, Ciuchita, Ravald, Sarantopoulos, Ordenes & Zaki, 2020). By thoroughly analyzing the extensive amounts of customer information acquired through CRM systems and digital touchpoints, companies gain a more robust comprehension of customer behavior, preferences, and needs, allowing them to create a superior customer experience (Ghouchani, Jodaki, Joudaki, Balali & Rajabion, 2020). According to Fuad and Abdullah (2023), by leveraging CRM, companies can enhance their capabilities in establishing and managing customer connections, elevate customer service, and increase customer retention for amplified profitability. Their research found a significant and positive correlation between CRM and CEM. Thus, we propose the following hypothesis:

**H6: CRM has a positive effect on CEM.**

Over the past two decades, scholars and practitioners have focused on understanding the sources of competitive advantage (Farhikhteh, Kazemi, Shahin & Mohammad Shafiee, 2020; Shen, Sha & Wu, 2020; Mohammad Shafiee, 2022). They assert that a business possesses a competitive advantage if it implements a unique value-creating strategy not adopted by any existing or potential competitors. If other companies cannot replicate the benefits of this strategy, it confirms the presence of sustained competitive advantage (Dalla Pozza, Goetz & Sahut, 2018). Therefore, companies must consistently stay ahead, be responsive, and build stronger customer relationships by meeting their needs and enhancing customer service (Hayati, Suroso, Suliyanto & Kaukab, 2020). Consequently, CRM competency becomes an essential aspect of organizational competence, enabling a company to compete with rivals and create value for customers (Dubey & Sangle, 2019; Hayati et al., 2020; Lee & Yoo, 2021). Hadi (2015) and Aloqool, Alharafsheh, Abdellatif, Alghasawneh and Al-Gasawneh (2022) have discovered a significant link between customer attraction, acquisition, retention, and competitive advantage. They found that loyal customers benefit the company and play a pivotal role in achieving SCA. Thus, we propose the following hypothesis:

**H7: CRM has a positive effect on SCA.**

Monitoring customer behavior and responses becomes imperative for customer-centric organizations to gauge customer satisfaction and loyalty (Klink, Zhang & Athaide, 2020). CEM has been identified as a crucial element in reorganizing essential organizational-level factors to establish a customer-centric organization, as stated by Ceesay (2020). To further enhance the implementation of company-wide CEM, Makudza (2020) and Holmlund et al. (2020) argue that more robust empirical studies are necessary. These studies will enable companies to become truly customer-centric. Hence, processing, analyzing, and integrating customer experience data into marketing strategy and MI systems is critical. Additionally, conducting market research targeted at specific projects and product-related market developments is essential in meeting individual customer requirements. Klink et al. (2020) also discovered that customers are willing to pay a premium for a better experience, which aids companies in attaining superior performance and a sustained competitive advantage. They found that customer experience management positively impacts a firm's performance and competitive advantage. Thus, the inclusion of customer experience information in market research activities allows companies to identify potential market threats or opportunities, facilitating intelligent decision-making and the avoidance of concerns regarding tactical and operational marketing strategies (Bonfanti, Vigolo, Yfantidou & Gutuleac, 2023; Fuad & Abdullah, 2023; Shafiee, 2021; Klink et al., 2020). Therefore, we present the following hypotheses:

**H8: CEM has a positive effect on MI.****H9: CEM has a positive effect on achieving SCA.**

MI encompasses ongoing analysis and reporting processes to support company decision-making (Aripin et al., 2022; Malekolkalami, Hassanzadeh, Sharif & Rezghi, 2023). Serdari (2020) proposes that such data can effectively guide companies in developing new products, allowing them to stay ahead of their competitors. They argue that the thorough examination of intelligence, which includes monitoring, analysis, and various data collection and analysis techniques, is essential for operational efficiency and mitigating risks and threats. Farhikhteh et al. (2020) emphasize the importance of managers gathering additional information to adapt to their environment and achieve innovation-driven performance. In this regard, MI has emerged as an indispensable component of marketing strategy, as marketing data significantly impacts decision-making effectiveness across all industries, with companies competing to create innovative products and achieve SCA (Kamboj & Rahman, 2017). Aripin et al. (2022), Arsawan, Koval, Rajiani, Rustiarini, Supartha, and Suryantini (2022), and Weng (2021) discovered that MI can help managers comprehend market and industry transformations, enhance their marketing and innovation capabilities, and predict potential risks. Kunle, Akanbi, and Ismail (2017) found that marketing intelligence sub-constructs such as internal records, competitor sales data, marketplace opportunity, competitors' threats, and competitors' risks significantly and positively influence competitive advantage. As a result, companies of all sizes can utilize MI as a decision-making tool for marketing strategy, research and development, investment, and long-term business strategies. Thus, it is proposed that MI should be effectively employed to create SCA within the marketing environment.

### H10: MI has a positive effect on achieving SCA.

Following the literature review and hypothesis development, Figure 1 summarizes the conceptual model underpinning the research.

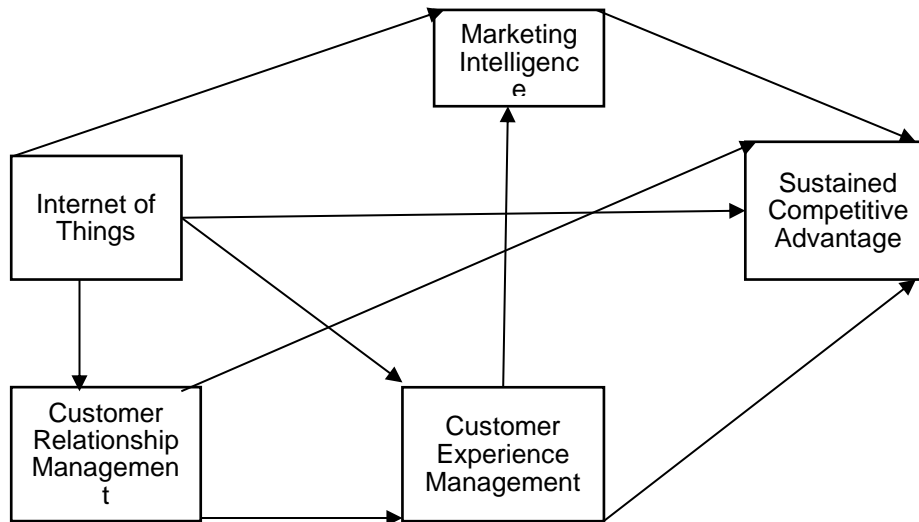


Figure 1: Conceptual Model

## Materials and Methods

### Data and sample characteristics

In this research, Snowa company, one of the best home appliance companies in Iran, was selected because it can perform a critical role in developing and using advanced technology, establishing relationships with customers, and attracting them, thus creating competitive products that compete with foreign products. The statistical population of this research is managers and employees of Snowa Company in Iran. This company tries to leverage the ideas and innovations of its frontline employees to improve products and processes. Given this, the employees' and managers' responses regarding IoT, MI, and IC are of utmost importance to the company; thus, their answers have been taken into consideration. A convenient non-probability sampling method was used to collect the samples. As mentioned earlier, a standardized questionnaire employing a five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree), was implemented to collect data from the individuals. The questionnaire's validity was confirmed by assessing its content validity.

Six domain experts carefully reviewed and assessed the questionnaire, leading to the final version of the instrument after conducting revisions and pilot tests involving 25 individuals. The structural equations modeling sampling formula ( $5q \leq n \leq 15q$ ) has been used to determine sample size. According to the 25 questions of the questionnaire and this formula, the minimum sample size was 125, and the maximum sample size was 375. A total of 225 questionnaires were distributed, of which 203 were successfully returned. Some questionnaires were disregarded due to incomplete information, resulting in 186 valid responses. The measurement items utilized for all constructs within the research models were adapted from previously published works. The collected research data were subjected to both descriptive and inferential analyses. Within the descriptive analysis, the data were scrutinized concerning demographic details such as gender, level of education, and age. The dataset revealed that 53.76% of the

participants were male and 46.24% were female. The majority of respondents possessed bachelor's degrees.

Moreover, the largest contingency of participants fell within the age range of 25 to 30 years (38.18%). As for their career field, most participants were affiliated with marketing and sales (49.46%). Regarding professional experience, 44.63% of the respondents reported having 1 to 5 years of experience, as indicated in Table 1.

Table 1

Descriptive Statistics for Survey Respondent (N= 186)

Descriptions		Frequency	%
<b>Gender</b>	Male	100	53.76
	Female	86	46.24
<b>Level of education</b>	Bachelor	80	43.01
	MSc	70	37.63
	PhD	36	19.36
<b>Age</b>	25-30 years	71	38.18
	31-35 years	50	26.88
	36-40 years	45	24.19
	Over 40 years	20	10.75
<b>Career Field</b>	Research and Development	52	27.96
	Digital Marketing	42	22.58
	Marketing and sales	92	49.46
<b>Experience years</b>	1-5 years	83	44.63
	6-10 years	63	33.87
	Over ten years	40	21.5

### Research measures

This research utilized a five-item scale adapted from Lee & Lee (2015), Wu & Dou (2017), Lo and Campos (2018), Taylor et al. (2020), and Nozari et al. (2022) to measure IoT. To measure CRM, a five-item scale adapted from Nguyen et al. (2020), Dubey & Sangle (2019), Rafiki et al. (2019), Dewnarain et al. (2019), and Migdadi (2021) were employed. For CEM, a four-item scale developed by Homburg et al. (2017), Holmlund et al. (2020), Ghouchani et al. (2020), and Fuad & Abdullah (2023) was used. The measurement of MI utilized a seven-item scale developed by Aripin et al. (2022), Abbass & Mehmood (2023), Helm et al. (2020), Jensen et al. (2016), Kamboj & Rahman (2017), and Weng (2021). Finally, a four-item scale for SCA was developed by Aripin et al. (2022), Arsawan et al. (2022) and Shen et al. (2020).

## Results

### Reliability and validity

We utilized Smart PLS 3 software to adopt structural equation modeling with partial least squares (SEM-PLS). This study's measurement, sampling, and general models underwent testing in three stages. The factor loading, composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE) shown in Table 2 and Table 3 indicate that the measurement model fits well. All factor loadings above 0.5, as shown in Table 2, demonstrate that the features adhere to the theory and that the correlation between factors does not exceed 0.7 (Hair, Ringle

& Sarstedt, 2011).

Table 2

Factor Loading of the Constructs

<b>Constructs and Measurement Items</b>	<b>Factor Loading (≥0.4)</b>
<b>Internet of Things (IoT)</b>	
(1) IoT offers information about customers' locations and movements.	.973
(2) IoT offers information about customers purchasing preferences.	.895
(3) the company can get direct customer feedback about products and services through IoT.	.638
(4) the company can remotely monitor and control products through IoT.	.682
(5) IoT enables new customer service, such as alerts and notifications of product changes.	.829
<b>Customer Relationship Management (CRM)</b>	
(1) Our powerful database allows us to study and analyze customer trends and preferences.	.684
(2) We can automate sales to attract and retain customers.	.977
(3) Our company's knowledge management processes provide the ability to create new knowledge.	.948
(4) We can refine a large amount of knowledge.	.835
(5) We can use our accumulated knowledge to solve new problems	.829
<b>Marketing intelligence (MI)</b>	
(1) We continually attempt to discover our direct customers' actual and additional needs, which they may need to be aware of.	.973
(2) To assess the quality of our goods and services, we poll end customers at least once a year.	.895
(3) We measure customer satisfaction systematically and frequently.	.704
(4) We constantly compare the strengths and weaknesses of our key competitors.	.723
(5) We collect extensive information on competitors.	.769
(6) We conduct a systematic analysis of the market data gathered.	.652
(7) We conduct a continuous focus analysis of the gathered market data.	.647
<b>Customer Experience Management (CEM)</b>	
(1) We provide personalized products and services based on the registered information.	.963
(2) We can access detailed customer information through different channels	.948
(3) We try to provide customers with unique experiences through training in human resources.	.977
(4) We continuously survey and track customer satisfaction after each purchase using a customer recommendation system.	.820
<b>Sustained Competitive Advantage (SCA)</b>	
(1) We can establish new markets and attract new customers compared to competitors.	.948
(2) We provide unique products and services to customers compared to our competitors.	.769
(3) We achieve better utilization of human resources than our competitors.	.973

Constructs and Measurement Items	Factor Loading
Internet of Things (IoT)	( $\geq 0.4$ )
(4) We retain existing customers compared to our competitors.	.835

To enhance validity, all items were loaded on their respective constructs (P-value < 0.001), with standardized loadings exceeding 0.7, and AVE for each factor surpassed the recommended 50% threshold by Fornell and Larcker (1981), as displayed in Table 3. The Cronbach's alpha ( $\alpha$ ) coefficients of all factors, as indicated in Table 3, are above 0.7, indicating good reliability of the model. We utilized composite reliability (CR) as an internal consistency measure and assessed construct reliability using CFA. Table 3 exhibits high CR values for all latent constructs (>0.80), affirming their reliability.

Table 3

Results of the Validity and Reliability Tests.

Variable	Cronbach Alpha ( $\geq 0.7$ )	CR ( $\geq 0.7$ )	AVE ( $\geq 0.5$ )
IoT	0.892	0.920	0.698
CRM	0.849	0.891	0.622
CEM	0.850	0.886	0.529
MI	0.803	0.875	0.650
SCA	0.770	0.856	0.605

### Structural equation modeling

Numerous criteria have been adopted based on structural models.  $R^2$  represents the weight of the effects of exogenous variables on endogenous variables. Hair et al. (2011) determined three values, 0.19, 0.33, and 0.67, as measures for weak, medium, and strong samples, respectively. The  $R^2$  values of customer relationship management, marketing intelligence, customer experience management, and sustained competitive advantage were 0.266, 0.913, 0.780, and 0.865, respectively. Criterion  $Q^2$  indicated the model's predictability and was calculated for all dependent variables. It was valued as 0.2, 0.15, and 0.35, which resembles the model's predictability. For the model, this criterion amounted to 0.545 for sustained competitive advantage. Finally, the goodness of fit (GOF) was calculated. This criterion was 0.554, which is close to one, indicating that the research model was a very good predictive model. This shows that the overall accuracy of the model was outstanding, depending on the criteria set for the GoF values: 0.10 (small), 0.25 (medium), and 0.36 (large). A value of 0.554 indicated that the research model had a large GoF, as shown in Table 4.

Table 4

Results of  $R^2$ ,  $Q^2$ , Community and GOF

Variable	$R^2$	$Q^2$	Community
IoT	-	-	0.539
CRM	0.266	-	0.432
CEM	0.780	-	0.366
MI	0.913	-	0.376
SCA	0.865	0.545	0.463
$GOF = \sqrt{com * R^2} = \sqrt{0.435 * 0.706} = 0.554$			

### Hypothesis testing

The next important step is to test the hypothesis. The output path coefficients presented the relationship between the variables in the original model, as shown in Table 5 and Figure 2.

Table 5

*Results of Hypothesis Testing.*

Construct	Original sample	Sample means	STDEV	T- value	p-value	Decision
<b>IoT → MI</b>	0.303	0.303	0.031	9.768	0.000	Supported
<b>IoT → CRM</b>	0.515	0.517	0.051	10.061	0.000	Supported
<b>IoT → CEM</b>	0.164	0.160	0.046	3.546	0.000	Supported
<b>IoT → SCA</b>	0.385	0.382	0.049	7.796	0.000	Supported
<b>CRM → MI</b>	0.126	0.125	0.052	2.406	0.016	Supported
<b>CRM → CEM</b>	0.788	0.789	0.032	24.574	0.000	Supported
<b>CRM → SCA</b>	0.203	0.205	0.066	3.077	0.002	Supported
<b>CEM → MI</b>	0.637	0.638	0.060	10.555	0.000	Supported
<b>CEM → SCA</b>	0.237	0.236	0.068	3.504	0.001	Supported
<b>MI → SCA</b>	0.217	0.215	0.1	12.186	0.000	Supported

The path coefficient between the IoT and MI is  $9.768 > 1.96$ , which is significant, and thus the first hypothesis is accepted. The path coefficients between the IoT and CRM, IoT, and CEM are 10.061 and  $3.546 > 1.96$ , respectively, which are significant; thus, the second and third hypotheses are accepted. Additionally, the path coefficient between CRM and MI is  $2.406 > 1.96$ , which is significant; thus, the fifth hypothesis is accepted. The path coefficient between CRM and CEM is  $24.574 > 1.96$ , which is substantial, and the sixth hypothesis is accepted. The path coefficient of the relationship between CRM and SCA is  $3.077 > 1.96$ , which is significant; thus, the seventh hypothesis is accepted. The path coefficient of the relationship between CEM and MI was  $10.555 > 1.96$ , which was significant, and the eighth hypothesis was accepted. The path coefficient of the relationship between CEM and SCA was  $3.504 > 1.96$ , which was significant, and thus the ninth hypothesis was accepted. The path coefficient of the relationship between MI and SCA was  $12.186 > 1.96$ , which was also significant, so hypothesis 10 was accepted. The results of the research output using the Smart PLS software are shown in Figure 2.

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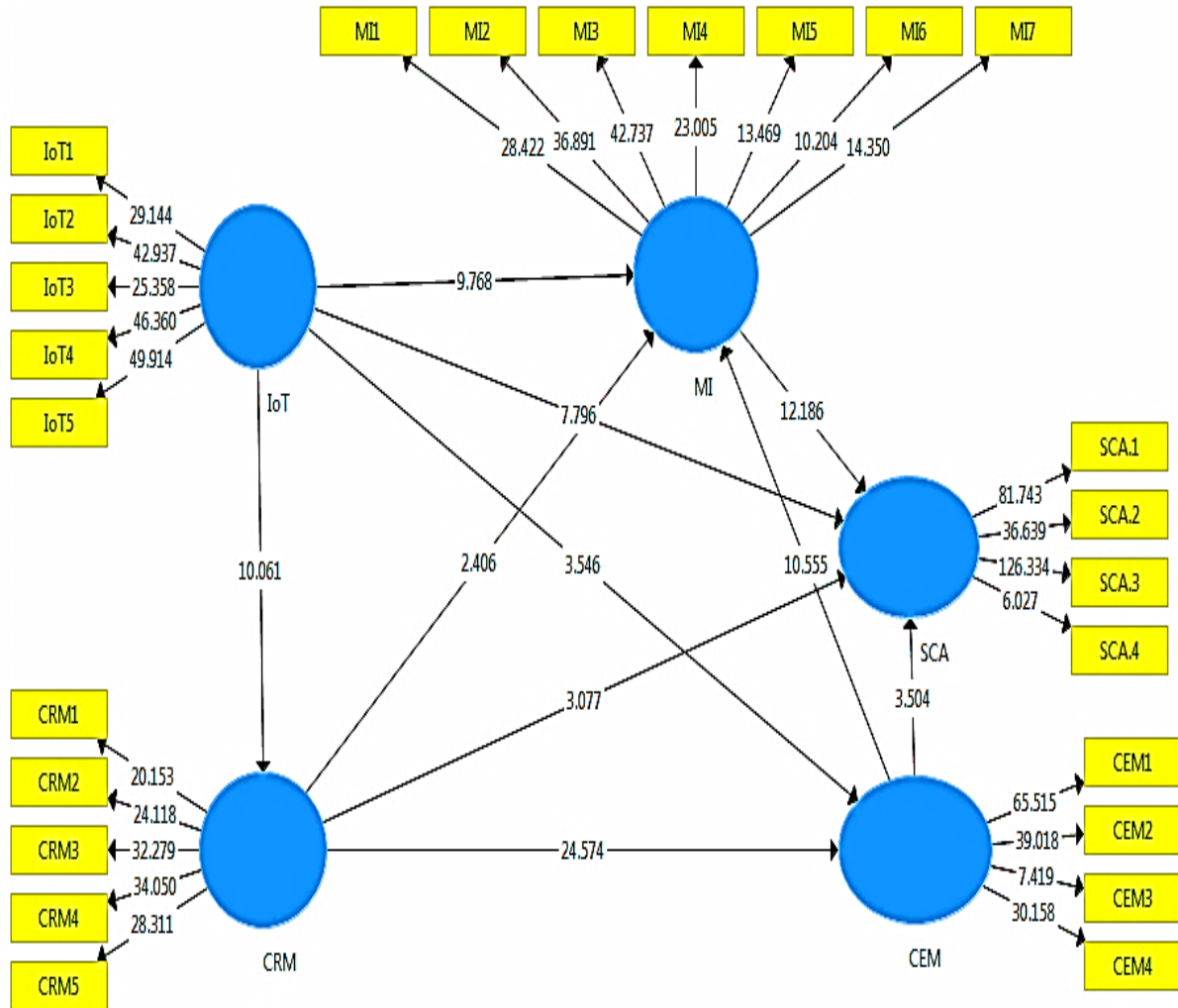


Figure 2: Research Model with T-value

Discussion

Marketing intelligence, the Internet of Things (IoT), CRM, CEM, and competitive advantage have become crucial and essential concepts in the competitive business context. As Snowa Company is one of the best high-end home appliance manufacturers in Iran, it has been selected to implement this research. This research helps Snowa Company comprehend how to embrace IoT advancements and integrate them with CRM, CEM, and marketing intelligence to establish a successful business strategy, identify new business prospects and risks, enhance business intelligence, sustain competitiveness, and manufacture products that compete with foreign counterparts. This integration is crucial for the company to achieve a sustainable competitive advantage, a topic not thoroughly explored in previous research studies. It is important to note that the results of this research will only apply to this specific company. The current study's findings reveal that the Internet of Things significantly impacts marketing intelligence, customer relationship management, customer experience management, and sustained competitive advantage. These findings are consistent with Lo & Campos (2018) and Taylor et al. (2020), who found that the IoT plays an important role in developing MI, allowing businesses to understand better and gather information from customers and competitors. Additionally, the findings are consistent with those of Nozari et al. (2022), who found that the

Internet of Things is crucial for developing customer relationships and experience management.

Moreover, the findings are consistent with Abbass & Mehmood (2023) and Taylor et al. (2020), who found that by considering the capabilities of IoT, companies can enhance their marketing strategies, gain a competitive advantage, and drive profitable growth. The current study's findings indicate that customer relationship management significantly impacts marketing intelligence, customer experience management, and sustained competitive advantage. These findings are consistent with Dubey and Sangle (2019), Rafiki et al. (2019), Dewnarain et al. (2019), Migdadi (2021), Nguyen et al. (2020), and Shukla and Pattnaik (2019) who found that CRM plays an important role in the development of MI, as it enables businesses to understand better and gather information from customers and competitors. Moreover, the findings are in line with those of Sigala et al. (2019), Ghouchani et al. (2020), and Fuad and Abdullah (2023), who examined the relationship between CRM and CEM and found that corporate adoption of CRM improves companies' capabilities and creates a better experience for customers. Additionally, the results are consistent with those reported by Hayati et al. (2020), Hadi (2015), and Aloqool et al. (2022) who found that CRM is essential for achieving a sustained competitive advantage. The results are consistent with those of Ceesay (2020), Makudza (2020), and Bonfanti et al. (2023), which reveal that customer experience management plays a vital role in the marketing intelligence development phase, where information must be shared. Customer needs and competition must be evaluated to develop new product ideas for growth. Additionally, the findings align with research conducted by Fuad and Abdullah (2023), Klink et al. (2020), Homburg et al. (2017), and Lemon and Verhoef (2016). These studies found that customer experience management impacts sustained competitive advantage. They also indicated that customer-oriented companies are better equipped to serve customers, leading to sustained competitive advantage and superior performance. Lastly, the current study's findings reveal that marketing intelligence impacts sustained competitive advantage. This result is consistent with those of the surveys conducted by Pınarbaşı and Akpınar (2019), Hendar (2020), Serdari (2020), Aripin et al. (2022), Weng (2021), Arsawan et al. (2022). Thus, marketing intelligence should not be underestimated to achieve sustained competitive advantage.

### Conclusion

In business research, concepts such as marketing intelligence, IoT, CRM, and CEM have been successful and have yielded positive results. Snowa Company must understand how to effectively utilize these concepts to establish a sustained competitive advantage. To address this need, our research presents a more comprehensive model of sustained competitive advantage than existing models. We expand upon the concepts of marketing intelligence, CRM, CEM, and IoT to provide a broader definition of sustained competitive advantage. This approach aligns with the recommendations of numerous researchers who advocate for studying these concepts within a comprehensive model. Our findings indicate that Snowa's competitive advantage lies in its ability to understand and leverage IoT, which gives the company valuable insights that set it apart from others. Additionally, our findings reveal that integrating IoT, CRM, CEM, and MI is a vital factor contributing to Snowa's success. Previous studies have not adequately evaluated this integration, thus further research is needed to validate its significance. We have empirically measured this integration for the first time and observed a positive and

significant value. This confirms the importance of IoT, CRM, and CEM as crucial supporting concepts for sustained competitive advantage and marketing intelligence within Snowa Company. Furthermore, we have verified that marketing intelligence plays an essential role in transforming IoT, CRM, and CEM information into a sustained competitive advantage.

Our findings indicate that there needs to be more current practices concerning CRM, CEM, and MI and the necessary practices for implementing customer intelligence. Additionally, monitoring customer behavior and opinions within the company is typically restricted, and the sharing of customer research is infrequent between the R&D and branding departments. This presents numerous challenges for the company. It must be stressed that integrating IoT, CRM, CEM, and MI into the existing IT infrastructure of a company is critical. Therefore, we strongly recommend that Snowa Company incorporate these concepts as a key measure in establishing a shrewd marketing strategy and attaining a sustained competitive advantage. The importance of this integration can be considered by the following:

A) Snowa managers must have confidence in the successful integration of IoT, CRM, and CEM into marketing intelligence to achieve a lasting competitive advantage. To do this, they must be clear about their long-term goals for this integration, which will drive and shape the entire process. To fully capitalize on this integration and address market needs and challenges, they should conduct a thorough market, customer, and competitor analysis, including extensive integration testing for the flow and accuracy of data and the ability to handle different scenarios and unexpected errors. They should also identify key information that will assist in making informed decisions and determining the most suitable storage methods. When IoT devices are integrated with CRM and CEM systems, Snowa managers should be able to capture and centralize real-time data. This will enable them to understand customer behaviors, preferences, and usage patterns and give them almost real-time access to customers' data that can be used to run quick campaigns to influence their decisions. A deep insight into customer behavior will allow them to tailor the interaction with customers according to what they like best, helping them design highly targeted campaigns that will lead to more ROI. Therefore, to ensure a successful integration, managers should identify which data to share, choose the integration method that best suits their needs and budget, set timelines carefully, and define team members' roles and responsibilities. This will allow them to anticipate potential challenges and risks that may arise during the integration process and plan accordingly.

B) Once the data is identified and stored, managers will require appropriate tools and activities to organize it according to marketing intelligence requirements. Organizing the data into relevant categories allows managers to analyze individual data using data analytics tools, enabling swift identification and evaluation of data patterns and changes and facilitating the dissemination of accurate information. Therefore, IoT-enabled CRM and CEM systems can reduce this by monitoring connected devices in real time; managers can detect anomalies and incorrect data, identify potential issues, and take preventive actions before customers notice a problem. This predictive maintenance approach not only enhances customer satisfaction but also reduces downtime and improves operational efficiency. This makes managers proactive in maintenance and support.

C) IoT integration with CRM and CEM systems delivers seamless omnichannel experiences, which is vital for Snowa Company. By tracking customer interactions across multiple touchpoints, such as IoT devices, websites, mobile apps, and social media, the company can provide consistent and personalized experiences throughout the customer journey,

fostering customer loyalty, increasing engagement, and driving revenue growth. Thus, it is recommended to monitor touchpoints, labels, and tags, which allows them to manage contacts and classify groups based on behaviors and demographics. This helps them identify any obstacles in the customer journey, providing insights into untapped areas for growth and offering a comprehensive understanding of customer interactions with employees. The company can establish stronger connections by customizing unique, personalized experiences and leveraging past customer interactions. Therefore, Snowa managers must continually strive to connect with customers efficiently through the most appropriate communication channels, ensuring the focus remains on customer engagement and retention. Providing a call to action is one way to boost customer experience and attract more attention to the company and its offerings. Ultimately, this allows the company to build a customer-centric strategy that caters to their wants and needs, rather than relying on guesswork. By analyzing available customer data in real-time, the company can engage customers with the right content at the right time, leading to a deeper understanding and perception of the company brand. By doing so, customers will be able to fully understand and appreciate the value and benefits of the company's business.

Future research should conduct longitudinal research where the differences in relationships can be explored at several points, offering more significant support for causality. IoT, marketing intelligence, and automation open the door for many customers experience improvements in the current business environment. IoT and marketing data, including environment, usage, and inquiries, enable some services that can establish touch points between businesses and their customers. To ensure the most incredible possible customer and product experience, IoT data may be strategically utilized to personalize products and trigger alerts, education, and corrective events. By collecting feedback from employees and using it to improve the customer experience, companies can gain customer trust, thereby increasing engagement and competitive performance. This is achieved by ensuring that customers have every contact point, interaction, and connection with the company displays a commitment to serve and value. Consequently, companies can develop efficiency in connecting with customers through the most appropriate communication channels, while focusing on customer engagement and retention. Therefore, it may be possible to evaluate the relationship between the IoT, customer experience, and customer engagement by considering the role of marketing intelligence to see if they have the same value in this context.

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