

## Factors Affecting the Strategic Interaction of Marketing and Information Technology

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### Abstract:

Information technology (IT) and its use in marketing is radically altering how companies practice marketing. The widespread availability of information and heighten communication abilities are changing the relationships between marketing and information technology. The main goal of this research is to identify the effective factors on the strategic interaction of marketing with information technology in organizations in order to improve the efficiency of information technology investments in the field of marketing. The research is conducted in two stages with a mixed approach. In the first stage, in order to identify and extract factors from the point of view of experts, a qualitative approach and semi-structured interview tools have been used. In the second step, in order to weight and prioritize the factors, the quantitative approach and BWM technique have been used. The statistical population of this research includes all academic experts and experienced senior managers in the field of marketing and information technology. The findings of the research include 5 factors: support of the chief marketing officer, information technology capabilities, communication, skills/manpower and competitive factors. Among factors, Communication is the most important factor and environmental factors are the least important.

**Keywords:** Strategy Interaction, Marketing, Information Technology, BWM Technique.

### Introduction

Due to the widespread growth of information technology in the world, Businesses should use the opportunities of new technologies such as mobile, cloud computing, big data and social networks to maintain their survival (Taylor & Vithayathil, 2018). Information technology is a powerful tool that helps organizations in identifying customer needs, innovating products and services, improving relationships with customers, and improving organizational processes and activities. Advances in technology have increased the ability of companies to collect customer data and have enhanced the roles of chief marketing officers and chief information officers and their interdependence) Sleep & Hulland, 2018). Today, marketing activities are not possible without the help of information technology (Berisha- Namani, 2013) and information technology plays a fundamental role in shaping customer experiences. Digital and virtual marketing with capabilities such as speed, flexibility, interactivity and responsiveness requires a coherent set of marketing strategies and skills to realize the promised benefits (Peterson, 2010). Marketing managers should take advantage of technology-based opportunities to interact more effectively with customers in various channels, personalize communications, create data-based insights, and increase productivity (CMO Council, 2010). Of course, it should be stated that marketing managers cannot use these opportunities alone, and cooperation with senior information managers is an inevitable necessity (Mingione & Abratt, 2020). The coordination and suitability of information technology with marketing goals will lead to the growth and survival of the organization in a competitive environment) Panda & Rath, 2018).

Despite the growth of marketing investments in the field of information technology and digital marketing, there is still no proper understanding of the relationship and cooperation of senior marketing managers and senior information managers (Sleep & Hulland, 2018) Therefore, the present study deals with the issue of what factors are effective in achieving the strategic interaction of marketing and information technology.

Because of the importance of information technology in the effectiveness of marketing tasks, understanding how to align Information technology investments with marketing goals and strategies are an inevitable necessity therefore, measuring the alignment of information technology and marketing provides a tool to evaluate the effectiveness of information technology investments in marketing (Ramón-Jerónimo & Herrero, 2017).

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## Research Methodology

The purpose of this research is identifying the factors influencing the strategic interaction of marketing with information technology in organizations. Therefore, this research based on the purpose is applied research and a mixed method has been used to extract and prioritize the effective factors. In the first stage of the study, a qualitative approach was used to identify the factors affecting the strategic interaction of marketing and information technology. Semi-structured interview is one of the qualitative research methods used in this research to collect data. Vatharkar et al. (2018) in their study related to strategic alignment of business and information technology in government organizations, have used qualitative approach (semi-structured interview) as well. The statistical community of the research includes all academic experts and experienced senior managers of marketing and information technology. In the current research, a judgmental purposeful sampling method was used, and the number of samples selected to reach the interview saturation point was 12 people.

To calculate the reliability of the interview, retest reliability and intrasubject agreement method (reliability between two coders) were used. The researchers coded the number of four interviews and the reliability index was 0.84%. In order to analyze the obtained data, thematic analysis method has been used.

In the second stage, in order to determine the weight and importance of identified indicators in the first stage, the BWM method has been used (Rezaei, 2016).

For this purpose, a questionnaire based on BWM standard was designed and it was given to 8 experts and experienced senior managers in marketing and information technology. The judgmental purposeful sampling method was used.

## Best Worst Method (BWM)

Decision making can be defined as the identification and selection of a solution or a set of alternative solutions based on decision makers' preferences (Jalaliyoon et al, 2019). In most cases, various criteria are involved in the process, so this type of challenge is referred to as multicriteria decision-making problems (Rezaei, 2016). In recent decades, different methods have been developed to solve these problems, and the BWM is one of the most recent. This method was developed by Rezaei (2015), and it has attracted the attention of a growing number of researchers (Govindan et al., 2022). The BWM is an innovative technique that allows decision makers to select the best alternative among a set of options (Rezaei et al., 2016). This method seeks to deal with the complexity of pairwise comparisons and provide results consistent with participants' value preferences (Malek and Desai, 2019). According to Malek and Desai (2019), the BWM can also estimate the weights of the criteria identified for a given problem. Rezaei (2016) divides the BWM application into six steps.

1- Determining the number of evaluation criteria:  $\{c_1, c_2, c_3, \dots, c_n\}$ .

2- The decision makers identify what is in their opinion, the "best" criterion (i.e., the most significant) and the "worst" criterion (i.e., the least significant).

3- When the decision makers express the degree of their preference for the best criterion over all others, using a scale between 1 and 9.  $AB = (a_{B1}, a_{B2}, a_{B3}, \dots, a_{Bn})$ ,

4- Determining the relative importance of all indicators compared to the worst indicator using the opinion of experts  $AW = (a_{1W}, a_{2W}, a_{3W}, \dots, a_{nW})^T$

5- Calculation of optimal weights so that the maximum absolute value of the values

$$\min \max_j \left\{ \left| \frac{w_j}{w_b} - a_{bj} \right|, \left| \frac{w_j}{w_w} - a_{wj} \right| \right\} \quad \sum_j w_j = 1 \quad w_j \geq 0, \text{ for all } j$$

6-The model presented in relation (1) can be converted to the nonlinear model of relation (2)

$$\left| \frac{w_B}{w_j} - a_{Bj} \right| \leq \lambda, \text{ for all } j \quad \left| \frac{w_j}{w_w} - a_{jw} \right| \leq \lambda, \text{ for all } j \quad \sum_j w_j = 1 \quad w_j \geq 0, \text{ for all } j$$

To use this method, first, the pairwise comparison vector of the best index compared to the rest of the indices and the pairwise comparison vector of the rest of the indices compared to the worst index were prepared and provided to the experts. Then, for the sub-indices of each of the main factors, these two pairwise comparison vectors of the best compared to the rest and the rest compared to the worst were prepared. Finally, after calculating the weight of the main indicators and calculating the weight of the sub-indices in each group, the weight of each sub-indicator was multiplied by the weight of the main reference factor and the final weight of the sub-indices was calculated. To check the results of the research, first, the implemented texts of semi-structured interviews were carefully examined in order to extract the factors affecting the strategic interaction of marketing with information technology in organizations. Then the identified factors were analyzed by the method of theme analysis.

Table1: Factors affecting the interaction of marketing strategy with information technology

Factors	Concepts from the interview
Support of the Chief Marketing Officer	<ul style="list-style-type: none"> <li>• The attitude and commitment of the chief marketing officer in using strategic of information technology</li> <li>• Support the chief marketing officer for the appropriate allocation of marketing to technology</li> <li>• Willingness to search for technological solutions to achieve marketing goals</li> </ul>
Information technology capabilities	<ul style="list-style-type: none"> <li>• Using new and advanced technologies in the information technology unit</li> <li>• User-friendliness of digital customer communication channels</li> <li>• Integration of digital marketing channels with other departments of the organization</li> </ul>
Communications	<ul style="list-style-type: none"> <li>• Marketing awareness and understanding of information technology</li> <li>• Involvement of marketing and information technology managers in strategic marketing planning</li> <li>• Strengthening teamwork and cooperation mechanisms between marketing and information technology units</li> </ul>
Skills/Manpower	<ul style="list-style-type: none"> <li>• Developing training programs to enhance understanding of marketing personnel's from the role of information technology</li> <li>• Up-to-dateness and capability of marketing and information technology unit personnel in the field of digital marketing</li> </ul>

	<ul style="list-style-type: none"> <li>Recruitment of experienced personnel in the field of digital marketing</li> </ul>
Competitive factors	<ul style="list-style-type: none"> <li>Exemplary in the use of information technology</li> <li>Competitors' use of information technology in marketing</li> <li>The pressure of digital customers in using digital marketing channels</li> </ul>

Then, with a survey of 8 experts, the pairwise comparison vector of the best index compared to the rest of the indices)  $AB$ , and the pairwise comparison vector of the rest of the indices compared to the worst index)  $Aw$  were determined. And finally, the weights of the dimensions and sub-indices were calculated. For the pairwise comparison of the following indicators, one of the dimensions is taken as an example.

Table2: Pairwise comparison vector of the senior manager's support sub-index compared to other sub-indexes)

Support of the Chief Marketing Officer	The attitude and commitment of the chief marketing officer in using strategic of information technology	Support the chief marketing officer for the appropriate allocation of marketing to technology	Willingness to search for technological solutions to achieve marketing goals
The attitude and commitment of the chief marketing officer in using strategic of information technology	1	3	4

Table3: The pairwise comparison vector of the chief marketing manager's support indicators relative to ( $AW$ ) the least important sub-index

Support of the Chief Marketing Officer	Willingness to search for technological solutions to achieve marketing goals
The attitude and commitment of the chief marketing officer in using strategic of information technology	4
Support the chief marketing officer for the appropriate allocation of marketing to technology	2.5
Willingness to search for technological solutions to achieve marketing goals	2

Then, using the information obtained from the weighting section, the weight of each of the indicators, concepts and components was calculated. Table 4 shows these factors along with the obtained weights.

Factors	Indicators	Weight of the relevant factor	Weight of alignment
<b>Support of the chief marketing officer</b>	The attitude and commitment of the chief marketing officer in using strategic of information technology	0.325	0.189

	Support the chief marketing officer for the appropriate allocation of marketing to technology	0.274	
	Willingness to search for technological solutions to achieve marketing goals	0.199	
<b>Information technology capabilities</b>	Using new and advanced technologies in the information technology unit	0.227	0.156
	User-friendliness of digital customer communication channels	0.155	
	Integration of digital marketing channels with other departments of the organization	0.140	
<b>Communications</b>	Marketing awareness and understanding of information technology	0.156	0.227
	Involvement of marketing and information technology managers in strategic marketing planning	0.116	
	Strengthening teamwork and cooperation mechanisms between marketing and information technology units	0.079	
<b>Skills/Manpower</b>	Developing training programs to enhance understanding of marketing personnel from the role of information technology	0.118	0.166
	Up-to-dateness and capability of personnel in the field of marketing and information technology in digital era	0.189	
	Recruitment of experienced personnel in the field of digital marketing	0.312	
<b>Competitive factors</b>	Exemplary in the use of information technology	0.128	
	Competitors' use of information technology in marketing	0.229	
	The pressure of digital customers in using digital marketing channels	0.321	

Research using the BWM technique shows, communication with the weight of 0.227 is the most important criterion. Support of the chief marketing officer is in the second priorities and the third one is skills/ manpower factor. The results of ranking 15 sub-criteria show that the most important sub-criteria “The attitude and commitment of the chief marketing officer in using strategic of information technology” from the aspect of “Support of the chief marketing officer” It is known as the most important subcriterion.

## Discussion and Conclusion

As The alignment of marketing and information system has been continuously proposed by the executives, previous studies on the strategic coordination of marketing and information system show that there is a strong positive relationship between this alignment and organizational performance (Tallon and Pinsonneault, 2011), however, organizations have not been successful enough in strategic interaction of marketing and information technology.

In this research, like the study of Ariker et al. (2014), the support of the chief marketing manager has been proposed as an effective factor on the strategic alignment of marketing with information technology. Support from senior marketing executives is often one of the challenges of strategically aligning marketing with IT. While the marketing unit is against the general systems and looking for an intermediary between marketing and information technology but information technology is looking for more coordination as long as it is supported by the marketing department. Unfortunately, while the senior managers of marketing and information technology need to coordinate to improve efficiency, due to the lack of trust between these managers the cooperation between them is doomed to failure (Whitler, 2017).

Information technology capabilities refer to the organization's ability to mobilize and deploy information technology-based resources in cooperation with marketing resources and capabilities to improve the company's performance (Chen et al, 2015). The sub-criteria of this factor have also been determined, and the most important sub-criteria includes "Using new and advanced technologies in the information technology unit", has been stated by (CMO Council, 2010) studies as well.

Communication has been considered as the most important factor and it has been mentioned in the studies of Sleep and Holland (2018) and plays a significant role in the strategic alignment of marketing with information technology. Senior marketing and information technology managers should analyze the data together and find people with leadership and cooperation spirit in order to achieve the desired and credible results (Ariker et al.: 2017).

Skill/manpower is another effective factor on the strategic alignment of marketing and information technology. Due to the unique and different skills of senior marketing and information technology managers among these sub-criteria, the sub-criteria of developing training programs to improve the knowledge of IT employees of marketing processes and developing training programs to improve the understanding of marketing employees of the role of IT in the study of Whitler (2017) has been mentioned.

Competitive/environmental factors are the least important among the extracted factors. It should be stated that these factors are also one of the important factors of strategic alignment of marketing and information technology. Today's marketing unit must move in line with the technological evolution because in the current environment, it is necessary to increase the intensity of competition in the use of information technology (Graver & Segers, 2005). The sub-criteria obtained through interview are factors that should be paid special attention to.

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