

The impact of marketing information systems on the competitive advantage of Jordanian pharmaceutical companies

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Abstract

This study aimed to identify the effect of marketing information systems on the competitive advantage of pharmaceutical companies in Jordan. The study community and its sample were represented by all the employees in the Jordanian pharmaceutical companies which consisted of (400) employees who were chosen in a simple random manner. To achieve the objective of the study, the analytical descriptive method was used. After conducting the statistical analysis, the study concluded the following: There is a statistically significant relation between internal records, marketing research, marketing intelligence and competitive advantage in Jordanian pharmaceutical companies. Based on previous findings, the study recommends the following: The Company has to rely on many sources of marketing intelligence in the recruitment centers, employees and of the competing companies. Pharmaceutical companies should follow customer services through periodic reports on customer feedback, complaints and satisfaction with service performance.

Keywords: marketing information systems, internal records, marketing research, marketing intelligence, competitive advantage.

INTRODUCTION

Marketing information systems are a tool of interdependence, communication and integration between them and the information sub-systems of the facility while providing the necessary information to plan, implement and control various marketing strategies and

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rationalize marketing decisions. Every facility has to organize the way in which marketing information flows to its marketing managers, study the information needed of its managers, and design marketing information systems that meet these needs. Marketing information systems aim to collect data from its internal and external sources, process it, store and retrieve information and send it to decision-makers to benefit from it in planning and controlling marketing activities (Al-Ajarma and Al-Tai, 2020: p. 282).

The knowledge available in the organization has become a competitive advantage that distinguishes it from other organizations. Knowledge is represented in the availability of individuals who have information, stored knowledge, and different technologies. As a result, successful organizations are those organizations that attract, select, enhance and develop individuals working for them who can lead these organizations. In addition, successful organizations are those organizations that care about their customers, their needs, and desires, not to mention the social role and social responsibility that it adopts towards them (Alshare, 2015). It exploits the opportunities of the various technologies that exist in the surrounding environment. Therefore, the main challenge for business organizations today is to ensure the availability of distinguished skilled individuals who are able to highlight the accompanying services after the production process, such as guidance and work on training and developing their skills, which achieves a competitive advantage for those pharmaceutical companies under study (Alshare, 2020).

Contemporary marketing information systems contribute to the process of gaining a competitive advantage for most organizations of all kinds and objectives. It is based mainly on the quality of the available information that is intended to be used in facing problems or dealing with development and making appropriate changes in the organization (Buras, 2015: p. 8). The problem of this study lies in the role and importance of the Jordanian pharmaceutical sector as a productive sector and its challenges, especially in an era witnessing more scientific and technological progress and fierce competition in the field of this industry and its necessities in life. This requires the use of modern systems for survival and continuity, but these tools are still without the level required by Jordanian companies. Thus, this study examines the impact of marketing information systems on the competitive advantage of pharmaceutical companies in Jordan

The importance of the study:

The importance of the study comes from the strategic role played by marketing information systems and the necessity of their availability as a basic requirement and an important resource of Jordanian pharmaceutical companies as a tool that enables its owner to achieve a competitive advantage. It is also crucial to keep pace with

contemporary global, regional and local scientific changes and developments, which covered all fields on the one hand, and efficient operations management, on the other hand. The importance of the study comes from the importance of pharmaceutical companies, being one of the important and reliable tributaries of the national economy in Jordan.

Marketing information system

The application of the concept of Marketing Information System appeared at the beginning of the sixties of the last century as an advanced system in marketing. The first to apply it was the American William in the American company Dalton in the state of Indiana, America, through the use of a system in which information is retrieved facilitating the work of marketing managers applying it. Industrial enterprises are also considered one of the important economic pillars for countries in an era of fierce competition in all production sectors, especially pharmaceuticals, because of their intensive capital and technology-intensive needs. They are one of the most profitable productive sectors after the defense and communication industries currently. They achieved rapid growth in the communication technology industry, which is taking an active role in the pharmaceutical industry (AlShare, 2018). In order for organizations to move forward to achieve a competitive advantage as a result of changes in the surrounding environment and achieve their goals, a marketing information system must be adopted according to cognitive frameworks and based on research information, internal and intelligence records through which it can achieve its future vision of survival and continuity.

The Concept of Marketing Information System:

Marketing information systems are considered a sub-system within the framework of the management information system in the organization. Kotler, (2019:385), a Marketing information professor, defined the marketing information system "as a complex and integrated structure of human parties, devices and procedures, which is designed to collect, process and store data from internal and external sources of the organization, retrieve it and send it to the appropriate marketing department at the right time."

Characteristics of a marketing information system

There are many characteristics that distinguish marketing information systems, including: (Al-Zoubi, 2020: p. 45) A permanent system: it provides data and information and makes it available in a timely manner, and the system operates continuously Future-oriented system: This system provides information about the conditions of future periods, as this system helps marketing decision makers to make correct decisions Analyze information using mathematical

models The system helps to store and integrate marketing information that is referred to when needed..

He also defined marketing information systems as "a set of devices, individuals, and procedures for classifying, analyzing and distributing accurate information needed by strategic marketing decision-makers" (Abu El-Naga, 2019: 20).

Abu Qahf (2018: 141) also defined marketing information systems as "the joint efforts of all company employees to collect, analyze, classify and disseminate decision-making information for planning, implementation, marketing control and improvement in the production process."

The factors that led to the increase in the importance of marketing information systems: The rapid and permanent change in the external and internal environment, the intertwining and environmental complexity, the transition of institutions to globalization, the trend from satisfying the needs of buyers to satisfying the needs and desires of customers, and the shift from price competition to non-price competition, which needs information to enter the twenty-first century and to a modern environment based on digital language requires good preparation and building advanced information systems based on modern technology (such as computers, the Internet, software...) to enable the organization to take appropriate decisions.

The Components of a marketing information system:

1- Internal records: They are one of the routine operations that companies carry out on a daily basis. These records include data necessary to obtain information to measure activity and performance in the field of sales and cost (Radwan, 2020: 41).

2- Marketing research: the process of scientific analysis (the process of collecting, recording and analyzing marketing data) for marketing problems, building models for the problem, and searching for the truth in order to improve the decision-making process related to the marketing of goods and services (Abdul Aziz, 2017: 141).

3- Marketing intelligence: is the vision that reflects the optimal use of a different set of market-oriented marketing mix. Hence, it can be said that the marketing strategy represents a roadmap to guide the marketing management in organizations to achieve their strategic goals by identifying the needs of the market in which they operate and efficiently exploiting resources. There are elements in the best ways and optimization of the marketing mix (Ali, 2019: 7).

Competitive advantage:

Al-Ghaliby and Idris (2019: 25) see that the competitive advantage is the organization's continuous pursuit of excellence to achieve the highest possible returns while working to retain this distinction for the

longest possible time as well as making attempts to enhance and develop this excellence in the future.

Salem and others (2020: 70) define competitive advantage as the organization's ability to excel in the areas it offers based on marketing, financial and production plans, and prioritizing them in accordance with the company's general framework. As so, the senior management must determine the needs and desires of customers and develop plans for how to reach these needs through a series of equipment in order to meet customers in the delivery and delivery of services, goods, or services in a timely manner.

The Characteristics of Competitive Advantage:

Among the most important characteristics of competitive advantage is what was mentioned by (Al-Ghaliby and Idris, 2019: 58):

- Permanent: in the sense that the institution achieves the lead in the long term and not in the short term.
- Renewable: according to the changes of the external environment on the one hand, and the capabilities and internal resources of the institution on the other.
- Flexible: that is, it is possible to replace competitive advantages with others easily and smoothly, according to considerations of changes in the external environment on the one hand, or the development of the institution's resources and capabilities on the other.
- The competitive advantage should be commensurate with the objectives and results that the institution wants to achieve in the short and long term

Previous studies:

Farid&Setiwan (2022). This study entitled" Business strategies and competitive Advantage: The roll of performance innovation. The study aims to examine the effect of business strategies to improve the competitive advantages of small and medium enterprises. These results indicate we have evidence of performance and innovation to improve and strengthen the competitive advantages in small and medium enterprises.

Adwan& Al-Hamshari(2021). The study entitled " Organizational Mission Impact on Achieving Competitive Advantage in Jordanian Pharmaceutical Sector. examined the impact of organizational mission's components, quality, research and development (R & D), customer satisfaction, and technology, on achieving a competitive advantage as measured by sales volume, market share, and net financial profit. The results suggested that there was a statistically positive significant impact of organizational mission's components on achieving a competitive advantage in Jordanian pharmaceutical sector

with a higher customer satisfaction and R&D effect than quality and technology Components.

Sharabati(2021).The study entitled "Green supply Chain Management and Competitive Advantage of Jordanian Pharmaceutical Industry. "The study aims to investigate the effect of green supply chain management on the competitive advantage of Jordanian Pharmaceutical Industry manufacturing organization. The results indicate that organization implement green purchasing and green selling, while weakly implementing green operations and highest effect on total competitive advantage, followed by green purchasing and finally green selling. And not have any significant effect on reliability and cost.

According to Jehjah (2017). Entitled "The Impact of the Marketing Information System on the Competitiveness of Agricultural Enterprises" The study aimed to determine the impact of marketing information systems on achieving competitiveness in agricultural enterprises on the Syrian coast. The study found that there is a strong correlation between databases and competitiveness. This relationship was weak between each of the marketing research, marketing intelligence and competitiveness, and medium between the decision aid system and competitiveness. It was also found that there is a positive impact of the components of the marketing information system on indicators of competitiveness, namely: market share, commercial reputation, and customer satisfaction.

Ali (2016). Entitled "The Role of Marketing Information Systems in Planning Marketing Strategies for Business Organizations" This study aimed to identify the role of the marketing information system in the efficiency and effectiveness of planning marketing strategies for business organizations. Marketing as well as sections for marketing communications in the marketing departments of the companies surveyed.

Buras (2015). Entitled "The role of the marketing information system in enhancing the competitive advantage (case study of the Oras Mills Corporation, Aris Batna Unit)." The study aimed to clarify the role of the marketing information system in enhancing the competitive advantage of the institution through a field study on the Aures Mills Corporation - Batna - Ares Unit. The study concluded that there is a role for the marketing information system in enhancing the competitive advantage which effectively contributes to achieving the objectives of the study.

Al-Dhafiri (2012). Entitled "The impact of marketing information systems on the effectiveness of marketing decisions for Kuwaiti telecom companies". The study aimed to investigate the impact of marketing information systems on the effectiveness of marketing

decisions for Kuwaiti telecom companies. The study recommended that the level of interest in using marketing research in collecting information of interest to their companies and conducting studies of markets and customers and any requirements for developing their services or any necessary information in the surveyed Kuwaiti telecom companies was high. There is a statistically significant effect of marketing information systems (internal records, marketing intelligence, and marketing research) on the effectiveness of marketing decisions in Kuwaiti telecom companies.

Al Bustanji (2011). Entitled "The impact of marketing information systems on the effectiveness of marketing decisions." The study aimed to identify the effect of the efficiency of the dimensions of the marketing information system in gaining the competitive advantage in the Jordanian industrial companies. The study concluded with a number of results, the most important of which are the efficiency and quality of marketing information systems in the companies surveyed, the high level of awareness of the respondents and the acquisition of competitive advantage in all its dimensions were positive and high. In addition, it pointed to the existence of a correlation with important statistical significance between the efficiency variables and marketing information systems in all its dimensions or the dependent variable (dimensions of competitive advantage).

Cheraghi (2012). Entitled " Gaining Competitive Advantage through Marketing Strategies in Container Terminal: A Case Study. The study aimed to identify the factors affecting achieving competitive advantage and obtaining it through marketing strategies and applying the principle of human resources in selecting qualified employees to achieve competitive advantage at the container terminal in Rajai port in Iran. It has reached many results, most notably that the port's strategy and policy, the supplies inside, and the surrounding circumstances affect the achievement of competitive advantage in a clear, effective, and direct way.

Ismail (2011). Entitled " The Role of Marketing Information System on Decision Making (An Applied study on Royal Jordanian Air Lines " This study aimed to identify the role played by the elements of marketing information in decision-making in a timely manner. The study concluded that there is a positive relationship between the degree of database adoption and decision-making. In addition to the existence of a positive relationship as well between marketing research and decision-making, there is also a positive relationship between marketing intelligence and decision-making.

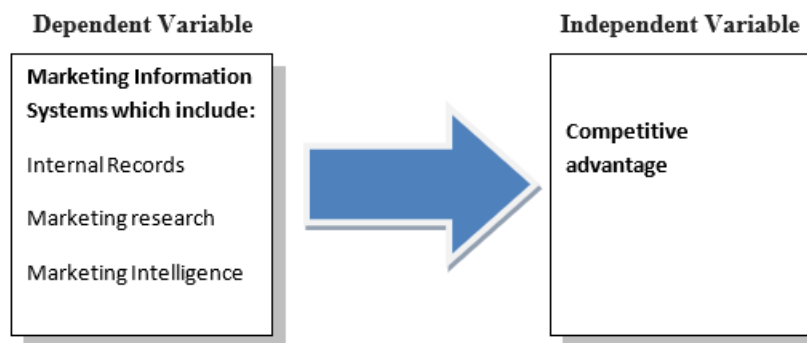
This study is distinguished from the previous studies that were dealt with previously that this study attempts to know the impact of marketing information systems on the competitive advantage in Jordanian pharmaceutical companies. There is one study that dealt

with the same topic even though it was on the agricultural sector study facilities (Jehjah 2017). It also agreed with the study of Al-Dhufairi (2012) in terms of determinants, but it was about communication companies in Kuwait. As for the rest of the studies, they were similar in that they focused on the importance of competitive advantage and what it contributes to achieving in productive institutions.

Study hypotheses:

- 1- There is no statistically significant relationship between the internal records and the competitive advantage in the Jordanian pharmaceutical companies.
- 2- There is no statistically significant relationship between marketing research and competitive advantage in Jordanian pharmaceutical companies.
- 3- There is no statistically significant relationship between marketing intelligence and competitive advantage in Jordanian pharmaceutical companies.

Study model:



Source: Prepared by the researchers (based on previous studies and literature).

Methodology:

The researcher used the descriptive approach to collect information from the administrative literature related to the subject of marketing information systems and competitive advantage, as well as previous studies related to the subject of the study.

Data collection sources:

In order to achieve the objectives of the current study, the researcher relied on two types of information sources, as follows:

First: Secondary and primary sources: These data are represented in references and books related to the topics of marketing information systems and competitive advantage, scientific materials and reports that examine the subject of the current study, master's theses, and

doctoral theses that examine the subject of the current study, the information available on various websites and the Internet, as well as the design of a questionnaire. To serve and cover the subject of the current study, a questionnaire was distributed to the study sample.

Study population and sample:

The study population consisted of all employees in the Jordanian pharmaceutical companies. The study sample consisted of (400) male and female employees in the Jordanian pharmaceutical companies who were chosen in a simple random way. The researcher distributed questionnaires to the sample of the study, from which (385) were retrieved. After reviewing the questionnaires, it was found that the number of valid questionnaires for statistical analysis amounted to (379).

Reliability of the study instrument:

To verify the stability of the study instrument, the reliability coefficient (Cronbach's alpha) was found for all paragraphs of the study areas and the instrument as a whole, Table (1) shows this.

Table (1) Reliability coefficients (Cronbach's alpha) for all the items of the study areas and the instrument as a whole

No.	The area	Coefficient (Cronbach's alpha)
1	Internal records	0.74
2	Marketing Research	0.78
3	Marketing intelligence	0.83
The instrument as a whole		0.78

Table (1) shows the values of (Cronbach's alpha) stability coefficients for the study areas ranged between (0.73-0.83). The (Cronbach's alpha) coefficient for the instrument as a whole was (0.78), which are high values for the purposes of application; Most of the studies indicated that the stability coefficient was accepted (0.60) .

Results:

This study aims to identify the impact of marketing information systems on the competitive advantage in Jordanian pharmaceutical companies. This is done by testing the hypotheses of the study, and the following is a presentation of the results:

First: personal information

The researcher chose the study sample in a simple random way, where the researcher distributed (400) questionnaires to citizens, from which he retrieved (385).

Table (2) Distribution of the sample members according to personal variables (n = 379)

Variable	Level	Repetition	percentage
Gender	Male	224	59.1
	Female	155	40.9
	Total	379	100.0
Age	Less than 25 years old	22	5.8
	25- Less than 35 years old	73	19.3
	35- Less than 45 years old	280	73.9
	45 years and over	4	1.1
	Total	379	100.0
Qualification	diploma	8	2.1
	Bachelor	279	73.6
	Higher Diploma	28	7.4
	Master	52	13.7
	PhD	12	3.2
	Total	379	100.0
Experience	Less than 5 years	157	41.4
	5- Less than 15 years old	187	49.3
	more than 15 years	35	9.2
	Total	379	100.0

It appears from Table (2) that:

1. The number of males in the sample was (224) with a percentage of (59.1%), while the number of females was (155) with a percentage (40.90%).
2. The highest percentage of the distribution of sample members according to the age variable (73.9%) was for the age group (36. less than 45 years), while the lowest percentage (1.1%) was for the age group (45 years and over).
3. The highest percentage of the distribution of the sample members according to the educational qualification place variable was (73.6%) for the scientific qualification (Bachelor), while the lowest percentage (2.1%) was for the scientific qualification (diploma).
4. The highest percentage of the distribution of sample members according to the variable years of experience (49.3%) was for years of experience (5-less than 15 years), while the lowest percentage (9.2%) was for years of experience (more than 15 years).

Structural Model for Research Model

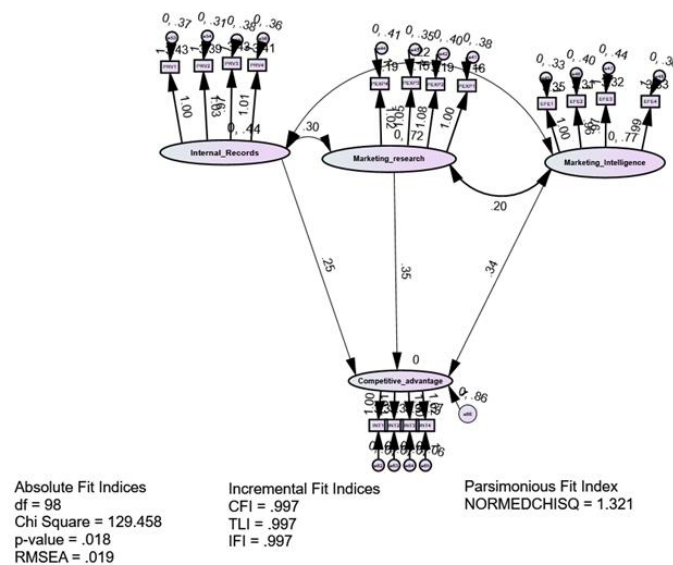
Structural model examines the direct effects of the independent variables, namely, (Internal Records, Marketing research and

Marketing Intelligence) on Competitive advantage, the dependent variable. The 3 effects pertain to H1, H2, and H3, respectively.

Direct Effects of Variables

Figure 2 presents the AMOS structural model for testing the hypothesized direct effects with standardized regression weights.

Figure 2: AMOS Graph of Structural Model



The goodness-of-fit indices show that the structural model is adequately fit for data: $p = 0.018$, CFI = 0.997, TLI = 0.997, IFI = 0.997, RMSEA = 0.019. Although the chi-square statistic is statistically significant. The value of R^2 for Competitive advantage is 0.86, and this value satisfies the cut-off value of 0.10 [95]. The coefficient parameter estimates are tested to determine the hypothesized direct effects of the variables.

Table 4. Results of Hypothesized Direct Effects of the Variables in Structural Model

Path			Unstandardized Estimate		Standardized Estimate	c.r.	P-value	Hypothesis Result
			Estimate	S.E.	Beta			
Internal Records	→	Competitive advantage	.247	.069	.25	3.570	0.000	Supported
Marketing research	→	Competitive advantage	.336	.043	.35	7.778	0.000	Supported

Marketing Intelligence → Competitive advantage	.348	.050	.34	6.98 1	0.006	Supported
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*p < 0.05, **p < 0.01, ***p < 0.001

Table (6) shows that there is a relationship between marketing research, Internal Records and Marketing Intelligence and competitive advantage. Where, 1- There is a statistically significant relationship between the internal records and the competitive advantage in the Jordanian pharmaceutical companies. 2- There is a statistically significant relationship between marketing research and competitive advantage in Jordanian pharmaceutical companies. 3- There is a statistically significant relationship between marketing intelligence and competitive advantage in Jordanian pharmaceutical companies.

Conclusion and Recommendations

1- It should rely on an independent system or independent for the forms in the labor offices in the employment centers and the employees and workers of the competing companies because they have an important role in the companies with information to keep pace with competitors and to stay and continuity. This is what we see today in the emergence of many new institutions in countries that did not have a presence on the economic map that were able to compete with the giant and pioneering companies in that industry.

2- Pharmaceutical companies should follow up on customer services through an effective strategy in preparing periodic reports on customers' reactions and complaints, and their satisfaction with the performance of services provided by those companies for their survival and continuity like competitors.

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