

**Medical invention marketing strategies on buying: Surgical medical robot****Daniella Awni Abu Yousef<sup>a</sup>, Zeyad AlKhazali<sup>a\*</sup>, Rasha A. Qawasmeh<sup>a</sup> and Hareth Zuhair Alshamayleh<sup>b</sup>**<sup>a</sup>*Business School, Al-Ahliyya Amman University, Amman, Jordan*<sup>b</sup>*Faculty of Business Studies, Arab Open University, Riyadh, Saudi Arabia***CHRONICLE****ABSTRACT***Article history:*

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The study aimed to identify the medical invention marketing strategies on buying (Surgical Medical Robot), the study used the descriptive approach to suit the purpose of the study. Sample of the study consisted of (100) participants divided (50) of marketing managers for the medical instrument companies and (50) medical employers related to working in surgery in the Jordanian hospitals. The study showed that the level of medical invention marketing strategies (Marketing Network, Design and Execution, Understanding Customer and the Pro-motion) and Buying Surgical Medical Robots in the Jordanian Hospitals were in the medium level. The study showed that the medical invention marketing strategies (Marketing Network, Design and Execution, Understanding Customer and the Promotion) have an impact on buy-ing (Surgical Medical Robot) Jordanian hospitals. The study set of many recommendations as Work to raise awareness regarding medical robot surgery and Work by medical equipment companies to obtain the largest amount of information about the medical surgical robot, to increase the level of confidence of patients in this robot.

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**1. Introduction**

Robotic surgery use has noticeably increased in the past decade. Procedures with the greatest application of robotics entailed inguinal hernia repair, but surgical medical robots have currently replaced laparoscopic minimally invasive procedures deemed safe when clinically feasible (Goh & Ali, 2022). Also known as robot-assisted surgery, robotic surgery is a minimally invasive procedure characterized by miniaturization, greater precision, low blood loss, flexibility, and enhanced control compared to traditional techniques. A basic clinical robotic surgical system has two arms: a camera one and a robotic arm attached to surgical instruments. Surgeons control the arms while sitting at a console connected to a computer. The console enhances operational outcomes by providing a high-definition, magnified 3D view of the surgical site. Robotic-assisted surgery has enhanced the ergonomics of the operating site because surgeons can leverage advances in 3-D and magnification to perform the procedure more efficiently. Moreover, robotic surgery offers advantages over conventional surgery in dexterity and peri-operative pain. For instance, the da Vinci Xi Surgeon Console possesses the EndoWrist Stapler, which offers wristed articulation in vertical and horizontal directions, unlike conventional endoscopic surgery, which has limited vertical and horizontal movements (Goh & Ali, 2022). Additionally, recent iterations have fluorescence detection, a reconfigured robotic arm, and a dual console for enhanced access, ergonomics, and training (Goh & Ali, 2022). Due to these techniques, robotic surgeries are associated with shorter hospital stays, better cosmetics, minimized preoperative and post-surgery effects such as pain and site infection, reduced blood loss and need for diffusion, and pain medication (Ghazanfar et al., 2019; Alsoud et al. 2022). These benefits have improved the efficacy of robotic surgery, and it is surprising that some countries, caregivers, and patients still have misgivings about the novel technology.

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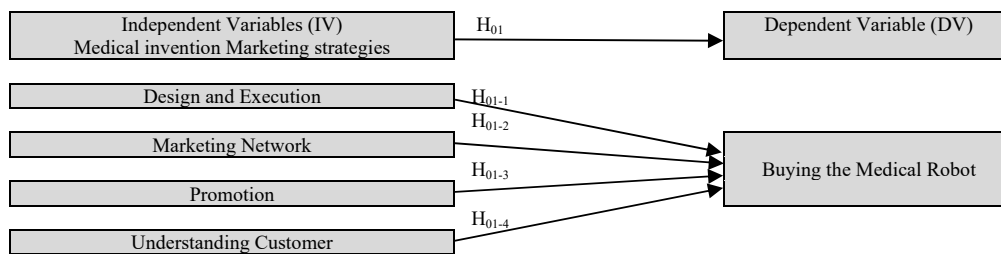
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Robotic surgery has been criticized for its low feasibility, efficacy, and high expense. However, various trade-offs exist to offset these concerns. For instance, feasibility concerns may be alleviated with data from Ghazanfar et al. (2019) and other studies that confirm that robotic surgery is feasible, even in developing countries. Regarding efficacy, the knowledge that various studies have recognized robotic surgery as more efficient than conventional operation would help ameliorate these concerns (Goh & Ali, 2022). Finally, discussions exploring the financial robotic surgery trade-offs would help patients and hospitals embrace robotic-assisted operations. The average cost for a single robot is \$2 million, while surgeries range from \$8,000 to \$45,914. Conventional surgeries are way cheaper, costing about \$2000 to \$7,000 less. Since patients are concerned about the expense, information detailing the trade-offs of robotic surgery is needed (Goh & Ali, 2022; Alkhazali et al., 2019). Trade-offs come in the form of reduced length of hospital stay, improved clinical outcomes, earlier return to work, and more beds available for further surgeries. This gap in knowledge among patients and caregivers increases the need for marketing messages documenting robotic surgeries' true clinical utility. A marketing strategy helps hospitals focus on the full use of resources to increase sales and outperform their competitors in the marketing of robotic surgery. Organizations in developed countries usually design marketing plans to attract potential patients and enhance their reputation in the market for the sale of medical surgical robots (Fletcher et al., 2018). A marketing plan consists of steps to successfully implement the chosen marketing strategy, including design and execution, marketing network, promotion, and understanding of customers' knowledge gaps. Jordan is behind in robotic-assisted surgery, with the first major robotic system only being introduced 12 months ago (JT, 2022). Research also shows a shortage in consumer knowledge of robotic surgery benefits (Azhar et al., 2019). Given the lack of medical surgical robots in the country, this study highlights the practice of some marketing strategies that help promote medical surgical robots deemed more efficient than conventional operations.

## 2. Problem of the study

In light of the progress of science, especially the Robotics, medical robots have recently appeared that are characterized by accuracy, speed, and surgery without wrong movement or shivering as a result of fatigue or exhaustion, but people is still not confident in these devices because they are not used yet in a larger scale (Dixon et al., 2015), in addition to the lack of promotion and marketing of these medical products in a larger scale too. Medical Surgeries in Jordan are carried out in a traditional manner, depending on the hands of human doctors despite the possibility of errors, as stated in many previous studies shown by (Sulaiman, 2014). This is what calls for the need to market medical robots to reduce the level of medical errors, hence the idea of this study, which answers the question:

Is there an impact of Medical invention marketing strategies (Design and Execution, Marketing Network, Promotion, understanding customer) on buying medical robot in the Jordanian Hospitals?



**Fig. 1.** The proposed study

Source: Marketing world (Marketing Strategies), 2015

<http://marketingworldnow.blogspot.com/2015/10/marketing-strategies.html>

### 2.1 Study Hypothesis

**H<sub>1</sub>:** *There is a positive impact of Medical invention marketing strategies on buying medical robot in the Jordanian Hospitals.*

*Sub Hypothesis:*

**H<sub>1a</sub>:** *There is a positive impact of Design and Execution on buying medical robot in the Jordanian Hospitals.*

**H<sub>1b</sub>:** *There is a positive impact of Marketing network on buying medical robot in the Jordanian Hospitals.*

**H<sub>1c</sub>:** *There is a positive impact of Promotion on buying medical robot in the Jordanian Hospitals.*

**H<sub>1d</sub>:** *There is a positive impact of Understanding customer on buying medical robot in the Jordanian Hospitals.*

## 3. Literature Review

### 3.1 Early Robots

Dr. James McEwen, Dr. Brian Day, Geoff Auchinleck and a team of engineering students in Vancouver, Canada, in 1983 developed the world's first surgical robot, and they named it Arthrobot. It was then used in a total hip arthroplasty to prepare

the femur for implantation after eliminating the head of the thigh bone. In 1985, a robot called the PUMA 650 was used to place a brain biopsy needle on by the aim of a CT scan. The Puma 650 robot enjoyed six degrees of freedom, allowing it to reach any point within its axis of movement. This robot was able to determine its location through a potentiometer that controls six servo motors. In 1988, the Robot was developed at Imperial College London and used in prostate surgery. It is designed to enable the surgeon to determine the volume to be removed from the prostate gland, which is cut automatically without additional intervention from the surgeon. In 1992, ROBODOC was developed by Integrated Surgical Systems Inc. to reduce human errors in hip replacements.

In a study performed by Azhar et al. (2019), A Medical Literature Analysis and Retrieval System Online (MEDLINE) search was performed using the next keywords: 'robotics', 'robot-assisted surgery', 'laparoscopy', at first with each specific procedure name, such as radical cystectomy, followed by 'Middle East' and country names. All abstracts and articles in English that adhered to the scope of the existing issue were selected, giving special consideration to relevant landmark articles and those describing trends and the future of RAS in Urology and the result presented only a few index case reports characterized RAS in the Middle East. The Middle East possess only 1% of the da Vinci® Surgical Systems (Intuitive Surgical Inc., Sunnyvale, CA, USA) installed worldwide, including 19 in Saudi Arabia; six in Qatar; two in each of Kuwait and Lebanon; three in the United Arab Emirates; and only one in Egypt. The total number of RAS performed in the Middle East is low compared to Europe and the USA. Many countries in the Middle East still lack surgical robots despite having the knowledge and suitable caseload, whilst others seem not to use the surgical robot at a suitable rate, as reflected by the sparse number of operated cases and outgoing publications. There are significant variations in RAS availability, usage, and perception according to the geographical place of practice and acceptance of robots by surgeons and patients.

Azhar et al. (2018) evaluated the current status of urologic robot-assisted surgery (RAS) in Saudi Arabia and assess perceptions of its importance and utility and the outcome indicated that Ninety-five surveys were completed. Approximately 53%, 46%, and 21% of respondents were formally trained in laparoscopic surgery, MIS, and RAS, respectively. Forty percent had used a robot console throughout training. Nearly 72% of participants felt that RAS training should be included to achieve their career goals and stated that it would strengthen the department academically and financially. The absence of a robotic system (45%) and administrative disinterest with lack of support (39%) were the majority deterrents. Robot-assisted radical prostatectomy (RARP), robot-assisted radical cystectomy (RARC), and robot-assisted radical nephrectomy (RARN) were regarded as the gold standard for 34%, 23%, and 17% of respondents, respectively. Respondents would recommend RARP (74%), RARC (50%), and RARN (57%) for themselves or their family. The highest perceived benefits of RAS were its ease of use and improvement in the patient's quality of life.

Damati (2011) determined the effect of marketing mix elements through showing the impact of (Optical Medical Product, Pricing, Promotion and distribution) of Optical Medical products on its marketing performance in Jordan, This study used a quantitative methodology. through the descriptive analytical approach. Sample of the study consisted of (108) optical company and center in Jordan. The study results confirms that there is no statistically significant impact of optical medical product characteristics, promotion on its marketing performance, and there is significant impact of pricing decisions of optical medical products, optical medical products distribution on its marketing performance in Jordan market. And the study recommended that optical manufacturing and trade companies should focus on the characteristics of optical medical products.

Al Naimi and Al-Azzawi (2009) identified the impact of marketing innovation in quality health services in the government sector - where the questionnaire was used to conduct an analysis, the study sample consists of one government agency, based on the results obtained, the existence of a strong relationship between these two variables. It was found through the results that the concept of innovative marketing has become one of the concepts of wide impact, especially with the development of the concept of innovation and creativity, not only that, but it is also extended to what is related to market share, pricing strategies, performance effectiveness, paying attention to commodity specifications and understanding the needs of customers. The quality of the health service is a determining factor in the ability of the service to satisfy the needs of customers. The study recommended the need to give marketing innovation a strategic dimension in the company's performance and its reflection on medical supplies.

Abdel Nour (2020) identified the essential factors guiding marketing and exploitation of patents, a questionnaire was designed as a tool to collect data from the study population including: inventors, industrialists, researchers, and employees of the commercial and industrial property protection directorate. This questionnaire was delivered either as papers or by emails to individuals of the study sample. After collecting and filtering out the responses, the sum was /90/ credible questionnaires. The study showed that the four hypotheses were valid; i.e., there is a statistically significant effect for each of the main independent variables (infrastructure, intermediaries, motivational factors, and hindering factors) in the dependent variable "patent marketing and exploitation". The study ends up with several recommendations regarding the importance of not relying only on the defensive side of the patent, and to put inventions into use. The study suggests paying attention to promoting the culture of creativity and invention and establish invention offices in universities, in addition to emphasize the importance of developing and updating national databases due to their major impact on marketing and exploitation of patents (Alkhazali & Mohd, 2020).

Al-Nsour et al., (2016) aimed to investigate the impact of social media marketing through its dimensions (firm creation content, user generated content) on purchase intention in Jordan. The study used the purposive sample to get in touch with the users of social media for marketing goals in Jordan. The study used descriptive analytical approaches such as: frequencies, percentages, means, and standard deviations to describe data and the simple and multiple regressions to test hypotheses. Some significant outcomes of this research were: there was a significant impact of social media marketing on purchase intention in Jordan. Social media explained 59% of the variation in the purchase intention. There was a significant impact of firm creation content on purchase intention. Firm content explained 56.4 % of the variation in the purchase intention. There was a significant impact of user content on purchase intention. User generated content explained 34.1% of the variation in the purchase intention. Several of the primary recommendations were that companies should adopt social media marketing on their businesses especially in marketing and they should improve their creation content effectiveness.

Abdel Fattah (2011) aimed to investigate the role of e-marketing on improving mental Image for health services, point view of Jordanian French Company clients. The study contain (500) clients as simplified sample from the clients of Jordanian French insurance company,. Results indicated that the price was in the first rank of E-marketing elements, with average (4.141) and standard deviation (0.632), while the distribution element was in the second rank with average (3.906) and standard deviation (0.859). The results of correlations between E-marketing elements and mental image were significant. Multiple regression coefficients for price and distribution elements were statistically significant and showed an effect on improving clients' mental image when the regression considers service and promotions elements in the model. The study's findings highlighted the importance of e-marketing in promoting and improving the mental image of the company's customers.

Bakhtah (2010) highlighted the role of health marketing in improving the quality of health services in hospitals. Therefore, we conducted a field study at Mohammed Boudiaf Hospital in Gleizan, where we distributed 50 questionnaires to their workers and retrieved 36 valid questionnaires for analysis. Several of the most important results are that health marketing has an effective role in improving the quality of health services in hospitals. Keywords: Health Marketing; Quality of Health Services; Mohamed Boudiaf Hospital.

Pransky (1997) determined the history of Integrated Surgical Systems (ISS), the US company that created ROBODOC, a surgical robot system used to perform total human hip replacement surgery, and ORTHODOC, a computer workstation that enables orthopaedic surgeons to examine a patient's bone more accurately and perform a pre-operative plan prior to total hip replacement (THR) surgery. ISS recently went public on the NASDAQ Small Cap market. ORTHODOC has received US FDA approval, while ROBODOC's approval is still pending. More than 850 patients in six hospitals worldwide have received surgical procedures performed by ROBODOC.

According to Dixon et al. (2015), the Robot-assisted surgery is gaining momentum as a new trend in minimally invasive surgery. With limited evidence supporting its use in place of the far less expensive conventional laparoscopic surgery, it has been suggested that marketing pressure is partly responsible for its widespread adoption. The impact of phrases that promote the uniqueness of robot-assisted surgery on patient decision making has not been investigated. We conducted a discrete choice experiment to elicit preference of partial colectomy technique for a hypothetical diagnosis of colon cancer. A convenience sample of 38 participants in an ambulatory general surgery clinic consented to participate. Each participant made 2 treatment decisions between robot-assisted surgery and conventional laparoscopic surgery, with robot-assisted surgery described as "innovative" and "state-of-the-art" in one of the decisions (marketing frame), and by a disclosure of the uncertainty of available evidence in the other (evidence-based frame). The magnitude of the framing effect was large with 12 of 38 subjects (31.6%,  $P = .005$ ) selecting robot-assisted surgery in the marketing frame and not the evidence-based frame. This is the first study to our knowledge to demonstrate that words that highlight novelty have an important influence on patient preference for robot-assisted surgery and that use of more neutral language can mitigate this effect.

Lapão et al., (2007) presented the first results in the application of a new methodology to strategically develop the marketing and communication activities for a broad public healthcare network. It makes use of the Internet to additional explore the E-Government opportunities. The Effects of the suggested methodology in healthcare can represent a new front of development within E-Government serving the purpose of improving the degree of interactivity and individualization (2 Is) between the public healthcare organizations and citizens and communities, which will lead to an increase of the quality of services.

Lewis et al. (2012) described how information communication technology (ICT) is being used by programs that seek to improve private sector health financing and delivery in low-and middle-income countries, including the main uses of the technology and the types of technologies being used. In many low-and middle-income countries, ICT is being increasingly employed for different purposes in various health-related areas. Of ICT-enabled health programs, 42% use it to extend geographic access to health care, 38% to improve data management and 31% to facilitate communication between patients and physicians outside the physician's office. Other purposes include improving diagnosis and treatment (17%), mitigating fraud and abuse (8%) and streamlining financial transactions (4%). The most common devices used in technology-enabled programs are phones and computers; 71% and 39% of programs use them, respectively, and the most common applications are voice (34%), software (32%) and text messages (31%). Donors are the primary funders of 47% of ICT-based health programs.

Glende et al. (2016) asserted that marketing strategies need to be developed addressing needs and fears of the stakeholders, which is especially critical regarding utopian-appearing assistive robots. To understand what drives acceptance, conscious and subconscious needs, wants and barriers of use of the relevant stakeholders have to be analyzed. As such, in this intelligence gathering process not only end-users should be integrated. Also, other stakeholders (e.g. as users, decision makers and buyers might not be identical) should be identified and their needs understood. In this paper the researchers report our findings on marketing factors for different stakeholder groups for assistive robots that we identified during the EU-co-funded (FP7) Robot-Era project. The researchers employed a user-centred way of identifying stakeholders and marketing strategies by analysing different stakeholders in an iterative design process from an early stage with quantitative and qualitative methods. The most significant acceptance factors we identified for assistive robotics include functionality, usability, safety, costs and financing, (non-) stigmatization and ethical aspects. The structure of the paper is the following: first the researchers look at the relevance of assistive robotics and the challenge of missing acceptance. We then look at the 4p concept in marketing to structure our approach of user-centered marketing. We then describe our data collection and the results to end with a discussion. Viewing robots as service agents that provide services to customers for value exchange, the study developed a scale to measure robotic service quality. The scale underwent several stages of development including item generation, domain specification, scale refinement, and validity testing, including internal and external cross validation. A range of methods were used in this process. Data were collected from Australia, China, and Vietnam to test external validity. Four dimensions were identified to represent robotic service quality. Development of this scale has implications for artificial intelligence and service research. The scale can be used by practitioners to enhance customer experience and generate positive attitudinal and behavioral responses from customers.

#### 4. Study Methodology

Typical descriptive studies are concerned with the assessment of attitudes, opinions, demographic information, conditions, and procedures. The research design that has chosen for the current study is the survey research. The survey is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. The survey research of knowledge at its best can provide every valuable data. It involves a careful design and execution of each of the components of the research process. The researcher designed a survey instrument that was administered to the research sample. The purpose of the survey instrument was to collect data about the attitudes and opinions toward the Medical invention marketing strategies on buying (Surgical Medical Robot).

##### 4.1 Study population and Sample

The Population of the study consist of the medical instrument companies and the Jordanian Hospitals in Amman, sample of the study (Participants) chosen by random method, and it consist of (50) marketing managers and (50) random sample of medical employers related to working in surgery and sample of medical equipment's engineers (Hair et al., 2010; Hair et al., 2014). Table 1 shows the demographical distribution for the participants.

**Table 1**  
Demographical distribution for the participants

Medical Sample			Marketing Sample		
Variable	Freq	%	Variable	Freq	%
<b>Gender</b>			<b>Gender</b>		
Male	29	58.0	Male	27	54.0
Female	21	42.0	Female	23	46.0
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>Education</b>			<b>Education</b>		
Diploma	31	62.0	Diploma	21	42.0
Bachelor Degree	19	38.0	Bachelor Degree	28	56.0
Master and above	---	---	Master and above	1	2.0
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>Age</b>			<b>Age</b>		
30-40 years	15	30.0	30-40 years	28	56.0
41-50 years	18	36.0	41-50 years	20	40.0
More than 50	17	34.0	More than 50	2	4.0
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>Experience</b>			<b>Experience</b>		
Less than 5 years	10	20.0	Less than 5 years	10	20.0
5-10 years	21	42.0	5-10 years	25	50.0
More than 10 years	19	38.0	More than 10 years	15	30.0
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>Total</b>	<b>50</b>	<b>100.0</b>

## 5. Analysis Results and Hypotheses Test

### 5.1 Descriptive Analysis of Study Variables

#### The level of medical invention marketing strategies

The study used the arithmetic mean, standard deviation, item importance and importance level to show the level of medical invention marketing strategies as shown in Table 2.

**Table 2**

Arithmetic Mean, SD, Item Importance and Importance level of medical invention marketing strategies

No	Medical invention marketing strategies	Mean	Std. Deviation	Item Importance	Importance Level
2	Marketing Network	3.41	0.33	1	Medium
1	Design and Execution	3.30	0.47	2	Medium
4	Understanding Customer	3.13	0.36	3	Medium
3	Promotion	2.66	0.56	4	Medium
<b>Total</b>		3.13	0.29		<b>Medium</b>

Table 2 shows that the mean value for medical invention marketing strategies was of (3.13) with standard deviation of (0.29) and its in a medium level. Marketing Network ranked first with mean of (3.41) and standard deviation of (0.33) which is of a medium level, Design and execution ranked second with mean of (3.30) and standard deviation of (0.47) which is of a medium level, Understanding customer ranked third with mean of (3.13) and standard deviation of (0.36) which is of a medium level, Promotion ranked last with mean of (2.66) and standard deviation of (0.56) which is of a medium level.

### 5.2 Study Hypotheses Test

**H<sub>1</sub>:** *There is a positive impact of Medical invention marketing strategies on buying medical robot in the Jordanian Hospitals.*

To test this hypothesis the researcher uses the Simple Regression analysis to ensure the impact of medical invention marketing strategies on buying medical robot in the Jordanian hospitals as shown in Table 3.

**Table 3**

Simple regression to ensure the impact of medical invention marketing strategies on buying medical robot in the Jordanian hospitals

R	R <sup>2</sup>	B	Beta	F Value	DF	Sig
0.741	0.550	0.658	0.741	23.598	49	0.00*

\*: significant at level of (0.05)

From Table 3, it is observed that there is significant impact of medical invention marketing strategies on buying medical robot in the Jordanian hospitals. The *R* was (0.741), whereas the *R*<sup>2</sup> was (0.550). This means the (550%) of medical invention marketing impact on buying medical robot in the Jordanian hospitals. As *Beta* was 0.741) Assuring *F* value was (23.598) and it is significant at level ( $\alpha \leq 0.05$ ), that assuring acceptance of the hypothesis.

#### 5.2.1 Sub Hypothesis

**H<sub>1a</sub>:** *There is a positive impact of Design and Execution on buying medical robot in the Jordanian Hospitals.*

To test this hypothesis the researcher uses the Simple Regression analysis to ensure the impact of design and execution on buying medical robot in the Jordanian hospitals as shown in Table 4.

**Table 4**

Simple regression to ensure the impact of design and execution on buying medical robot in the Jordanian hospitals

R	R <sup>2</sup>	B	Beta	F Value	DF	Sig
0.442	0.195	0.624	0.442	18.569	49	0.00*

\*: significant at level of (0.05)

From Table 4 it is observed that there is significant impact of design and execution on buying medical robot in the Jordanian hospitals. The *R* was (0.442), whereas the *R*<sup>2</sup> was (0.195). This means the (19.5%) of design and execution impact on buying medical robot in the Jordanian hospitals. As *Beta* was (0.442) Assuring *F* value was (18.569) and it is significant at level ( $\alpha \leq 0.05$ ) that assuring acceptance of the hypothesis.

**H<sub>1b</sub>:** *There is a positive impact of Marketing network on buying medical robot in the Jordanian Hospitals.*

To test this hypothesis the researcher uses the Simple Regression analysis to ensure the impact of marketing network on buying medical robot in the Jordanian hospitals as shown in Table 5.

**Table 5**

Simple regression to ensure the impact of marketing network on buying medical robot in the Jordanian hospitals

R	R <sup>2</sup>	B	Beta	F Value	DF	Sig
0.338	0.114	0.421	0.338	13.689	49	0.002*

\*: significant at level of (0.05)

From Table 5 it is observed that there is significant impact of marketing network on buying medical robot in the Jordanian hospitals. The R was (0.338), whereas the R<sup>2</sup> was (0.114). This means the (11.4%) of marketing network impact on buying medical robot in the Jordanian hospitals. As Beta was (0.338) Assuring F value was (13.689) and it is significant at level ( $\alpha \leq 0.05$ ) that assuring acceptance of the hypothesis.

**H1c:** *There is a positive impact of Promotion on buying medical robot in the Jordanian Hospitals.*

To test this hypothesis the researcher uses the Simple Regression analysis to ensure the impact of promotion on buying medical robot in the Jordanian hospitals as shown in Table 6.

**Table 6**

Simple regression to ensure the impact of promotion on buying medical robot in the Jordanian hospitals

R	R <sup>2</sup>	B	Beta	F Value	DF	Sig
0.299	0.089	0.189	0.299	4.700	49	0.035*

\*: significant at level of (0.05)

From Table 6 it is observed that there is a significant impact of promotion on buying medical robot in the Jordanian hospitals. The R was (0.299), whereas the R<sup>2</sup> was (0.089). This means the (8.9%) of promotion impact on buying medical robot in the Jordanian hospitals. As Beta was (0.299) Assuring F value was (4.700) and it is significant at level ( $\alpha \leq 0.05$ ) that assuring acceptance of the hypothesis.

**H1a:** *There is a positive impact of Understanding customer on buying medical robot in the Jordanian Hospitals.*

To test this hypothesis the researcher uses the Simple Regression analysis to ensure the impact of understanding customer on buying medical robot in the Jordanian hospitals as shown in Table 7.

**Table 7**

Simple regression to ensure the impact of understanding customer on buying medical robot in the Jordanian hospitals

R	R <sup>2</sup>	B	Beta	F Value	DF	Sig
0.269	0.072	0.157	0.269	11.191	49	0.01*

\*: significant at level of (0.05)

From Table 7 it is observed that there is significant impact of understanding customer on buying medical robot in the Jordanian hospitals. The R was (0.269), whereas the R<sup>2</sup> was (0.072). This means the (7.2%) of understanding customer impact on buying medical robot in the Jordanian hospitals. As Beta was (0.269) Assuring F value was (11.191) and it is significant at level ( $\alpha \leq 0.05$ ) that assuring acceptance of the hypothesis.

### Findings:

- The study showed that the level of medical invention marketing strategies (Marketing Network, Design and Execution, Understanding Customer and the Promotion) were in the medium level.
- The level of Buying Surgical Medical Robot in the Jordanian Hospitals was in the medium level.
- The results showed that there is significant impact of medical invention marketing strategies on buying medical robot in the Jordanian hospitals.
- The study showed that there is significant impact of design and execution on buying medical robot in the Jordanian hospitals.
- The result of the study showed that there is significant impact of marketing network on buying medical robot in the Jordanian hospitals.
- The result of the study confirms' that there is a significant impact of promotion on buying medical robot in the Jordanian hospitals.
- The results showed that there is significant impact of understanding customer on buying medical robot in the Jordanian hospitals.

## Recommendations:

- Work to raise awareness regarding medical robot surgery.
- Work by medical equipment companies to obtain the largest amount of information about the medical surgical robot, to increase the level of confidence of patients in this robot.
- Posting many videos about medical robot surgery through social media to increase the level of trust in this robot.
- Holding workshops in Jordanian hospitals about medical robot surgery and its features.
- Work to distribute some robots such as samples to hospitals and experiment based on good prices to increase the level of promotion of the robot.

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