

# The Impact of Functional Competencies on Firm Performance of Pharmaceutical Industry in Jordan

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## Abstract

This study aims to clarify the impact of functional competencies on the firm performance of the Jordanian pharmaceutical manufacturing companies, by using competencies framework (marketing competencies, research and development competencies, information system competencies, production competencies and human resources competencies). To address these issues, a field survey of 17 pharmaceutical manufacturing companies in Jordan was conducted with the use of structured questionnaires, data was gathered by sample consists of the Jordanian pharmaceutical manufacturing companies' managers. A total of 85 questionnaires were distributed to pharmaceutical manufacturing companies and 62 surveys were returned back at gross response rate of 72.94%. Various data analysis procedures were applied to test the hypothesis such as: descriptive statistics, simple regressions, and multiple regressions. Findings showed that there is a significant impact of the functional competencies on the firm performance, and explains (57.6%) of the variation in firm performance from the sample point view. Also, results showed that production competencies, research and development competencies, and marketing competencies have the most impact on the firm performance.

**Keywords:** functional competencies, marketing, R&D, firm performance, pharmaceutical companies, Jordan

## 1. Introduction

Current age is witnessing many rapid developments and changes on the economic, industrial, technological and human world, companies aspiring to meet the challenges of today's rapidly changing markets and increasing competition, require to find a competitive advantage that could lead their companies to a better performance than competitors, or at least, to some sort of benefits that satisfy ownership, shareholders, customers or any stakeholder in general. The pharmaceutical industry is considered one of the leading and principal economic sectors in Jordan. The year 1962 is considered the beginning of the Jordanian pharmaceutical industry, by the establishment of Arab Pharmaceutical Manufacturing Company (APMC), then Jordanian Association of Pharmaceutical Manufacturers (JAPM) was established in 1996, the mission of it is to support, develop and upgrade the Jordanian pharmaceutical industry to world-class standards through technology transfer, industry integration and the implementation of current good manufacturing practice, at present there are 17 pharmaceutical manufacturing companies and 81 drug stores in Jordan. The pharmaceutical sector in Jordan is primarily engaged in production of branded generics ranging from many dosage forms such as solids, semi-solids, liquids, aerosols, and injectable as well as producing various products under licensed products for multi-national companies. The importance of the sector in the economy can be understood from the fact that it is the second largest export industry in Jordan after garment manufacturing. Currently close to three-fourths of total pharmaceutical production is meant for exports. Generally speaking, the Jordanian pharmaceutical products are characterized by high quality standards; a number of active companies are exporting their products to the international markets. In recent years, more competition pressure was created with continuous growth of the local companies; also multinational companies have entered into marketing arrangements with the local companies. Innovation is a critical strategy for the pharmaceutical industry's survival, its success and commercial fortunes; it may refer to developing and advancing new products, or providing differentiation and variations on the products' characteristics or features, e.g. safety, cost, and quality...etc. Needless to say that innovation is essential to achieving growth, permanence and endurance in such challenging environment. Therefore, companies are constantly attempting to develop newly advanced and unique approaches to better

perform and display flexibility, and response to the changing customers' needs and wants by improving current, as well as new products. Since performance reflects the organization level and grants a competitive advantage, it is considered as an important indicator of organizations prosperity. To raise the level of performance, firms should consider the aspects of human resources, which are the capacity and competencies, many of competencies authors showed the importance of competencies due to their impact on performance and on the individual itself (Boyatzis, 2008). Different competencies such as (marketing, production, research and development, and human resources) are playing a main role in organizations performance; each has its impact and its role on the performance measures (Day, 1994; Fowler, King, Marsh, and Victor, 2000; Song, and Xie, 2000; Hill and Jones, 2001; Doole, Grimes & Demack, 2006; Nguyen, 2008; Rauch, Wiklund, Lumpkin, & Frese, 2009). According to the researcher knowledge most of these studies have been conducted in a developed countries context; a few studies clarified the importance of functional competencies on performance have been in the Arabic countries as well as none in Jordan.

### *1.1 Study Objectives*

This study, attempt to provide practical information to pharmaceutical companies in Jordan, that can lead to a better understanding of the role of functional competencies, and the role of these functional competencies to improve the firm's performance. Also to assess the competency level of these functions: (marketing competencies, research & development competencies, information system competencies, production competencies and human resources competencies) in these companies, also to identify performance measures and criteria for evaluating performance, and to provide recommendations that contribute to clarify the impact of functional competencies on the firm performance in the Jordanian pharmaceutical industry in order to keep the performance running well.

### *1.2 The Importance of the Study*

The study drives its importance as it relates to the functional competencies subject and its impact on firm performance, and will be conducted and applied to the Jordanian pharmaceutical industry as one of the main economic sectors in Jordan. Depending on the previous studies and what is today's organization have witnessed from development, globalization and openness at the moment requires high level managers to perform their work with perfection and to keep up with all that is new and what stems out from the challenges. This study is one of the few studies according to the researcher knowledge that will clarify the impact of functional competencies model which is becoming a key requirement for the success of organizations. Therefore the researcher is hoping to identify "The Impact of Functional competencies on the Firm Performance in the Jordanian pharmaceutical industry".

### *1.3 Research Questions*

This research attempts to study the impacts of several major functional competencies on firm performance measures. In other words, the study aimed to answer the following questions:

- 1) How do marketing competencies impact firm performance?
- 2) How do research and development competencies impact firm performance?
- 3) How do information systems competencies impact firm performance?
- 4) How do production competencies impact firm performance?
- 5) How do human resources competencies impacts firm performance?
- 6) How do functional competencies impact firm performance measures?

## **2. Literature Review**

### *2.1 Functional Competencies*

Nowadays companies are challenged by dynamic environments with a rapid speed of change, degrees of uncertainty, and complexity. Firms must be able to understand and influence the challenging and dynamic environment were they are operating in. According to Savory (2006) resources are owned and collected by the firm, whereas competence is the "ability to use resources to an acceptable level of performance ", and defined capabilities as "the ability to operate a specific configuration of an organization's set of resources. Hooley, Broderick, and Möller (1998) define individual competencies as the ability of individuals to meet customer expectations and achieving customer satisfaction. On this foundation, Boyatzis (2008) build up his widespread definition of job competencies as "underlying characteristics of a person that can be a motive, trait, skill, aspect of one's self-image or social role, or a body of knowledge, which results in effective and/or superior

performance". Brophy and Kiely (2002) define competencies in a clear and summarized manner: skills, knowledge, behaviors and attitudes required to effectively perform a role or job position. Grzeda (2004) try to put some light and reduce the conceptual ambiguity by providing a review of many definitions of competencies, as well as breaking them down into their constituents: skills, knowledge and attitudes (KSA) different from others that uses as the third component 'ability', 'behavior' or 'attitudes'. Winterton, Delamare, and Stringfellow (2005) make the following equivalence: Knowledge is the Cognitive competence; Skills belong to functional competence; and Attitudes are linked with social competence. Vorhies, Morgan and Autry (2009) also showed that it is not enough to possess resources and capabilities which are valuable, rare and difficult to copy, how capabilities are deployed is more important for creating and sustaining competitive advantage than their mere possession. Hamel (1994) distinguished three types of core competencies, competencies classification were based by the impact that they have on the organization. (1) Market-access competencies, those skills which help a firm to be more closer to its customers, such as product and brand development skills, marketing planning and implementation, and after sales services, etc. (2) Competencies that allow a firm to response more quickly than competitors, related to product, price, promotion, distribution, etc; and (3) Functionality-related competencies or skills which enable the firm to differentiate its product or services from competitors, by giving consumers something unique and meaningful. Many authors focused their research on functional areas and confirmed that functional areas could be become core competencies of an organization through the combination of skills and resources. Hill and Jones (2001) indicated that competencies at functional-level can be sources of competitive advantage through assessing the four factors of competitive advantage: efficiency, quality, innovation, and customer responsiveness.

## *2.2 Marketing Competencies*

Pharmaceutical marketing including activities focused on making physicians as well as the general public aware of new and existing pharmaceutical brands (Masood et al. 2009). Recent studies show that enterprises can increase their market competitiveness only by coordinating functional area competencies (Li, 2000). Marketing process includes market research to discover the consumers' desires, consequent R&D should achieve those desires, distribution of the products thus created, and the provision of persuasive information (via advertising and sales promotion) to the target market. Promotion of most drugs should be directed to the physicians who provide advice on the drugs' usage to the consumers Calfee (2002). Marketing competencies are defined as the capabilities and processes designed to apply the collective knowledge, skills and resources of the firm to its market related needs (Wang, Lo, and Yang, 2004). Also these competencies are skills that help the company to stay in close to its customers, the several dimensions identified as firms' marketing competencies include: product development skills, marketing research, strategy & planning, marketing program implementation, after-sales services, pricing skills, competitiveness, and customer relationship management, and measuring effectiveness. The three important elements of these competencies are "customer knowledge", "customer access", and "competitor knowledge" (Fowler et al., 2000). Strong marketing competencies enable firms delivering, and communicating superior value to consumers, better management for customers acquisition and retention, and works closely with all parties in the production and distribution chain, from suppliers of raw materials to retail distributors (Day, 1994). Melaia, Abratt and Bick's (2008) revealed that three types of general competencies were considered especially important among marketing managers. These were the ability to communicate orally and in writing and interpersonal & persuasion competencies along with global marketing competencies. In addition academics believed that relationship management and marketing planning & implementation competencies would be more important in the future. Marketing researchers have explained how organizational marketing resources and capabilities can contribute to the creation of a competitive advantage, because they might be rare, difficult to achieve, difficult to imitate and their value can be appropriated by the firm, and that market oriented companies will gain superior customer value, and this will convey to a sustainable competitive advantage (Hooley, Greenley, Cadogan, and Fahy, 2005).

## *2.3 Research & Development*

The mission of any pharmaceutical company understands the disease to produce the safe and effective new drug that prevent and treat diseases, and improve the lives of patients. Research and Development comprises innovation management and intellectual property management (Fischer and Henkel, 2010); regarding to the fact that patents of chemical compounds play a crucial role in terms of stimulating developments of new drugs, so most of pharmaceutical innovations are follow-on drugs rather than completely new medical treatments (Brekke and Straume, 2008). Generic R&D is focused on achieving numerous product approvals ready for launch on the day of patent expiry at low risk, that is, with high-quality registration files (Sommerfeld, 2007). Research and Development (R&D) is an imperative function, because product differentiation has a positive and significant

contribution to firms' market value; on average, an introduction of a new drug product increases market value by 18% (Pattikawa, 2007). Developing a new medicine isn't easy; although the level of investment in pharmaceutical research and development (R&D) has increased dramatically to US \$50 billion per year during the period from 1950 to 2008, the US Food and Drug Administration (FDA) approved only 1,222 new drugs (Munos, 2009). The challenge that managers of pharmaceutical companies encounter is the need for flexibility and innovative capabilities within the organization, because of rapid changes in the market and technology, increasing competitors, in addition to the shortening of a product life-cycle (Lin et al, 2007).

#### *2.4 Information Systems Competencies*

Kamasak and Bulutlar (2010) places heavy reliance on the critical role of information, the value of which is maximized when it is shared among all functions in an organization and is acted on in a coordinated manner, which provides several benefits to the business organization. Management Information System (MIS) is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in any organizations (Laudon & Laudon, 2006). While information system user competency, refers to the ability to realize the fullest potential and the greatest performance from IS use (Boudreau, 2005). Understanding information system (IS) competencies is important, considering that organizations may be able to capitalize on the benefits in IS investments by supporting IS users to enrich their IS usage, also it has a role to play in creating and sustaining an organizations' competitive advantage by enable the firm to react more quickly to their environment, decrease the cost, time savings, and decisions can be made more quickly (Jaspersen, Carter, and Zmud, 2005). Wheelen and Hunger (2004) noted the significant role of IT for an organization's business strategy, and illustrate how management information systems (MIS) make it possible for organizations to get the right information to the right people at the right time by enhancing the interaction between the organization's people, the data collected in its various IT systems, and the procedures it uses, which help the firm to stay closer to its customer and manage customer relationship. Managers should have search continuously for a strategic type of information in order to be aware from the threats point and to gain the opportunities and where the organization can invest, also the author pointed that the trust is fundamental to all organizations.

#### *2.5 Production Competencies*

Production generally means manufacturing, which is the process of changing input to output (products and services) valued from consumers (Hill and Jones, 2001). Production systems are the methods and procedures used to produce goods for the market, includes all functions required to utilize material, capital, transportation, and labor resources to produce and distribute products. Bringing in materials and equipment is an important step in a production system. It involves working with suppliers, warehousing raw materials and supplies, installing machines and equipment, and making the most use of materials with as little waste as possible. Key challenges include improving overall equipment effectiveness, managing global networks, and aligning the objectives of manufacturing with other key functional areas (Gaither and Frazier, 2002). Companies must develop and manage production networks that are lean and flexible enough to operate cost-effectively in these uncertain times, the primary task of a manufacturing manager is to develop an effective production strategy and operate a system that will produce the required number of products or services with a certain quality, at a given cost, and within an allocated time. Production competencies are a set of skills and knowledge required to new product development or modification of existing products (Morgan, Kaleka, and Katsikeas, 2004). Pharmaceutical manufacturing processes become more complex and pricing pressures have driven manufacturing operations, which raise the importance of production competencies in the marketplace (Rauch et al. 2009).

#### *2.6 Human Resources Competencies*

Organizations are recognizing that critical success factors include a competent workforce, and these models can be used in training and development programs for organizations that want to build or re-develop their knowledge capital. These competency models assist in identifying the necessary skills, knowledge, and behaviors that an employee needs to successfully perform a particular role or job function (Naquin & Holton, 2006). Competency-based management enable an organization to integrate strategic HR and business plans, by allowing organizations to assess the current human resource capacity based on their competencies against the capacity needed for translating the strategic vision of an organization into the behaviors employees must display for the organization to be successful, based on approaches have been applied to a wide range of human resources practices including recruitment, motivation, training, and performance management (Hill and Jones 2001).

### 2.7 Firm Performance

Performance is a continuously processes correlated with work flow, many factors can affect the performance; competencies that are related to the knowledge and experience consider as one of these main factors. Performance can be evaluated by financial indicators depending on result outcomes, for example, sales performance, return on assets, and return on equity (Wiklund, 1999). Also performance is evaluated by nonfinancial indicators such as market share, perceived productivity, and consumer satisfaction compared to competitors (Akimova, 2000). Firms should use both financial and non financial measures together, as any measures alone are an inadequate tool for measuring performance, also analysts who considered both financial and non-financial measures were more accurate in their decisions and actions (Dale, 1996; Joshi, 2001).

### 2.8 Functional Competencies and Firm Performance

Companies gain and sustain competitive advantage due to the ability to renew, integrate and expand their existing competencies which enable the firm to transform resources into value offerings leading to sustain and increase firm's performance (Doole et al., 2006). Moreover, with the increasing competition, firms need enhanced abilities to identify, create and deliver superior customer value than the competitors, and to respond directly to customer requests and to provide the customer with a highly interactive, customized experience, organizations have a greater ability to establish today, nurture, and sustain long-term customer relationships than ever before (Rauch et al., 2009). Competencies could be the sources of competitive advantages for the organization since the desired level of performance cannot be achieved in the organization that has no attention to the competencies approach (Hill and Jones, 2001). Competencies give the firm the ability to transform inputs into valued products, with high productivity and to respond directly to customer requests and to provide the customer with a highly quality products with acceptable prices (Fowler et al, 2000). Numerous researchers argue that people, this is intellectual capital, is the crucial resource that leads to strategic competitive advantage, and those firms that want to succeed must make appropriate human resources investments to acquire and develop better skills and capabilities than their competitors (Youndt, Snell, Dean, and Lepak, 1996). Armstrong and Baron (2006), paid attention to the performance clarifying that all the researches have assumption that the organization that takes care of its employees surly it has a superior performance and the aim of having good performance is to have high customers responsiveness, revenues, high quality by making sure that all employee are informed with the required performance level. And to pay attention to the customers' comments, complains and needs by using management information system in order to keep collect the customer preferences and information and the ability to organize these information with high safety way in order to keep close with the customers and to meet his requirements directly.

This study focus on five key functional competencies, i.e. marketing, research & development, information systems, production and human resources competencies, the researcher hypothesize that these five functional competences have a positive significant impact on firm performance assuming that they have the potential for producing competitive advantage.

## 3. Background of Research

Dubey and Samar (2011) conducted an empirical survey among Indian manufacturing firms to understand how manufacturing competency effect the firm performance. It has been observed that manufacturing competency has negative impact on firm performance which is contradicting with the so far empirical studies conducted in different countries like Japanese, America, and European countries. The study also provides in depth analysis to explain this negative impact and how this can lead to positive impact.

Campion et al. (2011) aimed to present a set of best practices for competency modeling based on the experiences and lessons learned from the major perspectives. They defined competency models, and their key advantages are explained. Then, they describe the many uses of competency models. Based on analyzing, organizing, and using competency information, the best practices are described and explained, and illustrated with numerous practical examples. Finally, result showed that competency models explain the nature of effective performance in an organization. They describe what really matters in terms of job performance and how to be successful. In this way, they are not only much more than list of Knowledge, Skills, Abilities and other characteristics that result from job.

Momeni, Monavarian, Shaabani, and Ghasemi, (2011) aimed to present a conceptual model for knowledge management process capabilities and core competencies in Iran Khodro firms, by conducting a survey among Iranian Automotive Industry. The main factors in knowledge management process capabilities were identified. Then, questionnaires were distributed among experts and professionals in Iran Khodro Company in its three level job categories, Consequently 125 questionnaires were returned back. Results showed that there is the

significant and positive relationship between knowledge management process capabilities and core competencies in Iran Khodro Company.

Bani-Hani and AlHawary (2009) aimed to examine the impact of core competencies on competitive advantage on Jordanian insurance organizations. The study population included all the Jordanian insurance firms' managers. A framework is developed, and a simple random sample was used to select the respondents surveyed for this study, a total of 61 questionnaires were distributed to respondents chosen from 18 companies. The study concluded that core competencies have a significant positive impact on competitive advantage from the sample point view.

Bee (2009) aimed to investigate the impact of marketing mix strategies on market share in the pharmaceutical industry in Malaysia. The results showed that: First: the market mix including (quality of product, packaging, service, pricing, promotional programs and distribution) are important elements in winning market share, and will help marketing managers in preparing marketing plan in the pharmaceutical industry. Second: promotional programs served as one of the very important communication tools to educate the physicians on the state-of-the-art treatments. Third: ensuring efficient distribution services, providing a competitive service through their sales force and execution of various continuous promotional programs to customers will be the major focus of the senior management to ensure an incremental market. Fourth: products and packaging with high quality adequately are also important attributes in to influence market share in the pharmaceutical industry.

Nguyen (2008) aimed to study the effect of functional competencies on manufacturing firms in Vietnam, A survey of 725 manufacturing companies in Vietnam was conducted to identify the effect of functional competencies in terms of marketing, research & development, manufacturing, and human resource on firm performance in terms of market performance and profitability. Consequently 125 questionnaires were returned back at response rate of 17.24%.The finding supported a positive relationship between the functional competencies and firm performance. It found that manufacturing firms in Vietnam were not performing well in these functional competencies, and firms were better in manufacturing competencies than marketing competencies.

Dreyfus (2008) aimed to determine the competencies that predict highly effective performance in R&D managers, and how managers develop these competencies during their career. A survey of 35 scientists and engineers working as first level managers conducted at a major US government research center in the Mid-West. Results showed that managing groups and interpersonal sensitivity are the main competencies that predict effectiveness of R&D managers. Also, the result indicated that people skills are important to effective management of R&D managers; technical ability is not enough to be a highly effective manager of R&D; differences in learning styles are important in learning interpersonal skills.

Lin, Lin, and Pao (2007) investigate the effects of technology transfer, marketing strategy and innovation strategy on the operating performance of the Biotech/Pharmaceutical industry in Taiwan. Results indicated that marketing and product innovation are the most influencing factors in the biotechnology and pharmaceutical industries. And technological uniqueness serves as an important basis for sustainable development in the biotech/pharmaceutical industry. Product and channel strategy found as the driving forces which enhance the operating performance.

Cobanoglu, Dede, and Poorani (2006) aimed to analyze skills and competencies of full service hotel technology managers. Questionnaires were distributed among IT managers and 104 surveys were returned, to identify the Information Technology competencies needed by IT managers at the hotel property level. The results showed that the three most important skills needed for a hotel IT manager were Communication, Critical planning, and IT Knowledge. The study concluded that soft skills were among the most important skills for the hotel IT manager's job requirements. The study ended that communication skills and decision making was the most important competency related to IT (technology) in order to be able to combine between all jobs.

#### **4. Conceptual Framework and Hypothesis Development**

##### *4.1 Conceptual Framework*

The model which used in this study was developed to examine the impact of functional competencies on firm performance; Figure 1 describes a conceptual framework that links the functional competencies (marketing, research & development, information systems, production and human resources) and firm performance (efficiency, sales performance, customer satisfaction, and relationship development).

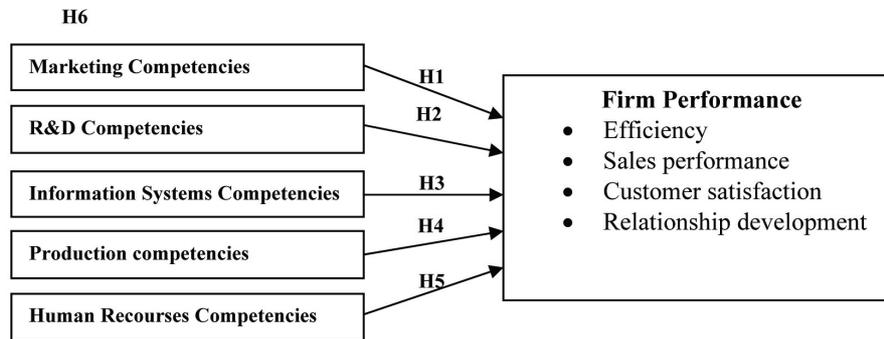


Figure 1. Conceptual framework underlying the literature review

Source: Adapted from Hill and Jones, 2001; Wu et al. 2003; Nguyen, 2008; Asikhia, 2009; Dubey and Samar, 2011.

#### 4.2 Hypotheses of the Study

*H1*: There is a positive impact of marketing competencies on the firm performance.

*H2*: There is a positive impact of research & development competencies on the firm performance.

*H3*: There is a positive impact of information systems competencies on the firm performance.

*H4*: There is a positive impact of production competencies on the firm performance.

*H5*: There is a positive impact of human resources competencies on the firm performance.

*H6*: There is a positive impact of the functional competencies on the firm performance.

*H6a*: There is a positive impact of the functional competencies on the firm efficiency.

*H6b*: There is a positive impact of the functional competencies on sales performance.

*H6c*: There is a positive impact of the functional competencies on customer satisfaction.

*H6d*: There is a positive impact of the functional competencies on relationship development.

### 5. Methodology

#### 5.1 Measurement

To test the main hypothesis of this research, a questionnaire based on previous studies on competencies and firm performance was developed (Hill and Jones, 2001; Wu et al. 2003; Nguyen, 2008; Asikhia, 2009; Dubey and Samar, 2011), and then modified to suite the study context through extensive consultations with academics and experts executives of some firms. Firm competencies were measured on the dimensions of marketing, research & development, information systems, production and human resources competencies using a 5-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (5). Respondents were asked to rate the ability of their firms to undertake the suggested activities compared to their main competitors. Similarly, firm performance (the dependent variable) was measured, using the same scales on the dimensions of efficiency, sales performance, customer satisfaction, and relationship development.

#### 5.2 Data Collection

Data was gathered by sample consists of the managers in the (17) Jordanian manufacturer pharmaceutical companies. 85 surveys had been distributed and 62 surveys were returned back at gross response rate of 72.94%. Respondents were 75.8% male, 50.0% were between (35 – 45) years old, 56.5% were bachelor degree educated, and 43.5% were between (10 – 15) years experience (see Table 1).

Table 1. Demographic profile of participants (n=62)

Variable		Frequency	Percentage
Gender	Male	47	75.8
	Female	15	24.2
Age	less than 25 years		
	25-less than 35 years	20	32.3
	35-less than 45 years	31	50.0
	45 years and above	11	17.7
Education	Bachelor degree	35	56.5
	Master degree	19	30.6
	Ph.D.	8	12.9
Experience	less than 5 years	3	4.8
	5-less than 10 years	13	21.0
	10-less than 15 years	27	43.5
	15-less than 20 years	13	21.0
	20 years or more	6	9.7
Job title	Marketing manager	12	19.4
	Production manager	14	22.6
	Product manager	8	12.9
	Formulation acting manager	7	11.3
	R&D manager	11	17.7
	Analytical research acting manager	6	9.7
	Human resource manager	4	6.5

### 5.3 Instrument Reliability

To ensure the reliability of the data collection tool, reliability of data was measured. First, using Cronbach's alpha coefficient which indicates how well the items in the questionnaire are positively correlated to one another. Cronbach's alpha is computed in terms of the average intercorrelations among the items measuring the concept. The closer Cronbach's alpha is to 1, the higher the internal consistency reliability. Results are as shown in table 2: Cronbach's alpha for functional competencies (independent variables) = 0.849, cronbach's alpha for (performance) dependent variable = 0.909, cronbach's alpha for over all instruments = 0.918, and for all variables approached to the acceptable limit, because it is more than accepted value 0.60 (Malhotra, 2007).

Table 2. Reliability analysis of functional competencies and firm performance

Instrument	Number of questions	Cronbach's alpha coefficient
<b>Functional competencies</b>	<b>31</b>	<b>0.849</b>
Marketing competencies	8	0.69
Research & development competencies	6	0.768
Information system competencies	5	0.772
Production competencies	6	0.854
Human resources competencies	6	0.819
<b>Performance</b>	<b>14</b>	<b>0.909</b>
Efficiency	5	0.910
Sales Performance	4	0.916
Customer Satisfaction	3	0.63
Relationship Development	2	0.74
<b>Total</b>	<b>45</b>	<b>0.918</b>

Second, measuring multicollinearity, which refers to situations in which one or more of the independent variables are highly correlated with each other. In such situations, collinear variables do not provide unique information, one method of measuring multicollinearity is the variance inflationary factor (VIF) which provides an index that measures how much the variance of an estimated regression coefficient is increased because of collinearity, and should not exceed five.  $VIF = 1 / (1 - R^2)$ , where R is the coefficient of multiple determination of

independent variables (Berenson et al., 2006). The correlation matrix of independent variables is shown in Table 3. The maximum VIF comes from the correlation between marketing competencies and information system competencies ( $VIF = 1 / (1 - .589^2) = 1.532$ ), which indicates the goodness of data.

Table 3. Correlation matrix of this research

	MC	RC	ISC	PC	HRC
MC					
RC		.425**			
ISC			.589**		
PC				.395**	
HRC					.476**

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ . (MC = marketing competencies, RC = research & development competencies, ISC = information systems competencies, PC = production competencies, HRC = human resources competencies).

## 6. Data Analysis and Results

### 6.1 Study Results Description

Descriptive statistics (means and standard deviations) for respondents' answers related to functional competencies and the firm performance are shown in table 4.

Table 4. Descriptive statistics of functional competencies and performance measures

Scale Items*	Mean	Std. Dev.
<b>Marketing competencies</b>	<b>4.0269</b>	<b>.34280</b>
1. Conducting marketing research on the company's market, customer needs, and commercial opportunities	3.9041	.76822
2. Developing the product distribution networks and distributor relations	3.8226	.82032
3. Conducting an effective sales promotion and advertising campaigns	3.9194	.85504
4. Maintaining a highly trained, motivated sales teams	4.2787	.75567
5. Providing post-sale service	4.1129	.62998
6. Providing information for and work closely with R&D to develop new product	4.1452	.72081
7. Create, build and manage competitive brands.	4.2258	.68758
8. Create competitive and sustainable pricing policies, use pricing strategically and creatively	3.8065	.80650
<b>Research &amp; development competencies</b>	<b>4.2608</b>	<b>.36667</b>
1. Improving research and new product development capabilities	4.3710	.51958
2. Improving existing products	4.3548	.51524
3. Matching explicit R&D objectives and strategy objective	4.3226	.59435
4. Providing an effective equipment maintenance and replacement policies	4.1129	.57559
5. Providing computerization and decentralization of production control system for better control of quality cost and time	4.1935	.50696
6. Cooperate with other functions, particularly marketing and manufacturing, in the development process	4.2097	.51652
<b>Information system competencies</b>	<b>4.0726</b>	<b>.47585</b>
1. Use information systems to automate processes	4.1613	.65770
2. Use information systems to reduce costs of coordination	4.0968	.59257
3. Use information system to monitor defect rates	4.0968	.67045
4. Use information systems to coordinate cross-functional and cross-company product development work	4.0806	.68469
5. Use web-based information system to increase customer responsiveness	4.0968	.67045
<b>Production competencies</b>	<b>3.6720</b>	<b>.63445</b>
1. Using capacity utilization	3.8065	.82658
2. Controlling manufacturing process quality control	3.6290	.94494
3. Controlling material and inventory	3.5968	.83881
4. Providing an effective equipment maintenance & replacement	3.7903	.77114
5. Managing production, material & overhead cost	3.6613	.84821
6. Developing an efficient & effective product-line policy for product additions & deletions	3.5484	.76131

<b>Human resources competencies</b>	<b>4.1102</b>	<b>.46356</b>
1. Creating effective and efficient personnel policies	4.2903	.52439
2. Providing professional training for managers	4.1935	.56796
3. Providing job training for workers	4.1774	.69007
4. Involving the employees in the decision making process	4.0323	.76753
5. Stimulating employee motivation, job satisfaction, and morale	4.0968	.59257
6. Developing compensation and recognition based on performance	3.8710	.66490
<b>Firm performance</b>	<b>3.8422</b>	<b>.57495</b>
<b>Efficiency</b>	<b>3.7581</b>	<b>.73875</b>
1. The costs of production and transaction (e.g., raw material, order processing, warehousing, and scheduling costs) in our firm have been substantially reduced.	3.7903	.79211
2. The costs of general management activities (e.g., planning and accounting costs) have been substantially reduced.	3.7581	.84321
3. The costs of coordinating with suppliers, customers, and business partners have been substantially reduced.	3.6129	.99762
4. The costs of marketing the product (e.g., advertising and promotion costs) have been substantially reduced.	3.7581	.84321
5. The costs of acquiring new customers have been substantially reduced.	3.8710	.81951
<b>Sales Performance</b>	<b>3.7339</b>	<b>.73534</b>
1. The market share of our products has increased.	3.6935	.78068
2. The sales volume of our products has increased.	3.7097	.79727
3. The number of new customers that we are able to acquire has increased.	3.6129	.96419
4. The number of existing customers that we are able to retain has increased.	3.9194	.73101
<b>Customer Satisfaction</b>	<b>3.9086</b>	<b>.56995</b>
1. Overall, our customers are more satisfied with our firm.	3.6774	.80519
2. Our customers encourage other people to do business with our firm.	3.6613	.93989
3. Our customers are more loyal to us than before.	4.3871	.75433
<b>Relationship Development</b>	<b>4.1694</b>	<b>.78377</b>
1. Our firm has been able to strengthen its existing business relationships with partners and suppliers.	4.3710	.75169
2. The relationships between our firm and its suppliers and business partners are likely to last longer.	3.9677	.99124

## 6.2 Testing of Hypotheses

The hypotheses of this study are aimed to examine the impact of the functional competencies on firm performance. In order to test the study's hypotheses, a series of regressions were used to analyze the relationships between functional competencies (independent variables) and performance measures the dependent variable. The results of hypotheses testing *H1*, *H2*, *H3*, *H4*, *H5*, are summarized in table 5, table 6, table 7, table 8, and table 9.

Table 5. Regression analysis for marketing competencies and firm performance

Model	r	r <sup>2</sup>	β	t	F	Sig.	H. Result
Marketing competencies and Firm Performance	.260	.067	.260	2.084	4.342	.041*	Accept H1

Note: \* Significant at 5%

Table 6. Regression analysis for research and development and firm performance

Model	r	r <sup>2</sup>	β	t	F	Sig.	H. Result
Research and Development and Firm Performance	.545	.297	.545	5.030	25.305	.000*	Accept H2

Note: \* Significant at 5%

Table 7. Regression analysis for information system and firm performance

Model	r	r <sup>2</sup>	β	t	F	Sig.	H. Result
Information System and Firm Performance	.416	.173	.416	3.547	12.582	.001*	Accept H3

Note: \* Significant at 5%

Table 8. Regression analysis for production and firm performance

Model	r	r <sup>2</sup>	$\beta$	t	F	Sig.	H. Result
Production and Firm Performance	.664	.440	.664	6.872	47.224	.000*	Accept H4

Note: \* Significant at 5%

Table 9. Regression analysis for human resources and firm performance

Model	r	r <sup>2</sup>	$\beta$	t	F	Sig.	H. Result
Human Resources and Firm Performance	.331	.109	.331	2.714	7.366	.009*	Accept H5

Note: \* Significant at 5%

To investigate hypothesis H6, multiple regression analysis were applied for independent variables to detect its impact on dependent variable, table 10 shows that:

Table 10. Regression analysis for functional competencies and firm performance

Model	$\beta$	t	Sig.	F	r <sup>2</sup>	Sig.	H. Result
constant		-.343	.733				
Marketing Competencies	.247	2.102	.040*				
Research and Development Competencies	.347	3.149	.003*	15.20	.576	.000	Accept H6
Information System Competencies	.139	1.188	.240				
Production Competencies	.576	5.767	.000*				
Human Resources Competencies	.032	.291	.772				

Note: \* Significant at 5%

This indicate that there is a significant impact of the functional competencies on firm performance measures, and production competencies, research and development competencies, and marketing competencies have the most impact on the firm performance.

Also, multiple regression analysis was applied for independent variables to detect its impact on firm performance measures (efficiency, sales performance, customer satisfaction, and relationship development), which summarized in table 11, table 12, table 13, and table 14.

Table 11. Regression analysis for functional competencies and firm performance measure (efficiency)

Model	$\beta$	t	Sig.	F	r <sup>2</sup>	Sig.	H. Result
constant		-.579	.565				
Marketing Competencies	-.217	-1.88	.064**				
Research and Development Competencies	.220	2.040	.046*	16.33	.593	.000	Accept H6a
Information System Competencies	.093	.812	.420				
Production Competencies	.716	7.323	.000*				
Human Resources Competencies	-.026	-.239	.812				

Note: \* Significant at 5%, \*\* Significant at 10%

This indicates that there is a significant impact of the functional competencies on firm efficiency, and production competencies, and research and development competencies have the most impact on the firm efficiency.

Table 12. Regression analysis for functional competencies and firm performance measure (sales performance)

Model	$\beta$	t	Sig.	F	r <sup>2</sup>	Sig.	H. Result
constant		-.353	.725				
Marketing Competencies	-.180	-1.22	.225				
Research and Development Competencies	.122	.886	.380	5.649	.335	.000	Accept H6b
Information System Competencies	.128	.871	.388				
Production Competencies	.404	3.229	.002*				
Human Resources Competencies	.227	1.643	.106				

Note: \* Significant at 5%

This indicates that there is a significant impact of the functional competencies on sales performance, and production competencies have the most impact on the sales performance.

Table 13. Regression analysis for functional competencies and firm performance measure (customer satisfaction)

Model	$\beta$	t	Sig.	F	r <sup>2</sup>	Sig.	H. Result
constant		.759	.451				
Marketing Competencies	.314	2.308	.025*				
Research and Development Competencies	.465	3.644	.001*	8.454	.430	.000	Accept H6c
Information System Competencies	.242	1.781	.080**				
Production Competencies	.358	3.098	.003*				
Human Resources Competencies	-.154	-1.20	.232				

Note: \* Significant at 5%, \*\* Significant at 10%

This indicates that there is a significant impact of the functional competencies on customer satisfaction, and research and development competencies, production competencies, and marketing competencies have the most impact on customer satisfaction.

Table 14. Regression analysis for functional competencies and firm performance measure (relationship development)

Model	$\beta$	t	Sig.	F	r <sup>2</sup>	Sig.	H. Result
constant		-.430	.669				
Marketing Competencies	-.075	-.494	.623				
Research and Development Competencies	.527	3.674	.001*	4.417	.283	.002	Accept H6d
Information System Competencies	-.008	-.055	.956				
Production Competencies	.121	.935	.354				
Human Resources Competencies	-.032	-.220	.827				

Note: \* Significant at 5%

This indicates that there is a significant impact of the functional competencies on relationship development, and research and development competencies have the most impact on relationship development.

## 7. Discussion

Depend on above display for the results of this study which aims to investigate the impact of functional competencies on firm performance of pharmaceutical companies in Jordan, results of testing the hypotheses *H1*, *H2*, *H3*, *H4*, and *H5* indicated positive impact of the functional competencies (marketing competencies, research & development competencies, information system competencies, production competencies and human resource competencies) on firm performance, these results agreed with the ideas represented by various authors in the theoretical background (Day, 1994; Fowler et al., 2000; Doole et al., 2006; Rauch et al., 2009). Regression analysis of hypothesis *H6* showed that production competencies, research & development competencies, and marketing competencies have the most significant statistical impact on firm performance and explains (57.6%) of the variation in firm performance.

Supporting the hypothesis *H6a* indicated that production competencies, and research & development competencies have a significant statistical impact on firm efficiency. Accepting the hypothesis *H6b* means that the production competencies will more likely influence sales performance, which will increase the market share, and sales volume. Results of testing the hypotheses *H6c* showed that production competencies, research & development competencies, and marketing competencies have significant statistical impact on customer satisfaction. Accepting the hypothesis *H6d* means that only research & development competencies have impact on relationship development.

The R square indicating that (59.3) percent of the variation in the efficiency can be predicted from functional competencies. Also, (33.5) percent of the variation in the sales performance, (43) percent of the variation in customer satisfaction, and (28.3) percent of the variation in the relationship development can be predicted from functional competencies.

## 8. Conclusion and Recommendations

In this study the impact of functional competencies on firm performance was examined. A conceptual model was used in order to assess the impact of functional competencies on firm performance. Results of hypotheses testing indicated that production competencies have positive impact on firm's efficiency, sales performance, and customer satisfaction, this finding agreed with to the literature (Day, 1994; Valos and Baker, 1996; Morgan et al., 2004), wherein, production competencies (such as controlling manufacturing process quality control, controlling material and inventory, and managing production, material & overhead cost) are viewed as vital abilities that enable the production manager to develop, combine and transfer resources into value creating offerings for the pharmaceutical markets. We can conclude that there is a positive impact of research & development competencies on firm's efficiency, customer satisfaction, and relationship development, these findings are consistent with the findings from (Hill and Jones, 2001; Fischer and Henkel, 2010 ).

Related to the impact of marketing competencies on firm performance, the study reinforces the proposition that marketing competencies are key determinants of efficiency and customer satisfaction. These results are consistent with Prasad et al. (2001) who empirically verified a significant and positive effect of marketing competencies on performance. Moreover, Piercy et al. (1998) indicated that high competencies in marketing lead to higher firm performance.

Finally, there were no impact of information system competencies, and human resource competencies on firm's efficiency, sales performance, customer satisfaction, and relationship development, these findings are contradicting with the findings from (Becker et al., 2001; Lin et al., 2007).

To put the findings of this study into Jordanian pharmaceutical context, it could be concluded that Jordanian pharmaceutical companies need to enhance its functional competencies (marketing competencies, research & development competencies, information systems competencies, production competencies and human resources competencies) in order to have the ability to (I) Improve firm's efficiency, sales performance, customer satisfaction, and relationship development. (II) Integrate functional competencies with strategic planning at both individual level, and organizational level to achieve firm performance. (III) Identify a list of business practices, and policies that lead to improve the functional competencies.

In Summary, the findings of this study have the following practical implications for managers:

- 1) The Jordanian pharmaceutical companies are highly encouraged to develop a clear strategy allow them to benefit more from their available unique resources and processes in order to improve their functional competencies.
- 2) Pharmaceutical companies should have training policy includes special programs, to improve employees' knowledge and skills to improve the functional competencies, which will leads to achieve better performance.
- 3) Managers in pharmaceutical companies in Jordan should carefully consider the level of investment in production and research & development in order to best take their competitive advantages, as they have the largest impact on firm performance.
- 4) Continuously paying attention to the customer satisfaction, and conduct periodic survey to measure customer satisfaction.
- 5) Production, Marketing, and R&D managers should share product planning information, to develop the best products to satisfy customers' needs.

## 9. Limitations and Directions for Future Research

This study is subject to some limitations. First, the study has not take into consideration the effect of the moderating variables like management style, company size, and number of employees on the relationship between functional competencies and firm performance. Second, the results of this study apply only to the Jordanian pharmaceutical manufacturers. Thus, these results may not be generalisable in Jordanian drug stores.

Lastly, whereas literature linking human resources competencies to firm performance measures (efficiency, sales performance, customer satisfaction, and relationship development), we were not able to establish significant impact of human resources competencies on any firm performance measures. This perhaps suggests the existence of an intervening variable connecting human resources competencies and firm performance. Additional insights could be gained by capturing and exploring such mediated effects on firm performance.

Also, there was a lack of local and regional studies conducted previously in the fields of this study on Jordan or Arab business environment. The above limitations lead to the following directions suggested for future research:

- investigating the impact of functional competencies on firm performance in drug stores and other industrial sectors.
- Examining the effect of the moderating variables like management style, company size, and number of employees on the relationship between functional competencies and firm performance.
- As the study failed to support the impact of information system competencies, and human resources competencies on firm's efficiency, sales performance, customer satisfaction, and relationship development, further studies are needed to examine the influence of these competencies on firm performance.
- Conducting empirical studies on the relationship between marketing technical competencies (i.e., strategy & planning, brands and products, marketing program implementation) and firm performance.

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