

A Broad-Spectrum Orientation of Business Innovation: An Empirical Investigation Using Managers' Attitudes Toward the Effectiveness of Innovation Measurement Indicators in Saudi Private Hospitals: The Case of Private Hospitals in Jeddah

Jehad bani hani

Associate Professor,
Faculty of Business – Khulais, University
of Jeddah, Jeddah, KSA

Hussain A. H. Awad

Associate Professor,
Faculty of Business – Khulais, University
of Jeddah, Jeddah, KSA

ABSTRACT

Lists and indicators that determine the order of countries and organizations have been spread in recent years according to the strength of innovation they have. These indicators and measurements have varied from one side to the other; which in turn create a high desire by the managers to identify and select the best and most appropriate standards by which to measure the level of innovation in their organizations. From this point of view, the purpose of this study is to establish a base on innovation standards in business and to clarify the extent of awareness of Saudi IT managers by the concepts of innovation and its standards in the business sector. To achieve this purpose, this study aims at proposing a preliminary list of Innovation measurements in the Saudi health sector ranking its importance from the study sample's viewpoints. The concept of innovation has been initially identified at this study and been distinguished from the concept of creativity. Moreover, some global indicators that measure innovation in the countries, organizations, and companies have been identified. Finally, the key findings of this study show that there are significant differences distinguish innovation measures from each according to the respondents' viewpoints. The study recommended that Saudi private hospitals should adapt innovation strategy, which supports its strategic position.

Keywords: Innovation, Innovation Standards, Saudi private hospitals

1. INTRODUCTION

Superior organizations today are the ones that can employ intelligence and knowledge in its business and operations, and take the competitiveness feature of innovative orientation to built-up the knowledge base that will enable them to achieve their goals. Due to the increased complexity in the nature of organizations, the stock of knowledge, technical and non-technical, the intensity of competition, and the focus more on the central competitiveness, it was necessary for the organization to adopt a new approach depending on reaching what is good in order to address these challenges and prepare for the next global competition.

Organizations seeking to develop new products that build on solid foundations of information and knowledge resources, human resources that are capable of creativity and innovation can draw their strategies within a well-defined scenarios simulate the future that is characterized by risk and uncertainty because identifying the innovation standards supports the future orientation of the organization towards distinction.

This study seeks to examine the topic of innovation standards in the Saudi commercial companies. This sector is one of the most sophisticated, changeable, and influential sector on all areas of life as the Saudi economy maintains a higher competitor commercial level.

The concept of innovation is a broad one including all that is new and different to distinguish the organization from others, to give support in the competitive position, and to improve performance, whether innovation is in a product, managerial performance, financial, marketing, or productive domains. Using a processing method of the materials involved in the manufacturing of the product is deemed to be an innovation. This is also applicable for using a new way of providing the service to the customers, or carrying out a new organizational activity. Therefore, the innovation associated with any new work by the organization may be in the form of a new solution to an existing problem (Myles, 2012; Porter, 1985). Innovation is also defined as the ability of the company to arrive at what is a new in the form of organized development and practical application of a new idea to add value to the company larger and faster than other competitors (European Research and Innovation Area Board 2012).

The target purpose of this study is to examine the managers' attitudes toward the effectiveness of Innovation Measurement Indicators in Saudi private hospitals: The case of private hospitals in Jeddah, so it concerned with answering the following questions (1) what are the Innovation Measurement Indicators in Saudi private hospitals? (2) Are there significant statistical differences for Innovation Measurement Indicators in Saudi private hospitals due to sample demographic variables?

2. LITERATURE REVIEW

2.1 The Conceptual Framework of Innovation

The process of innovation is a comprehensive process associated with all parts of the organization and be a starting point to the organization strategies. It is targeted process adopted by senior management and is working to provide the capabilities and requirements of the embodiment of innovative behavior. The organization is in a critical need for innovation and renewal, and might consider it as strategic and organizer choice that is linked to the necessary capabilities needed for this trend. In addition to innovation influence by the external and internal environment, the organization size, and the lack of environmental ascertain. The technology and market policy in addition to the performance gap are extracts of the philosophy of senior management and strategic approach to deal with the environment; thus, the product innovation rate, or the rate of innovation in processes and processors added to what occur from the innovation in the market field is a product of what organization administration believes to be an innovative approach. This has been called the institutional approach, which aims at the promotion, change, and the intended and organized renewal (Ettlie, John 1983).

Innovative behavior can be seen in the organization through the diagnosis of many phenomena that indicate if the organization has an innovative behavior. The organization seeking towards the innovation of new products (goods or services), or bring about fundamental unique changes in their products is one of the aspects of the innovative behavior. (Porter, 1985) The organization seeking to outperform competitors and lead the market is a manifestation of creativity. Innovative organizations tend to promote diversity in the product range or continuous quality improvement in addition to its interest in customer unsaturated needs. It also seeks the pursuit of market knowledge, attract individuals with special and differential skills who are characterized by innovation, and the level of technology which is owned by the organization (AMUE, KENNETH. 2012). These and other indicators are the features and aspects of the state of innovation in the organization (Musa. et.al 2012; Oyerogba et.al 2014). ERIAB states that innovation organizations can be divided into four basic types: innovative - the leader, the innovative imitator, cloning imitator, and the non-adaptive style. (European Research and Innovation Area Board 2012).

2.2 Source of Innovation

Myles indicates a number of innovation sources that provide the organization with an opportunity for creativity and inventing what is new including those related to private environment (industry environment), and public environment. This is to highlight the role of the environment in providing opportunities for innovation and the extent of the organization's ability to benefit from the opportunities provided by the private and public environment. Others represent a challenge to the organization that drives it to the diagnosis and then move towards innovation. (Myles 2012)

2.2.1: The Sources of Innovation in the Internal Environment (Micro - Environment)

Myles Confirms that the industry market and what surrounding the organization from conditions and events in addition to what it faces from opportunities and threats provide an opportunity for the organization to be creative and innovative. A number of innovation sources are suggested: the sources of unexpected innovation (sudden) and make the organization itself facing a situation that requires innovation but it cannot predict success or failure of what would be doing as well as it did not expect the external event which represents individual opportunity driven to initiate in creating a new way to market their products but is not sure about the success or failure. The Incongruity is one of the sources that includes the opposing economic realities such as the discrepancy between the values and the perceived consumers' expectations. Innovation Based on Process Need is required to address a series of operations: people rotate about a missing link, without anything to do, and here comes the opportunity for the company wanting to bring this missing link, where some companies discover this opportunity to find the missing link and display them to others. Lastly, Change in Industry Market Structure: industry or market might provide outputs that make opportunity available and then the organization is ready for innovation. (Myles 2012)

2.2.2 Second: the sources of innovation in the external environment (macro - environment)

Changes and factors related to the public environment are considered as a sources of the organization driving it to innovation and renewal. Among them are the changes in demographics, in the community culture, and new knowledge.

3. RELATED WORK

Many countries have focused on the issue of innovation, especially in technical areas so that they raise the competitive level among the developed countries. From this perspective a lot of studies have been carried out by these countries to identify indicators that measure the extent of innovation in multiple areas such indicators are:

British Innovation Index: private sector in Britain has invested more than 133 billion pounds in innovation in one year distributed on the following sections: research and development, design, organizational improvement, training and development skills, marketing research and advertising, preserving development rights, and exploration metals (Petar et al. 2014).

Australian Industry Index: in this study, innovation has been investigated in 13 economic sector through six key indicators (power of research and development including the expenditures and employment - Patents strength - brand strength - strength of the design - the administrative and organizational innovation - productivity (value added by the person). The research explains that the most important barriers to innovation are: risks, laws, and skilled labor. It also manifests innovation engines, namely: revenue, costs, and competition (IBM Melbourne Institute 2009).

Oregon Index of Innovation: has defined innovation tsikriktsis as the transfer of knowledge to the practical value, and consists of five pillars: innovative environment, invention, conversion, trafficking, and economic prosperity (Oregon, 2016)

Studies also have appeared to identify indicators for the study of innovation in institutions like Mark Rogers, a study from the

Melbourne Institute to establish standards for innovation at the firm level. It identified the input and output of the innovation process measurement, as well as explained the data sources and recent efforts in the collection of data to measure innovation (Gupta, 2014). Victor Basile has design a model (GQM) to determine product and process standards in a software program which does not focus on a particular point, rather it is applied to all stages of the product life starting from of resources , inputs , operations, and output (Gupta, 2014). (GE) study for global innovation aimed to analyze the extent to recognize the importance of innovation among different cultures and participate in the dialogue on encouraging innovation, and also aimed to provide insights on engines and barriers to innovation and a better definition of the leading innovative practices. (GE Global Innovation Barometer, 2016).

Oslo Manual for innovation: it has defined “innovative firm” as the one that has implemented one of the four innovation types during the period under review. Innovation includes four aspects: product innovation, process innovation, marketing innovation, and organizational innovation. This manual has determined the elements that affect innovation, namely: competition, demand, and markets (production and distribution), the organization of workplace, and other elements such as the reduction of environmental impacts or improve health and safety, and to meet the legal requirements (Oslo Manual, 2005). The Boston Consulting Group (BCG) conducted a survey in which 377 executives had been interrogated about their companies' efforts in measuring innovation which then divide innovative scales as (input, process, and output measurements) (Sirkin et al., 2007).

study of McKinsey for innovation: 1075 directors of the senior leadership in their companies have participated in a survey. They stressed that the most important measures are: growth in revenue due to new products and services, the client satisfaction for the new products and services, the number of new ideas and concepts in the company's own strategy, research and development expenditures as a percentage of sales, sales percentage of sales and new products during a certain period, and the number of research projects and development (McKinsey global survey, 2008).

Irish study of innovation that indicated that there can be look at Innovation Value Chain made up of three phases: idea generation phase, conversion phase, and proliferation phase. This concept has been derived as a result of five huge research through which 130 chief executive officers from thirty nationalities of the companies operating in North America and Europe have been interviewed (Carney & Ryan, 2010).

Finally, the Greek companies study of innovation that provided 17 factors which determine innovation: the intensity of research and development, quality control intensity, the power of marketing, the proportion of undergraduates to the total number of employees, the proportion of engineers and scientists to the total number of employees, the proportion of engineers, scientists, and administrators with an experience to the total number of employees, the proportion of engineers, scientists, and administrators with an external experience to the total number of employees, training given to engineers and scientists (the number of training hours in a year), training given for production staff (the number of training hours in a year), the presence of teams working between Interior departments, the presence of the projects leaders, rotate the new technical ideas to

employees, motivate employees to participate with new ideas (Souitaris, Vangelis 2011).

Based on the previous literature review, the researchers extracted the main hypothesis as follow: **No statistically significant differences ($p \leq 0.05$) between the measurements of innovation indicators in the Saudi private hospitals and the demographic variables (Gender, Age, Education, Experience, Current Position, and Specialization).**

4. METHODOLOGY

4.1 Study Population and Sample

The target population for this study comprised all the top managers working in private hospitals in Jeddah, which include 12 hospitals. A simple random sample consist of (120) manager, vice-managers, Departments heads, and IT managers were drawn randomly from the targeted population. We received 93 usable questionnaires indicating a response rate of 77.5%. Focus on a single industry enables the researcher to better understand the processes and practices which facilitates comparison among firms

4.2 Research Method

Secondary data collected based on the findings of published papers, articles, books, prior studies, and the World Wide Web. The **primary data** collection carried out using a self-designed questionnaire; this adopted instrument comprises two sections: the first section covers the **demographic variables** (Gender, Age, Education, Experience, Current Position, and Specialization). The second section contains (50) items measuring the proposed **innovation indicators**, the researchers relied on 25 innovation indicators derived from *Global Innovation Barometer* (2016), Five Likert-type scales were used to score the responses. The participants asked to indicate their agreement about the existence of the measured variables in their hospitals.

4.3 Empirical Validation and Reliability

To ensure the content validity of the instrument tool, it has been developed based on extensive review of the literature, and it has been reviewed by scholars and practitioners from Saudi universities. The referees displayed their constructive comments and suggestions, which taken into consideration. The reliability test measure indicates the extent to which is conducted without bias (error free) and ensures the consistency of measurement across time and across the various items in the instrument. In other words, the reliability of measurement is an indication of the stability and internal consistency with which the instrument measures the concept and helps to assess "the goodness" of a measure. The reliability of data collected instrument was measured using Cronbach's alpha coefficient; the reliability test was conducted to check for inter-item correlation in each of the variables in the questionnaire. The closer Cronbach's alpha is to one, the higher the internal consistency reliability (Sekaran, 2016). The test results are as follows: Cronbach's alpha for innovation indicators 91%, Cronbach's alpha for overall instruments 89% which approached to the acceptable limit.

4.4 Data analysis Methods

Statistical Package for Social Sciences (SPSS) used to analyze the data. Descriptive techniques such as; frequencies, percentages are used to describe study sample characteristics, means, and standard deviation (Std.) were used to answer the

**A Broad-Spectrum Orientation of Business Innovation: An Empirical Investigation Using Managers' Attitudes toward the Effectiveness of Innovation Measurement Indicators in Saudi Private Hospitals
The Case of Private Hospitals in Jeddah**

first question of this study, the mean results were ranked as follow: more than 3.5 (High), 2.5 – less than 3.5 (Middle), less than 2.5 (Low). To answer the second question and to verify the study main hypothesis. One Way ANOVA was used to specify whether there is statically significant differences for managers' attitudes toward innovation indicators due to sample demographic variables.

5. EMPIRICAL RESULTS

5.1 Sample Characteristics

Table 1 presents the profile of the study participants. Of the 93 managers, vice managers, Department Head, and IT managers participated in the survey, 97% were male. Roughly, 74% of them had a bachelor's degree, 16% had master degrees, and interestingly 10% of them had PhD degrees. 94% had more than five year of work experiences with an average age of 35 years, that is to say participants were middle-aged and highly educated people. As for Experience in title, 68% from the participants were 3-less than 5 years, and 82% of the participants specialized in medicine, and only few specialized in management, this indicates that most private hospitals in Kingdom of Saudi Arabia rely on medicine specialization for assigning managerial positions.

Table 1: Sample Description (N = 93)

Variable		Frequency	Percentage
Gender	Male	90	0.97
	Female	3	0.03
Education	Bachelor	69	0.74
	Master	15	0.16
	Phd	9	0.10
Age	Less than 30 years	3	0.04
	30-40	35	0.47
	41-50	13	0.18
	More than 50	23	0.31
Experience	Less than 3 years	---	---
	3 – less than 5	5	0.05
	5 – less than 10	74	0.80
	More than 10	14	0.15
Experience in title	Less than 3 years	9	0.09
	3 – less than 5	62	0.68
	5 – less than 10	17	0.18
	More than 10	5	0.05
Specialization	Medicine	76	0.82
	Management	15	0.16
	Other	2	0.02

5.2 Innovation Measures According to the Sample's Respondents:

The mean and standard deviation of the study variables related to high ranked Innovation Indicators are summarized in table (2). Table (2) shows the results that represent high ranked innovation indicators with means fall within the range (from 3.53- to less than 4:58), and it appeared as follow: the most

important indicators were: The hospital's application of innovation strategy (4.57), the patent numbers (4.51), Increasing the sales of new medical services rate (4.51). The last important indicator was: The ratio of the computers' numbers to staff (3.53). The standard deviation lies between (0.43-0.77), this indicates more concentrated, or homogeneous the data and less spread out or dispersed.

Table 2: The results of high ranked innovation indicators

Indicators	Mean	Std.
The hospital's application of innovation strategy	4.57	0.54
The patent numbers	4.51	0.43
Increasing the sales of new medical services rate	4.51	0.59
The effectiveness and efficiency of the rewards system	4.47	0.64
Less time for the medical services to reach the target markets	4.43	0.73
The average training hours per employee	4.32	0.71
Number of Employees and users' suggestions	4.21	0.77
Partnerships and alliances of the hospital	3.89	0.64
Amount of market share	3.74	0.72
Years of the hospital's work in its field	3.68	0.77
Number of branches of the hospital	3.57	0.43
Number of activities and entertainment events	3.57	0.57
The ratio of the computers' numbers to staff	3.53	0.49

Table (3) shows the results that represent medium ranked innovation indicators with means fall within the range (from 2.63- to less than 3:40): and it appeared as follow: the most important indicators in this level of innovation were: T The diversity of the hospital's medical services (3.39), The number of managerial problems that have been solved (3.39), The hospital's commitment to international quality standards (3.21). The last important indicator within this group was The number of technical problems that have been solved (2.63). The standard deviation lies between (0.52-0.81), this indicates relatively concentrated, or homogeneous the data and less spread out or dispersed.

Table 3: The Results of Medium Ranked Innovation Indicators

Indicators	Mean	Std.
The diversity of the hospital's medical services	3.39	0.76
The number of managerial problems that have been solved	3.39	0.52
The hospital's commitment to international quality standards	3.21	0.55
Number of product development projects	3.09	0.82
The percentage of money spent on budget development	2.77	0.63
The percentage of computers connected to the internet	2.68	0.63
The number of technical problems that have been solved	2.63	0.74

Table (4) shows the results that represent low ranked innovation indicators with means fall within the range (from 1.77- to less

than 2.45) and it appeared as follow: the most important indicators in this level of innovation were: Number of announcements and good news for the hospital (2.44), The last important indicator within this group was The hospital's work in feasible sectors (1.77). The standard deviation lies between (0.61-0.84), this indicates relatively concentrated, or homogeneous the data and less spread out or dispersed.

Table 4: The results of low ranked innovation indicators

Indicators	Mean	Std.
Number of announcements and good news for the hospital	2.44	0.79
The amount of nationalities and cultures diversity	2.31	0.61
The number of meetings of the exchange of ideas	2.19	0.83
The proportion of engineers' numbers to staff	1.91	0.79
The hospital's work in feasible sectors	1.77	0.82

5.3 HYPOTHESES TESTING

Findings of this study showed that there are no significant differences among the sample respondents in the selection of the measures depending on demographic variables and functional characteristics of the sample respondents. Where all the values of F isn't statistically significant at a level (0.05), and this denies that the demographic variables and functional characteristics of the respondents affect the choice of appropriate measure, "where we find that innovation measures choices by the sample respondents are similar".

Table 5: The results of One Way ANOVA for. for managers' attitudes toward innovation indicators and sample demographic variables.

Variable	Variance source	Sum of squares	Mean squares	Degree of freedom	F value	Significance
Gender	Between groups	1.068	0.534	2	3.385	0.145
	Within Groups	35.321	0.137	67		
Education	Between groups	.705	.352	2	1.42	.072
	Within Groups	224.62	1.079	67		
Age	Between groups	.059	.034	4	.032	.147
	Within Groups	244.171	1.082	65		
Experience	Between groups	.169	.034	3	.032	.083
	Within Groups	274.151	1.082	66		
Experience in title	Between groups	1.472	.736	2	1.062	.217
	Within Groups	291.912	1.081	67		
Specialization	Between groups	.717	.359	4	0.914	.187
	Within Groups	294.685	1.079	65		

6. CONCLUSION

Findings of the study show that there are differences distinguish innovation measures from each according to the respondents' viewpoints, where the sample had arranged innovation measures in Saudi private hospitals into three levels (high - medium - low). In addition, it clarified further that the interest in the topic of innovation was of a great value through recovered surveys percentage, which was 94%, and a large proportion of these refers to the interest in the topic. But the great interest has not been matched by sufficient awareness to know the most critical measures for measuring innovation in companies. This has been proved by the slight differences in the means of the measures. Moreover, findings of the study demonstrate that the surveyed sample agrees with the most existing measures. This again has been proved through the descriptive analysis of the responses' means and percentages.

In conclusion, the researchers recommends to re-survey the other Saudi sector using a list of innovation measures designed in this study so as to generalize a unified list of the innovation measures in Saudi organizations. The proposed list of measures could also be expanded to include other measures used in previous studies in order to have results that are more generalizable.

7. RECOMMENDATIONS

The findings of this study have the following practical implications for managers:

1. The Saudi private hospitals are highly encouraged to adopt innovation as a strategy to improve its processes that will leads to achieve considerable advantage.
2. Top managers of the Saudi private hospitals are invited to use several measurements of innovation indicators in planning, setting, and achieving the competitive strategies.
3. Saudi private hospitals is extremely encouraged to analyze the effect of innovation indicators on achieving organizational vision and mission.
4. Top managers of the Saudi private hospitals should support all the required activities that enable employees to recognize innovation advantages which resulted in advanced performance.

REFERENCES

1. AMUE, KENNETH. (2012). New product development and consumer innovative behavior an empirical validation study. European Journal of Business and Social Sciences, Vol. 1, No. 6, pp. 97-109, Available online: <http://www.ejbss.com/recent.aspx>
2. Carney & Ryan. (2010) Measuring firm level innovation: review of the literature & survey-design, final version.
3. Ettlie, John. (1983). Organizational policy and Innovation Among Suppliers to the Food Processing Sector, Academy of Management Journal, 26(1).
4. European Research and Innovation Area Board (ERIAB). (2012). 1st Position paper of the European
5. GE Global Innovation Barometer (2016). A Perspective on the State of Innovation in 2016 from Senior Business Executives in 13 Countries, the GE GIB, Available online: <http://www.gereports.com/innovation-barometer-2016/>
6. Gupta (2014) Global Innovation Science Handbook 1st Edition, McGraw-Hill Education Canada

**A Broad-Spectrum Orientation of Business Innovation: An Empirical Investigation Using Managers' Attitudes toward the Effectiveness of Innovation Measurement Indicators in Saudi Private Hospitals
The Case of Private Hospitals in Jeddah**

7. IBM Melbourne Institute (2010). Innovation Index of Australian Industry. Available online: <http://www-03.ibm.com/press/au/en/presskit/24599.wss>
8. McKinsey Global Survey (2008). Assessing innovation metrics. The McKinsey Quarterly. Available online: <http://www.mckinsey.com/global-themes>
9. Musa, Iman, Waleed. (2012). Antecedents And Consequences Of Market Orientation In Public Sector In The Kingdom Of Bahrain. International Conference on Business, Economics, Management and Behavioral Sciences (ICBEMBS'2012) Jan. 7-8, Dubai pp. 499-505
10. Myles. (2012). 7 Sources Of Innovation By Peter Drucker. Posted by Myles Penniman on September 17, 2012. Available online: <http://mylesclarku.blogspot.com/2012/09/7-sources-of-innovation-by-peter-drucker.html>
11. OREGON (2016). Innovation Index developed by Business Oregon's Economic Strategies & Policy Division in partnership with the Innovation & Entrepreneurship Division, Available online: <http://www.oregon4biz.com/assets/reports/InnoIndex2016.pdf>
12. Oslo Manual (2005). Guidelines for collecting and interpreting innovation data, (3ed ed.), Available online: www.oecd.org/sti/oslomanual
13. Oyerogba, Olaleye, Solomon. (2014). Cost Management Practices and Firm's Performance of Manufacturing Organizations. International Journal of Economics and Finance; Vol. 6, No. 6. doi:10.5539/ijef.v6n6p234. Available online:: <http://dx.doi.org/10.5539/ijef.v6n6p234>
14. Peter, Jonathan, Gavin. (2014). Innovation Index 2014. NESTA Working Paper. Issued: August 2014. Available online: <http://www.nesta.org.uk/publications/innovation-index-2014>
15. Porter Michael. (1985). Competitive Advantage: Creating and Sustaining Superior Performance. The Free Press.
16. Research and Innovation Area Board (ERIAB): "Stress-test" of the Innovation Union. Available online:http://ec.europa.eu/research/innovation-union/pdf/expertgroups/eriab_1st_position_paper__stress-test_iu.pdf
17. Sirkin, Andrew, Michael, & Knut (2007). Innovation 2007: A BCG Senior Management Survey, Available online: <http://www.bcg.com>
18. Souitaris, Vangelis (2011). Firm-specific competencies determining technological innovation: A survey in Greece, R & D Management, 32(1), pp. 61-77
19. Soumitra Dutta, Bruno Lanvin, and Sacha Wunsch-Vincent, (2016) The Global Innovation Index 2016 Winning with Global Innovation, Available online: www.globalinnovationindex.org.
20. Sekaran, Uma, Roger J. Bougie,(2016) Research Methods For Business: A Skill Building Approach, 7th Edition, New York: John Wiley & Sons Inc