INNOVATIVE PRACTICES IN PUBLIC HOSPITALS OPERATING IN THE ISTANBUL REGION AND A RESEARCH STAFF TO IDENTIFY IDEAS ABOUT INNOVATION

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ABSTRACT
The new economic conditions which came to agenda with the process of globalization for obtaining competitive advantage forced the firms to be dependent to the innovativeness and differentiation. In this framework, the firms in order to gain more competitive advantage have formed the new processes of inovativeness in both private and public sector. In this study, after briefly stating the main definitions and types of innovation, innovation in Turkey, innovation in public sector and health sector, a research was done by using test techniques. The goal of this research is to determine the awareness level of staff who works in Training Research Hospitals as a high-level manager and staff and to analyse the effects of this awareness on hospital innovativenes.
Innovation has vital importance for health sector. The improvements and innovations in health sector effect human health and quality of life directly. Firms should give priority to provide innovative conditions.

Keywords: Innovation, Change, Innovativeness

INTRODUCTION

Innovativeness is as an ancient subject as mankind. As a philosopher expressed in his saying “it is impossible to bath in the same water twice.” The environment and circumstances in which the existence goes on has been changing continuously. Innovation is an important factor in the issue of catching up conditions which are fluctuating. Science and technology themselves are not sufficient for innovations related to the reasons for facilitating of reaching knowledge, augmenting of industrialization. Apart from science and technology, some other innovations and differences have to be constructed. Just as the opposite of the saying “The only things which does not change is the change itself”, change and innovativeness has been changing. From this point of view, innovation is up to date state of doing innovation and renewal (Elci, 2007).

Innovation is a certain function of entrepreneurship. Innovation means that entrepreneur constitutes new sources and creates welfare or does the same by augmenting the potential of existing sources. (Drucker,1998). The OECD definition is as such: Innovation is

the application of a new organizational method in the marketing way of a new or significantly altered product (item or service) or process; or in applications of business, in organization of work place or in external affairs (OECD, 2005). Innovation is an idea, an implementation or an object which is perceived as new (Rogers, 1983). Innovation which comprises the process from moment of suggesting ideas to the time when they are commercialized is a progress of organizational and individual behaviour forms related to the decision point of defined source diversification (Goldhar, 1980).

Innovation and Varietes of Innovation

The alterations, differences and renewals built in the methods of doing business, in services and products for the purpose of creating economical and social value is called as innovation. It is a crucial means of competition since it amplifies productivity and profitability provides penetrating into new markets and enlarging the existing markets. The economies, in which productive, profitable and powerfully competitive firms are operating, develop. Consequently, for countries innovations are the most important factor which guarantees the proliferation of employment, ongoing grow up and social welfare (Elci,2007).

Innovation of Product: This can be defined as putting a new product or service into the market or making significant progress in the contents or in the usage intention of a product/service. Those progresses might be in technical specifications, in components, in software or in other functional features. Product innovation ensures the usage of new knowledge and Technologies or might be based on the use of new combination of an existing information or technology (Tiwari,2008).

Innovation of Service: An approach to a new or significantly altered service, innovation and difference in the system of presentation and distribution of the service lead to Service Innovation. Such innovations require not only display of technological and organizational abilities of firms operating in the sector of services but also requires augmentation their public relation skills and be restructured as per conditions (Elçi, 2007).

Innovation of Process: To implement a new or significantly altered production method or distribution method. This may include alterations in the technique of production and

distribution, technical equipment or software. Innovation in process aims at reductions in unit production costs or distribution costs (Tiwari, 2008).

Innovation of Organization: The enterprise has been carrying on business applications in internal and external relations within the frame of a new organizational method. Organizational innovation aims at decreasing managerial costs, transaction costs, augmenting the performance and work satisfaction of firm and thus increasing labour production or reducing the cost of presentation (Tiwari, 2008).

Innovation of Marketing: Innovation of Marketing means to use new marketing methods comprising great changes in design, packaging, distribution or pricing of a product. Innovation of marketing aims at shifting customer requirements to newly opened market or to a new position, of course, with the target of increasing sales (Tiwari, 2008).

The Existing Situation Of Innovation In Turkey

Although the economy of Turkey reached the speed of increase in high labour productivity until 1990's (except for crisis in 1980), as a result of failing to create sufficient new employment facilities and also to provide structural transformation towards high Technologies in industry, national income per capita could not be increased. Especially, in 1990's as a result of experiencing macro-economical haziness and great fluctuations in economical grow up rapidity; productivity speed remained at a very low level. In spite of negative macro economical process, in 1990's in Turkey serious steps towards national innovation system was taken. In the first half of 1990's through the mediation of TTGV and TUBITAK commence of Research and Development Programme was one of the most important steps in this issue. In the documents of politics prepared at that period "Construction of an innovation system in Turkey" was accepted as the most important target, establishments were founded to form national innovation system or they were restructured. As a result of these improvements, especially in 2000's, there was a very rapid increase in the investments of Research and Development.

Innovation performance of Turkey which has been among the developing countries, takes place much below of the European Community average. However the ratio of

development of Turkey (4,1%) is above the average of Europe. The fields in which Turkey is stronger when compared to other countries are "Financial Support, Innovation and Economical Influences", relatively weaker aspects of Turkey are especially at the level of "Human Resources, Firm Investments and Data". Among these especially at the level of Human Resources the performance of Turkey is nearly zero and this shows that Turkey is at the worst level among the countries compared. In the last 5 years, the forcing powers in the improvement of financial potency of Turkey are especially at "Financing and Support, Firm Enterprises, and Data and Economical Influences" levels. Augmentation particularly in fields such as Private Credits (19,8%) and Expenses of Business World Research and Development (17,5%), Flow of Technology Payment Balance (19,8%) and Export of Knowledge Based Services (31,9%) are main forcing powers of innovation performance. In the other fields, the ratio of augmentation has remained relatively at low levels.

Situation of Innovation at Public Institutions

While global markets, international corporations, use of external sources, international competition and changing and increasing demands of customers connected to this necessitates making innovations speedily, in the same way the improvements attributed to globalization and increase in the demands and expectations of the citizens make innovation inevitable. This compulsion interests three main dimension (BM,2006):

1. Necessity of providing service with less source ve limited operational capacity at high quality to much larger sections (that it does not only includes effective use of these sources and effecting forming up the capacity but also necessitates to improve more creative solutions),

2. With citizens – focused public governing method, the obligation of having more accountable, responsible and effective structure,

3. The necessity of better answering to citizens' demands.

In public establishments these compulsions of forming up a culture of innovation and construction of innovation managing systems make it inevitable to cherish a new managing approach, new operating methods, improving and implementing different principals and

strategies. The new public governing approach is a new fact just started to be cherished by starting from these necessities.

In our country, in the process commenced with "number 5018 Public Financial Management and Control Law', a new approach has been brought in the frame of above mentioned issue. This new approach aims at a flexible and effective public sector with our public establishments cherishing the principle based on strategical management understanding and performance. In this period of transformation, to consider innovation as the culture of establishment and constructing systems related to innovation management shows great importance. All the same, as explained above, research study realized in innovation management and improved innovation management systems and techniques have focused on augmenting the performance of private sector and handles innovation in its commercial dimension. For that reason, ready solutions which our public establishments can buy and adopt do not exist. It is necessary to define innovation processes special to public sectors and in order these processes to be managed properly, it is necessary to improve the necessary system and also technical equipment to support the system and implement in the sector in a certain systematic.

When successful innovative solutions seen in public management and public administration are studied carefully, some fundamental principles and strategies have been seen to lead the way. These are;

- Utilizing integration of services,
- Presentation of services and making them prevalent,
- Benefiting from corporations,
- Participation of citizens,
- Information and telecommunication technologies (ICT)

Starting point of innovation is "improving ideas", learning and experiment have a special place in its success indicate that at the focal point of innovation there should be human being as the creator and user of it. Especially in public institutions the importance of public personnel who are given good education is vital to improve innovative implementations and to

spread them. In public institutions, innovation is a complex and difficult process (White,2003). For innovation, there is the necessity of equipments and techniques to provide the staff in charge at public establishments, understanding the difficult conditions they are in and seeing the probabilities of innovation and limitations of their establishments (Moore, 2005 and Glor,2001).

In order to provide the services that public workers would bring to citizens through innovative approaches fairly in their qualities, being widespread and being reachable, apart from creating innovative and desirable environment, a reliance between public workers should be constructed and also the idea should be created that working at public is honourable and a privilege. They must be able to reach the latest improvements of their field of specialization. Without providing these, it is impossible that innovation could penetrate into public institutions.

INNOVATION IN HEALTH SECTOR

The goal of innovation in health is human. Technological advances affect human lives and quality of life directly. The aim of the health sector is having a healthy population. A healthy population increases productivity and the amount of labor (Kiper, 2004). Innovative products and services, diagnosis and treatment increases the possibilities of the country and the company "first started," provides priority and brings competitive advantage and increases export potential. The health sector Research and Development (R & D) and innovation capacity also spread to other sectors. Increase in the level of production and exports improves employment and the sustainability of growth and quality of life.

In health sector in advanced economies, the production of goods and services is the value of 7% of GDP and employment rate stood at 10%. Total health expenditure to GDP ratio will come to 16% out in 2020 is calculated. Rapidly growing health sector is the largest source and user of innovative technologies.

Turkey, in innovative products and services in the health sector has significant opportunities. With the population size and dissemination of health insurance, the increasing demand for health care is an important source. Supporting innovation will contribute both improvements in public health and the economy.

R & D expenditures, a share of GDP (by separation of private and public sector), human capital, such as patenting the basic indicators of innovation taken into account, between in the European Union (EU) countries, innovation performance evaluations for 2010, Turkey is in the last place. When innovation performance was examined by measurements, in 2008, Turkey, to reach the resources allocated to R & D, the share of GDP, calculated as, 0.73% , the EU average of 1.90%, well below. The proportion of the public sector share is 0.43% (0.64% EU average) and the private sector share is 0.30% (1.19% EU average). As of 2005, the European Patent Office announced, Turkey's rate, the number of applicants per one million inhabitants is 2.7, as the EU average was 114.9. Turkey, in 2010, took place in R & D indicators, recorded some improvement, although the level of developed countries and the EU average, is well below the observed.

Innovation has a vital importance for the health sector. Innovation and progress in the health sector affects human life and the quality of life directly. As a result of increasing population and an aging, disease, changing the structure, consequently chronic diseases and long-term care needs are increasing. With increasing and aging population, health service provision, promotion and financing, holding an important place in public spending, health and sustainability of social security systems, makes it difficult. With the rise of income level, the demand for better quality health care is increasing. In parallel with these developments, countries aim to expand health insurance coverage and coverage of the whole community. Rising health care expenditures in the sector, the search for cost control and productivity releases occur (Gökovalı, 2009). International studies show the increase in health spending, economic growth tends to the realization that more than 50%. European Union, the EU-15 countries, with around 9% of health expenditures, the share of GDP, 16% will come out in 2020, is estimated (European Commission, DG Enrerprise and Industry, 2004). In Turkey, 6% in 2007 from a level of health expenditure share in GDP, 9.7% until 2033 to reach, is estimated (the OECD and The World Bank, 2008).

In order to control costs, to continue to use traditional methods, by restriction of the options, preferring the old technologies but cheap can bring the solution for short-term financing problems. However, increasing unless efficiency, suppression costs can prevent service availability. Early stage diagnosis and treatment of diseases that can not be improve may require financing than the cost of services in the future. Innovative products and services, can increase efficiency because the options will provide a sustainable solution. Therefore

innovative treatments also including economic evaluation, a method, examination of the container in line with productivity and contributions to the benefit of the patient, must be encouraged. In this case, the financing of innovation, sustainable solutions must be sought (Akyos, 1999).

The health sector activities, the level of direct importance to public health has public property, and this is due to the nature of public sector based regulatory and supervisory role. A new drug or treatment method to use can be served, public regulation is requiried. The public, a new product or service licensing, pricing and reimbursement decisions, innovation reaching the citizen will be decisive. In the process of innovation in health, the role of government encourage the creation of innovation, although the product reaching the market and widely used, is to facilitate the arrangements. Relevant legislation to encourage innovation in the process be organized. This regulation and incentives and laid out a joint operation, and increase the capacity of innovation, as well as for encouraging the success of policies and practices will increase. Therefore the public and the private sector, to be in a functional relationship and cooperation is important. In this relationship the role of government in the health sector, another important feature of the state is that the largest recipient of health care products and services on the market. State, on the one hand to facilitate the market entry, on the other hand the function of the market purchases, such as performing a function, must continue. Together we need to carry out this function, because governments, in relation to the health sector, the strategic level, policy-making and planning processes are required a comprehensive and integrated approach.

Turkey, in terms of innovative products and services in the health sector has significant opportunities. Health care needs, due to geographical location, Europe, Middle East and Central Asian markets close, create innovative products and services for the health sector are an important source of demand. Since 2004, EU has the agenda of the EU citizens to receive a service to facilitate cross-border ventures, the use of health services, support (Daver, F. (2002) .18, 345-362.) Turkey to meet this potential demand can give priority to health tourism. Health tourism is increasing by health care delivery and financing, innovative practices, improving (Innovative therapies, drugs and devices have been used in Turkey can be transferred to electronic health records, health insurance systems in Europe, which operates systems, et al.). Turkey can evaluate the health sector will bring opportunities for innovation and competitive advantage to meet this potential demand.

Determinants of Health Sector Innovation

Innovation in the health sector, research and development, production and the factors that determine investment decisions, will have an effect. Supply and demand conditions in the health sector are different from other sectors. Demand in this sector has a dual structure. Patients were to take place in the direction of the market demand, but they need treatment and health care, on their behalf the doctor decides the request is determined. On the other hand, pricing of goods and services requested and repayment terms due to the responsibility of the public, the state intervenes. The different structure of the health sector, innovation activities compared to other sectors leads to differ. Government is effective and decisive stakeholder at all stages in R & D activity to the market in health sector. Therefore, in each of these stages, have different tools and facilities together with other stakeholders to plan state. Regulatory role of the public based on the priorities of pre-determined policy and practice is critical.

Process R & D, innovation, funding, promotion, human resources, infrastructure, presence and the level of cooperation is also important. Trained manpower for research and knowledge enough to be at the level is required.

Financial resources and incentives are the resource of research and development activities. R & D activities, the direct source of financing, as well as incentives such as tax breaks, etc. are effective. The health sector, structural transformation in the last 20 year period, the risk/venture capital importance raised questions. Health care innovation by developing new ideas making a marketable product increasingly, the risk-based capital was composed of small and new companies. When the product comes a certain level, these small companies are taken to buy often by large companies in order to develop, product, and define the stages of placing on the market. Venture capital is three times more effective according to the traditional corporate R & G, in producing patentable ideas. Therefore, the characteristics of venture capital is important for the financing of early stage innovation biotechnology and medical device industries (Ackerly et al., 2009).

Companies decide in investment and production, taking into account cost and profit rates, as well as the country's political stability and economic growth potential. The health sector potential demand, trade, competition, policy priorities, market stability, production play a role in investment decisions being the main factors.

R & D and production-oriented investments affects innovation ability directly. The health sector by employing high-skilled labor force, vertical and horizontal linked sectors provide positive externalities. The health sector foreign direct investment is important because of transfer of advanced technology, skilled labor force and production capacity contribution (Light, 2005). For this reason, many countries compete to attract, as well as local investors, R & D and production-oriented foreign direct investments. Patents as the protection of Intellectual Property Rights provides legally, temporarily, to the right to a monopoly to innovative products and services to owners. With this method, investments in R & D activities has recycling. New R & D activities will be encouraged.

It is important as public sector regulatory and supervisory role by affecting directly human health and due to the nature of public goods. Social insurance systems in developed countries the last payer is government/insurance institutions. Therefore, the health sector depends on the decisions upon the market access of products and services, public licensing, certification, pricing and payment back. These decisions predictability, transparency, and sleight affect investment and production decisions of firms. Introduced legislation in these areas, and regulations effects the direction of innovation activities and international positioning, (Ministry of Health, 2001).

Internal market and international trade environment affect the decision-making process domestic and foreign capital for investment and R & D activities,. The size of the internal market creating the opportunity to benefit from economies of scale, play an important role to reduce production costs (Karatoy, M., 2009). The proximity and geographical location to the potential markets, the recognition of international trade agreements and membership of regional unions make international trade easier. This is important in terms of turn production and investments in innovation of domestic and foreign investors.

Research and Development Activities In Health Sector

In Turkey, the R & D activities in the health sector is led by the Ministry of Health, Refik Saydam Hygiene Center Presidency, the medical faculties of universities, TUBITAK, including the public, university and commercial sector. However, R & D activities in the field of health is very low, the encouragement of R&D activities should be supported.

In countries, scientific and technological advancing, R & D expenditure, and its share in GDP, the manpower working in R & D activities, and the ratio of the population, R & D activities, patents, the number of scientific publications, Nobel Prize, product, process, and so on the points are measured.

Considering developed and developing countries, still in R & D activities in developed countries has a rate in the world of research 95%, creating a 94% ownership of the patent world. The world's population by 70% developing countries are carrying out these activities but 5% , the ownership of the patent world, have only 6% (United Nations, 2009:29). In addition, the developed countries of R & D expenditure of around 2-3% of GNP, while the developing countries, this ratio is around 0.2-0.3%. Similarly, the falling number of researchers in developed countries, the economically active population of ten thousand ranged between 90-120, in developing countries this ratio is 40% mostly.

States, environmental protection, the fight against disease, nutrition, urbanization, social issues such as immigration, their increasing importance to improve health, community edition of the formation as well as increased health and welfare of R & D expenditure has increased. Due to the pressures of public economy including health R & D activities, restrictions on social spending is done. As a result of the removal of these restrictions, the rapidly increasing all over the world in the R & D expenditures, health issues increased from the front row (Sargutan, 2010:48). In the U.S., 11% of the R & D spending, on health issues. The private sector mainly in health R & D activities, expenditure is on drugs (Sargutan, 1996:49).

In Turkey, the R & D expenditures are by 10% level of total expenditures. R & D activities in the field of health being carried out by public, university and commercial sector.

In Turkey, between R & D activities in the health sector, biotechnology and genetic research, including priority areas, cancer and circulatory diseases, diagnosis and treatment, the elimination of infectious and parasitic diseases (microbiology, epidemiology), pharmacology, maternal and child health, population planning and fertility control, environmental protection measures, surgical and clinical techniques and equipment development, the construction of artificial tissues and organs, natural tissue and organ transplant technology are importance (Ministry of Health, 1997a).

Sustaining Innovation in the Health Sector

Turkey has significant opportunities in innovative products and services in the health sector. Population, health care needs, due to geographical location Europe, Middle East and Central Asian markets being close, create innovative products and services for the health sector are an important source of demand. For EU citizens to receive a cross-border services, facilitating initiatives, citizens outside their own countries, the use of health services are supported (Daver, F. (2002) .18, 345-362.).

Turkey, in order to meet this potential demand, give priority to health tourism. Health tourism is increasing and financing of health services delivery improving the innovative practices (innovative therapies, drugs and devices have been used in Turkey, can be transferred to electronic health records, health insurance systems in Europe which operates systems, et al.).

Turkey, the health sector will bring opportunities for innovation and competitive advantage of this potential demand evaluate as an opportunity.

The Role of Health Tourism In Continuation of Innovation

Health tourism is a rising trend in recent years. In the world, health tourism are rapidly diversifying and an important alternative to growing tourism.

Organizations related Health Tourism, primarily, they should decide to tend which group them run, and what the market of health tourism. The study area need to plan thermal tourism, elderly tourism, medical tourism.

In health tourism, market selection is very important. United States, Europe, Middle East, Turkish Republics, neighboring countries, Iran, Iraq or Syria, customer expectations are different. All international relations, the target country's language, culture, regional proximity and socio-economic status is very effective.

Health tourism, Middle East and South Africa is important to share. Because these regions are as a close distance. Similarly, Costa Rica made an important progress, made in health tourism. This is on the rise, the proximity and cultural structure of the United States, has

a significant impact. Jordan, in the field of health tourism, country in the region. The largest share of the surrounding are Arab countries.

Turkey needs to be opened before the markets close and easy in health tourism. Turkish Republics, Afghanistan, Iraq, Syria and the Middle East are as both the distance, as well as culturally close countries. In these regions, undeveloped in health institutions. Thermals and health care facilities are easier to get acceptance. In particular, aesthetic surgery and thermals are in great demand. At the same time, treatments that require advanced technology will interest.

Of course, we must remember that the western market. In Western countries because of the waiting queue length and high costs of treatment, make our country is attractive for medical tourism. In short, the institutions concerned with health tourism certainly the most appropriate market for them and the health tourism group, elective and it has to be the goal.

EQUIPMENT AND METHOD

The purpose of this research is to determine, as a part of organization culture, the level of innovation awareness pertaining to top management and personnel of Training and Research Hospitals which are public establishments connected to the Ministry of Health, and also to study on this awareness for the purpose of seeing the effects of it on the innovators of hospitals. It was planned as cross sectional and defining study.

The research was fulfilled between 25th March – 25 April 2011 at 17 hospitals giving health services at the status of Training and Research Hospitals connected to the Ministry of Health and the 147 managers 23 Research and Development staff, 217 workers constructed the universe of this research. The data of the research collected by taking into consideration transportation circumstances of hospitals having mentioned characteristics, by using the questionnaires “Related to Determining Awareness of Workers on Innovation” constructed by researchers with the intermediary of quality coordinators of hospitals registered at City Health Management Performance and Quality Coordinatorship. 164 of the questionnaires were answered by e-mail and 193 of them were answered through face to face discussions. Thus, totally 357 questionnaires were returned. In the form of questioners, primarily a short

explanation about the definition of innovation and renewals in the presentation of services was given so that the answering individuals would not misunderstand innovation. In the first section questions which could determine the characteristics of answering person and hospital are prepared. In the second section questions directed to the innovation encouraging actions of managers and in the third section, the determination of whether hospitals could implement innovation or not was done.

In the study, innovation number and innovation operations of hospital are determined as dependent variables, approximate worker number, average Research-Development costs, average advertisement costs and external cooperations and age of hospital are determined as independent variables.

Statistical appraisal of the data reached as a result of the research was analysed with SPSS programme 15.0 version. Features of the establishment, frequency disperse of problems were handled, in the comparison of categorical groups square test, independent t test scores, and in order to determine variable relations Spearman and Pearson correlation ANOVA test and regression analyses are applied. The questionnaire which was constructed for the purpose of determining the opinions of personnel related to innovation and existing situation of establishments comprises 32 expressions. These expressions are scaled from “the most” to “the least” and they have grades changing from 1 to 5 choices. Expressions are prepared totally positive. In the research, in the answers that managers and workers replied to the questions related to innovation, “the most” and “much/many” were considered together, “the least” and “less” were considered together and thus the ratio of positivity in the answers to the questions were calculated.

FINDINGS AND DISCUSSION

Chart 1. Disperse of characteristics pertaining to the answering individuals and to hospitals

Number of answered people %		Number of answered people %	
Sex		**Number of people working at the establishment**	
Women	153	50 – 99	4
Men	204	100 -119	7
		200-299	3
		300-399	0
		400-499	1
		500+	3
Education		**Year of Establishment**	
Primary School	24	Before 1980	7
High School	96	1980-1989	4
University	157	1990-1999	1
Postgraduate study	80	2000+	5
Status			
Top Manager	117		
R & D Responsible	23		
Other workers	217		

It is seen that 35.2% of hospitals where the questionnaire is implemented started their operations after 1990 and 64.8 of them started before 1980. When the classification of hospitals taken into consideration, 41.1% of the hospitals answering the questionnaire are of small size, 58.9 % of the hospitals are of big size hospitals.

Chart 2. Percentage of Positive Replies Related to Innovation

Degree of communication between the top and the subordinates	59,9%
Perception level of establishments related to innovation	43,7%
Managers' encouraging behaviour for innovation	55,4%
Team spirit among units in which Project realized	68,7%
Support of transformation application in health innovation	76,5%

Questions of independent variables in the Questionnaire: Average employee number, age of establishment, average research-development expenses, total number of external corporations, approximate advertisement expenses, innovation number which is a dependant variable.

The hypothesis related to perception level for innovation is presented below.

H_1: As average number of employees increase, the number of innovation increases.

H_2: As average number of employees increase, the level of perception related to innovation increases.

H_3: There is a meaningful relation between average research-development expenses and innovation number and level of Perception related to innovation.

H_4: There is a meaningful relation between average advertisement costs and innovation.

H_5: There is a meaningful relation between total external cooperation established and level of perception related to Innovation.

H_6: As the age of establishment increases, the possibility to make innovation increases.

H_7: There is a meaningful relation between managers' encouraging behaviour for innovation and perception level of Innovation.

H_8: As the communication degree between the top and the subordinate increases the perception of innovation increases.

H_9: There is a meaningful relation between transformation application in health and innovation performance.

Chart 3. Correlation Analyses Groups

Output scales Innovation (Variables)		Number of Innovation	Perception Level Related to
Average Employee Number	r	-0,348**	-0,247**
	p Value	0,000	0,006
Average Research Development expences Degree	r	0,207	-0,317**
	p Value	0,123	0,000
Age of Establishment	r	-0,280**	-0,207**
	p Value	0,007	0,002
Managers' encouraging Behaviour for innovation (Management Support)	r	0,197	0,203
	p Value	0,000	0,007
Total established External Project Studies	r	0,278	0,284
	p Value	0,276	0,000
Degree of communication Between the top and the subordinates	r	0,554	0,377
	p Value	0,000	0,000
Degree of Transformation Application in health	r	0,017	0,006
	p Value		
Perception Level Related to Innovation Value	r	0,223	1000
	p Value	0,000	0,000

H_1: When compared to average employee number and innovation number, there is a negatively directed corelation between the number of employee and innovation. (r= 0348, p= 0,000)

H_2: There is a negatively directed correlation between average employee number and perception level related to innovation. (r= 0,247, p= 0,006)

H_3: There is a positive correlation between average Research Development expenses and innovation number (r= 0,207, p= 0,123). There is a negatively directed correlation between

average Research Development expenses and perception level related to innovation (r= 0,317, p= 0,000).

H_4: There is a positive correlation between external Project studies and innovation number. (r= 0,278, p= 0,276) and a positive correlation between perception level related to innovation (R= 0,284, P= 0,000)

H_5: There is a positively directed correlation between managers' encouraging behaviour for innovation and innovation number and innovation perception level. (r=0,197 p= 0,000, r= 0,203, p= 0,007).

H_6: There is a negatively directed correlation between the age of establishment and possibilities of making innovation. (r= 0,280 p= 0,000)

H_7: There is a positively directed correlation between managers' encouraging behaviour for innovation and perception level of innovation.(r= 0,197 , p= 0,000)

H_8: There is a positively directed correlation between the degree of communication of the top and the subordinate and innovation. (R= 0,954 p= 0,000).

A meaningful difference found between the ideas of managers and employees related to innovation. (p= 0,007)

H_9: There is a positively directed correlation between transforming applications in health and innovation performance. (r= 0,167, p > 0,05)

Variables given above and nominal variables, average employee numbers and independent variable groups, meaningful differences were found only by output scales (p>0,05). As the number of employees of establishments increase, innovation number and perception related to innovation reduce. Small hospitals with younger age have less employees by using the latest Technologies in presenting service and hospitals having these features tend to make innovations more than the others. Therefore, there is an adverse relation between making innovations and the age of establishment and number of employees. Usage of advanced Technologies reduces the need of labour simultaneously. Thus hospitals founded with advanced technology employ less labour. Managers of older hospitals display more conservative

behaviour and consequently with the usage of old technology they employ more personnel and their innovation number is less when compared to new hospitals.

Chart 4. Analysis of Regression

		b	SE	β
Research-Development (Inno.Perception)	**Expenses**	-0,133	0,053	-0,132*
Research-Development (Inno.Number)	**Expenses**	0,03	0,042	0,004**
Advertisement Expenses		0,212	0,053	0,208**
External Cooperations		0,020	0,056	0,019**
Age of Establishments		-0,009	0,006	-0,090*
Encouraging Actions		0,059	0,041	0,075**
Top and Subordinate Communication		0,009	0,075	0,006**
Applications of Transformation in Health		0,097	0,047	0,108**

**p<0.01 *p<0.05

In chart 4, regression analysis results are defined. As seen in the chart, β coefficient number; Relationship between Research – Development expenses and innovation perception and the age of establishments are negative, coefficient number of Research –Development expenses and innovation number, advertisement expenses, external cooperations, encouraging actions, top-subordinate communication degree and applications of transformation in health are positive.

When hospitals are taken into consideration, because of conscious customer demands currently and implementations of health standards, service should be qualified, reliable and in the manner of meeting the needs. This compulsion steers into making innovations continuously in health applications. On the other hand, some obligatory standards might restrict innovation operations (Revillion and others, 2003; 10-11).

In the study that we have fulfilled, there is a positive correlation between average Research and Development expenses and innovation number. (R=0,207, P=0,123). In many researches the result can be reached that Research and Development expenses are the characteristic of innovation enterprise. But as Cabral and Traill (2001) found as an outcome of their study; these expenses has no impact on output of innovation works. Only half of the firms in Canada (65% of all firms) which are performing Research and Development operation have applied innovation successfully and they have created a new product or process. (Therrien,2000; 2-3). Evangelista and Mastrostefano (2006) reached the result that innovation strategies of enterprises cannot be defined with their Research and Development connections.

In the innovation study which Trail and Meulenberg fulfilled at food sector, one of the hypothesis is there is not a correlation between the size of enterprise and innovation. But totally over 12 enterprise, in this research with a characteristic of example event, only two of the enterprise is at KOBI size and for this evaluation it is stated that the data is not adequate. In this performed study, when the number of employees and the number of innovation compared, there is a negatively directed correlation between the number of employees and innovation. (R= -0,348, P= 0,000). In hospitals employing fewer workers a negatively directed correlation for improving a new product and Research – Development and the size of hospital.

In the study we have performed, the ratio of support from management for innovation and new ideas has been found as 55.4%. When firms are taken into consideration generally, it is claimed by Therrien as well (2000) that ideas of managers do not have a meaningful effect on innovation. This demonstrates that there could be differences among the factors influencing innovation through sectors.

THE RESULT

Innovation and difference in the presentation of service, the usage of new technologies in the presentation of service gives the opportunity to present an existing service at a higher quality to larger sections, using less public sources. Giving services in hospitals by consuming fewer sources, use of savings effectively and productively for the purpose of providing economical advance means covering the gaps in the budget. For this objective, the study

realized in Istanbul through the managements of 17 Training and Research Hospital; findings can be summarized in the following way.

A New Paradigm Change and Recommendations

- New democratic formations should be construction through a new hospital administration understanding.

- A transparent and accountable administration should be applied.

- Personnel ideas should be given importance, participation should be encouraged.

Chart 5. Old-New paradigm

Old paradigm	New paradigm
Hospitals > Individual	Hospitals < Individual
Non accountable administration=Imaginative Democracy	Transparent and Accountable = Enterprise Participative Democracy

According to above facts;

- Innovation conscious should be improved in hospitals,
- System and technical equipment for innovation should be improved in hospitals,
- Trainings should be organized about the management of innovation,
- An awareness of innovation should be created,
- For the objective working in innovation in unity, in general of establishment, there should be the unity of ideas and understanding and a team spirit should be improved,

- In order to manage innovation cycle, necessary systems should be set up,
- Personnel and managers of establishment should be encouraged for their innovation ideas and they should be admitted,
- A method of selection among suggested innovation ideas should be determined,
- Strategies to follow should be determined while practising selected innovation ideas,
- An organizational culture should be formed, having a special and important place in the hierarchy of innovation values,
- Innovation targets should be formed and evaluated,
- Communication barriers between managers and employees or among employees should be removed, lack of reliance between workers should be overcome.
- The leader responsible for managing innovation process should have proper leadership characteristics,
- Written work designs which determine innovation map should be formed and it should be prepared by a few people through participative method.
- Other individuals and establishments should be cooperated in the issue of innovation of the establishment,
- Researches and investments in the field of health should be planned,
- Substructure of human power for innovation should be planned according to strategically needs and should be supported.

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