Strategic Planning For Research Information Management System In Health: Lessons Learned From IRAN

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Abstract: Great amounts of data are lost due mainly to the improper information management. Developing a research information management system leads to more efficient information management, which in turn encourages more effective collaboration of researchers even in long ranges. The present study, therefore, aimed at developing a strategic plan for improvement of the research information management system in Iran. The present work is a qualitative study conducted according to the group discussion method in six months. This study was conducted in the research department of the Iranian Ministry of Health by collaboration of eight experts from the department and a number of the specialties from all of the medical universities in Iran. The amount of work done by these experts was 600 person-hr. According to the results of the present study, some influential factors were detected: infirmity of private organizations (national) (10.25), ownership (intraorganizational) (8.75), education (intraorganizational) (8.25), lack of common language (national) (6), culture (intraorganizational) (6), collaboration between different sections (national) (5), resistance (intraorganizational) (2.4), and improper reporting (national) (1.8). Then, strategies of the national system were determined in each section. The most critical strategies are as follows: proper use of the national scientific network, improving the tools for private network, process development, localization of consumption patterns, effective publication and distribution of the results, conduct of advanced search based on MESH, and applying a registration system. It was concluded, according to the results of the study, that since financial issues have a high priority in health systems, integrated collaboration of policymakers and managers in the health system is necessary for strategic planning for research information management systems in Iran.

Key words: Strategic Planning; Information Management; Research Information; Research System

INTRODUCTION

Nowadays, the amount of available scientific information is increasingly growing, leading to the lack of attention to the novel findings and ideas(Butzke D et al. 2010). Great amounts of research information are lost due primarily to the improper management. It has been estimated that the cost of conducting repetitive researches in Europe is 20 billion Euros(European Patent Office 2009). Since acquiring scientific and technical information is necessary for development, any educative institute is now aware of the necessity of conducting scientifically sound researches (n-Hwa HAHN and KIM 2004).

Global-scale collaboration of universities necessitates the development of research information management systems in order to better identify and manage the research activities conduct that in various universities. Universities need to manage the research project based on a standard procedure to be able to identify the common stages of the different research projects regardless of the funding body, and to manage and evaluate the research findings. Therefore, they should provide storage facility to efficiently publish and share the most recent research data, and to provide an integrated evaluation system (Baru 2004; Mark G 2000).

Sharing formal documents backs to 200 years ago in the United States by development of IES system(Judy Mansfield and Beacher Wiggins 2009). Most recently, the arrival of Smithsonian research information system (SIRIS) has provided access to 1.8 million libraries worldwide for the users(Brigitte Jörg and et all 2009; Smithsonian Institution Research Information System 2007). The Australian research network is also now actively providing management and sharing of research information for the users even in long
ranges (Department of Education Science and Training 2007). Similar system has also been developed in England (OYAMA Keizo and et al 2011). However, in the developing countries such as Iran the situation is quite different. Lack of an integrated research information management system is apparent in this country, leading to improper interaction and collaboration of the researchers in the country (Obal Forest Information Service 1999). On the one hand, strategy planning is of primary importance for the development of a country in different aspects, including improvements in the scientific status (Expediency Council 2009; Tabibi SJ and M R Maleki 2005). On the other hand, research information on health related issues has high priority, and therefore, needs to be managed by an appropriate system to ensure efficient sharing of the most recent data, and to prevent from wasting of financial resources by conducting repetitive researches. Hence, the main objective of the present study wise developing strategic plan for research information management in Iran.

METHODS AND MATERIALS

The present work is a qualitative study conducted based on the group discussion method, which is believed to be the most efficient way of collecting data in qualitative studies. The method is based on the interaction between various thoughts in the group to come up with a firmly united, organized idea (Zamani and k. Holakoii 2005).

This study was conducted in 1389 during six months in the research department of the Iranian Ministry of Health by collaboration of eight experts from the department and a number of the specialties from all of the medical universities in Iran. The amount of work done by these experts was 600 person-hr.

Four-hr meetings were held twice a week during the study period. The issues for group discussion sessions were as follows: opportunities of the research system, drawbacks of the system, advantages and disadvantages of the system, future developments of the system, objectives of the system, and finally the key benefits of the system. On average, one work day was allocated to cover each issue. Then, the responses were classified and weighted based on their priority. Having analyzed the advantages/disadvantages and opportunities/threats, the position of the research system was determined. Afterwards, the strategic objectives of the system were set. Finally, the operational objectives of the system were discussed this cost and determined.

Results:

The following is the opportunities that can be expected from the system based on the thoughts of the specialists: application by researchers and students to perform scientific studies, application by managers and policymakers for national-scale decision-making, application by private organizations to having access to the most recent scientific evidence, application by research and education centers, freedom of competition, paradigm shift, changes in the patterns and processes, existence of a virtual, multipurpose interface, existence of specialized careers, welcoming globalization, existence of the government's strategies, management of Islamic world, and scientific management.

In addition, the following was believed to be the limitations of the system: technological factors, economy cofactors, inefficiency of the system in the current situation, lack of added value, lack of existing standards, existence of financial interdict, erratic growth of electronic systems, technological alterations, lack of scientific management.

This system is anticipated to achieve the followings in a 10-year time period: an integrated system for innovation in the health-related issues, a knowledge hub in the region, a global, top rank in publishing the most recent health-related researches and information, and finally the major body for communication of health related issues. A variety of objectives have also been defined for this system, including development of information management by the collaboration of researchers, and also by applying the previously gained experience.

According to the results of the present study, some influential factors were detected: infirmity of private organizations (national)(10.25), ownership (intraorganizational) (8.75), education (intraorganizational)(8.25), lack of common language (national)(6), culture (intraorganizational)(6), collaboration between different sections (national)(5), resistance (intraorganizational)(2.4), and improper reporting (national)(1.8). Then, strategies of the national system were determined in each section. The most critical strategies are as follows: proper use of the national scientific network, improving the tools for private network, process development, and localization of consumption patterns, effective publication and distribution of the results, conduct of advanced search based on MESH, and applying a registration system.

Finally, the time schedule for the necessary activities to fulfill each strategy was set. Timetable for achieving some of the strategic plans have been given for instance in Table 1.
Table 1: General activities and their time schedule to fulfill different types of strategies developed for the system

<table>
<thead>
<tr>
<th>Type of strategy</th>
<th>Operational activities</th>
<th>Type of Action</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Research</td>
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<tr>
<td>Technological alterations</td>
<td>Developing special networks in research</td>
<td>Use of the country’s scientific network; collaboration; improving the specialized tools of the network</td>
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<tr>
<td>Presenting a role-model to other countries in the region</td>
<td>Electronic research and learning</td>
<td>Process development</td>
</tr>
<tr>
<td>Designing a website for access to the health-related scientific information in the country</td>
<td>Presenting a role-model to other countries in the region</td>
<td>Localization of consumption patterns; Publishing the results; collaboration with other countries in the region</td>
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<tr>
<td>Providing the infrastructures to fulfill the country’s scientific plan</td>
<td>Identifying the needs of researchers</td>
<td>Conducting need assessment</td>
</tr>
<tr>
<td>Identifying the needs of researchers</td>
<td>Expanding the capacity of scientific research section</td>
<td>Strategic feasibility; collaboration feasibility</td>
</tr>
<tr>
<td>Avoiding the repetition on the research projects</td>
<td>International connections and membership in international networks</td>
<td>Identifying the international networks; membership in the networks; interaction with the networks</td>
</tr>
<tr>
<td>Improving the human resources</td>
<td>Optimizing the use of financial resources for research</td>
<td>Educating human resources and improving their level of knowledge</td>
</tr>
<tr>
<td>Improving the information knowledge among researchers</td>
<td>Re-engineering the processes and improving the software in the operational phase</td>
<td>Improving the software’s quality; continuous inspection of SAMA processes</td>
</tr>
<tr>
<td>Optimizing the use of financial resources for research</td>
<td>Developing a computer program for the system using the most advanced tools</td>
<td>Educating new techniques and software improvement</td>
</tr>
<tr>
<td>Using a registration system</td>
<td>Developing a coding system for research stuff</td>
<td>Modifying the process when registering the research information; documentation</td>
</tr>
<tr>
<td>Developing a coding system for research stuff</td>
<td>Developing Persian MESH</td>
<td>Developing MESH data base; operating the MESH project</td>
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</table>

Discussion:

In the present study, some activities were considered to be of importance in order to fulfill the developed strategies. These activities mainly include: use of the country’s scientific network; collaboration; improving the specialized tools of the network; process development; localization of consumption patterns; publishing the results; collaboration with other countries in the region; improving the current portal; system supervision; providing the main elements; developing the map; conducting need assessment; strategic feasibility; collaboration feasibility; advanced searching based on MESH; using a registration system; organizing information by using networks; identifying the international networks; membership in the networks; interaction with the networks; educating human resources and improving their level of knowledge; improving searching techniques among university students and researchers; establishing a reporting system; determining the allocation criteria; specific project proposals; determining the research priorities; educating new techniques and software improvement; improving the software’s quality; continuous inspection of SAMA processes; modifying the process when registering the research information; documentation; setting standards for coding of research stuff; updating the standards; developing MESH data base; operating the MESH project.

Worldwide experience indicates that strategic planning is successful in fulfilling the goals set, from national to international scale. Harrison (Harrison DL 2007) and Sollenberger (Sollenberger DK 2006) have evaluated the effect of strategic planning on reaching the desirable objectives.

The main objective of the strategic plan of European Scientific Community was corporation and collaboration in order to improve the range and scale of European scientific research. European Scientific Community has a unique position since it gathers almost all of the national research organizations in Europe. The objectives and values of the Iranian Research Information Management System is consistent with those of the European one(Quai izay-marnesia 2006-2010).
In the health-related systems, financial issues are of primary importance. Therefore, the strategic approach has top priority in that (Wiese CH et al. 2011). The activities involved in the strategic plan indicate that integrated collaboration of policymakers and managers in the health system is necessary for strategic planning for research information management systems in Iran.

Ethical Considerations:
Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

Conflict of interest:
The authors have no conflicts of interest.

Authors' contributions:
Dr. Najari carried out the design and coordinated the study, participated in most of the experiments and prepared the manuscript. Nahid R. Ghorbani provided assistance for all experiments. Mahboubeh Sharifinejad provided assistance in the design of the study, coordinated and carried out all the experiments and participated in manuscript preparation. All authors have read and approved the content of the manuscript.

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