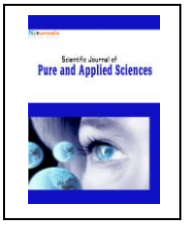
Sjournals
Scientific Journals
Scientific Journal of Pure and Applied Sciences (2013) 2(2) 106-115
ISSN 2322-2956

Contents lists available at Sjournals
Scientific Journal of
Pure and Applied Sciences
Journal homepage: www.Sjournals.com



Review article

The status of knowledge management' productions in web of science database during 2000-2010

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ARTICLE INFO

Article history:
Received 15 February 2013
Accepted 23 February 2013
Available online 28 February 2013

Keywords:
Institute for Scientific Information (ISI)
Islamic countries
knowledge management
knowledge sharing
scientific production
Web Of Science (WOS)

ABSTRACT

Science production has multiplied in many countries; this indicates the active cooperation in interdisciplinary filed such as knowledge management which has gained significant advancements through effective communication in scientific activities. This research analyses the status of publications and citations to knowledge management' productions in web of science database dated between 200 and 2010. it was conducted through library method to collect data from WOS by searching this formula in advanced search "TE=knowledge management" during MAY 6 to 16, 2011.The results show that more than the average of scientific productions indexed in SCI section, published in "English" language. Total Number of citations to the scientific productions is about eight times of their total number and the growth curve of citations is increasing. Most scientific productions belong to United State and England respectively. Although there are 56 Islamic countries, the rate of their scientific productions is very low in this field. Information is separately collected and analyzed in aspects of Source titles, subject areas, institutions and authors who have most scientific productions in knowledge management. LECTURE NOTES IN COMPUTER SCIENCE journal has published 234 papers in this field. 102 subject areas which have published scientific production in knowledge management field, the most papers were indexed in COMPUTER SCIENCE area with 2040 papers. 500 institutions has cooperated in

knowledge management' scientific production, but NATL CHENG KUNG UNIV has placed in the first place with 53 papers amongst other institutions and has allocated 1.20 of total number of papers published in this field. "Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues" is the hot paper with 874 citations in knowledge management field. GOTTSCHALK is the prolific author in knowledge management field with 18 papers. As regards, Knowledge sharing is an important step of knowledge management, articles related to knowledge sharing published in web of science database during 2000-2010 is analyzed base on the cooperative countries and subject areas. According to Low growth scientific productions of Islamic countries in knowledge management and knowledge sharing, it is better that researchers of universities, scientific and research centers in Islamic countries attempt increase their scientific productions in Interdisciplinary fields such as in knowledge management and knowledge sharing, and effectively develop and improve their international cooperation in the future.

1. Introduction

Scientometrics is one of the most efficient ways to evaluate and assess research situation. Hence in recent decades, it is one of the important fields in recent studies. To survey interdisciplinary areas' scientific productions such as knowledge management and its heart area" knowledge sharing" in valid citation databases is the most important indicators in Scientometrics studies. In modern knowledge economies, science is becoming increasingly more important in realizing economic growth (Coriat & Weinstein, 2001; OECD, 2002). Structural economic growth can only exist if the knowledge-based society and production of knowledge increase. In last two decades, knowledge management is one of the most popular and interesting field that has paid attention to policymakers in national and international levels.

Knowledge sharing is the heart of knowledge management and has defined as a process through which a scientist's knowledge is transferred to another scientist in an understandable, absorbable and applicable form (Lin, 2007). Generally, Knowledge sharing is a cooperative process which includes the distribution of information, ideas and skills among people. So, we cannot ignore its role in increasing peoples' skills, information and knowledge.

Nowadays, researchers try to write some case studies about knowledge management and knowledge sharing and improve current situation of organizations and the employees for managing and sharing personal and organizational knowledge. So, in this paper is attempted to survey the rate of scientific productions in field of knowledge management and investigate the share of Islamic countries in production of knowledge management and knowledge sharing fields.

2. Methodology

This article is descriptive-analytical research that surveys scientific publications of "knowledge management" field by using the indicators of WOS Database during 2000-2010. This study was conducted through library method to collect data from WOS by searching this formula in advanced search" TE=knowledge management" and "knowledge sharing" during September 6 to 16, 2011 respectively. Then, we limited the results to 2000-2010 years. By using the software of ISI database, we analyzed these data base on the number of papers, document types, language, hot papers, publication year, source titles, subject areas, institutions, countries and authors. This method was used to collect scientific productions of "knowledge sharing" area base on cooperative countries and

top subject areas too. At the end, the share of Islamic countries in "knowledge management and knowledge sharing" have been surveyed.

2.1. Purpose of the study

The most important purpose of this research is to study: the situation of top papers of knowledge management' field published in WOS database during 2000-2010. It was also tended to analyze their different fields according to the number of papers, document types, language, hot papers, publication year, source titles, subject areas, institutions, countries and authors. Moreover, the analysis of the scientific productions in each area is also considered as the objectives of this research. Then, we focused on knowledge sharing as the heart of knowledge management field base on cooperative countries in production of its papers, and subject areas that this field has published by them.

2.2. Significance of the study

Some of the most important benefits of this study are: to recognize top journals, articles, authors, countries, institutions, subject areas that ranked above in WOS during 200-2010.

In the last decade, there has been a dramatic increase in the number of publications on knowledge management (Yang & Wu, 2008). So, Knowledge management field is selected in this study because it is a considerable field amongst researchers and scientists, and it is necessary in each country especially in Islamic countries that attempt to develop their science with the religious simultaneously.

2.3. Literature review

There are some researchers surveyed scientific productions of different subject areas and countries and then compare them in order to present some suggestions for policymakers. for instance, results of two research present In the following:

Abbasi and zardari (2011) surveyed Iranian Scientific Publications in the subject area of Dentistry and comparison with other Middle East Countries during period of 1996-2009. They have collected data via searching in the SCImago Journal & Country Rank database. The results revealed that Iran has 27^{th} rank of world based on number of published documents and 35^{th} base on number of citations. Also, in the comparison with other countries of Middle East, Iran has 2^{nd} and 4^{nd} rank. Through these years Iranian scientific publications generally have been increased, so that the most published scientific publications are 2009. Also results showed that among total 385 published documents in the field of dentistry 98% of documents (378 documents) have citation and 16% of these citations are related to self citation and 16% of these citations are related to self citation. Since, summit of international collaborations is 1998, with the fully international collaboration (100%), and its impunity is 1996 and 2001 without international collaboration. Moreover in 6 subject categories of dentistry, Iran, just 4 items of the field have scientific production and activities.

Nejati and Hosseini Jenab investigated two-dimensional approach to evaluate the scientific production of countries in field of basic sciences. So, the quantity and quality of scientific output of the topmost 50 countries in the four basic sciences (agricultural & biological sciences, chemistry, mathematics, and physics & astronomy) are studied in the period of the recent 12 years (1996–2007). The results showed that by comparing the clusters in the four basic sciences, certain common patterns have been observed in positioning of countries. Accordingly, four general country clusters have been recognized. Indeed, a few countries, referred to as the ''transitional countries'', had different positions in different basic sciences. Using the tailored scientometric indicators, PPPm and CPPm, instead of the absolute numbers of publication and citation, and developing a two-dimensional method which incorporates these indicators simultaneously, led to a rather fair comparison between different countries and revealed a novel positioning of countries considering their scientific output.

3. Findings

Regarding the table1, the most scientific production in knowledge management field indexed in Science Citation Index Database with 2952 records. These papers has cited 22149 times and their totally h-index are 56. Generally, all records are 4415 papers with 33011 citations and their h-index has calculated 65.

Table 1
Frequency of knowledge management' production in ISI' citation databases.

Citation Databases	Records	times cited	Average citations per item	H-index
Science Citation Index Expanded (SCI-EXPANDED)	2952	22149	7.50	56
Social Sciences Citation Index (SSCI) --1990-present	2627	24473	9.32	62
Arts & Humanities Citation Index (A&HCI) --1990-present	31	40	1.29	2
Total	4415	33011	7.48	65

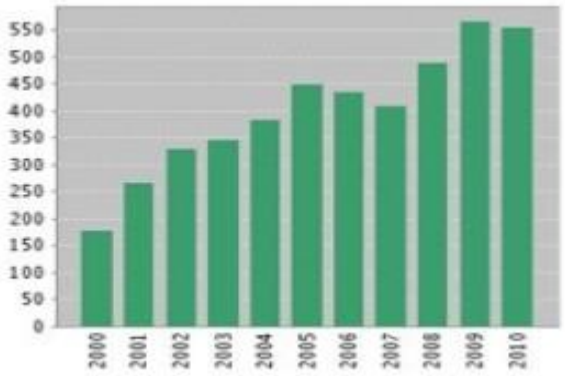

Fig. 1. distribution of the total number of productions in knowledge management field.

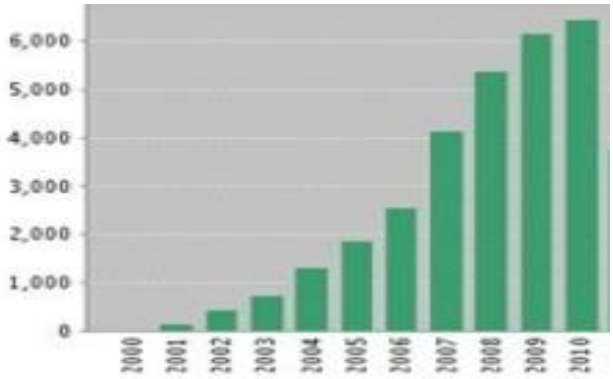

Fig. 2. distribution of the Total number of citations in knowledge management field.

Although there are few slight drop in scientific production of knowledge management field, but it has the good growth during 2000- 2010 in WOS. Citations to these papers have increased very quickly during these years.

Table 2
Distribution of knowledge management' production base on Publication year in WOS during 2000-2010.

Publication Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Record	178	267	331	347	384	451	435	410	490	566	556
Growth	4.03	6.04	7.49	7.86	8.69	10.21	9.85	9.28	11.09	12.82	12.59

In table 2, the number of knowledge management' production and the rate of their growth in each year (from 2000 to 2010) indexed in WOS can be compared. The findings show that knowledge management' productions have increased during 2000-2009. But it is observed a few drop in 2010 year.

Table 3 shows that total number of scientific productions of knowledge management field indexed WOS during 2000-2010 base on different languages. They have published in 14 languages and the scientific productions were in English (95.99%) and the other productions have published in 13 languages (3.11%).

According to the Table4, this field has considered with 91 countries, and US has ranked above other countries for production of these papers with 1206 papers. In other words, 27.31% of total scientific production of this field has allocated to US with 1206 papers. England, Germany, Taiwan and China have produced with. 544, 320, 313 and 239 papers respectively and they have ranked in the next places alternatively. Generally, 91 countries had scientific production in this area, but the share of Islamic countries among them was only 15%. These Islamic

countries are TURKEY-IRAN- MALAYSIA- ARAB EMIRATES- KUWAIT- EGYPT- JORDAN -LEBANON- PAKISTAN- SAUDI ARABIA- AFGHANISTAN- BANGLADES and INDONESIA.

Table 3
Distribution of knowledge management' production base on languages in WOS during 2000-2010.

Languages	Record	0f % 4415
ENGLISH	4238	95.99
GERMAN	68	1.54
SPANISH	38	0.86
UNSPECIFIED	26	0.58
PORTUGUESE	25	0.56
FRENCH	6	0.13
CZECH	3	0.06
JAPANESE	3	0.06
SLOVAK	2	0.04
CROATIAN	1	0.02
DANISH	1	0.02
HUNGARIAN	1	0.02
ROMANIAN	1	0.02
SWEDISH	1	0.02
TURKISH	1	0.02

Table 4
Distribution of knowledge management' production base on countries in WOS during 2000-2010.

Country	record	0f % 4415
USA	1206	27.31
ENGLAND	544	12.32
GERMANY	320	7.24
TAIWAN	313	7.08
PEOPLES R CHINA	239	5.41
CANADA	218	4.93
SPAIN	201	4.55
AUSTRALIA	175	3.96
ITALY	162	3.66
FRANCE	125	2.83

Table 5
Distribution of knowledge management' production base on document types in WOS during 2000-2010.

Document type	Record	% of 4415
Article	3836	86.89%
Proceeding paper	807	18.28%
Review	216	4.90%
Book review	156156	3.5%3.4%
Editorial Material	151	3.4%
Meeting Abstract	37	0.84%
News Item	10	0.22%
Correction	4	0.09%
Software Review	3	0.07%
Biographical Item	1	0.02%
Letter	1	0.02%

Regarding the document types indexed in WOS during 2000-2010, 11 types are used to publish scientific production of knowledge management field, and Article form has allocated 3836 record and ranked with 86.89% share at the first.

Table 6
Distribution of knowledge management' production base on institutions in WOS during 2000-2010.

Institution	record	% of 4415
NATL CHENG KUNG UNIV	53	1.20
HONG KONG POLYTECH UNIV	44	0.99
CITY UNIV HONG KONG	33	0.74
UNIV CAMBRIDGE	33	0.74
UNIV SO CALIF	31	0.70
UNIV TORONTO	31	0.70
NATL CHIAO TUNG UNIV	30	0.68
NATL UNIV SINGAPORE	30	0.68
UNIV MANCHESTER	30	0.68
UNIV LOUGHBOROUGH	29	0.65

Table 7
Hot papers in knowledge management filed in WOS database during 2000-2010.

Title	Author	Source	Citation
Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues	Alavi M; Leidner DE	MIS QUARTERLY	874
Creating and managing a high-performance knowledge-sharing network: The Toyota case	Dyer JH; Nobeoka K	STRATEGIC MANAGEMENT JOURNAL	494
Why should I share? Examining social capital and knowledge contribution in electronic networks of practice	Wasko MM; Faraj S	MIS QUARTERLY	301
A pragmatic view of knowledge and boundaries: Boundary objects in new product development	Carlile PR	ORGANIZATION SCIENCE	294
Knowledge management: An organizational capabilities perspective	Gold AH; Malhotra A; Segars AH	JOURNAL OF MANAGEMENT INFORMATION SYSTEMS	293
Tacit knowledge and the economic geography of context, or The undefinable tacitness of being (there)	Gertler MS	JOURNAL OF ECONOMIC GEOGRAPHY	237
Knowledge networks: Explaining effective knowledge sharing in multiunit companies	Hansen MT	ORGANIZATION SCIENCE	214
Managing knowledge in organizations: An integrative framework and review of emerging themes	Argote L; McEvily B; Reagans R	MANAGEMENT SCIENCE	214
Contributing knowledge to electronic knowledge repositories: An empirical investigation	Kankanhalli A; Tan BCY; Wei KK	MIS QUARTERLY	196
It is what one does": why people participate and help others in electronic communities of practice	Wasko MM; Faraj S	JOURNAL OF STRATEGIC INFORMATION SYSTEMS	185

Table 6 shows that 500 institutions have cooperated in scientific production of this field. Base on the finding, NATL CHENG KUNG UNIV Institute to be in the first place, with 53 papers among other institutions in knowledge management area and has allocated 1.20 of total number of papers published in this field.

The findings of table7 reveals that top 10 papers who ranked in the first places in knowledge management field indexed in WOS, analyzed by number of citations, Author and source titles. Furthermore, this table shows that Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues; Creating and managing a high-performance knowledge-sharing network: The Toyota case; Why should I share? Examining social capital and knowledge contribution in electronic networks of practice are hot and popular papers with high citations in knowledge management field. Alavi& Leidner; Dyer & Nobeoka; Wasko & Faraj; Carlile and … have considered as prolific authors with high cited papers in this field. MIS QUARTERLY, STRATEGIC MANAGEMENT JOURNAL, ORGANIZATION SCIENCE, JOURNAL OF MANAGEMENT INFORMATION SYSTEMS and MANAGEMENT SCIENCE are the most popular journals that these papers with high citation intended to cite in them.

Table 8

Distribution of knowledge management' production base on source titles in WOS during 2000-2010.

Source title	Nationality	Publisher	Record	% of 4415
Lecture notes in computer science	Germany	springer	235	5.32
Lecture notes in artificial intelligence	Germany	springer	211	4.77
International journal of technology management	Switzerland	inderscience enterprises ltd	114	2.58
Journal of knowledge management	England	emerald group publishing limited	112	2.53
Expert systems with applications	England	pergamon-elsevier science ltd	108	2.44
Journal of universal computer science	Austria	graz univ technolgoy	98	2.22
Knowledge management research practice	England	palgrave macmillan ltd	97	2.19
Decision support systems	Netherlands	elsevier science bv	80	1.81
Industrial management data systems	England	emerald group publishing limited	67	1.51
International journal of information management	England	elsevier sci ltd	57	1.29

Table 9

Distribution of knowledge management' production base on subject areas in WOS during 2000-2010.

Subject areas	Record	% of 4415
Computer science	2040	46.20 %
Business economics	1211	27.43 %
Engineering	882	19.98 %
Information science library science	859	19.46 %
Operations research management science	508	11.51 %
Social sciences other topics	81	1.83 %
Public administration	78	1.76 %
Education educational research	76	1.72 %
Medical informatics	66	1.49 %
Health care sciences services	65	1.47 %

The results show that from 102 subject areas which have published scientific production of knowledge management area, the most papers were indexed in COMPUTER SCIENCE with 2040 papers. In the next places,

BUSINESS ECONOMICS; ENGINEERING; INFORMATION SCIENCE LIBRARY SCIENCE; OPERATIONS RESEARCH MANAGEMENT had 1211, 882, 859 and 508 papers separately.

We surveyed first 10 source titles in knowledge management filed that they ranked above. The results indicate that 500 source titles have published the most scientific productions in this filed. The top source titles were indexed in LECTURE NOTES IN COMPUTER SCIENCE; LECTURE NOTES IN ARTIFICIAL INTELLIGENCE l with nationality of Germany. Both of them have published by Springer with 235 and 211 papers respectively and allocated the most share of scientific production in this filed. INTERNATIONAL JOURNAL OF TECHNOLOGY MANAGEMENT; JOURNAL OF KNOWLEDGE MANAGEMENT and EXPERT SYSTEMS WITH APPLICATIONS have published more than 100 papers in this field and their nationality is from Europe Country.

The findings of table10 show that the prolific authors in knowledge management filed are GOTTSCHALK, CHEN YJ, CHEN YM, CHUA AYK, DESOUZA KC, LIEBOWITZ J with 18, 13, 13, 12, 12 and 12 papers. They are not from Islamic countries. The number of their citations is 2 or 3 times of the number of their papers. LIAO SH has high H-index amongst the 20 prolific authors of this area.

In this research, we analyzed the status of knowledge sharing' productions in web of science database during 2000-2010, and then we emphasized on the status of scientific productions of Islamic countries too. Thus, citation databases of WOS, cooperative countries in production of papers' knowledge sharing area have been considered.

Regarding the table11, the most scientific production of knowledge sharing area indexed in Social Sciences Citation Index Database with 813 records. These papers has cited 8804 times and their totally h-index are 45. Generally, all records of this area are 1239 with 11313 citations and their h-index calculated 48.

According to the Table12, 74 countries have cooperated in production of knowledge sharing papers. USA ranked above other countries to produce these papers with 353 papers, and 28.491 % of total scientific production has allocated to it. England, Taiwan, China, Canada have produced 134, 131, 98 and 63 papers respectively and have ranked in the next places alternatively. Generally, 74 countries had scientific production in this field, but the share of Islamic countries among them was 11%. These countries are TURKEY, IRAN, MALAYSIA, INDONESIA, EGYPT, LEBANON, MALI, OMAN, SAUDI ARABIA and UGANDA.

The results show that from 86 subject areas which have published scientific production of knowledge sharing field, such as knowledge management field, the most papers were indexed in COMPUTER SCIENCE with 504 papers. In the next places, BUSINESS ECONOMICS; INFORMATION SCIENCE LIBRARY SCIENCE; ENGINEERING ; OPERATIONS RESEARCH MANAGEMENT had 371, 217, 204 and 117 papers separately.

Table 10

Distribution of knowledge management' production base on Authors in WOS during 2000-2010.

Author	Record	% of 4415	H-index	Citation	Affiliation	country
Gottschalk	18	0.41 %	6	84	Norwegian Sch	Norway
P	18	0.40			Management,	
Chen YJ	13	0.29	6	82	Nan Hua Univ,	Taiwan
Chen YM	13	0.29	6	86	Natl Cheng Kung Univ	Taiwan
Chua AYK	12	0.27	3	24	Nanyang Technol Univ,	Singapore
Desouza KC	12	0.27	7	140	Univ Washington	USA
Liebowitz J	12	0.27	6	150	Johns Hopkins Univ	USA
Lee WB	11	0.24	3	62	Hong Kong Polytech Univ	Singapore

Table 11

Frequency of knowledge sharing' production in ISI' citation databases.

Citation Databases	records	times cited	Average citations per item	H-index
Science Citation Index Expanded (SCI-EXPANDED)	727	6113	8.41	37
Social Sciences Citation Index (SSCI) --1990-present	813	8804	10.83	45
Arts & Humanities Citation Index (A&HCI) --1990-present	12	182	15.17	4
Total	1239	11313	9.13	48

Table 12
Distribution of knowledge sharing' production base on country in WOS during 2000-2010.

Country	Record	% of 1239
USA	353	28.491 %
ENGLAND	134	10.815 %
TAIWAN	131	10.573 %
PEOPLES R CHINA	98	7.910 %
CANADA	63	5.085 %
AUSTRALIA	57	4.600 %
NETHERLANDS	57	4.600 %
GERMANY	48	3.874 %
FRANCE	39	3.148 %
ITALY	39	3.148 %

Table 13
Distribution of knowledge sharing' production base on subject area in WOS during 2000-2010.

Subject areas	Record	0f % 4415
Computer science	504	40.678 %
Business economics	371	29.944 %
Information science library science	217	17.514 %
Engineering	204	16.465 %
Operations research management science	117	9.443 %
Psychology	69	5.569 %
Education educational research	61	4.923 %
Public administration	30	2.421 %
Environmental sciences ecology	27	2.179 %
Social sciences other topics	26	2.098 %

4. Conclusion

The Findings showed that knowledge management had 4415 productions in WOS during 2000-2010 and the average of scientific productions indexed in SCI section. However, the most papers has produced with US, the share of Islamic countries in its scientific production was not considerable (only 15%). Therefore, Islamic countries' scientists should produce some scientific production in this indisiplinary field and they cooperate together to increase their ranking amongst other countries. We analyzed authors who had the most scientific productions in this field. The results showed that 20 prolific authors were not from Islamic countries and their role in production of high cited papers was very low, and the most hot papers produced by non-Islamic countries' authors. "Lecture notes in computer science" was the popular source title in production of knowledge management' papers. The data regarding subject areas reveals that 102 subject areas have published scientific production of knowledge management filed; the most papers were indexed in COMPUTER SCIENCE with 2040 papers. In the next places, BUSINESS ECONOMICS; ENGINEERING; INFORMATION SCIENCE LIBRARY SCIENCE; OPERATIONS RESEARCH MANAGEMENT had 1211, 882, 859 and 508 papers separately. Most of scientific productions in this filed were in English language. In addition, scientific productions analyzed base on publications year and results showed that scientific productions and the number of citations have increased during 2000-2010. In ranking Institutions, the findings showed that 500 institutions has cooperated in knowledge management' production, and NATL CHENG KUNG UNIV has placed in the first place with 53 papers amongst other institutions and allocated 1.20 of total number of papers published in this field. The presence of organizations of Islamic countries in this survey was not considerable. The findings indicated that the most scientific productions have produced in article form.

The Findings showed that knowledge sharing field had 1235 scientific productions in WOS during 2000-2010. 74 countries had scientific production in this field, but the share of Islamic countries among them was 11%. These

countries are TURKEY, IRAN, MALAYSIA, INDONESIA, EGYPT, LEBANON, MALI, OMAN, SAUDI ARABIA and UGANDA. 86 subject areas have published scientific production of knowledge sharing field and the most papers were indexed in COMPUTER SCIENCE with 504 papers.

Generally, According to the findings, the role of Islamic countries in production of knowledge management' papers was very low. Intrinsic and extrinsic factors to the research process can be useful for encouraging the scientists of Islamic countries. Policymakers should present the initiative for their collaboration in each country. We hope that Islamic scientists expand their scientific productions in knowledge management and knowledge sharing fields in valid databases such as WOS. So, it is necessary to held workshops, educational programs to increase their scientific productions and encourage them with rewards systems to cooperate together.

5. Suggestions

In order to improve the indicators of science and technology, to remove the obstacles and to attain to a deserved status amongst the Islamic countries to increase scientific production, the following items are suggested:

- Making a correspondence between scientific and technological policies and procedures, on the one hand, and economic and political strategies dominating Islamic countries' industry, services and business;
- Promoting Islamic countries' universities, research scientific organizations, research and industrial development centers and etc with regard to research activities and the production of science also encouraging cooperation between such institutions;
- Transferring widespread power and authority to researchers of Islamic countries in order to activate potential human resources in universities – these include faculty members and graduate students in Islamic countries;
- Promoting awareness of scientists towards the value and importance of scientific cooperation; Identifying the motivation and barriers factors for Islamic scientists in acquisition and sharing scientific knowledge;
- Give the value to cooperation and knowledge sharing amongst Islamic countries' scientists;
- Establishing the centers for planning and improving the flow and transfer of knowledge and information amongst top scientists of Islamic countries;
- Strengthening the cooperation between Islamic countries' scientists by [use of] proper tools and technologies;
- Identifying prolific scientists of Islamic countries and facilitating mutual cooperation among them;
- Training Islamic countries' scientists to use collective knowledge, store and retrieve their own and others' experiences;
- Establishing reward systems in Islamic countries' organizations in favor of scientific knowledge production and sharing it;
- Providing proper environment in Islamic organizations to boost trust among their scientists;

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