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PERCEPTIONS OF A STRATEGY FOR THE DEVELOPMENT OF SCIENTIFIC RESEARCH IN THE KINGDOM

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ABSTRACT: *This study attempts to investigate scientific research in the development of Saudi Arabia through the analysis of some statistics on education and scientific research in the country. A number of key concepts have been reviewed such as : scientific research, alignment and strategic management for scientific research and theft detector. A blend of both quantitative and qualitative data is used. The descriptive research method is adopted. An analysis of documents using induction and references to original information were made. The findings include : A proposed model for a nationally research – oriented management , there is a possibility to benefit from the outcomes of research seminars in the national system overseen by stakeholders such as the Ministry of Higher Education, King Abdul-Aziz City for Science and Technology (KACST), and specialized research centers, and it is possible to shift towards a knowledge society .*

KEYWORDS: alignment, scientific research, strategic management, theft detector.

INTRODUCTION

The first verse of the Koran is "read" advocating the importance of values, and the divine incentive to explore science and conduct scientific research, by which nations have prospered by means of science, research and knowledge. Allah says "*Allah will raise up, to (suitable) ranks (and degrees), those of you who believe and who have been granted (mystic) knowledge"* Al Mujadalah Verse 11 . Al-Ghazali (2004 :14) has said on the interpretation of the verse that Allah The Almighty started by Himself then by the Angels in the second position and by the people of science in the third, and giving scholars such an honor, betterment and nobility . In planning to attain the objective of that noble verse, we have to think of methodological approaches, represented in the strategic work and characterized by its particularities among all other sciences and applications. Those approaches gather as a group of special mental and physical operations in order to perceive and prepare a collective action management that foresees the future. Strategic work should reflect originality and rationality to be able to boost all the national forces to combine (goals, tools, and methods) and to design strategies for higher education, particularly scientific research. Science, knowledge and scientific research have the power to boost the society into the so-called "sustainable human development", which includes development of the economy and society as well as political development as a result of the economic and social development, through which the community can become a knowledge society. Man is the most important element that we should invest into in order to achieve leadership in making the so-called "human capital" . Today's need for studies,

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research and learning is in fact stronger than ever before. Scientific research is not considered another means to promote welfare and problem solving, but a weapon and a power that superpowers try to possess for themselves a world of power of science and reliance on communication, knowledge and economic competition. If the developed countries pay great attention to scientific research, it is because they realize that the greatness of nations lies in the scientific, intellectual and behavioral capabilities of their peoples and the preservation of their international status. This reality has been insisted upon by Al - Salem who says : http://www.informationstudies.net/issue_list.php?action=getbody&titleid=94.

> *"knowledge community is broader than the information society because it includes all the sources that result in knowledge. It has been noted that the adoption of community information and communication technology leads to the progress of knowledge, and the production of information places the basic building block for the construction of a knowledge society. The knowledge progress is considered to be more accurate in judging the development of society. The development efficiency relies on knowledge activities carried out by the various institutions involved in knowledge development. These institutions include scientific research bodies, education and training, sensitizing, media and information institutions of various types. The information has become the most important feature of the knowledge society as it represents one of the most important landmarks and among the most prominent elements of the knowledge economy. ".*

Statement of the Problem

With globalization, the world has entered a running transformation process in every aspect of life. In addition to high development rates, sustainable development becomes the main issue for nations. This , however , is still not fully recognized in the Kingdom of Saudi Arabia. A quick review of literature will reveal that some changes have occurred in the determinants of development . It is now widely known that technological advance is a major factor contributing to development . Development of technology is only possible with research and development activities. Research and development is the most important factor in attaining high technological performance and security competitive advantages. This study investigates the role of research in development in the Kingdom of Saudi Arabia.

Aims

This study aims at :

1. Exploring the role of scientific research in the development of the King Saudi Arabia.
2. Proposing a model for a nationally research – oriented management in terms of administrative, knowledge and digital supervision and linking it with patented inventions.

Questions

A number of questions can be asked:

1. What is the relationship between science, renaissance and exploration of the unknown?
2. What is the role of education and the harmonization and quality concepts?
3. What is the role of the oriented vision?

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4. Where is the corporate responsibility in support of scientific research?
5. What are the plans in scientific research and how it can harmonize with the societal and environmental requirements?

Limits
This article is limited to the study of science and scientific research and their role in the development of the Kingdom of Saudi Arabia. The investigation takes place in the year 2014, in Saudi Arabia.

Significance
The study is expected to contribute to the fields of higher education , development , strategic planning , and scientific research. It is also expected to help decision-makers and planners.

Methodology
The method used is the descriptive research method. An analysis of some of texts, using induction and references to original information. The sources include the National Strategy for the shift to the knowledge society, documents of the Ministry of Higher Education, and Statistics patent in Saudi Arabia.

REVIEW OF LITERATURE

knowledge and Science: Sounding the Depths of the Unknown

The Arab use of the knowledge capacity accommodates a positive value and a positive dimension. Its opposite becomes the ignorance, holding a negative value, because the Islamic cultural heritage calls to seek knowledge through reading (read in the name of your Lord who created). The word knowledge has multiple linguistic and philosophical meanings. In the present time, with the technological advances and the orientation towards the era of the knowledge society, the knowledge technology and the knowledge economy, all of which are arranged through education and scientific research, being one of the tools to gain access to the future in all its complexity. It is, therefore, necessary for fittings and expectations to be able to expand the circle of Man's options in life. From a multilevel knowledge that includes description, understanding, interpretation, guidance, analysis, scrutiny, formation and installation, mind tools can go beyond knowledge transmission, composition and creativity farther than just information patterns, images and shapes to the engineering of ideas seeking thereby to enlighten the darkness of ignorance.

Man, since the beginning of time, has been trying to explore the feared depths of the unknown dividing it into three sections: Man himself in life and after life, earth interior and exterior, and finally space in all its dimensions. Man has endeavored to provide all that guaranteed him to live safely and peacefully. When we talk about security, we do not mean here the traditional means such as military security but comprehensive security, which includes life security, food security, housing and health and social security. The various fields of science played a significant role in achieving this security using various methods and approaches in different stages of life

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dimensions. Man has tried to adapt to human environment and the creation of housing and the provision of food and other means that guarantees him to live in peace.

Science aims at introducing knowledge in its various kinds and patterns, at exploring other sciences, proving theories, evaluating experiments, confirming hypotheses, creating new knowledge, exploring new sciences, creating new methodologies, and exploring all that is creative, healthy and fruitful to humans and their environment. Hence, came the need for the presence of new ideas that target the use of modern science to systematically track scientific novelties aiming to achieve all Man's aspirations progress and prosperity verbalizing into a vision. Knowledge is a disputed field among modern societies. People are wondering who should own it and who is more eligible to claim its appropriation and originality. Modern societies become acquainted to knowledge to the point of that they tend to find easy short-cuts in methods of information storage, quick retrieval, construction and overlap. However, knowledge, from another perspective, is considered a kind of authority and power, due to its relationship to politics and institutional contexts of the connoisseurs. It is a way of cognitive thinking as explained by Foucault (1980) instead of thinking about knowledge as a provision of a neutral platform from which we can create power operations, Foucault believes that we should think about it through a set of changing variables for two elements that affect each other being power and knowledge in terms of historical configurations. Saeed says that disciplinary knowledge is:

> *"the presence of disciplinary practice knowledge that is essential in social life. Among these, the division of labor in human life, differentiation between the members of the human body and the attribution of a function to each one of them establish a specialization. This is called specialization. The specialists have their typical gathering as they compose an establishment,- the establishment of experts and seeking advice from experts is consulting."* http://jawdatsaid.net/

Meanwhile, Popper (2006,78) who is one of the greatest philosophers of science in the twentieth century says :

> *"for myself, I am interested in science and in philosophy only because I want to learn something about the riddle of the world in which we live, and the riddle of man's knowledge of that world. And I believe that only a revival of interest in these riddles can save the sciences and philosophy from an obscurantist faith in the expert's special skill and in his personal knowledge and authority.*
> *"*

The Importance of Vision-Oriented

To talk about the vision and its importance to steer the rudder to the path as each variable and factor influencing the general march, the path should be clearly defined as it has been said, "no guiding winds for those who do not have a clear destination." Hence, we can say that without a vision for scientific research and a clear strategy, any professional or institutional work may have negative effect in the absence of a clear scientific engagement of any industrial research institutions to the development process, where a sound framework and a well-defined goal for development

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leadership must be set. Undoubtedly, the knowledge of the internal environment of the depths as well as that of the external environment, in addition to the knowledge of ourselves and our surroundings are the most important strategic factors we can talk about. This becomes clear when we talk about a curriculum strategy called "Delphi". This term goes back to a temple north-west of Athens (Bartman, 2009 ,719). The leaders used to go there to ask the priests about prediction and the secrets the future that only God knows (and perhaps we should differentiate here between future studies and clairvoyance). If the leaders themselves read what was written on the entrance of the temple, they wouldn't need to seek clairvoyance or speculations from the priests. The line encrypted on the entrance read: "Know yourself," . From knowing ourselves, our weaknesses and strengths and the sources of power and knowledge of what our self-capabilities and multiple tools and potentials, we can talk about an oriented scientific development with a national vision for the future and with a planning if we know all our strengths and weaknesses and if we find ways to secured the role of science that leads nation to their prosperity.

Al Husseiny(2007) pointed out in his book about science and education strategies when the National Science Foundation in the United States, conducted, at the end of the nineties, a thorough investigation on what was the development factor of the US economy during the past 50 years[1]. The answer was: the technical and technological innovation. This innovation, which was a result of continued search for new methods, which lead to the military overwhelming supremacy of the United States over the former Soviet Union. Such advances resulting from the technological development were also an opportunity for the private sector to take advantage from.

The Science Linked-renaissance

The scientific research is the key to the future permanent prosperity that we should follow. As indicated by Al- Wabili *" keeping pace with civilized nations in the field of scientific research has become a priority, but it is a national claim in all public policies for all communities around the world "*. Only through science and scientific research that can nations rise, as the poet says:

Science elevates a house without pillars And ignorance destroys a house of glory and honor

The real development of education will not be achieved without adapting it and its outcomes to the needs of the country and developmental plans. All sectors must integrate scientific research and studies as a major pillar in their evolution and development. This will help minimize risks, maximize strengths and seize future opportunities. It is without any doubt that Saudi Arabia has taken vigorous steps through its Foreign Scholarship Program. However, the external scholarship outcomes, will not become a complete value-added without the existence of research incubators, as a subsidiary of each scientific research institution. The role of the state establishment of research centers affiliated to or independent from the Ministry of Higher Education should not be neglected. These research institutions should be able to manage their own budgets and scope which should not be limited to theoretical research, but to focus on the applied research. Such action will bring us new inventions needed to address our growing and accelerating unrivaled knowledge

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communication and the speed at which we need to access information. Gardner (2008, 36) emphasizes this in his "Five Minds for the Future" . Gardner's approach can be applied to research in Saudi Arabia. The application of Gardner's five minds subject will be dealt with in some detail when we talk about the Research Triangle.

Self-knowledge and Connecting Stakeholders

Let us ask a number of questions to understand the issue of scientific research, its development, strategy and future. Regarding scientific research in Saudi Arabia, one is always tempted to ask what, why, how, when and where; in addition to what if? This last question should provide information on the process of the project or subject, and one wonders about the status of scientific research and patents in the Kingdom. What statistics do we have, and what is the status of scientific research, invention, creative minds innovations and "trade marking" (meaning to transform any product from just a raw material to a product brand and branded logo and professional philosophy and appearance of the product as a competitive character in the market), marketing, intellectual property and other scientific development systems of applied research development?

DATA ANALYSIS AND DISCUSSION OF RESULTS

Analysis of KACST Data :

To answer the question, where are we?, we will refer to what figures and statistics we were able to find. For example, in the field of intellectual property, figures supplied by King Abdul-Aziz City for Science and Technology (KACST) in statistics for the year 2012, are as follows: http://www.mohe.gov.sa/ar/Pages/Budget.aspx

1. The number of patents issued: 213 ,
2. number of Industrial Designs certificates issued: 605 , and
3. number of plant varieties applications filed: 6

As for students' statistics on scholarships abroad, the table below shows statistics released by the Ministry of Education for the year 2010-2011 .

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Table (1)

Grade	Sex	New Students			Active			Last Year Graduates		
		Scholarship	Self-Sponsored	Total	Scholarship	Self-Sponsored	Total	Scholarship	Self-Sponsored	Total
Mid Diploma	M	1	0	1	37	4	41	0	0	0
	F	0	0	0	0	6	6	0	0	0
	T	1	0	1	37	10	47	0	0	0
BA	M	17429	104	17533	51439	6865	58304	507	4	511
	F	2977	199	3176	8066	2100	10166	56	7	63
	T	20406	303	20709	59505	8965	68470	563	11	574
High Diploma	M	10	0	10	10	33	43	0	0	0
	F	14	0	14	4	8	12	0	0	0
	T	24	0	24	14	41	55	0	0	0
MA	M	4431	1	4432	14929	1597	16526	333	3	336
	F	3525	1	3526	10518	479	10997	133	0	133
	T	7956	2	7958	25447	2076	27523	466	3	469
PH. D	M	918	0	918	4047	296	4343	57	0	57
	F	611	0	611	2101	41	2142	14	0	14
	T	1529	0	1529	6148	337	6485	71	0	71
Fellowship	M	483	0	483	1788	9	1797	23	0	23
	F	185	0	185	646	4	650	11	0	11
	T	668	0	668	2434	13	24487	34	0	34
Others	M	3312	88	3400	5718	2040	7758	138	1	139
	F	1724	167	1891	2389	947	3336	54	8	62
	T	5036	255	5291	8107	2987	11094	192	9	201
Grand Total	M	26584	193	26777	77968	10844	88812	1058	8	1066
	F	9036	367	9403	23724	3585	27309	268	15	283
	T	35620	560	36180	101692	14429	116121	1326	23	1349

The issuance of budget for the fiscal year 2011 (1432/1433), allocations to public education sector, higher education and vocational training reached SAR 150,000,000,000, representing 26 % of approved expenditures budget, which shows an increase of 8 percent from the previous fiscal year 2010 (1431-1432) budget allocations to the same sectors. Higher education budget allocations included financing projects to complete the establishment of university cities on a number of universities campuses which implementations were estimated to more than SAR 9,000,000,000, in addition to the approval of necessary funds for the opening of ten new colleges. Moreover an amount of SAR 8,900,000,000 has been approved for the construction of faculty housings in all

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universities around the kingdom. The program of the Custodian of the Two Holy Mosques Scholarship Program (Phase I and II) will continue in addition to directives that have been issued for the annexation of self-sponsored students to the scholarship program which will represent an increase in the scholarship program's portfolio during the current financial year 1433/1434 to more than SAR 12,000,000,000 .

In other related sectors

1. The implementation of the "National Plan for Science and Technology" that costs more than SAR 8,300,000,000, will lead to the implementation and achievement of a major shift in support of scientific research and technical development, transfer and localization technology.
2. The financing of "National Project of e-Government", which was launched in the fiscal year 1427/1428 will continue amounting to SAR 3,000,000,000, representing the most important tributary of the "National Plan for Communications and Information Technology." This project contributed to the advancement of Saudi Arabia 47 steps without reversal in the UN e-government Readiness for Electronic Transactions Ranking since its issuance in 2003. The Communication Total Services Fund also started implementing the Communication Total Service Policy aiming at extending the communication service coverage to all provinces.

Therefore, we believe that funding research should come from various sources. A number of systems should be engaged in an action dictated by the society research culture on one hand and by the lessons and experiences learned from other nations' initiatives in the field. From such successful experiences, we can draw applicable models that can be followed in providing financial support for research. As examples of such models, we can make use of the endowment concept by introducing other components such as Time Endowment and Minds Endowment etc. We should also not neglect the role of private sector's companies in what can be integrated under the umbrella of the private sponsors' responsibility towards the community. The private sector is equally concerned with the community development side by side with the public sector. The role of the civil societies and the banks is very important in providing loan to conduct research in areas of interest. Such loans can be reimbursed by the instance ordering the research or transforming the research itself into a commodity, a product, an invention or a service that can be beneficial to all. The lesson drawn from these ideas is that scientific research financing should not be limited to the public sector only http://www.mohe.gov.sa/ar/Pages/Budget.aspx . One should realize that the issue is not as easy as one might imagine. Indeed, with the multifaceted nature of the issue between the copyright, managed by the Ministry of Culture and Information and the industrial patent issued by KACST, scientific research goes beyond and extends further than just publishing.
Despite humble research support, there is a lack in marketing among and mobilizing stakeholders to that support: inventers, creators, intellectuals, marketers and trade markers industrial professionals etc… Also, the absence of a totally clear vision involving sponsors with stakeholders within a national trend is a serious handicap. Such vision should not concentrate only on scientific research financing and its support through the Ministry of HE budget, but also seeks the establishment of an independent organization dedicated to scientific research with all its requirements in terms of policies and methodologies. The outcome of this research will contribute

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to the development of Saudi Arabia and insure the country's leading role in both the Arab and Islamic worlds.

The Quality of Education

The concept of educational quality and its outcomes in addition to the appropriateness and convenience of education cannot be achieved without realizing the role of scientific research in the development of not only academic institutions but also all government and private sectors' institutions. These institutions will benefit from the research outcomes to boost productive development, quality of services based on people needs and expectations. The scientific research products should also satisfy quality research standards and be eligible to participate in international conferences and contribute experiences that show quality in publishing and measurable ranking standards enabling full apprehension of status and orientation towards effective development planning that insure sustainable development and production quality. http://www.mohe.gov.sa/ar/Pages/Budget.aspx

The Appropriateness and Convenience Concept

The concept of appropriateness and convenience revolves around a number of points as mentioned by Abdul Hassan Al Hussein in his book: Science and Education Strategies in Israel and the Arab World and their Role in Building the State where he talks about convergence of state public policies with the universities' role in providing politicians, governments and members of parliaments with research outcomes to help them take the right decision. We wish to point out here that decisions based on research outcomes including experimental studies, statistical analysis and resulting policies is more likely to be the most appropriate in the long term. Indeed, such decisions are built on variable conditions as projected by the study which leaves space for constant updating for research outcomes and statistics.

He also talks about the convergence with the world of action as the higher education sector should work towards developing curricula and should move itself from a knowledge transfer operation to a knowledge development one "recommendation of the 1997 Havana Conference on Higher Education". Higher education should also have a proactive position in its course of action through the analysis of emerging action fields and structure as well as their prediction insuring continuous training and development actions for employees. (We wish to stress on the importance of future and outlook studies and their different methodologies such as the inductive charting tide methodology and the Delphi technique and scenarios.)

Similarly, regarding all time and everywhere convergence, where focus is made on all methods and facilities to make science and research in general available to everyone everywhere without being confined to a certain layer of the society or to a certain period of time especially since the technological development is an important means that can be used for this important and strategic principle insuring continuity for education and individual advancement.

Finally, he talks about the principle of the appropriateness and convenience concept, the convergence with teachers and students. This convergence aims at insuring a quality education

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that will help them access the life battle by providing important knowledge and equipment with necessary skills and changing attitudes to rehabilitate professionals to excel in their future jobs. Moreover, developing people's mind with methodological, analytical tools and developing the spirit of initiative cooperation, tolerance and acceptance of differences is a noble goal . http://www.mohe.gov.sa/ar/Pages/Budget.aspx

The Scientific Research Development System

Scientific Research undoubtedly has a major role in the total development system. Indeed, the information, if used properly and for beneficial purposes, can have an impact extending beyond our imagination. Therefore, reconsidering scientific research related educational policies in every ministry is a paramount operation in the total and quick development process, provided that sound methodologies be used and competent and experienced researchers carry out the research in a research center within the vicinity of the decision making headquarter.There are surely strategic variables that affect scientific research as a total development system at both demographic and economic developmental levels as well as the role of the environment, policies, legislations and techniques. All of these have affected directly and indirectly the total scientific research system. If we look at all these variables and examine them in light of the total planning strategy, we will end up asking ourselves a number of questions among which: what is the quota of Saudi researchers per 1000 citizens? How many patents have been registered so far? What is the number of practical industrial research centers in the kingdom? Did we benefit from the kingdom environmental diversity in the specialization of research centers in researching their geographical surrounding such as a center for historical and heritage studies for the excavation and restoration of Madaen Saleh? Or do we have a study center for agriculture, irrigation techniques, bees and honey research in Al Baha region or similar centers targeting professional exploitation and development of the local environment potentials?

Other outstanding achievements in certain fields of interest can be benefitted from. For instance, why don't we establish an academy for technical designs led by international Saudi designers such as designer Yahya Al Bishri so that the art and design culture can be disseminated as part of artistic development support and a birth for design trade marking in the kingdom?Scientific research UNESCO related statistics including scientific and technical publications registered to Saudi Arabia in 2009 show 710 articles and studies and if we compare this number with the one registered for Singapore (4187) and with Spain's (21543) registered publications we will realize how behind we are in the ranking. Also the list of research papers submitted for international arbitration for March 2012 based on the national science and technology plan affiliated to King Saud University shows that only 238 research articles have been submitted for arbitration. Moreover, in an interview with KACST President in a talk about scientific research in Saudi Arabia hosted by CNBC Arabia Channel, he said that there is no need to replicate projects already implemented in Riyadh in other cities of the Kingdom. He added that the internet provides now transactions hubs for the submission of patent request submission and acquisition electronically. He also pointed out that the first point regarding the replication of main KACST headquarter active programs is an issue that needs to be clarified especially in the absence of a well defined scientific research system and that a number of tools need to be used for the replication process:

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1. Defining scientific research and invention fields.
2. Providing specialized education in the fields of invention, creativity and research methods.
3. Providing education in the field of copyrights.
4. Providing education in the field of Invention Companies' Management.
5. Delivering invention to users.
6. Delivering inventions to the pioneers of the inventors for creative betterments.
7. Delivering inventions to the right people.
8. Helping inventers and creators transform their creativity into an institutional action.
9. Helping inventors acquire necessary funding through national funds.
10. Helping inventors attract sponsors of and investors in their patents .
11. Finding means to insure constant funds flow for scientific research, inventions, creativity and innovation in every city and province through integrating all stakeholders (government institutions, universities, private sectors and civil society) within a communication system targeting common developmental goals.The KACST President's disapproval of KACST Headquarter programs' replication by regional centers supports our position of focusing inventions on local community needs and based on local developmental requirements. Such research localization will lead to the activation of the principle of environmental and social responsibility that directs scientific research.

The Importance of Industrial, Engineering and Technical Studies

If we take the example of China and what it has achieved now in terms of unbeatable advancement and development in their production, we should ask ourselves on the cause of that multifaceted development revealed by the US Institution of Electrical and Electronic Engineers in 2005 through the publishing of a study on what is called "the government of Engineers". That published issue relates to the industrial and engineering revolution witnessed by China especially in the 1949 Mao Tse Tung announcement on the establishment of the giant state "Peoples Republic of China". That same study mentioned names of the Chinese government members most of whom were engineers and how these professionals were able to raise growth rates through concentrating on the industry by determining the industrialization requirements in terms of skilled labor and necessary funding. By the same token, providing generous support to the engineering education was the boosting force for progress and advancement in both quantity and quality until the number of Chinese engineers reached 275000 in 2005. Similarly, support for practical engineering research and the use of information systems to link all activities, to exchange experiences and to establish knowledge communication between them were the catalyzing forces for such remarkable achievements. http://www.mohe.gov.sa/ar/Pages/Budget.aspx

Towards a National Strategy for the Security of Knowledge

Saudi Arabia is taking active steps towards a knowledge society. To reach that goal, the kingdom is enduring major time, human and financial burdens. The shift process requires a piercing vision of the future of this nation and involves a scientific transfer from data – based to information based. It also requires a coordination between communication and information and between knowledge and wisdom. In the next few lines, we will try to establish clearly defined and measurable frameworks. http://www.mohe.gov.sa/ar/Pages/Budget.aspx This great nation enjoys tremendous

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assets. However, the individual in this country is confined within a threat triangle consisting of water security, energy security and food security. Unfortunately, scientific research in the kingdom did not materialize quality wise as planned. Scientific research aims in general at submitting proposals to change policies, reorienting policies, endorsement of services and quality patterns. It should also be capable of creating a product serving the community needs in attaining self-sufficiency in knowledge. Each one of these three fields - water, energy and food – requires a research system starting from the inventor creativity to providing intellectual and experimental tools in addition to legal instrumentation or system and standards packaging in the form of sustainable salable outcomes.

One can argue about the priority fields that the Scientific Research National Strategy should concentrate on. However, concentration should be made on fields that offer measurable objectives that can be achieved by means of patents, methodologies and other means that reinforce creativity and innovation. The importance of rooting scientific research in all government institutions, specifically in the Ministry of Education, the Ministry of Higher Education side by side with the private sector as converging partners for those inventions and patents will be very beneficial to the kingdom. Moreover, the establishment of private organizations that will sponsor, market and distribute scientific research outcomes will consolidate and promote research and development.The European Union (EU) is working on the 2020 Strategy http://www.mohe.gov.sa/ar/Pages/Budget.aspx that aims at addressing the aging of the population of Europe and how they can create new job opportunities by conducting scientific research in the community and through innovation and creativity. That strategy relates to more than 30 items focusing on three principles:

1. Make Europe one the greatest promoter of scientific research worldwide
2. Remove obstacles to innovation such for instance the high cost of patents, market segmentation, slow standards-setting, skills shortage that currently prevent ideas from accessing the market.
3. Create a revolution in methods of involving the two sectors to join in a common effort to promote corporate action thorough partnership between European companies and National and regional authorities and businesses.

Referring back to our local context, we should perhaps ask ourselves two questions: how many patents are there in the field of water or those related to plant species or those related to electronic patterns and methods by which they have been registered at KACST?

How do we get benefit from symposia and conferences' outcomes?

A national strategy for scientific research is a national necessity if prepared with a future clear vision that takes into account the community developmental needs and changes related to demography, economic, technology, climate and the society in general. All these changes are interrelated and impact each other greatly. Moreover, reaching sufficiency limit in terms of science and knowledge in these three fields would suppose their equipment of a reliable knowledge security that is flexible to future variables. Scientific research does not just require a national strategy for the public and private sectors. In addition, it should be a culture in which the

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community believes that every action undertaken on a methodic and measurable basis can be improved constantly and is capable of attaining scientific excellence and this country and its individuals' prosperity. What more beautiful is there to use science to build countries. However, should we consider the political and legislative development as part of the strategic scientific development system?

The political and legislative development as part of the strategic scientific development system:

The whole picture of scientific research does not rule out to have a multidimensional vision. The strategic science, for example implies taking into account, with an analytic view, all factors influencing the thinking and strategic planning process. Therefore, we have to consider the political and legislative factor which is a very important in providing an environment that is politically stable and in guaranteeing the individual basic rights. Only through this favorable environment, that scientific research can provide fruitful and positive contribution. Also, the existence of legislations that guarantee the researcher basic rights without discrimination or favoritism and advocate political, social and economic rights, will encourage researchers to perform and achieve high standards in research productivity.

Research Publishing strategy in Saudi Universities:

A hundred and fifty billion Saudi Riyals have been spent this year on higher education representing 26 % of the total endorsed budget expenditures. This figure represents also an increase of 8% on last fiscal year's (2011-20120 allocations for the higher education sector and therefore an important portion of those allocations goes to scientific research since scientific research is an integral part and a un-dissociable component of higher education and a significant indicator of any country's development.For scientific research in all its forms and fields whether it tries to confirm or correct a theory, or propose a new knowledge experiment, or creates a new scientific opening in any field or within interrelated fields, research publishing has become an important measurement standard for a university research development and its researchers' capacity to conduct fruitful research. The benefit of the university research achievements extends further to boost the country's development and prosperity.

Research publishing strategies as well as its methodologies differ from university to university. The majority of our universities are currently facing a lack in the volume of research publishing. In 1993, scholar Al Mahdi indicated that more than two million research articles are published each year in all fields of science. According to the Guardian newspaper in March 2011, the United States holds the first position in research publishing. It is expected that China will snatch that leading position in 2013 in terms of citation and publishing volume. Bajed Al Udhayani author of the book " Methods and Foundations of Scientific Research" in an article entitled " The scarcity of research publishing in Saudi Arabia points out that the problem is due to several factors:

"the lack of a specifically earmarked budget for scientific research: in the west, company are obligated to support research from their profit earning; whereas in Saudi Arabia, the allocated budget to the few research centers is barely sufficient to be spent on employees' salaries, facilities and other non-research tasks leaving the essence of the budget allocation- research – out of the

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scope. Also, the lack of financial facilities for the researcher and freeing him/her to concentrate on research activities, will cause the abandon of the project and the waste of funds already spent. The absence of incentives given to those involved in research and the disvalue of research outcomes will result in poor research culture in the community along with difficulties to have access to data due to secrecy, privacy, and security. The media disinterest in covering research achievements also contributed this poor research culture. http://www.mohe.gov.sa/ar/Pages/Budget.aspx

The Scientific Publishing Triangle and the Five Minds

If we try to imagine what we refer to here as the scientific publishing composed of the researcher - the scientific product – the scientific incubator, support should be provided to all components of the triangles. In fact support, ought to be delivered based on a strategic study surveying strengths that should be further supported and weaknesses that should be tackled in addition to taking advantage of future opportunities and foreseeing potential threats and finding means to avoid them. If we consider the researcher as one of the main triangle components, to screen out the most suitable researcher in terms of knowledge, creativity and innovation in addition to founded knowledge of methodologies and processes, our researcher should be able to think for future generations as related by Howard Gardner that there five minds that are the only forces capable of leading the future. He started the first mind by the disciplined mind which spends many years acquiring the disciplines knowledge of its methodologies, definition, policies, development and major schools. The following mind is the synthesized mind which tries to synthesizes a number of sciences with each other and conducts experiments in more than one of them for the purpose of finding the interlacing relationship between them.Gardner continues with the third type of mind, the creative mind who tries to make scientific breakthroughs and thinks in an usual way attempting to add innovations to a science field building on past experiences. Gardner also talked about two additional minds, the respectful and the ethical which are the values - related minds. From our perspective, we can say that the Islamic values we have that support the concept of scientific research and our rich Islamic heritage and history of scientific achievements by famous scientists who made breakthroughs that are still being used internationally are more likely to be used by us and represent a cresset that enlighten our scientific research path . http://www.mohe.gov.sa/ar/Pages/Budget.aspx

There is a number of issues that need to be addressed about the incubator of the scientific research side of the triangle. The speed at which information goes through, the experiences are shared and the variety of resources are available, we can imagine the level of contribution of such factors to the development of science. The easy and quick access to such information quantity provided by universal web search engines along with the possibility of subscription to have free access to valuable and accurate information about any field provides paramount facilities to researchers. We should not forget the role of translation in transferring articles in one's language with utmost accuracy. The possibility of adding keywords to scientific terminologies contributes to the Arabization of the original research language and the dissemination of the Arabic disciplinary research culture. However, we witness a lagging in digitizing scientific incubators or specialized scientific fields which put the kingdom way behind in terms of uploaded variety and quality

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information on the internet. Such delay does not facilitate the submission of novel ideas not only among scholars and academicians but in the community in general. This factor represents an obstacle towards the dissemination of specialized scientific reading culture that will remain until digitization of local knowledge and the design of computer applications capable of participating in the different communication web panels such as social networking sites.Finally, we address the side of scientific publishing triangle, which is the product itself, indicates. The Ten Lessons for the Future book in its first lesson in which it describes pure the knowledge has no benefit in the future unless it is transferred to an active product or a real or fact that is relevant to our reality. Accordingly, whatever the quantity and quality of scientific publishing, it always needs to translate into a realistic process or convert into a product or service, designed to serve humanity for the good of all mankind.

Offices of Student Services and Violation of Copyrights and Scientific Research

There are more than one million students – of all ages - at the secondary and university levels studying in a variety of educational institutions across the kingdom. Traditional education system usually relies on memorization, which implies the absence of the principle of thinking, description, analysis and comparison in addition to other methodological mental skills, used to stimulate such human skills of deduction, inference and knowledge. This disruption to the methodologies of thinking causes reluctance among students to reading. It also disrupts all talent-related properties in the human mind causing negative reactions at the level of educational productive attainment and beyond the information in knowledge analysis the distinction between opinion and fact. Systematic thinking, scientific research methodology, elicitation and creative thinking, critical thinking and reasoning skills, expression of ideas, forms, colors, and numbers, are not taught in the initial stages of schooling. Therefore, these learning values that ensure the development of knowledge, the spirit of research, the development of students' creative thinking and their ability to survey using critical thinking are absent from the learning process.

Moreover, high school teachers and university professors request from their students, as part of their academic activities, a number of methodology exercises such as summarizing small size books and articles, analyzing articles in the field of pure science or humanities and developing deductions from some literature, rather than assigning them to conduct research that may be required periodically, especially at the end the year. In this case, the student finds himself in front of multiple barriers. He will have difficulties in setting goals, in facing some research dilemmas, in finding ways of knowledge formation, in reading mechanisms, in finding conclusion. All of these methodologies can build a distinctive generation of outstanding students if given in a simplified and graded way. The formulation of questions such as : What, why, how, when, where, what if, what is the impact, and to what extent, and the transition from the simple question to complex ones makes the student deepens his vision of the information across multi-dimensional frameworks . Thus, when critical thinking is used the student acquires knowledge of intricacies of any subject. when a student finds himself in front of these barriers, and because of the lack of attention to the spirit of scientific research since early grades, a number of students will be going to the Student Services Centers, which - unfortunately will perform such action on their behalf, ignoring all scientific honesty norms, intellectual property rights, and other ethics, not to mention

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their contribution to the decay of the culture of research and thinking skills. In addition, those offices may retain any research or translated works, to resell them to another client. This practice transforms the process of student knowledge and learning skills acquisition into a simple process of sell and buy. This has an impact to encourage students' laziness to make an effort that could help them insure a better academic future.On the one hand, we do not deny the importance of the existence of such centers. However, to what extent author systems and control regulators represented by the Ministry of Culture and Information and intellectual property systems can control these centers? What is the role of educational institutions and the Ministry of Education and Ministry of Higher Education in an attempt to control the intellectual and scientific thefts? Such illegal practices are strikingly spreading like a wildfire, especially with the availability of the Internet and the easy access to information, in addition to the absence of an electronic program to disclose the scientific thefts from the Internet.

Also, to what extent are teachers and academicians aware of this issue? How can they embed the fundamentals of honest research methodologies in their teaching? Can they proceed with a gradual transfer of these fundamentals across all grades? Such transfer will create a generation of students more capable of understanding the tools of knowledge and the use all intellectual skills that God gave us. The Almighty said "Do they not consider the Qur'an (with care)" : Will they not then understand?, Is there someone who can consider? Someone who can understand? http://www.mohe.gov.sa/ar/Pages/Budget.aspx

Intellectual Property Rights – IP Theft Detector

Let us start by giving the definition of those rights and I quote – for the sake of copyright protection - from the site of the World Intellectual Property " WIPO " as follows:

"Intellectual property (IP) refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce and industry. There are six main IP categories:

***Patent**: A patent is an exclusive right granted for an invention, which is a product or a process that provides a new way of doing something, or offers a new technical solution to a problem. A patent provides protection for the invention to the owner of the patent for a limited period, generally 20 years.*

***Trademark**: A trademark or brand-name is a distinctive sign which identifies certain goods or services as those produced or provided by a specific person or enterprise. The period of protection for a trademark varies, but can generally be renewed indefinitely.*

***Industrial Design**: An industrial design - or simply a design - is the ornamental or aesthetic aspect of an article produced by industry or handicraft; registration and renewals provide protection for, in most cases, up to 15 years.*

***Copyright and Related Rights**: Copyright is a legal term describing rights given to creators for their literary and artistic works (including computer software). Related rights are granted to performing artists, producers of sound recordings and broadcasting organizations in their radio and television programs.*

***Geographical Indication:** A geographical indication is a sign used on goods that have a specific geographical origin and often possess qualities or a reputation that are due to that place of*

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origin. (For a more thorough description of each of these elements of intellectual property see http://www.wipo.int/about-ip/en/ and relevant WIPO leaflets)
Trade Secrets/Undisclosed Information *is protected information which is not generally known among, or readily accessible to, persons that normally deal with the kind of information in question, has commercial value because it is secret, and has been subject to reasonable steps to keep it secret by the person lawfully in control of the information."*

We have pointed out in previous threads about specialized scientific journals and virtual desktop for students, as well as an article talking about critical thinking and methodology. In addition to that, it is important to talk about intellectual property, for its relation to outstanding students' rights of and their specialized intellectual and scientific outcomes. There is, therefore, a paramount importance for the protection of that production by the standards and systems within the university related to the scientific theft after students have learned methodologies to prepare research and scientific papers, how to summarize, how to imply and deduce and other techniques and teaching methods useful for any specialty.These students should be motivated as well as envisioned of the presence of mechanical activation of authenticity or "detection of electronic fraud " such as copying and pasting or theft of the content of existing research on the Internet. I refer here particularly to the second part of the thread title to "scientific theft detector " Anti plagiarism which is a program that searches the Internet, information networks and research papers memories to detect copying and stealing research and its range (ie, the percentage of copying) between 100 % of any process of normal copying and pasting, to below that which is a confluence of ideas . And I think the goal of such programs is not only to detect theft, but to stimulate the scientific authenticity of scientific writing . (Note that with respect to versions of these programs and with reference to the source from which the copy and paste content was taken is not considered a theft of a scientific process, but an acceptable academic and research methodology) .

Management Strategy to Bridge the Scientific Gap

At this point, we can say that the administration of a strategy for scientific publishing is a responsibility that should be treated in an orderly fashion. Such treatment should include plans for each of its elements, its parameters, and internal dimensions. For example providing internal remunerative incentives, such as bonuses and suitable scientific environment, and external incentives such as intellectual property rights and cooperation, twinning programs and visiting researchers can have positive results. This will help overcome all obstacles to innovation creativity and knowledge, away from any bureaucracy that may hinder the researcher and his work towards the development of incubators by expanding them continuously taking advantage of the Internet era and globalization. There are also various initiatives that can be adhered to, such as the initiative of open access, which aims at spreading access to specialized scientific content in the Arab World. Such incubators should not be limited to those working in universities as is the case for the digital library, but should be open to all in order to provide specialized information for all in parallel with educating the community on issues related to intellectual property rights. There is no doubt that the use of technology through Electronic Scientific Journals and encouraging the use of electronic specialized scientific content will help reduce that scientific gap. Internet statistics indicate that the Arabic language, content wise, is the most growing language in the World Wide Web. This

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indicator lets us wonder which content do we want on the pages of the Internet and how can all research institutions, publishing houses and research centers unite in order to set a national and even cross- countries target that is to gather all Arabic language research and make it available to all those who speak Arabic, and this in itself is a new benefit for the Arab nation in general and to the kingdom of Saudi Arabia for pioneering and developmental purposes in this field. It is obvious that changing behavior and reconsidering how to assess and introduce traditional research works, theses, and specialized publications, with the use of Internet and specialized websites as an integral part of the "Electronic Open Pad " will lead to the deployment of a large volume of specialized content.We believe that this future quantum in the Arabic language will take time until it is filtered and purified from the original content. Since that content that has been moved or re-used in other areas is difficult to monitor, this dilemma poses a real problem in the issue of intellectual property. Indeed, it requires the presence of Arabic special techniques to track and monitor the originality of the information on the Internet that will work as a tool to increase the authenticity of the content. There is no doubt also that the translation and the different language initiatives will play a key role in bridging the scientific gap from a different destination. Translations will contribute in the rapid development and the standard of the content of the intellectual, technical and methodological information process.

On the other hand, such development will lead to the role expected of language academies or scholars of Arabic in the formulation of the new Arabic Language scientific terminologies and thus to the development of the Arabic language itself. Especially that Arabic language is very rich in terms of various fields of science and perhaps this will lead to a national plan for the establishment of dictionaries specialized in various fields. These references can be made available to the public on the Internet in real time so we can get the information to everyone who has Internet connection in the Arab world and beyond.

Values are an Essential Drive for the Cultural and Scientific Development

Finally, no doubt that the values of the Islamic world a play a big role in the advancement and knowledge as Al Manjra (2008,188) says " *all things are driven by values, and I did not view values as something reactionary, not the values of the Middle Ages, but the real values that move themselves forward and develop moral character. He also added that the importance of values and their value in his book " value of values* ", where he says : *"The technical innovation and creativity, depend on scientific research and invention and creation, and the question of the jurisdiction fall under the domain of values (not the psychological domain), which is : How many beneficiaries of these innovations are there on the globe ? The answer to this question can only be found through the social renewal and dynamic reset of the human values which occurred more than once during the great transformations of the human history"*. In conclusion, the access to scientific product in all its forms and its transformation into a tangible real benefit that achieves national goals and serve the local development, works towards the spread of science and knowledge culture in order to improve the country and the nation . http://www.mohe.gov.sa/ar/Pages/Budget.aspx

There is no doubt as well that we are facing many bilateral problems, which must be taken into account as a future for our access to the era of the knowledge society. As a result of scientific

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research, we should always reflect on the issue of modernity and values , identity and globalization, freedom and holiness. These paired concepts will provide many opportunities for future dialogue provided that the scientific method which discusses all of these issues, enables us to look with a critical view to globalization problematic issues and shows us how to start a reformist intellectual and scientific project to lead community to development and prosperity .
The scientific progress now becomes one of the key pillars in the of international relations field. And those countries that maintain their scientific and technical superiority will hold their international status putting their individuals in advance position provided keeping in mind the bird two wings: the scientific and technical development on one side and the critical view for the renewal of the value system on the other. The collective mind resulting from a range of scientific research and breakthroughs and from the existence of a specialized system designed to promote human well-being and dignity and ability will not be realized unless it actually deepens and expand the use of the capabilities of the human mind and knowledge of the laws of nature and society.

Companies' Social Responsibility and Scientific Research

Companies play a pivotal and multi-dimensional role in the national economy. In other words the pluralism in companies structure and activities such as recruitment, service or a commodity provision, financial gains, competitiveness increase in the market across the kingdom all of these play a vital role in the development of the society and the individual. There are more than 800 000 commercial establishments in different patterns and sizes, in Saudi Arabia that contribute not only in achieve gains for their owners, but working within the system of the national economy overall movement in the kingdom. http://www.mohe.gov.sa/ar/Pages/Budget.aspx
We move on to the other dimension, which I'd like to talk about that resides in the responsibility of those companies and institutions for scientific research. You cannot isolate the comprehensive homeland development from the private sector and make it the responsibility of the public sector only. However, we want to point out that each individual, businessman, civil society organization, has a role as a key partner that should be activated within the legal, institutional and cadres " incubators "frameworks, , where all those companies' sources are employed to support scientific research.

By virtue of the differences in nature of the companies in terms of activity and size, we will try to use some examples. If we take as an example a medium size company that provides a specific service, it could for example allocate a five thousand riyal prize for the development of a work line strategy that commensurate with the nature of what kind of services it offers taking into account its geographical location and the size of its resources. IT might occur to some people that this amount is not of a big value, but if we know that there are more than twenty thousand medium- and small size companies of this kind, this trend will encourage researchers and economists, particularly graduate students to apply what they have learned of modern management methods and means, to support and develop that organization, establishing a relationship between theory and practice.

The second example is for big companies to support research chairs or the involvement of a number of companies in financing Research chairs in engineering (for industrial companies) by submitting

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the dilemmas those companies are facing to researchers who will in return conduct research for the benefit of those companies that funded the research centers. This action can put in a legal framework to preserve the intellectual property rights and encourage competitiveness and scientific research at the same time..Also another example of fragrance companies and pharmaceutical and cosmetic products, who can sponsor awards and research for patents in collaboration with the King Abdul-Aziz City for Science and Technology, for the extraction of natural materials from the Kingdom rich environment and undertake experiments on them to be conducted in those companies' labs. This also is a perfect example of the importance of the companies' societal responsibility interaction with the local environment.

Some of the big companies tried to support scientific research despite the modest presence " geographically " of King Abdul-Aziz City for Science and Technology, and the absence of its own incubators marketing in addition to the poor spread of the culture of scientific research and scientific experiments at the decentralized level. However, we do not believe that the applied scientific research support be limited to government institutions, but must also involve the private sector to accelerate the movement of development and planning.Statistics indicated that the investment rate of one dollar in scientific research and education returns a yield of 6 to $ 8. Therefore, if these initiatives are put within an official framework, especially by the Chamber of Commerce and promoted by companies commensurate with their financial status and size, taking into account their needs and the needs of the community, those companies will be able not only to earn substantial gains, but will enhance their image among the community which stimulates loyalty among consumers or shareholders. The connectivity triangle and networking between companies, chambers of commerce and industry, the Ministry of Higher Education, and the King Abdul-Aziz City for Science and Technology will be very important at the strategic and tactical level for the support of scientific research and through which it will contribute to the nation's march in support of the transition to the knowledge economy.

Towards decentralized investment in knowledge and research centers, with an environmental geographical perspective.

1. Malik bin Nabi says, *"The effectiveness of a certain or a piece of knowledge can be linked to some occurring special social, economic and psychological conditions if favorable to its fermentation, proliferation and influence".* http://www.alriyadh.com/2005/12/07/article113377.html

We move on to the other dimension, which I'd like to talk about that resides in the responsibility of those companies and institutions for scientific research. You cannot isolate the comprehensive homeland development from the private sector and make it the responsibility of the public sector only. However, we want to point out that each individual, businessman, civil society organization, has a role as a key partner that should be activated within the legal, institutional and cadre " incubators "frameworks, , where all those companies' resources are employed to support scientific research. Then comes the creation of the so-called pyramid of Petroleum knowledge by turning to the knowledge society and economy: data - information - knowledge - wisdom .
Hence, we can talk about petroleum companies social responsibility by generating a knowledge wealth in the community with a sustainable value-added covering the entire actual geographical

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area and with the presence of a virtual informatics specifically related to the generated knowledge from the information. Such responsibility should be leaning toward wisdom and individual service in multi-dimensional, not only having a main objective of achieving the revenue but how can such revenues be transformed from a single value to multiple values for the dimensions of knowledge in the society such as economic, social, and moral values. Therefore, the achievement of petroleum annual budget surpluses makes us ask an important question in this regard: What did those oil approved budget surpluses add in terms of knowledge value -added? Have those knowledge value-added been transformed from an improved value to a creative value?

A Reading in National Strategies Related to Scientific Research

In this section, we will review three strategies flowing into the river of knowledge and science and becoming the destination of the thriving for knowledge society in Saudi Arabia. It is King Abdullah Project for the Development of Education, strategy and plan to support the talent and creativity.

King Abdullah Project for the Development of Education

Despite the fact that scientific research could target graduate studies, the educational system should start from early stages of education. This early educational focus will provide students with research and investigation skills, critical and creative thinking, which in turn will stimulate those minds about their desire to develop community intellectually and scientifically. From noble goal comes the importance to shed some light on the national strategy for the development of education - a tributary of King Abdullah project for the development of public education.King Abdullah bin Abdul-Aziz project bears the responsibility to contribute effectively in achieving the vision of the Custodian of the Two Holy Mosques King Abdullah bin Abdul-Aziz and to implement it into a practical reality. Development efforts led by himself require an outstanding education through which Saudi students will acquire values, knowledge, skills and attitudes that qualify them for the twentieth- century. The develop project seeks, through its programs, to equip students with skills needed to contribute effectively in tackling development challenges in order to achieve added value and sustainable development in Saudi Arabia.

The project aims contributing effectively to the development by increasing the capacity of Saudi Arabia competitiveness, and in building a knowledge society through a variety of programs, including:

a. Building an integrated system of educational standards, calendar and accounting .
b. Head of the implementation of the programs for the development of education, including:
1. Providing continuous professional development for all those working in education
2. Development of curricula and learning materials.
3. Improving school environment to enhance learning.
4. Using information technology to improve learning.
5. Providing non- classroom activities and student services.

We then proceed to the national strategy which is another strategy and plan for the promotion of talent, creativity and innovation support.

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Strategy and plan for the Promotion of Talent, Creativity and Innovation Support.
This strategy is affiliated to King Abdul-Aziz and His Men Establishment for Talent and Creativity. It is a plan targeting partnership with different educational institutions – schools in particular by undertaking a number of initiatives within a phase-based framework. Mawhiba prepared a strategy for the promotion of talent, creativity and innovation support structured in three main phases:

Phase I: building of the detailed vision which lasted nine weeks.
Phase II: Strategy unification and fusion which lasted four weeks
Phase III: Executive strategy and plan which lasted ten weeks.
The executive plan spreads over five-year tenure and a two-year for detailed program agenda. More than 100 individuals were interviewed. More than 90 documents have been reviewed. Activities of more than 90 institutions involved in the promotion of talent, creativity and innovation have been assessed in 20 countries focusing on 20 institutions in 6 countries. More than 20 public and private sectors' institutions have been visited in Asia and Europe. More than 10 workshops have held in addition to the plan assessment by local and international experts.

The Plan's five initiatives include:
1. Partnership with Outstanding Schools Initiative
2. Enrichment Programs and Activities Mawhiba Initiative
3. Young Leadership Initiative
4. Creative Work Environment Initiative
5. Awareness and Awareness Raising Initiative .

A question remains to be answered about the geographical extent of these initiatives in covering remote cities and in providing necessary lab equipment for schools in those isolated areas of the kingdom. This geographical sporadic remoteness represents a serious future challenge that needs careful planning so that equality in opportunity among students can be achieved. Results of these strategies in the form of research papers have been issued .

A Reading in the National Strategy for the Transfer to a Knowledge Society
The Custodian of the Two Holy Mosques directed concerned officials to establish a national strategy for the transfer into a knowledge society on 2/1/1433 H supported by executive programs and plans. The Ministry of Economy and Planning aided by experts and local agencies undertook the preparation of this strategy that adopted the following vision:"By the year 2030 the kingdom will become a knowledge society with a prospering knowledge – based multi- source and potential economy led by productive human capacities and the private sector, providing a high standard of living and a dignified quality of life, occupying a prominent position as a leading country on both regional and international levels **.**The majority of the world countries witnessed lately a sound social and economic transfer towards what is called knowledge society as this society generates knowledge, disseminates it and invests it to improve the life standard and the quality of life for its

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citizens in a sustainable manner[2]. This strategy reviewed four measurable goals and around 183new developmental policies that tried to bridge the knowledge gap through the pattern of exponential growth in the acquisition of knowledge and through cross-combining human and physical capitals.

The strategy adopts a surveying approach to find the core issues, to solve problems through evaluating the current situation in the Kingdom, to reevaluate the challenges faced in the field of transformation to a knowledge society and to analyze the strengths, weaknesses, opportunities and challenges by building on existing formally adopted strategies, policies and plans and cross coordination among them. With the objective of accessing a diversified and prospering economy led by the private sector with the preservation of Islamic values and cultural heritage. The strategy reviewed a number of policies aiming at developing education, technology, communication and architecture in a manner that helps towards the complementarities of the knowledge society transfer system. However, some of those policies did not take into account demographic transformations represented by an increase in the population that should always be monitored carefully.

The strategy was divided into three main phases:

1. From 2012 to 2014 activation of current strategy policies aiming at building knowledge capacities. It includes the formulation executive plans, financing, agenda and the application specifications insuring its success.
2. From 2015 to 2025 accelerating the change process and undertaking major structural reforms. It includes the dissemination and consolidation of the process of change through major structural reforms geared mainly towards enhancing the efficiency of the whole economic system.
3. From 2026 to 2030 Enhancing the transformation process: the completion of the conversion process and the readiness to *engage in a* more open strategic plans.

The strategy has been to focusing on the aspects of totalitarianism to push and promote the development of information and technology on one hand and the adoption of budgets so as to establish the Saudi Center for Research Development as well as the creation of indicators of social development which enhance a better reading of the present situation and the future. There is no doubt that this national strategy will play an important role in the structure of society, especially as it had to focus on the operational and application aspects of these strategies in a way to facilitate their reading digitally. This directive of the Custodian of the Two Holy Mosques in the adoption of such a strategy will enhance the social and economic sustainability factor and will enhance security through the transition to a literate society that employs all its potentials in communication and technology to reach its goals and attain its objectives.

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RECOMMENDATIONS

1. Adoption of a national executive strategy concerned with scientific research and supported by executive numbers and indicators.
2. Finding the legal and legislative framework for establishing non-governmental research centers.
3. Work towards the conception of a computer program to enhance research authenticity and to detect scientific thefts.
4. Adoption of the yearly research national agenda that should concentrate on the energy – water – food triangle along with remaining scientific priorities.
5. Adoption of the national translation agenda which concerned with translating the most relevant books of all knowledge fields in all languages.
6. Linking strategies that have been formulated with future methodologies that comply with DEGEST method changes.
7. Creating a scientific research unit at the Ministry of Higher Education
8. Facilitating measures for the acquisition of licenses to establish commercial companies specialized in science and knowledge.
9. Supporting intellectual and copy rights and organizing seminars in Government Universities dealing with patents and author rights in plants species and with all intellectual ownership related subjects.

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