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Identifying the Obstacles in Iran's Strategic Program of Ministry of Sciences, Researches and Technology: Goals of the 2026 vision Agenda

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Abstract

The current study aimed at identifying the obstacles in front of Iran's strategic program of Ministry of Sciences, Researches and Technology according to the goals of the 2026 vision agenda. Statistical population was management professors of governmental universities of Tehran with total of 195 professors, of which a sample of 110 professors were chosen by means of Cochran formula in 2010-2011 academic year. The method used was descriptive survey. Quadruple dimensions Likret questionnaire which was prepared by Delphi technique was used for collecting information. Techniques of descriptive and analytical statistics were used to analyze findings. The test for hypotheses examination is nonparametric goodness evaluation test. Results of findings show that: successive changes of high-ranking managers, ignorance of quality promotion of human resources in accomplishment of strategic program, structural centralization in universities and lack of risk-taking institutes to commercialize the technology is seen as major obstacle in front of fulfillment of the 1404 vision agenda goals. Also samples were analyzed by Kruskal Wallis formula and results shows that there is no significant relation between scientific level, ages, and background of professors.

Key words: Strategic program, vision, decentralization, commercialization.

Introduction

We can consider the strategic management process as a process of special decision making or a solution. Then with a general outlook, strategic management has three stages of planning, execution and evaluation (Alireza , 2009),

The main principal of strategic management is that organizations should make strategies to enjoy outer opportunities and prevent or decrease the effects of outer threats, and also explore the inner weakness and strength points (David, 2006).

In Nagel's point of view strategic planning is a systematic method that supports strategic management. Strategic planning includes all efforts that results in determining the goals and suitable strategy to reach to that goals for an organization (Maria, 2008).

Considering the votes of Olsen and Eadi, strategic planning could be mentioned as an organized effort to make decisions and setting fundamental actions and by means of it, it would be clear what an organization is and what it does and why it does such things. So all of organizations not only aim to determine a strategic plan, also necessary basis for fulfillment of that plan.

This study aims to determine necessary basis for fulfillment of 2026 vision agenda by identifying the obstacles in front of execution of strategic plan of Ministry of Sciences, Researches and Technology.

Study hypotheses are:

- Successive changes of high-ranking managers have a negative effect on fulfillment of strategic program of Ministry of Sciences, Researches and Technology.
- Ignorance of quality promotion of human resources in execution of Strategic program of Ministry of Sciences, Researches and Technology.
- Structural centralization in universities is one of the obstacles of fulfillment of strategic program of Ministry of Sciences, Researches and Technology.
- Lack of risk-taking institutes to commercialize the technology is seen as an obstacle in front of fulfillment of strategic program of Ministry of Sciences, Researches and Technology.

Literature review and Backgrounds of Study

Situation of governmental organizations and their function to improve the social wealth of people is so important that there should be paid so much attention to their management. Then today's condition that has no similarity with last years'

condition, makes governmental organization to consider a new thinking and effort, and at this new thinking and effort, strategic planning has the highest priority (Bryson, 2008).

The importance of the strategic management is because of a structure for improving the ability to forecast and conform to changes (Arnold, 2005), Strategic planning makes organization to be able to work with a creative method and not to be passive to make its future; to make its fate and control its future (David, 2006). Being supported with a dynamic, forecasting, society considering and necessary mentality, strategic management is a solution for most of problems of today organizations. Also studies show that performance of the organizations which have strategic management is higher than other organizations (Hanker, & Tomas 2008).

Importance of strategic planning beside critical function of education in every country shows the necessity of strategic planning in every educational system. In evolution process and achieving to educational strategic planning if organization encounters with inner and outer environments and makes main changes so it faces important questions to execute its strategic program. These obstacles may appear at every stage of strategic program. If these obstacles and challenges have been solved successfully, probably the strategic program will be executed successfully (Maria, 2008).

Bin and Campni (2005) believe that studies around world show that practical planning and management is the most favorite able management tool at world (Ali , 2007), Nowadays also educational institutes use concept and methods of strategic management[2]. Also Kukalis (1991) believes that system designing of strategic planning at university studies has got a progressive attention and all universities set to develop practical plans (David, 2006). At these programs inner weaknesses and outer threats are mentioned as obstacles of fulfillment of strategic goals. Strategic plan and SWOT analysis of California state university: this plan is determined by committee members of strategic goals and determination of university priorities by means of mind storm (2004) and cooperation of managers and students is as below:

Strengths: fame of university, positive experience with whom it cooperate with university, positive cooperation of university learning and previous performances of universities.

Weaknesses: bureaucracy structure, financial vogues, very much works and imbalance of professors with students.

Opportunities: cooperation to support university inventions, willing toward university services, technology improvement and increase of willing toward making new inventions.

Threats: financials crisis, nongovernmental universities, development of other universities at zoon (California state university).

SWOT analysis of Iowa state university (2006-2010): Iowa state university firstly provided a list of internal strengths and weaknesses, opportunities and external threat by determining 4 committees and then categorizing them by another committee as below:

Strengths: high work behavior and quality consideration and positive attitude and ready to obtain opportunities, having famous professors, having a well-known plan at country and international level.

Weaknesses: lack of public united idea to devote lands to university, lack of ability to compete to absorb and keep professors and students, lack of a clear and long-term financial plan.

Opportunities: development of efficiency of university marketing, empowerment of internal and external cooperation, more opportunities for research units.

Threats: decrease of state resources, decrease of financial support from students and inability to absorb top professors (Iowa state university of science and technology, 2010).

Also in Iran considering the importance of strategic plan and management to achieve predetermined goals of 2026 vision that one of them is to be at first rank of science at geographic zoon, Ministry of Sciences, Researches and Technology and also universities set to offer a strategic plan.

Strategic plan of Tehran University: the model applied at this plan is extracted from SWOT model. Considering the time sequence, this model is the last that is applied at compilation of strategic plan and is mentioned as the most clear and complete model (Forozandeh, 2009),

Comprehensive or strategic plan (of 20 years) of Tehran University in fact includes 4 plans of 5 years. Strategic principles of first plan of 5 years (2006-2011) are: infrastructures correction, physical development, achieve to a standard for

scientific committee, complementary education period improvement, post-doctoral period improvement, research quality and quantity improvement, support and preservation of elites, increase of scientific productions and connection with international scientific and university centers and industries.

In a study named role of industry of consult to activate university and industry connection done by Maryam Khaleghi as her Ph.D. thesis at 2008, accelerating connection between university and industry is emphasized. In this study she said consult industry could mainly affect achieving the competitive benefit of corporations, benefit of industry and benefit of development (Khaleghi,1985).

A study named opportunity making of university and commercializing study results at Iran's universities, analyzes study results registration and copyright situation, licensing and study results ownership transfer, university related companies establishment and common studies and contracts with industry. Results show that common studies and contracts with industry have a stability situation and result in registration and copyright of study results (Fakour, 2009).

In a study project named basics of pathology of connection between industry and university, challenges of this connection are mentioned as below:

Education damages: thoughts weakness, human resource weakness, scientific structure weakness, science demand weakness, economical and industry structure weakness and technology dependency (TofighiDarian, 2007).

In a study project named education quality development process, members of scientific committee of governmental universities of Isfahan determined and compare education quality development situation at medical and non-medical science universities of Isfahan and finally stated that: management of education at universities to face with challenges and obstacles is necessary. It is needed that strategies and educational programs be compatible with needs and demands society and university and emphasize on quality aspects of education in spite of quantity aspects (TofighiDarian, 2007).

In a study named education quality evaluation of Payam-e-nour universities of East and West Azerbaijan from student sight, the necessary information obtained from 384 students by using ServQual model and finally showed average gap between expectation and comprehension of students from quality of education at mentioned centers (Zavvar, Behrangi, Asgarian, Naderi 2008).

Poursoleiman in his study says that: some special activities should be done in order to move study cycle from university toward industry. Beside the importance of commercialization he says: commercialization not only causes development of technology to increase wealth and added-value of industry, also causes development of education and technology at world regarding universities important role in this matter (Poursoleyman, 2005).

In a study named quantity and quality of science production at Iran's universities, analyzes scientific press of Iran's universities from 1997 to 2006. According to quantity and quality factors of science testing, situation analyzed at 3 groups of universities of ministry of science, universities of ministry of health and other universities and finally it showed that there is no important difference between these groups regarding quantity factors, on the other hand universities of ministry of science have better condition regarding quality factors of effective elements and percentage of documents (Ebrahimi, Saeideh, Zahra Hayati 2009).

In a study named external views about decentralization in education system in Fars province, it is mentioned that a decentralized educational system makes parents and others involved in education aspect to be able to cooperate in order to improve the education of youth (Diane, 2004).

In a study named unexpected results of higher education commercialization, researcher notes the bad results of paying too attention by universities to the market. Writer says: study of higher education systems and analyze of world's changes show tendency of university toward market. This results in to mentality which is obtained from market as it could be seen in commercial activities of universities. Results of this study are that cooperation of university and market cause threats to scientific freedom, educating-learning process, social rank of scientific method, and management of university style (Abbasi, Badri, Gholipour, & Nejha 2008).

In another study named given independency to the universities, opportunity or threat, financial, structural systematic and employment conditions of universities were analyzed. Besides analyzing the strength and weakness of giving independency to the universities, this study shows that correct use of current situations and lows is effective to determine giving independency is useful (Babakhani & Jafar, 2009).

In other study named analyzing functions of board of trustees and their role in independency of governmental universities which are dependent to ministry of Sciences, Researches and Technology are as below:

- Rate of universities independency is evaluated to be acceptable.
- Goodness of board of trustees is evaluated to be acceptable [20].

Method

The current study is an descriptive- survey study and regarding its goal is an applied study. Statistical population includes professors of management fields of governmental universities of Tehran at 2010-2011 which are 195 professors. Samples determined by Cochran formula were 129 professors, so 135 questionnaires were provided. After gathering and deletion of unqualified questionnaires finally 110 questionnaires were analyzed. In order to gather information, a questionnaire of 29 questions with Likret four scales is used. Questions of this questionnaire were provided in several stages and by means of Delphi technique and experts' idea. To do so, some effective factors of study hypothesis were identified and sent to experts. This process done in a 3 stages and finally expected questionnaire provided. Content validity of this questionnaire was provided by professors and experts of the field and experts of educational organizations. The reliability of the questionnaire was calculated by Cronbach's alpha factor and it was 0.84 for this study.

Inferential Findings

Hypothesis 1: professors believe that the continuous change of high ranking managers has a negative effect on fulfillment of strategic plans of ministry of Sciences, Researches and Technology.

To analyze above mentioned hypothesis chi-square nonparametric test is used for frequencies.

Table of goodness of fit test for subscale of continuous change of managers

scale	Observed frequency	Expected frequency	Remain
Strongly agree	176	192.3	-16.3
Agree	261	192.3	68.8
Strongly disagree	254	192.3	61.8
Disagree	78	192.3	-114.3
Total	769		

$P < 0.001$ $df = 3$ $\chi^2 = 113 \cdot 689$

Findings show that hypothesis of study is proved, so we could say that from professors' point of view the change of high ranking managers has a negative effect on fulfillment of strategic plans of ministry of Sciences, Researches and Technology.

Hypothesis 2: professors believe that in execution of the strategic plan there is no attention paid to human resource quality improvement.

To analyze above mentioned hypothesis the chi- square nonparametric test is used for frequencies.

Table of goodness of fit test for subscale of human resource quality development

scale	Observed frequency	Expected frequency	Remain
Strongly agree	199	192.3	6.8
Agree	271	192.3	78.8
Strongly disagree	186	192.3	-6.3
Disagree	113	192.3	-79.3
Total	769		

$P<0.001$ $df=3$ $\chi^2=65\cdot367$

Findings show that hypothesis of study is proved, so we could say that from professors' point of view in execution of the strategic plan there is no attention paid to human resource quality improvement.

Hypothesis 3: professors believe that structural centralization at universities is an obstacle to fulfillment of strategic plan.

To analyze above mentioned hypothesis chi- square nonparametric test is used for frequencies.

Table of goodness of fit test for subscale of structural centralization at universities

scale	Observed frequency	Expected frequency	Remain
Strongly agree	216	218.8	-2.8
Agree	355	218.8	136.3
Strongly disagree	229	218.8	10.3
Disagree	75	218.8	-143.8
Total	875		

$P<0.001$ $df=3$ $\chi^2=179\cdot843$

Findings show that hypothesis of study is proved, so we could say that from professors' point of view structural centralization at universities is an obstacle to fulfillment of strategic plan.

Hypothesis 4: professors believe that lack of risk-taking organizations to commercialize the technology is an obstacle to fulfillment of strategic plan. To analyze above mentioned hypothesis chi- square nonparametric test is used for frequencies.

Table of goodness of fit test for subscale of lack of risk-taking organizations to commercialize

scale	Observed frequency	Expected frequency	Remain
Strongly agree	193	193.3	.8
Agree	361	193.3	168.8
Strongly disagree	151	193.3	-41.3
Disagree	64	193.3	-128.3
Total	769		

$P < 0.001$ $df = 3$ $\chi^2 = 242 \cdot 532$

Findings show that hypothesis of study is proved, so we could say that from professors' point of view lack of risk-taking organizations to commercialize the technology is an obstacle to fulfillment of strategic plan.

Side (other) Findings

Side findings which are obtained from analyzing the samples are as below:

strategic plan, results are: Kroscal Valis test is used to analyze, because data is of a rating kind and parametric method can't be used and nonparametric equivalents should be used. According to professors' idea with different scientific rank about obstacles of strategic plan, results are reported in below table:

Table of Kroscal Valis test for professors' ideas with different scientific rank about four obstacles of strategic plan

Index	Scientific rank	Quantity	Average rating	Freedom degree	Significant level	Chi-Square
Continuous change of high ranking managers	Professor	4	47.50			
	Associate professor	23	64.72			
	Assistant professor	67	53.95			
	Instructor	16	50.75			
	Total	110		3	0.298	3.685
Human resource quality development	Professor	4	49.38			
	Associate professor	23	61.15			
	Assistant professor	67	52.59			
	Instructor	16	61.09			
	Total	110		3	0.565	2.038
Structural centralization at universities	Professor	4	79.63			
	Associate professor	23	58.91			
	Assistant professor	67	53.84			
	Instructor	16	51.50			
	Total	110		3	0.362	3.197
Lack of risk-taking organizations	Professor	4	59.50			
	Associate professor	23	54.87			
	Assistant professor	67	52.85			
	Instructor	16	55.97			
	Total	110		3	0.957	.3140

$P \geq .05$

Findings show that ideas of different group of professors with different scientific rank about obstacles of strategic plan aren't different. So it results in that there is no important difference between professors' idea with different scientific rank about obstacles of strategic plan.

B: regarding meaningful relation between professors' experiences and obstacles of strategic plan, results are:

Table of Kroscal Valis test for professors' ideas with different experiences about four obstacles of strategic plan

Index	Experience	Quantity	Average rating	Freedom degree	Significant level	Chi-Square
Continuous change of high ranking managers	5 years and less	20	64.05			
	6 to 10 years	29	54.98			
	11 to 15 years	30	51.47			
	16 to 20 years	15	58.23			
	21 years and more	16	50.75			
	Total	110		4	0.512	3.279
Human resource quality development	5 years and less	20	61.70			
	6 to 10 years	29	58.81			
	11 to 15 years	30	43.92			
	16 to 20 years	15	58.03			
	21 years and more	16	61.09			
	Total	110		4	0.202	5.956
Structural centralization at universities	5 years and less	20	70.58			
	6 to 10 years	29	57.41			
	11 to 15 years	30	47.98			
	16 to 20 years	15	51.00			
	21 years and more	16	51.50			
	Total	110		4	0.122	7.272
Lack of risk-taking organizations	5 years and less	20	58.68			
	6 to 10 years	29	54.07			
	11 to 15 years	30	48.68			
	16 to 20 years	15	55.47			
	21 years and more	16	55.97			
	Total	110		4	0.834	1.458

$P \geq .05$

Findings show that ideas of different group of professors with different experiences about obstacles of strategic plan aren't different. So it results in that there is no important difference between professors' idea with different experiences about obstacles of strategic plan.

C: regarding meaningful relation between professors with different ages and obstacles of strategic plan, results are:

Kroscal Valis test is used to analyze, because data is of a rating kind and parametric method can't be used and nonparametric equivalents should be used. According to professors' idea with different ages about obstacles of strategic plan, results are reported in below table:

Table of Kroscal Valis test for professors' ideas with different ages about four obstacles of strategic plan

Index	Age	Quantity	Average rating	Freedom degree	Significant level	Chi-Square
Continuous change of high ranking managers	30 to 40 years old	13	54.50			
	41 to 50 years old	52	58.65			
	51 to 60 years old	33	50.68			
	61 years old and more	12	56.17			
	Total	110		3	0.625	1.756
Human resource quality development	30 to 40 years old	13	55.19			
	41 to 50 years old	52	56.74			
	51 to 60 years old	33	52.32			
	61 years old and more	12	59.21			
	Total	110		3	0.895	0.605
Structural centralization at universities	30 to 40 years old	13	69.27			
	41 to 50 years old	52	54.64			
	51 to 60 years old	33	56.29			
	61 years old and more	12	42.13			
	Total	110		3	0.178	4.917
Lack of risk-taking organizations	30 to 40 years old	13	62.19			
	41 to 50 years old	52	50.29			
	51 to 60 years old	33	58.52			
	61 years old and more	12	49.21			
	Total	110		3	0.435	2.731

$P \geq .05$

Findings show that ideas of different group of professors with different ages about obstacles of strategic plan aren't different. So it results in that there is no important difference between professors' idea with different ages about obstacles of strategic plan.

Conclusion and Suggestions

Results of analyzing the hypotheses of study are as below:

According to the results of data analyzing it could be concluded that professors believe that the continuous change of high ranking managers has a negative effect on fulfillment of strategic plan. Regarding the managers change, there are two ideas. First idea is in order to inject new points of view, to use young ones, creativity, prevention of getting used to and repeated condition, high ranked managers should be replaced with new points of view after a period of activity. At second idea experts believe that change of managers causes stress and pressure to management and personnel, instability and job security, lack of attention to the fundamental and finally brings a gap in the way achieving to the goals. Regarding continuous change of high ranking managers causes problems to achieve to the predetermined goals and on the other hand necessity of entrance of new points of view and prevention of getting used to, Findings of this study make clear that there should be a suitable and scientific mechanism which clearly determines periodical evaluation of managers, their rate and percentage of deviation of the goals, correction of deviation or change of managers. A powerful mechanism without any interprets of personal ideas that by such a mechanism prevent baseless changes of managers and with best choices make the goals achievable. Compatibility of this matter with vast changes in universities of Iran, make the importance of stability of managers obvious and clear.

According to the findings of this study it could be said that to execute the strategic plan there is no attention paid to human resource quality development. Improvement of study compilations, educational facilities, ratio of professors' quantity to students' quantity, and update of education sources are factors that responders believe that have not suitable condition currently. Lack of suitable plan for international languages leaning is another factor that responders believe to decrease the human resource quality improvement. International languages have an important role in transferring technology from advanced countries to universities of our country and ignoring this matter causes problem to fulfill our long-term scientific plan. Lack of attention to work-life of professors and also lack of a plan to save and keep elites cause to decrease the human resource quality improvement. Although there are different ideas about factors affecting human resource quality, but experts have same idea about rate of study compilations, ratio of professors to students, updated educational sources and study capita, comparing the above mentioned factors at recent years and considering the previous periods, it shows a good improvement but it

should be noted that responders believe that this is not sufficient for being at first place in 2026.

Findings of analyzing the questionnaire show that positive role of decentralization of universities in the fulfillment of the strategic plan.

Appointed determination of presidents of universities in spite of selective determination, role of government in managing the universities, and lack of or passive role of broad of trustees of universities to manage them, Equality of study and educational plans throughout the country, lack of or no authority of universities to choose students, study fields and social and scientific plans are factors that responders emphasize on them. Some believe that universities with a central system are obstacles to localization of technology and unconformity of society needs with taught lessons and finally cause social, economical problems such as unemployment, loose of sources and fulfillment of predetermined goals. Then management professors of governmental universities of Tehran believe that to pay attention to decentralization of universities to achieve to the predetermined goals is a must.

About effect of lack of risk-taking organizations to commercialization the technology in fulfillment of strategy plan, it could be said that there are two different ideas. Some experts believe that university is a place to study science and transfer science to the students. Entrance of university to market and connection with industry damages scientific aspect of university and detours the university from its goal. In reverse, some experts emphasize that university should independently make money and make connection with industry. To avoid the gap between demands and needs of society and university educations, to solve industry problems and motivate to train efficient human resource are factors that make the connection between university and industry necessary.

There are some factors that decrease this connection and motivation to make connection. Financial supports of government make universities not to be motivated to absorb financial sources. Today rarely a study and industry contract is made by university and industry. Another thing that prevents this connection is lack of a law and execution assurance of this law about ownership copyright. Lack of this law prevents the industry to invest on study aspect of universities.

According to the findings of this study, it could be said that direct financial supports of government, prevent the universities to absorb personal and nongovernmental investigations for study projects. Unconformity of society needs and demands and also unconformity of university education with needs of labor

market, lack of a low to support ownership copyright of thoughts and weakness of execution assurance of law are other factors that disturb the fulfillment of the long-term educational plans. Lack of connective organizations between industry and university is also a factor that prevents correct commercialization of technology and achieving to the goals of strategic plan. Then management professors of governmental universities believe that to achieve to the predetermined goals of vision, connection of university and industry and also commercialization of technology should be simplified.

Findings of this study are in accordance with results of Darbeheshti (1997), Zavvar and et. Al (2008), Mowlavi, Hoveida (2008), Ebrahimi and et. Al (2009), Azargashb (2008), strategic plan of Tehran University (2009), Khaleghi (2008), Hosseini and et. Al (2007), Tofighi (2007), Darimi (2001), Poursoleiman (2005), Dayan (2005), Hans Peter (2005), higher education of Estonia (2006), Eagle (2008), Iowa state university (2005), California state university (2004), and Farrant (2002) but aren't in accordance with findings of Abbasi (2008), university of Illinois (2006) and Arnold (2005),Esham(2008). Also they aren't in accordance with that part of Babakhani findings (2005) that don't consider the university independency to be useful.

Applied Suggestions

It is suggested to provide a comprehensive plan to appointment and change of managers. Managers use long-term and strategic plans in order to prevent preferred and personal orders. Provide managers with least opportunity and not to replace the managers' efficiency with political changes and considerations.

In order to improve human resource quality, it is suggested:

- To provide the necessary bases for learning international languages as English language, in order to make professors and students be able to simply get updated scientific data and connect with well-known professors and universities of the world. It could be done with a comprehensive plan from high school to the end of B.A. /B.S. degree.
- To provide the necessary bases to absorb and employ the elites: in order to improve the life quality of elite human resources and prevent the brain drain, employing them at their professional fields and providing them with their life needs would result in scientific growth in long-term and would save currency.

- To make professors and students to publish study works in relation to their professional field.
- To use updated education sources and providing professors and students with their needs in order to access to updated sources.
- To provide acceptable facilities. This will result in that professors would have sufficient time to do researches.

In order to decentralize universities, it is suggested:

- To provide a strategic plan by university itself.
- To improve the role of board of trustees to manage university and also free choose of president and presidium of university by board of trustees.
- Increase of universities authorities to absorb and devote financial sources.
- Increase of universities authorities to provide study and educational plans and absorb and selection of students.
- To provide necessary bases to localize the technology and scientific lessons by means of increase of authorities of university to offer lessons in accordance with geographical, cultural and social conditions of the area.

Regarding lack of risk-taking organizations to commercialize the technology, it is suggested:

- Gradually to decrease financial dependency of universities to government by means of a comprehensive plan of 10 years and motivating the university and industry to make more connections.
- Carefully to analyze job needs in industry, society and labor market and train experts in accordance with society needs.
- To establish laws to support ownership copyright and needed necessities to execute the laws.
- To increase consultative and interpreter organizations and institutes to simplify the connection between industry and university.

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