

THE SURVEY BARRIERS OF INDIVIDUAL RESEARCH TO THE COMMERCIALIZING IDEAS IN RESEARCH CENTERS IN IRAN

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Abstract. Nowadays, "the commercialization of ideas and research results" due to lack of resources and increase competition in the market has been much attention. Due to this fact, in this study, the framework of the process of commercialization of ideas and research results in research centers with an emphasis on identifying obstacles and challenges in the process of commercialization and technology development, understand the needs of the market, is evaluated. The aforementioned model has been tried and all factors influencing marketing research products to be identified. In this study, such a process as a model and the process framework is presented.

Certainly login research institutes to business and marketing their products according to customers' requirements and criteria, at its core is the result of some opportunities and positive outcomes, Productivity consequences in the least self-help institutions and the idealistic expectations of living standards (safety and security), wealth creation and economic growth will follow. In this study, the relationship between individual factors related to the research impact in the commercialization of research results such centers, especially factors such as personality traits entrepreneurial researchers, Absence of marketing skills, expertise and knowledge in transforming the idea into a product, the hypothesis of this study be. This research is a descriptive survey, the mean and variance Friedman test hypotheses to investigate. As the results show that the relationship between the individual and commercializing technology research centers significant ideas.

Keywords: opinion formation, personality characteristics, product development, technology dissemination

1. INTRODUCTION

At last few years research industrial as advanced technology and growth have been identified. This subject has been the stage of the research phase of operation to move and find areas suitable for transfer to the commercial area is very important. Despite the rapid advancement of many technologies in the laboratory, including barriers to their commercialization of this technology is spreading research technology also is no exception. For a commercial project, the categories of different sciences and technology, legal, financial and economic are involved only with a centralized management and networking can these factors to properly engage. The other hand, commercialization of research ideas and technology market ring connection and its focus on the end value chain rings are. considering the impact of technology areas and stressed the country's national programs on it and technology Given that the new production of wealth, power and increasing social welfare, plays a key role therefor in creating so beds offer knowledge to, in addition to providing valuable substantial economic organizations, economic growth and technical community and ensuring the success and survival research institutes will be. Importance of this has led to many studies and researches about this topic in different institutions, research organizations as well be done without the commercialization of a product, no meaningful research. Because without a product to reach customers, production or testing, the idea seems to be useless.

We hope that this paper reviews the challenges and barriers on traders learn the idea of building technology and research results in Hove country's research center facilities, we can improve strategies for commercialization of products and ideas related to these technologies and other technologies new offer.

2. EXPRESSION PROBLEM.

Commercialization of research technology plays an important missing link in line with the development and production excellence and country wealth and income and economic problems are numerous. Considering these cases and awareness of this issue that research in the field of trade barriers documentary making research results to thoroughly research had been done to study the obstacles and challenges and problems facing commercialization results of research in research center facilities of organization research as possible identification and

analysis will be. And proposed solutions for improving operational processes provide commercialization. and could be concluded that according to the national mean for brokers, managers of research centers in our country that it still is newly industrial research and its future prospects and the bright hope of a bright future gives is essential, the other hand are possible income from sale of research services a step toward greater self-sufficiency and sustainability of harvesting organization.

3. IMPORTANCE OF COMMERCIALIZATION OF RESEARCH RESULTS

The importance of internal research and development, commercialization of research results, something that is The stability and appropriate research to ensure economic growth and also to accelerate knowledge-based society. (Tavakoli, 2003) ""Commercialization of research is a process that uses up all of those potentials may invest in technological innovation to achieve the benefits generated by their innovation." There are a few notable merchants in the capital of this definition: (Dilcher, 2002)

First, the commercial operation of a process, in other words, has an entrance that certain path traveled Send to reach a far some In this way each station output, added value intended to be added. Second: This process may be used to full potential. In other words, labor, organizational structure, rules and regulations, technology, and what the potential is considered to be the kind involved in trade issues.

Third: Technology commercialization are the part of innovation technological and technological innovation to deal with the idea to enter the market if the take no commercialization, innovation and technology as a result of there.

And fourth, the purpose of implementation of the process of technological innovation is the benefit of investors, what the origin of many entrepreneurs and sponsors research work.

"Technologies as they enter the market and in the development of income generating job There is no value in terms of income if you stay on the shelves (not the market) does not generate any income" (Deisler, 2002)

4. THE NECESSITY OF DOING RESEARCH

The importance of research commercialization so that now many research institutions while making use of consulting services and collaboration on research projects have been recognized for their technology commercialization. So that from 1980 until now in the United States Office of technology transfer offices of 25 offices has increased to 200. (Bandarian, 2005)

And cause a few ideas to commercialization of public welfare that helps the most important ones are.

1 – need to spend some money to do research is in the public sector.

2 - Increasing competition in the global market; several factors that affect this area, including the following can be mentioned:

3 - Become shorter life cycle and production process that consequently need to design products extremely quickly to be felt. (Jahandideh, 2005)

4 -provide significant economic value for research organizations that lead to technical and economic growth and welfare can be increased.

5. AN OVERVIEW OF THE THEORETICAL AND RESEARCH BACKGROUND IN

The literature of the commercialization of various definitions stated. Commercialization of products and services to convert knowledge into practical application or use is said to be valuable.(Reddy, et al, 2007) in another definition transfer and commercialization of research as a process of transforming theoretical knowledge in academic institutions to some types of economic activities defined.(Spilling, 2004). In terms of the innovation process, the commercialization of the technology, new knowledge should institute its supplier companies and industries seeking to flow. (Ghazinoori, 2005). The process of commercialization of knowledge produced in research organizations into marketable products and industrial processes converts. The decision to commercialize the technology, often without a thorough understanding of business processes and requirements adopted by individuals or organizations. Although tools such as business assessment index and business assessment index success of technology and research ideas have been developed but a more comprehensive and strategic process required that such a process is presented in this paper. Much of the proposed process for the commercialization of the gate is the most complete

model has been adapted. . (Jeffrey, B, 2004). Process stage - gate operating a road map to guide new projects from the idea stage to the stage of putting it on the market. According to a recent study conducted on new product development process in various sources nearly 60% of companies use this process to guide its development activities in the field of new ideas benefit. The idea to market to a sequence of process steps and decision points separates.

Figure 1 the main stages in the process of commercializing new ideas that begins with an idea and the successful deployment of a new product marketshare describes expire.

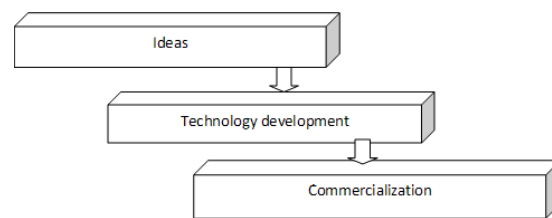


Figure 1. The main stages of the development of new technology

The stage version - the goal of each stage is also within a variety of activities to shorten the time to market some of the steps are performed in parallel. the main steps and decision points in the process - Gateway include: - Zero point: ideation B - First decision: C screening ideas - second decision: the secondary screening - Stage One: Preliminary investigation - The second stage of detailed survey of c - decision-thirds of Action for the Development - Phase III: Development of e - decided Four: Testing and validation of - the decision of the Fifth: Action for commercialization manufacturing and market entry. This model is used for the production and development of new products. But can be modified by doing it for research organizations to develop new technologies used. (Mosauy et al., 2008).this process requires serious cooperation of government and higher education research organizations, industrial companies, financial organizations, investors, entrepreneurs and academics is Commercialization of a research project to create added value to our defined by the plan. (Ghazinoori, 2005), For example, Table 1 shows that the innovation process is **co** The starting point may be a specific technology that come out of the research lab or the process may begin defining the specific needs of the consumer or market. (Enayati, 2008).

Table 1:

stage	activity	result of the activity
1	Primary research	Patents
2	invented / developed a proof of concept	invented / (Operation)
3	The first model technology development	validation
4	Product Development	Innovation
5	production/ marketing / commercialization	Persistent business

Research shows the history of the developed countries on the issue of commercialization of research results, a long tradition. for example (Magnus Carlsson, 2004) about the relationship between academia and industry in commercializing the subject of a US study suggests: "University partnerships and industry in the US has a long history that the main causes of (Morrill Act, 1862) regarding the granting of the establishment of the college system, defense-based research and development during the Second World War competition with the Soviet Union during the cold War Is.

n 1980 a law was passed Bay- slab where the role of industry, academia and government to accelerate technology

Transfer has been discussed. (Tareq, Khalil, 2008)

6. PRECEDENCE STUDIES COMMERCIALIZATION

Marketing and market study in the literature, many studies on how **commercialization** products has been made. Compared with other products **commercialization, commercialization** new ideas, especially ideas related to new technologies has been less attention. The importance of this has led to many studies and researches on the subject of establishments be done. (Ghazinoori, 2005)

Research shows the history of developed countries in the postindustrial commercialization results, has a long history. For example, Magnus Karlson (2004) on university-industry relationship in the subject commercialization results are expressed in U.S.

says: "Participation in American universities and industry has a long history that the main factors that law, Muriel (1862) based grant established college system, defense-based research and development during the Second World War and competition with the Soviet Union during the cold War. In 1980, with the approval of the bypass - evidence that the role of industry, university and government technology transfer would indicate acceleration is. (Arabi, & et al, 2008)

7. DEFINITION OF COMMERCIALIZATION

Commercialization process in which ideas, products, or result from the research sector to products, services and processes into marketable through which it is derived from the research findings are brought to the market and finding new ideas or new products and services or technologies to sell throughout the world, are developed. (Arabi, & et al, 2003)

8. METHODS OF COMMERCIALIZATION

Including methods of commercialization can be pointed to the following:

- Overt selling technology - technology licenses - collaboration - commissioning works Newer and more effective way to commercialization, technology transfer, joint works and created new business fields. Market environment, customs, people's purchasing capacity and power, heavily methods and techniques of marketing and commercialization are affected. (Fatemi, 2006)

9. FACTORS IN THE COMMERCIALIZATION OF R & D CENTERS

1 - Motives 2 - Communications industry 3- feasibility studies 4 - 5 commercialization capabilities - innovation structure 6 - R & D Management 7 – Dissemination or diffusion of Science and Technology 8 –provide budget 9- human sources. (Christopher, 2004)

Challenge face Commercialization: Commercialization challenges, including research technology include:

1 - funding, 2 - intellectual property, 3 - associated with the research industry, universities and industry, health and agriculture, 4 - human resources, 5 - ability to continue, **Ameri**, (2004)

Based on studies in the United States, successful commercialization results to five factors or enabling the following is dependent on: 1 - the ability of foreign investment 2 - Property results 3 - skills, entrepreneurship 4 - to encompass small businesses 5 - state programs

However, the main framework for commercialization in the U.S. universities create, but other factors are also important. (Karlson, 2004) also states that: the Swedish innovation system with a number of challenges related to commercialization results is facing, meaning that unlike many inputs (example: most research and development concluded in the world rate to finance) multi-output (such as economic growth and GDP than assets) are measured. (VINNOVA, 2003). These two examples show that, challenges and problems facing countries in the commercialization of research results may be different from each other. Jude can with the factors and options available on this topic so count the: laws and regulations (external factor), establishment Research (external factor), the problem detection research (internal factor), a precise definition of research problem (internal factor.). (Khalil, 1993)

10. EXPERIENCE IN DEVELOPING COUNTRIES AND INDUSTRIAL ACHIEVEMENTS IN THE COMMERCIALIZATION OF RESEARCH CENTERS:

The importance of technological developments, in terms of economic growth in recent years has been a growing concern in developing countries. Many studies in developed countries show that more than 50 percent of long-term economic growth in these countries, the events of the ideas in the research and commercial research centers to increase production efficiency different, is due. The following "countries that experience in the commercialization of research results in research centers have done is briefly described. China several years ago some changes in the organization and management of research and development took place. The Chinese government special policies to encourage organizations involved in research and development to the organization of financial dependence on the state, to be transformed into self-sufficiency. current scientific and research centers in China as soon as they achieve new technical knowledge and new research, is seeking to produce and develop it will act .and then doing the thinking of selling it is transfer to developing countries.

Notable in this regard, the distinction between applied research and basic research. A leading trade gains are not necessarily all basic research. Thus, in this study for the research and commercialization of applied research achievements just in case. One goal of this research was to develop a process model for the commercialization of ideas and research centers which aims to identify barriers to technology development have been created. However, based on the principles of systems thinking to achieve business goals, there are a number of ways,

(Principle sanctions) and consider a contingency offer a special process different types of technology to ensure successful commercialization is not in all circumstances. But we can develop a framework that innovation and commercialization of research organizations in order to achieve the objectives for guidance. . (Arabi, &, et al., 2005)

Developed primarily for a comprehensive and inclusive framework for successful commercial products will be one of the following two methods may be imposing act

1- Examine and analyze successful research organizations analyzed in class experiences Sampling Interval from erase,

2- Pharmaceutical Brand Enjoyed identity vetting system rendering literature Pharmaceutical Brand Enjoyed a successful expansion to be approved in accordance with conditions Pharmaceutical Brand Features with particular attention to performance evaluation SORTITION centers exist in the areas of Kurdistan (Mosauy, et al, 2008).

11. MODEL THE SUGGESTED PROCESS OF TECHNOLOGY COMMERCIALIZATION

In order to create necessary coordination and integration between process and market activities to upgrade and improve the success rate of commercialization of products, the need for a comprehensive model of commercialization seems to be necessary. In the proposed model has been attempted to all factors affecting market supply technology should be identified. As shown in Figure 2, the process includes five large commercial building is the main stage include: (Ghazinoori, 2005)



Figure 2: commercialization process model suggested

12. METHODOLOGY

12.1. Research Objectives 2 .hypotheses

Review of effect individual, organizational and environmental factors of *commercialization ideas and research results in research centers.*

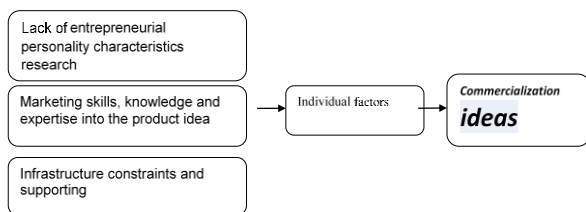


Figure 3: View model (individual factors) for the proposed research

12.2 Research Hypothesis:

- 1- The first main hypothesis: individual factors of barriers on commercialization of ideas in the Research center country
- 2- - The second main hypothesis: organizational factors of barriers on commercialization of ideas in the Research center country
- 3- - The third main hypothesis: environmental factors of barriers on commercialization of ideas in the Research center country

12.3 Research methods, and, gathering, data

Type of objective research and from applied research methods, descriptive study is a survey of the branch. In this study population experts Research Science and Technology Research Institute of Atomic Energy Organization of Iran to the number of 825 individuals with academic degrees and graduate and doctoral degree who are working in the industry and the commercialization of ideas are the expert has been selected.

The samples in this study is 158. 200 questionnaires were distributed among the population. And finally, 146 questionnaires were returned and were analyzed.

In this research, literature and history for completing library research methods and have been used in field studies to evaluate the questionnaire method is used. In the first study questionnaire. Which includes two sections, general questions with five questions related to demographic and professional questions with 43 questions related to the measure among hypotheses in between population community distribution and then based on five-choice Likert range from 1 to 5 means very little to options means very much to the questionnaire was scoring for the validity of experts (Professors in this field are aware) reached. Questionnaire for assessing the reliability of the questionnaire on all collected reliability coefficient (Cronbach alpha) was calculated to determine the value and 96%. Using software (Spss) and the statistical tests and the type of research method and variable questions and hypotheses are compatible, data classification and data analysis.

12.4 Research hypotheses of Test:

Test of first hypotheses:

Hypothesis first: individual factors of barriers to trade ideas on commercialization of the country's research facilities.

Table 2: test results mean individual factors in the research centers of the country, shows.

Hypothesis H0	mean	standard deviation	rate test of significance	value error	interval estimates	Estimate distanc	
						Low level	high level
First hypothesis	2.41	0.560	0.000	0.05	3	-0.672	-0.489

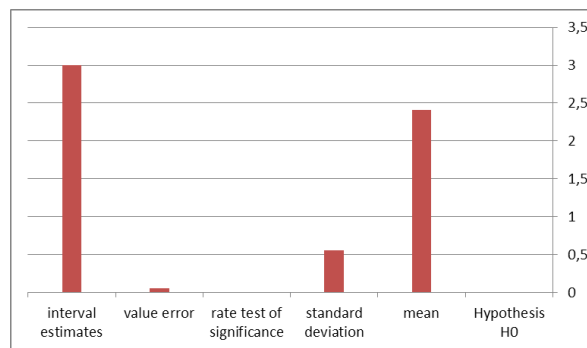


Figure 4.

Such as tables and charts above the significant level test (0.000) smaller than the error rate (0.05), so it can be confidently said that 95 percent are accepted and H0 is the mean factors such as research centers

of individual countries (2.41) lower test values (3) and the average difference in distance estimates are also lower in both amplitude range (-0.672) negative and high range (-0.489) is negative so we can say with 95 percent confidence what individual factors of barriers commercialization the idea in the research research, center, in, the country

• **Second Hypothesis testing:** organizational factors prevented commercial ideas construction, research research, centers, in, the, country .

Table 3: Organizational factors in the test results mean the country's research facilities

Hypothesis H0	mean	standard deviation	rate test of significance	value error	interval estimates	Estimated distance	
						Low level	high level
hypothesis	2.20	0.641	0.000	0.05	3	-0.899	-0.689

• As the above table because significance test (0.000) smaller than the error rate (0.05), so with 95 percent can be said is that H0 is accepted and organizational factors such as average in the country's research facilities (2.20) less than test values (3) and the estimated mean difference in distance in both the negative range, so we can say with 95 percent confidence.

• Organizational factors prevented commercial construction, ideas research research, centers, in, the, country.

• **Third Hypothesis testing:** environmental factors, barriers commercialization of ideas in the country's research centers

Table 4: the average test results of environmental factors in the research centers of the country shows.

Hypothesis H0	mean	standard deviation	rate test of significance	value error	interval estimates	Estimated distance	
						Low level	high level
hypothesis	2.65	0.624	0.000	0.05	3	-0.450	-0.243

• As the table above because the significant level of test error rate is smaller, so 95 percent can be said is that H0 is accepted and because of environmental factors on the mean research facilities smaller of test values and also estimate the average difference in distance also negative in both domains, so we can say with 95 percent confidence: environmental

factors barriers the commercialization of ideas in research centers in the country.

Freedman variance analyzing test (prioritization triple factors, individual organizational and environmental.

Table (5) Freedman variance analyzing test result shows. In this technique, the average rating is equal to three factors, individual and organizational and environment is put to the test benchmark.

Table 5: Freedman variance analyzing test result

supposition Ho	value error	Significant level	degrees of freedom	calculated by square	test results
H_0 : Rated three factors mean the individual, organizational and environmental con equal. 1 H :At least a couple of factors, three stars mean the individual, organizational and environmental differences are significant.	0.05	0.000	2	57.48	Rejection H_0

According to this table, because significance test is smaller than the error rate (0.05 > 0.000), is therefore is rejected supposition Ho. Therefore, 95 percent confidence level, which can be stated: the average rating of triple agents, individual and institutional environment is not equal. In other words, some properties than others of more importance.

Table 6: rank and prioritize the factors mean three individual, organizational and environmental shows.

Row	three factors	mean	standard deviation	mean ranking	prioritization
1	Environmental Factors	2.65	0.634	2.41	First
2	Individual factors	2.41	0.56	2.04	second
3	organizational factors	2.20	0.641	1.54	third

This table shows the mean ranking of environmental factors with the highest mean rating (2.41) the first priority, with individual factors Reputation average (2.04) in the second priority, and organizational factors lowest mean rating (1.54) is the end priority.

13. CONCLUSION

According to research findings and analysis of data and test research hypotheses, it was shown that all

the independent variables discussed in the assumptions as efficient barriers to commercialization are approved. This means that these components is the commercialization of ideas and results research findings on Iran's research facilities as a barrier are considered. On the other than, assuming equal variance Friedman mean rank three factors, individual and organizational and environment that set the benchmark test, show that the mean ranking the three aforementioned factors are not equal, in other words, some characteristics than others more important than rate. Also Test results indicate that environmental factors with the highest mean rank in first priority, and individual factors in second priority, and organizational factors in third priority, in the efficient commercialization ideas and results research centers of influence.

RESOURCES

- Bandarian, R. (2005). Enablers of Commercialization in Research Organizations. Proceeding of international Management Conference, Sharif University of Technology
- Del Campo, et al. (1999). The transfer and commercialization of university developed medical imaging technology: opportunities and problems", IEEE Transactions on Engineering Management, 46(3).
- Dilcher, K. (2002). The Commercialization of University Teaching and Research.
- Enayat, A. (1386). Brand products nano (retained sleepy). Fallow nono, No. 116 Leclerc.
- Fatemi, S. (2006), Commercializing research results in biotechnology (biotech). National Institute for Genetic Engineering and Biotechnology, the first commercialization
- Ghazinoori, S. (2005). Strategies and trends for commercialization and marketing of high technologies Case study. Nanotechnology in Iran, 2nd Management of Technology Iranian Conference, p. 471-476.
- Jahandideh, M. (2005). Commercialization results. *Journal of Defense Research and Management, Journal of Educational Research*, University of Imam Hossein, third, year, No.10.
- Khalil, T.M. (2008), Technology Management. Translation, Arabi, M. Izadi, D. Cultural, Researchoffice
- Magnus, K. (2004). Commercialization of Research Results in the United States. ITPS, Swedish Institute for Growth Policy Studies, p. 14, 15
- Magnus, K. (2004). Commercialization of Research Results in united States: An Overview of Federal and Academic Technology Transfer
- Mosauy, A. Sadrauy, S. Bandryan, R. (2008). Commercialization process model, and technical knowledge of chemical products. Academic and professional publications and technology development, 13.
- Spilling, O.R. (2004). Commercialisation of knowledge—conceptual framework. 13th Nordic onference on Small Business (NCSB) Research.
- Tavakoli, A. (2003). Ethics, rules and methods appropriate technology transfer to the country. Iran University of science and industry dissertation senior expert