

Developing University-Industry Partnership at Kahramanmaraş Sütçü İmam University

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ABSTRACT: University-industry partnership is a driving force for economic and social development in a region. This study explains the opportunities and procedures of developing university-industry partnership at Kahramanmaraş Sütçü İmam University (KSU). The main subjects covered in the study include the strategic management, management of interfaces, financial management, staff management, and implementing strategies for university-industry partnership. It is examined that Kahramanmaraş region has a remarkable potential for establishment of stable university-industry partnerships, which ultimately make substantial contributions both to the local industry and the university.

Keywords: University-industry partnership, KSU, partnership, Kahramanmaraş

Kahramanmaraş Sütçü İmam Üniversitesinde Üniversite-Sanayi İlişkilerinin Geliştirilmesi

ÖZET: Üniversite-sanayi ortaklığı bir bölgede ekonomik ve sosyal gelişmenin itici güçlerinden biridir. Bu çalışma Kahramanmaraş Sütçü İmam Üniversitesi'nde üniversite-sanayi ortaklığı geliştirmenin fırsatlarını ve sürecini açıklamaktadır. Araştırma kapsamına alınan temel konular üniversite-sanayi ortaklığının stratejik yönetimi, ortaklığı yürütecek organizasyon veya ünitelerin yönetimi, finansal yönetim, kadro yönetimi ve ortaklığı yürütme stratejileridir. Bu çalışmadan, Kahramanmaraş'ta üniversite-sanayi işbirliğinin geliştirilebileceği önemli bir potansiyelin bulunduğu, bu potansiyelin kullanılmasının hem üniversiteye hem de yerel endüstriye önemli katkılar sağlayacağı anlaşılmaktadır.

Anahtar Sözcükler: Üniversite-sanayi ortaklığı, KSÜ, ortaklık, Kahramanmaraş

INTRODUCTION

University-industry partnership has become very prominent on the agenda of higher education policy-making, both at the national and institutional level. Within the context of knowledge-intensive societies and globalization, governments are increasingly acknowledging the importance of higher education institutions as strategic actors in national and regional economic development, given their potential to upgrade the knowledge of the labor force and to contribute to product and process innovation through technology transfer (Burquel and Martin, 2000). This interaction has been in different forms such as industrial extension service, cooperative education, equipment donation, consultancy, exchange of personnel, and research programs (Anonymous, 2003). Beside both sides have utilized the outcomes of university-industry partnerships, this process has also brought many societal benefits in the locality where it is established.

This paper is organized in five sections to explain the developmental process of a university-industry partnership at KSU (Kahramanmaraş Sütçü İmam University) and industrial organizations operating in the neighboring towns and cities. This five-section procedure for university-industry partnership development is adopted from the International Institute for Educational Planning/UNESCO and European

Centre for Strategic Management of Universities. The first section of the paper explains the strategic management of university-industry partnership. The second section explains the management of interfaces; the third section financial management; the fourth

section staff management; and finally the fifth section explains implementing strategies for university-industry partnership.

STRATEGIC MANAGEMENT OF UNIVERSITY-INDUSTRY PARTNERSHIP

Strategic management in higher education institutions is defined as "a management system concerned with clarifying the basic mission of the institution, determining long-term-oriented global choices which affect the institution as a whole, which anticipate important changes in an uncertain environment and are based on an analysis of institutional strengths and weaknesses" (Drucker, 1974). This definition implies that strategic management is a collective process of change driven forward by a committed leader with a vision of the institution's future by means of communication, negotiation and co-ordination with the various units of the institution (Burquel and Martin, 2000)

Developing a multifunctional university-industry partnership is one of the ultimate goals of KSU. The development level of KSU, on the other hand, has been largely depended on the amount of funds it receives from the Government, similar to other state universities in Turkey. The number of students enrolling to the university is continuously increasing. Tuition fee they pay is at minimal level as compared to private universities, and is far away from corresponding their educational expenditures. Since the state policy was to provide free higher education for the youth, KSU, like its counterparts in Turkey, has been responsible for

providing education and training for university students with its limited budget. Although the university has not recently experienced any budget cuts, because of the increased enrolment, the amount of resources available for each student has dramatically decreased. This situation makes it inevitable for the university to seek out new ways to generate extra income. University-industry partnership, therefore, should be one of the possible ways of achieving this goal. However, generating extra income should be the result, not the reason of developing university-industry partnerships. If it becomes the reason, then the university may deviate from its basic philosophy and mission.

Governmental programs, particularly five-year development programs, put emphasis on agricultural and industrial development in the region; however, these programs have been carried out without partnership or cooperation with the university. Program planners and executors have not yet utilized the contributions and expertise of the university, which will ultimately increase the success of the programs. The university, on the other hand, has not yet used its potential to make contributions to these programs, as well as, to expand its own financial resources other than governmental support. Therefore, regional and national development programs should be an incentive for the development of a university-industry partnership.

The Eastern Mediterranean region where KSU is located has recently experienced a flourished industrial development even though agriculture is the very much predominated production area. Because the Government has given incentives to small and medium sized enterprises, their production levels and the number of employees have faced to an increasing trend.

Although external factors provide encouragement for a university-industry partnership, because of internal factors, KSU has long way to go to utilize the mutual benefits for both the university and for the local industry. First, the current relations with the private sector are limited to a few dynamic university professors who have close links with industry. Because the university is in need of academic personnel, particularly for teaching purposes, the available ones have limited time to work on different issues other than teaching. Second, KSU doesn't have a professional unit or organization focusing on the development of a university-industry partnership. Professors, who have close contact with industry, basically provide their contributions to local industry in the subject matters related to their own majors. For example, some professors in the Department of Animal Science worked together with the poultry sector while some professors in the textile department worked together with the textile industry. Although these examples can be extended in the region, the relationships are not permanent. As soon as the relevant project is completed the relationships have to come to an end. Therefore, a professional organization or unit, which will seek

continuous partnerships with the local industry should be founded in the near future.

Vision of the University

Considering the above internal and external factors, the vision of KSU for the development of university-industry partnership can be stated as follows:

1. In the future KSU will have more academic personnel who will be able to spend more time on a university-industry partnership process.

2. The university will be able to actively participate in regional and national development programs.

3. A professional unit/organization, which will establish a framework for information and technology transfer. This unit/organization will be the first address for the local industry to seek technical and managerial assistance.

Obstacles of Strategic Management

The main obstacles KSU will face to establish a university-industry partnership include the following: In the short run, the university has limited access to increase the number of qualified academic personnel for particularly two constraints. One of these is that the region is considerably less attractive place for professors as compared to the western parts of Turkey. Second, in the short run, the university is to spend most of its limited budget for a new campus construction and infrastructure. Therefore, it seems difficult to provide better conditions such as housing, recreational facilities, and pay raise to attract highly qualified academic personnel. Another obstacle is that lack of communication among university, local industry, and government agencies. There are also structural, legal, and managerial obstacles.

To overcome these obstacles KSU has limited access to increase the number of academic personnel in the near future. Currently, the available academic staff can be encouraged to break the communication barriers and to decrease the structural, legal, and managerial obstacles. We assume that initial research is needed to identify the potential partnership priorities with the local industry. Departments and faculties may form a cooperative organization and provide equipment, which is needed for a university-industry partnership process. They need to work on the legal aspect of the partnership within the framework of the Turkish higher education laws and regulations. For example, they need to identify the procedures for patenting in the university, the regulations for intellectual property and confidentiality. In terms of managerial aspect they need to adopt a strategic management model, which is most appropriate for the university and local industry.

MANAGEMENT OF INTERFACES

Interface is an organizational framework that will bring together component and experienced employees in the area of university-industry relations. There are three basic categories of interfaces; (1) the licensing office,

(2) the outside agent, and (3) wholly owned subsidiaries of the university (Vigdor and Martin, 2000). The licensing office is an internal interface. It is a part of the university's central administration and entirely controlled by the university authorities, or one university official who reports directly to the university authorities. The outside agent is an external interface and is completely independent from the university. It provides a definite set of services to the university for its relations with industry. The wholly owned subsidiaries is also an external interface but it is established by the university to implement its policy for the development of university-industry linkages (Vigdor and Martin, 2000).

Although the university-industry partnerships between KSU and its local environment highly depend on the attempts that have been made by a few dynamic university professors, the following organizations/units should be considered as the internal interfaces, which KSU has developed for the management of its relations with local community and industries (Anonymous, 2005).

Interfaces located at KSU environment are not only for income generation but also conducting unbiased scientific and social research, whose essentials are described by Conant (1964), William and Paul (1952), and Neuman, 2002).

Fodder and Anima Nutrition Laboratory

The function of this laboratory is basically to analyze various fodders to achieve a high nutritious fodder for livestock and poultry. Local fodder production companies sometimes contact the university and get their products analyzed. The laboratory is a unit of the Department of Animal Science but its income and expenditures are controlled by the university budget which is controlled by the Rector. Since one of the objectives of the university was to support economic and social development in the region, the service charges of the laboratory are solely to recover expenses.

Soil Science Laboratory

Soils from various fields are being analyzed in this laboratory. According to results of soil tests, local farmers are able to learn the level and need of plant nutrition elements in their land. In addition to this, the soil tests results make it possible for specialists to give instructions to farmers regarding the appropriate fertilizers they should use. This laboratory is a unit of the Department of Soil Science and its income and expenditures are controlled by the university budgeted. The charges are to recover expenses.

Science Laboratory

This laboratory was established for teaching and research purposes. The academic staff and students of the Departments of Physics, Chemistry, and Biology use this laboratory. Textile factories and other local industry has minimal contacts for different tests and/analyses

relating the goods they produce or the raw materials they use as inputs. The control system of income and expenditures of this laboratory is similar to the above two laboratories.

Computer Research and Operation Center (CROC-BAUM in Turkish)

CROC was founded to update and upgrade the computer skills of students, and the academic and administrative staff of KSU. It is fully and directly controlled by the university. Since there was an intensive demand from outside employees and students, the center has been organized various computer courses. Basic computer skills and various package programs are being taught considering the needs and demands of the participants.

KSU Faculty of Medicine Research Hospital

This organization provides medical service to university students, academic and administrative staff, as well as to the residents of the city of Kahramanmaraş and its neighbor provinces. It is controlled and directed by the university.

KSU Farm Operation

This interface is operated in about 3000 decares of farmland where field crops, i.e. wheat, barley, corn; and horticultural plants are produced. An animal farm producing caws, sheep, and poultry is also in operation. The university academic and administrative staff utilize its high quality products i.e. milk, eggs, chicken, turkey etc. in a lower price than domestic market. In the future, the university will increase its land up to 12000 decares of land and the amount and variety of agricultural and animal products will increase for the local markets.

Other Interfaces

In addition to the interfaces mentioned above, some professors from the Faculty of Economics and Administrative Sciences provide consultancy to local businesses and companies. These consultancies can be considered as bilateral relationships. The conditions are determined by the individual professors and the owners of the related companies. This kind of relationship has been encouraged by the university but has not been formalized.

Another interface is the printing office, which also is fully controlled by the university. Textbooks, booklets, notebooks, and handouts are printed for the use of students and academic staff. The income of these products are also to recover the expenses.

THE FINANCIAL MANAGEMENT OF THE UNIVERSITY-INDUSTRY PARTNERSHIP

The financial management of university-industry partnership is constrained by the purpose/mission of the university, organizational structure, and the programs and activities of partnership (Sanyal and Martin, 2000).

First of all KSU's purpose/mission is to provide contemporary higher education to youth in the framework of the Turkish Higher Education Council. For this reason, the primary purpose of establishing the internal interfaces, which also generate income by developing partnerships with the local industry, was to enhance educational and research activities. Since there have been a demand from the local industry, accompanied with the demand of the university to generate extra income other than governmental support, KSU, through its internal interfaces has tried to improve the partnership process with industry. However, income generated from university-industry partnership has so far remained at a minimal level as compared with other income sources.

The financial management of KSU's internal interfaces includes the following: All of the internal interfaces, organizations/units, which generate income for the university are ultimately controlled by the Rector. At the lower case the departments and faculties have the control of these units. However, income and expenditures of these organizations are controlled by the Directorate of Circulating Capital which is also under control of the Rector. The Rector appoints the director of this organization who manages also the university farm operation. The budget of the Directorate of Circulating Capital is separated from the general university budget that is given by the government. The Directorate of Circulating Capital at KSU is primarily responsible for financial management of university-industry partnership. The income and expenditures of the units/organizations mentioned above are controlled by the director. When pricing a product/service or making investments in new equipment, the director asks technical advice from the departments which are involved in the partnership. The funds collected by the Directorate of Circulating Capital are invested in a bank account.

Income Sources of KSU

KSU's main income source is the Government. Tuitions and fees are the second largest income source. Income generated from cafeterias, dormitories, and interests etc. is the third important income source, and this is followed by income generated by KSU Hospital, sales of commodities produced at the university farm, charges at laboratories, and donations, respectively.

Basis for Determining the Prices

Because one of the primary objectives of the university is to make contributions to the economic and social developments of the region, research products or services have been provided to various companies and individuals at cheaper prices than free market conditions. KSU first considers public benefit when determining the price of the products or services. While public benefit is KSU's primary goal, income generating from the products or services is the secondary interest. Therefore, the basis for determining

the price of the products or services first depend on the costs, and then a minimal profit margin is included which is lower than the profit margins set by free market conditions.

Distribution of the Surplus

Most of the surplus generated by the internal interfaces is spent on new equipment to update and upgrade technology. However, the situation with KSU Hospital is different. Although a certain part of the surplus created by KSU Hospital is spent on new equipment and investment, a certain percentage of the surplus goes to its employees such as professors, doctors, and nurses.

STAFF MANAGEMENT OF UNIVERSITY-INDUSTRY PARTNERSHIP

The growing diversity of task in higher education institutions, one of which is collaboration with a productive sector, has in many cases led to changes in employment conditions. In the past, the predominant model was the tenured academic staff, along with younger assistant staff, preparing their theses and waiting for permanent employment (Martin, 2000).

Currently, the higher education law in Turkey doesn't give full permission to universities to employ academic and administrative staff as many as they need. The government also make yearly decisions for opening new teaching and researchers positions in the universities. So, the number of staff to be employed in the university-industry partnerships is largely depends on the number of positions the government allows for the universities.

Once there is enough staff in the university to be utilized for university-industry partnerships, their tasks and responsibilities should be clarified. Professional managers of university-industry partnerships are involved in manifold tasks, such as (Martin, 2000):

1. Establishing and maintaining databases of potential clients;
2. Making informal and prospective contacts with clients;
3. Producing lists of potential products for commercialization;
4. Organizing fairs, seminars and open doors;
5. Negotiating terms of contracts;
6. Providing support for the costing of products and services;
7. Follow-up of research with commercial potential;
8. Assessing economic viability of spin-off projects;
9. Establishing a network of potential venture capitalists;
10. Acting as a broker between the academic inventor, venture capitalists and interest firms, in the negotiation of terms of contracts.

Incentives for Staff Motivation in University-Industry Partnership

Incentives have motivational effect on individuals or organizations to act in specific ways. The theory behind this kind of motivation could be the exchange theory (Schramm, 1985), which suggests that human activities are based on an exchange of costs for benefits. The cost of individual contributions in the university-industry partnership may include the time, money, expertise, and energy they spend. Benefits, on the other hand, include the rewards of all of these factors. If rewards are more than the costs, the individual will be motivated to take responsibility in the partnership. If rewards are less than the costs no rational individual would take any further step.

One of the most important factors that threaten scientists to be unbiased is lack of financial resources (Castle, 1968; Breimyer, 1967). If incentives are provided for the hard working university staff they will probably face less financial problems and be unbiased when conducting research in different fields.

Although there are many types of incentives to motivate university staff to collaborate with the industry, three types of them can be distinguished. These are (1) financial incentives, (2) incentives linked to promotion system, and (3) material incentives (Martin, 2000).

All of these three incentives do exist to some extent at KSU to motivate staff to engage in university-industry partnerships. However, financial incentives would be more effective than incentives linked to promotion system and material incentives. This is because in KSU's circumstances, as well as in the circumstances of other state universities in Turkey, financial benefits motivate and encourage staff more than any other incentives.

Income generated by the university interfaces is controlled by the Directorate of Circulating Capital. KSU's academic staff who complete work with industry through a partnership process receive a specific portion of charges. By February 2005, this rate was about 35%. For example, if some work is carried out in any of these interfaces, the persons who are in charge receive 35% of total charges. The rest of the money goes to Directorate of Circulating Capital. On the other hand, all of the employees of KSU Faculty of Medicine and Hospital receive a specific portion of the income generated in the hospital. This implies that the average salary of these people is higher than other departments and units in the university. This application can be considered as a financial incentive, which motivates the academic staff of KSU Faculty of Medicine and Hospital to provide better service and attract more patients than other medical institutions in the region. Since the largest part of the income of the Directorate of Circulating Capital is generated from KSU Hospital, faculties other than medicine don't receive any money from the income generated in this unit. In other words, every employee in

the KSU Hospital receives a specific amount of additional salary but not the other university staff.

Financial benefits, on the other hand, provide incentives for KSU staff to conduct individual or small group partnership with the local industry. These relationships may include consultancies or joint projects and are independent from the internal interfaces of KSU. The success of these relationships depends on the expertise, experience, and dynamism of the individual professors. Professors who are not financially attracted have little incentive to initiate or develop a partnership with local industry.

Career progression at KSU mostly depends on the number and quality of publications. On the other hand, the purpose of university-industry partnership is to generate extra income for the university and to make contributions to the development of local industry, it is obviously not to provide academic staff with the opportunity of producing new publications. However, some collaborative projects may give the opportunity for publications if the individual professor spends extra time and effort.

KSU's academic staff, when receives grants from governmental or international institutions to carry out projects, may obtain material incentives such as computers and laboratory equipment as a part of their rewards. These incentives are utilized not only by the academic staff who receive the grant but also by other staff and the students. Therefore, these should not be considered as a substantial university-industry partnership incentive. In other words, the reason for applying and receiving a research grant for a professor is not to make contributions to the university in terms of material incentives, but financial and promotional incentives.

Out of the three types incentives we believe that financial incentives would need to be put in place to create a more entrepreneurial climate for KSU. These incentives should cover the following:

1. There should certainly be financial incentives for academic staff that take the initiative and develop permanent relationships with industry. A comprehensive internal interface whose staffs earn some part of the income generated by the university-industry partnership is needed. Unless this objective is reached, the development of university-industry partnerships seems likely to be limited to the effort of a few dynamic university staff.

2. Successful students who are temporarily hired to assist joint projects should be given permanent employment opportunities. There should certainly be some people whose primary work is to conduct joint work with industry.

3. In order to expand the clientele, potential industry areas and their priority subjects to work with the university in a partnership process should be identified.

4. In order to establish permanent and continuously improving relationships with industry, specific rules and

regulations for inside and outside activities should be developed.

IMPLEMENTING STRATEGIES FOR UNIVERSITY-INDUSTRY PARTNERSHIPS

Although there have been various implementing strategies of university-industry partnerships, three of these strategies have found more applications in different universities in the world. These are (1) a new continuing educational program, (2) programs for improving the relevance of the undergraduate curriculum for industry, and (3) research and development (R&D) (Burquel, 2000).

Developing university-industry partnerships through research and development at KSU's circumstances would provide a better start than a new continuing education program and/or programs for improving the relevance of the undergraduate curriculum for industry. To fully use the potential of research and development in the region will facilitate the process of establishing a new continuing education program and/or programs for improving the relevance of the undergraduate curriculum for industry. Local industry companies are currently lacking information about how to increase their market shares at local, national, and international levels. The university is the only actor that can help them with this objective. Therefore, we believe that a research and development project would provide a good start for KSU for further developing its cooperation with industry.

At KSU, university leaders, departmental leaders, and individual professors are interested in the opportunity to improve the university's position by establishing partnerships with industry. It can be said that university leaders are interested in raising the profile of the university within the region, nationally and internationally; and in developing the departments and increasing income for the university. Departmental leaders are interested in the creation of research activities and generating income. Individual professors have an interest in applied research, career development, monetary rewards, and job satisfaction.

Sources of support to apply these projects are primarily university leaders, university teaching staff within the departments who will provide the expertise, and key individuals within influential firms in the region.

The types of activities through which partnerships will be developed include collaboration in applied research and development projects. Since the region has great potential in the agricultural and textile industries, collaborative research projects will ultimately provide higher quality production and management.

In order to put this plan into action, first, university staff will take the initiative for searching university-industry partnership areas. Support and encouragement will be provided by the university and departmental leaders. Although academic staff have a heavy burden of teaching undergraduate and graduate course work,

the ones who are more interested in working for partnership development will be identified and given some incentives. Once this team is identified, they will individually or in groups make contacts with the top level industry personnel and identify research and development priorities in the region.

Research strengths

Research strengths at KSU's circumstances can be listed as follows:

1. KSU has high quality research laboratories, which are run by academic staff and highly qualified technicians. In the short run these can meet the needs.

2. KSU has full access to the Internet and every individual researcher is able to reach the recent information sources.

3. In the Computer Research and Operation Center, KSU can provide high quality education and training to update and upgrade employees' skills who work in the neighboring work environment.

4. KSU employs up to 60 academic staff who received their masters and doctorate degrees from the selected universities of Europe and the United States. Beside teaching and basic research, these employees may provide very useful expertise for university-industry partnerships.

5. KSU is located in a region where research and development are relatively new concepts. There are many subjects, which need to be searched. Therefore, if the potential is properly used, KSU will definitely make contributions to the region, as well as, to the university itself.

Market Needs

The main industries in the region are the textile industry and agricultural industry. KSU has not yet developed strong contacts with a good potential for self-financing collaborative projects. Immediate action, which might be taken is to strengthen contacts and access national and international networks including a comprehensive survey searching production, processing, and marketing structures of the companies. Management structures, employees' abilities and skills the company's short, medium, and long-term goals need also to be searched. The weak sides of the companies need to be described. Managers need to be convinced that cooperation with the university will make them better off.

How to Promote Collaboration

The ultimate purpose of a research and development strategy is to establish strong and permanent cooperation with industry throughout joint projects, which will provide mutual benefits for both the university and the firms. Academic expertise at KSU and technological orientation of the local industry will be matched to develop further research and development areas. Initially, intellectual property, confidentiality of results, use of industry and university

resources, administration and overheads charges, direction, control, and management might operate as the main constraints at KSU and in the region. A constitution considering the current law and regulations would eliminate or clarify these constraints.

CONCLUSIONS AND RECOMMENDATIONS

This paper explained the opportunities and procedures of developing university-industry partnerships at KSU in terms of strategic management, the management of interfaces, financial management, staff management, and implementing strategies for university-industry partnership.

Looking from a general perspective, although there have been obstacles/limitations in establishing permanent relationships and collaboration with the local industry, there should also be opportunities/challenges to promote this process. In order to put this process into application the following duties should be carried out:

1. A university-industry team should be formed. This team should include professors, associate professors, assistant professors, and research assistants. The administration structure of the team should also be identified.

2. The Turkish Higher Education law and regulations should be reviewed to eliminate or clarify the constraints related to intellectual property, confidentiality of results, use of industry and university resources, administration and overheads charges, direction, control, and management.

3. A constitution should be developed clarifying the procedure of university-industry partnership in general, and more specifically the procedures of research and development projects.

4. The university-industry partnership team should make contacts with industry and identify research and development priorities with the region. Physical resources both from the university and from industry should be identified.

5. Collaborative projects should be carried out.

Initially many difficulties may be experienced. However, in recent years KSU has completed several research and development projects with industry. A study conducted to identify the level of cooperation and its developmental possibilities in the region found that poultry producers who worked with the university through a joint project increased the quality and quantity of their production. It was also found that textile companies in the region are willing to work with the university, expecting to extend their market nationally and internationally (Bedestenci et al, 2000). These findings verify that university-industry cooperation in Kahramanmaraş region has a remarkable potential. As this potential is used, the following conclusions will probably be reached:

1. KSU will be able to increase its financial resources other than governmental funding.

2. University staff will be able to keep it up with recent technologies because they will work in a continuous process with the industry.

3. Departments who involve in collaborative research will get access to various resources which will provide further research and development opportunities.

4. Industrial organizations in the region will experience higher quality and quantity of production.

5. Firms will probably get access to national and international markets.

6. More job opportunities in the locality will be available.

7. Overall, KSU and Kahramanmaraş will probably make more contributions to regional and national development.

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