

Creation of a Link Unit within UNED Costa Rica

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This article is based on the experience of the participants of Universidad Estatal a Distancia of Costa Rica (UNED), during the UniTransfer project, in order to carry out the creation of the Link Unit University-External Sector through a proposed organizational structure of the unit and the action plan that would be implemented in the first five years. Research for linking the UNED with the productive sector and both internal and external implications was based on: visits to other universities, workshops with UNED's professional, interviews with the link unit's specialists and library research and internships, with the goal of creating a structure to take advantage of distance learning methodology, the institutional model and the university centre's network.

1 Introduction

Society demands higher education according to the real needs of the market, which makes it necessary to create proper linking between higher education institutions and the State and social and productive sectors in order to improve the relevance of research, teaching and university extension, thereby effectively helping to address the social, economic and environmental needs of our country and our region.

University corporate engagement represents one of the most efficient mechanisms for the articulation of the three actions of universities: extension, teaching and research. This binding mechanism represents potential opportunities for establishing technology parks, improving campuses, encouraging the labour positioning of graduates and boosting the development of new ventures. This converges into greater opportunities for research, development and innovation.

University competitiveness is established through its institutional links with the business sector and government. When these three axes are combined and focus their efforts on the needs of the productive sector, the results reflect dynamic action, innovation, development, entrepreneurship and scientific and technological growth.

Several years ago, The National Council of Rectors of Costa Rica (CONARE) and the Planning Office of Higher Education (OPES) began realizing studies explaining the status and development of university-business sectors linked through records, conceptualizations and the interaction mechanisms of this model within state higher education centres in Costa Rica. UNED presents a linking model limited to interactions with the external sector that must be strengthened. This does not infer that the university has not developed many capabilities in this field, but rather that sporadic actions have been performed by its own researchers and social workers rather than by institutional management or as a result of strategic guidelines. For this reason, some actions have succeeded while those lacking systematization or formal monitoring have disappeared over time.

UNED's Office of International Relations and Cooperation has established a liaison unit with the external sector in order to transfer the knowledge generated by the university to the government sectors of the country, as well as to help in the development of the institution. This goal dates back more than 10 years, with UNED's representation at both, the sub-commission NEXO and the university-industry-focused CONARE.

The acquired experience in linking allows for a clear view of the institutional needs in this area and the development of a unit that connects the actions of the university and further develops this matter.

UNED is a public university in Costa Rica, established in 1977 with the mission to provide superior education to all sectors of the population, especially those who require opportunities for real and equitable participation in society because of economic, social, geographical, cultural, ethnic and gender or disability issues. For this reason, it utilizes various technological approaches that allow for interaction and independent learning, as well as a humanistic, critical, creative and committed institute that serves the society and the environment.

The university currently has 34 campuses and three headquarters distributed along Costa Rican territory. With this unique platform, being the

only distance learning model in the country has allowed the university to implement large-scale social mobility throughout the nation, which has earned it the title of Meritorious Institution of Education and Culture of Costa Rica.

Like all public universities in Costa Rica, UNED receives State funding; however, this is insufficient for the development of the institution's core activities, making it necessary to organize activities that attract additional resources for contributing to the university's interests.

The university has four main schools: Management Sciences, Science of Education, Natural and Social Sciences and Humanities, as well as the System of Graduate Studies and Extension Department.

In 2010, the Department of International Relations and Cooperation (DIC) was created within the organizational structure of the university alongside the Vice-Presidency for Planning, with the sole objective of supporting academic excellence and the development of innovative projects in all departments. The aim of this was to create a flexible structure consisting of specialized areas that promote the establishment of partnerships aimed at promoting academic projects, research and high level institutional development, fund raising through cooperative projects, to lead the development of internationalization, and to work directly as an advisor to the authorities and other bodies of the university.

The DIC proposed four units based on their conformation: internationalization and academic mobility, international cooperation, strategic alliances and Unit of Link University – External Sector (see Figure 1).

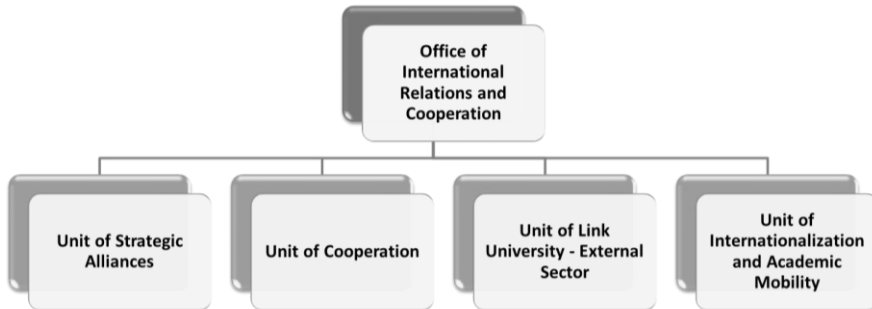


Figure 1: Organizational Chart, Office of International Relations and Cooperation, UNED, Costa Rica.

Source: Office of International Relations and Cooperation – UNED 2014.

This stage of defining the organizational base for improving the internationalization and cooperation processes and procedures of the institution provides the opportunity for the establishment of liaising with the external sector in order to promote links between the university, enterprise and government institutions through knowledge transfer and service offerings.

For the development of this link unit, UNED worked cooperatively with UniTransfer, where two objectives were proposed:

- ⇒ proposal for the internal structure of the link unit with the external sector
- ⇒ development of an action plan over five years

The creation of liaising within UNED involves an extensive list of stakeholders precisely because of its importance, as shown in Table 1 below. The four schools that are initiative generators include pro-

grammes like the Young Entrepreneurs programme and others that are closely related to institutional linking and the external environment. Meanwhile, the DIC conducts training projects aimed at communities and the productive sector, particularly through the Management Development programme and communications and technology areas that provide special training courses to companies or government institutions. The Vice-Rector for Research manages research projects for the various bodies and two observatories of particular relevance to the liaison such as the Foreign Trade Observatory (OCEX) and the Observatory for Micro, Small and Medium Enterprises (MSMEs). It also has training centres in distance education (CECED) and environmental education that offers national and international courses. In addition, UNED, being a university with a distance education teaching model, with campuses distributed throughout the country, provides a better approach to organizations, governmental institutions, private companies and non-governmental organizations in each region.

Due to its particular model, the university has developed an important source of both printed and digital material (audio and video), which is the result of the generation of knowledge from universities within different academic units; therefore, the units responsible for the production of this knowledge also become involved in the liaison, as their productions are valuable inputs for organizations that require training material and the need for updating their collaborators, especially via using a self-learning methodology.

Both the Executive vice Presidency, as well as UNED's foundation, are considered strategic allies in the management of funds for linking ally initiatives and essential for the functioning of units, given that some public institutions cannot have foundations for the management of their financial resources.

Since UNED covers all regions of the country, the decentralization of some functions is crucial; therefore, the DIC established in 2012 a network of cooperative ties with representatives from all academic and administrative areas that function as strategic links to the development of

initiatives and project proposals related to regional organizations. This network is a true strategic partner for Liaison unit.

Due to the social mission of the university, it has not been easy to introduce the concept of a paid link and the creation of a liaison figure with the external sector, as well as regulation that guarantees activity in a formal and visible manner.

It is important to mention that UNED has as many strengths for carrying out real links as it has academic units; researchers working in different areas of knowledge, an appropriate technological infrastructure for reaching diverse organizations using IT resources and valuable internal university platforms within the country all allow it to cover the entire country, and has allowed it to develop successful experiences in the linkage area with the external sector comprised by many stakeholders, which are shown in Table 1.

Furthermore, one of the most visible strengths of the university in the area of linking is the distance education model that facilitates the connection to more organizations at national and international levels, a factor that has elevated the university to a prestigious position at the national and international level.

It must be acknowledged that the learning transfer process from universities to the productive sectors of the country can be a way of financing development projects and research, equip research centres, deliver stimuli to academics and researchers, connect students and scholars with financial market dynamics and deliver intellectually significant contributions to the general population.

Table 1 Stakeholders of UNED

Stakeholders	Common Issues
Schools	Research, training and projects with the external sector.
Extension Office	Work together to offer training to the external sector.
UNED's regional campuses	These campuses are very important for the unit as they serve as a link to the community, as regional diagnostics and for delivering UNED's academic services
Training and Distance Education Center	This office is a training centre that offers courses internal and external to the university (distance education).
Environmental Training Center	This office is a training centre that offers courses internal and external to the university relating to the environment.
Research Vice-Rectorcy	Most of the research projects are managed by this office.
Publishing House – UNED	Important to all publications and materials that result from research conducted by the university.
Office of Materials Production	This area is responsible for all digital production processes such as video, audio and written materials; it also offers platform maintenance and virtual course assembly.
Observatories (OMIPYME) and (OCEX)	These two observatories are very important to the link unit, because they are directly related to enterprises and government.
Executive Vice-Rectorcy	An internal office that manages and controls project budgets.
FUNDEPREDI	A strategic partner for managing project budgets between the university and other agencies.
Internal Net of Linkage	A university network that supports the Office of International Relation and Cooperation from within the different offices, regions and areas inside the university.

Source: Prepared by the authors.

2 Theoretical framework

Higher education has reformed its effectiveness, enhancing awareness and international projection, academic internationalization and the internationalization of research and corporate linking.

Using these four distinct axes, educational processes must be globalized to fit society's needs during a particular time, rendering them proportional to problems as well as the solutions that the community requires. Currently, there is a tendency to expand the mission to problem-solving and mid- to short-term demands in the business sector, as well as in society in general. This extension at the same time requires a change in the conceptualization and reorganization of the production, storage and knowledge transfer processes that are permeable and tied to market logic; additionally, the proper characteristics of tradable products should be incorporated (López et al., 2006).

UNED has developed numerous link actions with society. Some of these actions have occurred through outreach and social action, contracts for joint research, sales training courses and specialized consulting and services. However, UNED must continue to formalize these processes through institutional policy linkages with the external sector.

Castro et al. (2006) defined the following activities as passive instruments operating together in order to formalize university offerings that meet the market demand and that exists in the socioeconomic and cultural environment:

- ⇒ **Research and development: projects:** to be developed by university professors on behalf of businesses or other entities in order to obtain new knowledge and apply it to the specific needs of the applicant.

- ⇒ **Technology Support Activities:** also takes the form of a project but its duration is less than R + D projects and differs in scope, since in this case, the aim is to apply available knowledge to the solution of the specific problem raised by the company.

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- ⇒ **Miscellaneous services R & D** (analysis, scientific and technological information, scientific and technical advice, standardization and calibration services, industrial testing, etc.): consists of the use of tools and methodologies available for analysing samples or university problems proposed by external entities.

 - ⇒ **Training of scientific and technical personnel**: by demand of individual companies or entities, using in general the facilities and capabilities of the university.

As some authors have indicated, from this point forward, the mission of the university is to develop scientific knowledge, both pure and applied and to transmit it through training and publication and dissemination, as well as to transfer it to the organizations within the environment (business, public entities, social organizations, etc.) in order to encourage innovation and to promote economic and social development for generating a business environment (Beraza Garmendia and Rodríguez Castellanos, 2007).

Therefore it is necessary to understand that university linkage describes the principles, objectives, trends, tools and university responsibilities that seek to ensure the sustainable use of resources and strengthen institutional options for innovation, scientific and technological development, creating new products and services, protection of the invention, supporting new business and knowledge transfer. It is also important to understand that in the field of research, there has been an increase in funding through contracts and closer collaboration with industry; both management and customers are viewed as companies, and universities compete for securing research projects. Institutions of higher education must provide society with the knowledge to deal with everyday problems; for this reason, the generation of knowledge must be commensurate with the problems faced by society and should be transferred to the entire population.

In this sense, UNED requires a unit to act as liaison between the academic and administrative units and the socio-economic environment in order to promote these relationships and products.

An interface structure is a unit established within an environment or area of influence that stimulates technological innovation within the elements of the environment or in others and promotes and catalyses the relationships between them (Huanca Lopez, 2004).

The interface proposal for UNED seeks to promote the linking of the university with socio-economic sectors through stages that will develop the capacity and infrastructure of the institution in this area.

According to Castro et al. (2006), a point of interface has two important roles:

- ⇒ a service provider of information for relationship and advice
- ⇒ it should encourage public debate in order to provoke discussion points

The EDI (interphase structure) should retain its status as an ally of the researcher, their service attitude and their attention to the demands of their vocation as a researcher and practicing problem solving.

In UNED, the link unit managing links between the university and the external sector will be the interface between the divisions and programmes of the university and companies offering services such as training, research and technology transfer to companies, public institutions and organized groups requiring help in specific areas. Here, UNED is able to provide these services, thus promoting a direct impact on the productive sectors, services and society in general, which in turn prompts the development of the triple helix model, which that generates benefits for everyone through the production of knowledge (see Figure 2).

The above are variables that must be appraised during the formation of the unit, as it provides a clear picture for where UNED can develop skills as an institution or specialize in specific areas. It should be stated

that a large number of these options depend on the socio-economic environment of the influence area of the university.

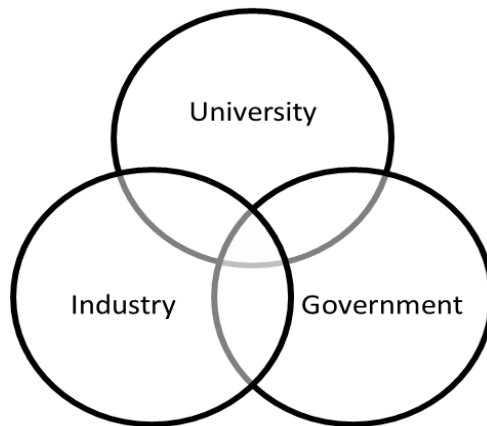


Figure 2: Triple helix model, developed by Henry Etzkowitz and Loet Leydesdorff. (2000)

Source: Etzkowitz and Loet Leydesdorff (2013): Triple Helix Model, accessed 20th of January, 2014 at <http://www.triple-helix.ufr.br/en/about.html>.

Based on the triple helix model of Etzkowitz and Leydesdorff, and research conducted by the authors, a special scheme for UNED's transfer model was developed. This scheme contains basic information that must meet the requirements involved in this process, as shown in Figure 3.

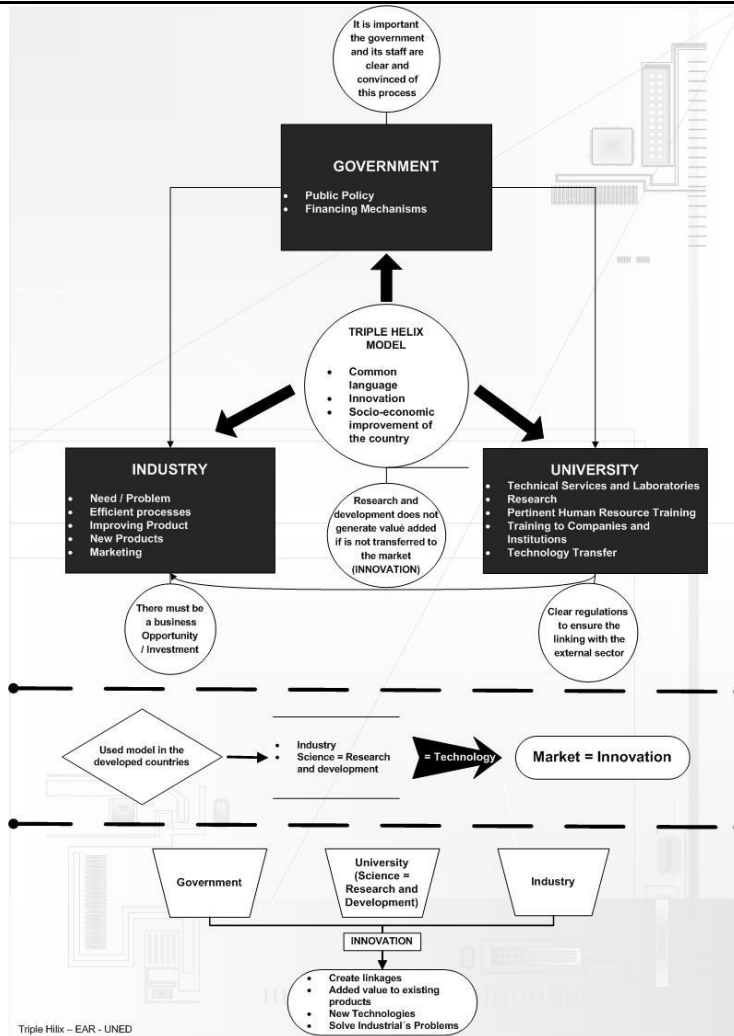


Figure 3: Triple helix model for UNED, Costa Rica.

Source: Triple helix model: dynamic linking (prepared by the authors), UNED 2014.

Figure 3 shows the triple helix model, with each of the components indicating important elements within a specific area, i.e., “government”, “university” and “company”. This knowledge is based on the readings conducted and the experience gained through the UniTransfer project. These elements are not exclusive from each of the parts, but from our perspective, serve as key elements for creating a positive alliance that is both formal and long-term to ensure the implementation of projects, as well as to inspire confidence between the different areas to achieve real innovations in different fields where linkage occurs.

The institutionalization of relations between universities and the socioeconomic environment is more fruitful when universities have earned a reputation within its geographical area of influence, either by the qualification of professionals or by the ability shown by members of the academic community to meet the demands posed by the environment in terms of scientific and technical fields (Fernández de Lucio et al., 2000). Starting from this premise, we can establish that UNED, through its university centres, has shown achievement in different regions of Costa Rica and has privileged status where communities are concerned, which will facilitate linkage to productive sectors.

3 Objectives

3.1 Long-term

⇒ establish a link unit with the external sector in UNED that allows for the execution of an action plan during the first five years

3.2 One-year achievement

⇒ propose an organizational structure and a five-year action plan for the creation of the UNED link unit with the external sector based on its model of education, to be presented to the authorities

4 Methodology

During the project, different methodologies that assisted in collecting information about assertive experience regarding UNED's theme linking measured the potential of the various instances and simultaneously discovered best practices for the structure and management of activities that were used in higher education, and which can be adapted to the needs of the institution. Table 2 shows the activities and research methodology applied for the collection of information.

Table 2: Research methodology.

Activity	Description
Internships	Visits were conducted for periods of two weeks to the Germany and Mexico, as well as Costa Rica, where participants visited the researchers and had discussions with experts about bonding, intellectual property, entrepreneurial success stories, as well as the management of the Office of Innovation and Technological Transfer.
Workshops "META-PLAN" methodology"	Six workshops were attended by 43 officials from the academy and from within administrative areas of the institution; the workshop was conducted during the month of August 2013, during which the METAPLAN methodology was applied. The objective was to internally map within the institution the different activities that the university has developed on the issue of linkage to the external sector, as well as mapping instances with more projection to the link and to set priorities for the development of the action plan's execution.
Visits to universities	Visits to the offices of linkage, technology transfer and intellectual property in other universities.
Survey to external sector	Survey commissioned to entrepreneurs during March and April 2014 via Internet using the Google Docs tool: https://docs.google.com/forms/d/1xtsMmHrd39sTVHg4BgfjU52j_r7L7qW01aXozCl7dIE/viewform

Internet re- search	Research concerning the structures related to the linkage of university-industry within 16 universities from 14 countries in South America, North America and Europe.
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4.1 Internships

During the UniTransfer project, there were three internships: (1) two weeks in the German University of Applied Sciences, Muster, addressing the issue of "science and knowledge transfer and marketing science", (2) two weeks in Costa Rica where the theme was Governance, Management "Structures of Institutions of Higher Education and the Academic Portfolio and (3) two weeks in Mexico, Autonomous university of Hidalgo State (UAEH) where the main topics were "Legal and Policy Framework". In all instances, research centres, universities, linking units, projects, as well as discussions with ministers, government and academic authorities on issues of research, development, innovation, intellectual property and linkage models were attended.

4.2 Workshops

During the research, workshops were conducted for officials from different schools and instances, which aimed to map linkages to the external sector, as well as to levels of attachment by area.

The workshops were held with officials of the academy and administrative personal and applied the METAPLAN methodology. The 43 participants, mostly managers, showed great satisfaction for the comprehensive proposal that is currently being developed for the creation of the University Liaison Unit – External Sector.

Table 3 presents a summary of the strategic sectors identified in the workshops, with priority areas to generate linkage and fostering the development of the unit. According to the results obtained, the sectors with the most potential are education and international services.

Table 3: Strategic sectors with link potential at UNED.

Strategic Sectors with link potential at UNED						
Instance	ECA	ECEN	ECSH	ECE	EXIENSI ON	VICE- RECTOR RESEAR CH
Sectors	Services	Govern- ment	Educa- tion	Public education	Govern- ment agencies	Port sector
	Tourist	Services	Security	Interna- tional	Services	Educa- tion
	Finance	Produc- tive sector		Private education		Interna- tional

Source: Workshops for discovering linkage potential – UNED 2013.

Similarly, it has been determined that the university has bonding experience within different sectors of the country, e.g., the public sector, education and cooperative services, among others. It is equally important to analyse the behaviour and relationship schools and instances that have been involved with the different sectors, as shown in Figure 4 below.

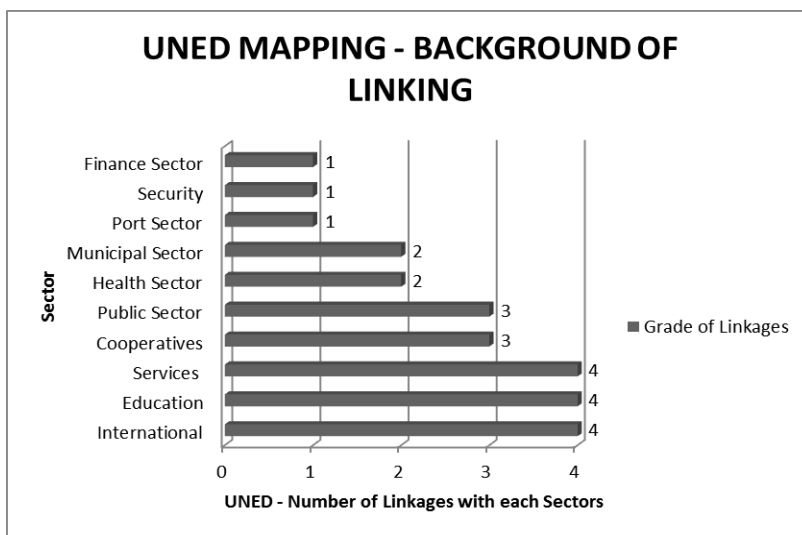


Figure 4: Background of linking at UNED.

Source: Workshops for discovering linkage potential – UNED 2013.

These findings allow us to understand the dynamics that UNED currently has in terms of linkage and reveals the tools that the university has in different areas for creating linkage. This situation helps significantly in the stage of prioritization for the development of the unit, both internally to the institution, as well as externally.

These data led to the conclusion that UNED has an important influence in many areas of the country, including private non-governmental organizations and central government and public institutions, demonstrating the strong presence of the institution in the productive sector of the country, as well as linkages with the external sector and within different areas of the university. Likewise, the university is equipped with a large number of services that it is able to offer organizations within the country.

4.3 Visits to universities

During research, visits were made to units linking public universities in Costa Rica, conducted in order to meet national models' thematic links with the external sector operating within these universities; these universities included the National University of Costa Rica, the Technological Institute of Costa Rica and the University of Costa Rica. Among the objectives of these visits were to learn about the management of projects, the distribution of funds raised and the role of foundations in linking and managing the issue of intellectual property and regulations.

These link units work very closely with the processes higher education institutions, since most of the projects are at this stage being financially managed. Another entity that manages project resources internally is the Specialized Unit for Project Funds. These two best practices for managing projects and resources and that have assisted over the years in the development of the unit are undoubtedly the product of experience gained in the selling of paid services and knowledge transfer in association with the external sector.

As background information, it was concluded that employees in units with an interdisciplinary profile link among them, e.g., project consultants for different academic areas, secretarial staff, computer staff and staff dedicated to the promotion strategy and the director of the office will also receive assistance in terms of advice for the valuation of contracts.

4.4 External sector survey

A group of institutions and companies that have received services or that have conducted joint research with UNED were surveyed as part of the research activities. The results of the survey are important, because taking into account the perspectives of the market may help to improve linkage with institutions and companies, thus strengthening existing relationships and ensuring continuity and promoting research, development and innovation. The results obtained from a sample of five organi-

zations that have worked on projects with UNED are presented in Figures 5 to 9.

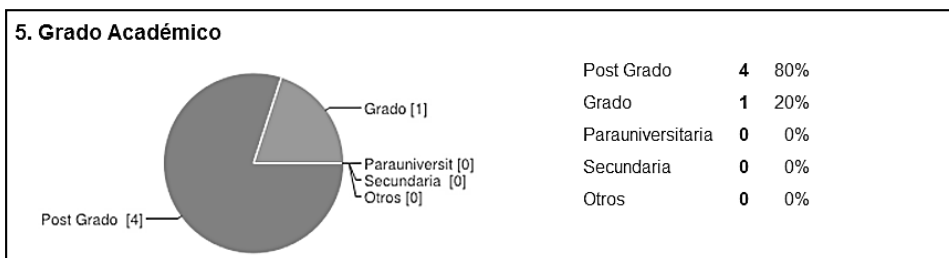


Figure 5: Academic degree of respondents.

Source: Perception survey of UNED with the external sector – UNED, DIC, 2014.

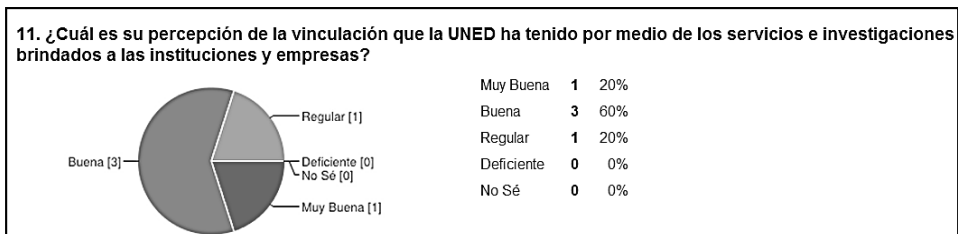


Figure 6: Perception of the linkage activities within UNED.

Source: Perception survey of UNED linkages with the external sector – UNED, DIC, 2014.

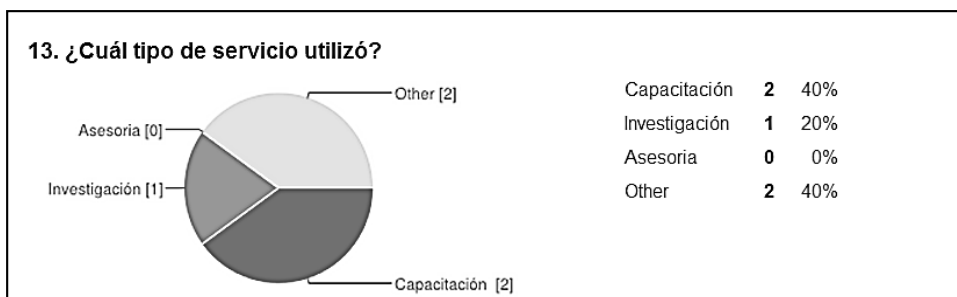
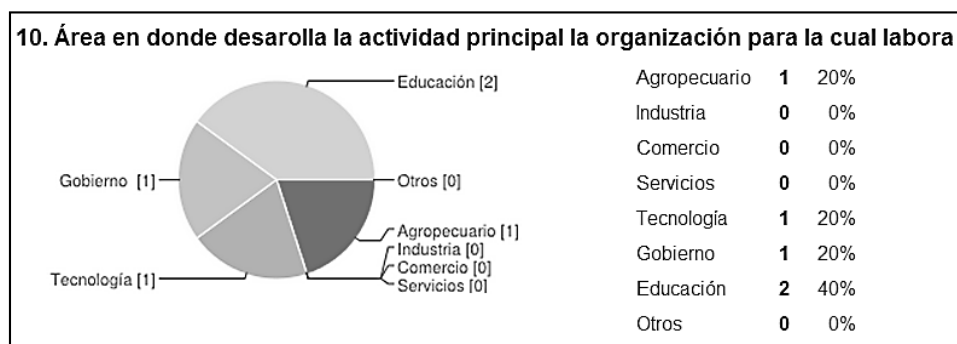


Figure 7: Type of service required by the industry.

Source: Perception survey of UNED linkages with the external sector – UNED, DIC,



2014

Figure 8: Area in which company operates.

Source: Perception survey of UNED linkages with the external sector – UNED, DIC, 2014

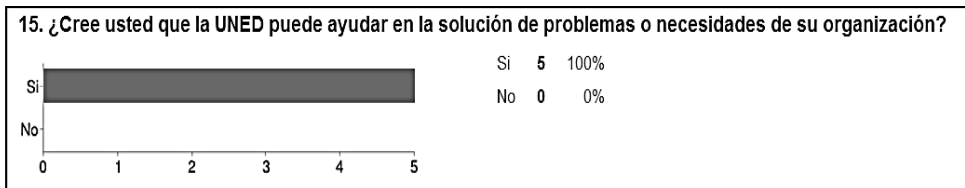


Figure 9: Perception of companies regarding UNED's ability for solve problems.

Source: Perception survey of the UNED linkages with the external sector – UNED, DIC, 2014

Answers to question 17, "What do you consider the greatest strength of UNED?" agreed that this depended on having a large presence in terms of university centres throughout the country, which allows the institution broad scope and a high probability of linkage.

Survey conclusions: companies that have implemented projects or received services from UNED have a good perception of it, which also confirms that the university has an impact on different areas such as government, education and technology. These data show that participants trust UNED's abilities to help solve problems or in contributing to organizational needs.

4.5 Research of linkage models

Some linkage university-company models that have developed internationally were analysed by selecting a number of leading universities for each defined region (Table 4-6). As a common factor, distance methodologies were used, pertaining either to all of the programmes within these universities or to at least a comprehensive programme that applies this methodology, allowing for the existence if similar aspects within their work schemes.

Table 4: North American universities.

University	Country	Name of office
University of Toronto	Canada	Office of Strategic Partnerships and Innovations
University of Colorado	United States	Research

Source: Brenes Fanny. Enterprise linking at universities, UNED 2013.

Table 5: South American universities.

University	Country	Name of office
University of São Paulo	Brazil	USP Innovation Agency
National University of Colombia	Colombia	There is no specific area; activities are developed by different offices
University of Chile	Chile	There is no specific area; activities are developed by different offices
National Autonomous University of Mexico	Mexico	Coordination of Innovation and Development
National Open University and Distance	Colombia	There is no specific area; activities are developed by different offices
Technical University of Loja	Ecuador	There is no specific area; activities are developed by different offices

Source: Brenes Fanny. Enterprise linking at universities, UNED 2013.

Table 6: European universities.

University	Country	Name of office
Complutense University of Madrid	Spain	Knowledge Transfer Office
National University of Distance Education	Spain	Transfer Office of Research Results
Sapienza University of Rome	Italy	Office for the Improvement of Research and Innovation
Newcastle University	United Kingdom	Business Services
Montpellier University	France	Business Unit
Utrecht University	Netherlands	Business
Open University of Hagen	Germany	Research Unit
Open University	United Kingdom	Open for Business

Source: Brenes Fanny. Enterprise linking at universities, UNED 2013.

Within the UniTransfer project research context, a review of models and linking units from different universities was conducted. Models for corporate engagement are very similar to higher education institutions, where linkage relationships are maintained in all cases according to three categories: Private companies, Institutions/Public companies and Research centres. This categorization of linked models are visualized in Figure 10.

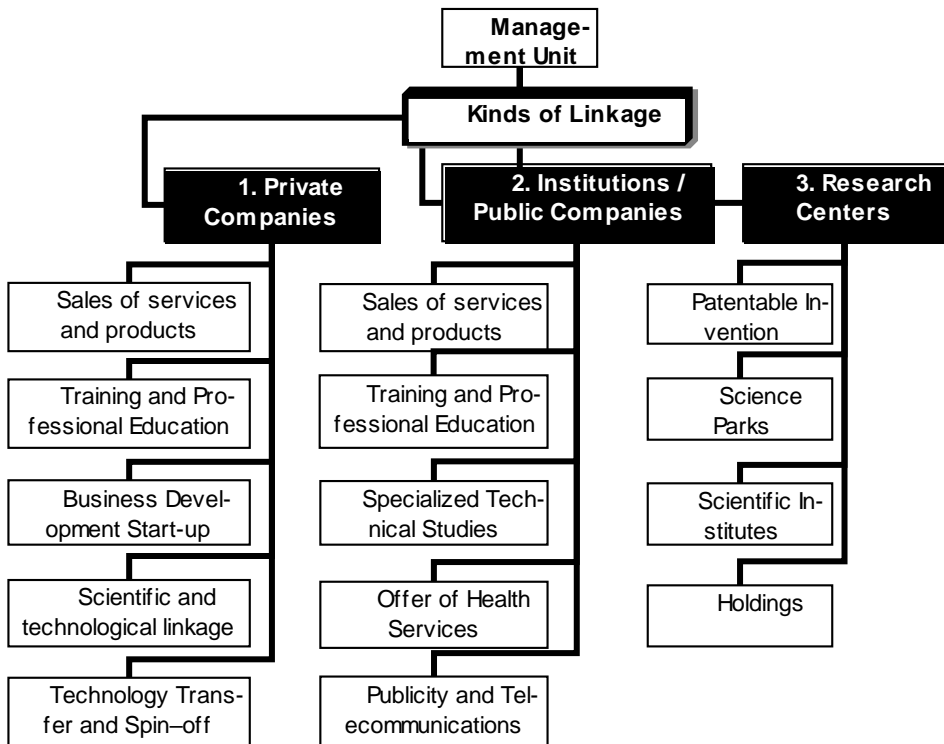


Figure 10: Linkage models of international universities.

Source: Brenes Fanny. *Enterprise linking at universities*, UNED 2013.

UNED limitations for linking: among the main barriers in the development of this project were the lack of time for researchers to work on the project proposal and the execution of linkage projects, given the academics strenuous academic load. This – coupled with the lack of incentives

and regulation related to linkage – has rendered the dynamism of the academic community problematic.

However, it is expected that the promotion of a regulation accompanied by incentives will strengthen linkage between the university and external sectors.

Some sectors of academia consider remunerated linkage to be an activity that differs with the mission of the university, which focuses primarily on social action and the unselfish transfer of knowledge. Therefore, it is important to sensitize the university population to the benefits that linkage can generate for the institution, including better conditions for transferring knowledge through social action that can deliver greater resources.

5 Results

The Department of International Relations and Cooperation is responsible for promoting the strategic partnerships of the university; with its experience through projects with government agencies and institutions, it is well-equipped for initiating liaising with the external sector. The initial linkage structure can be seen in Figure 11.

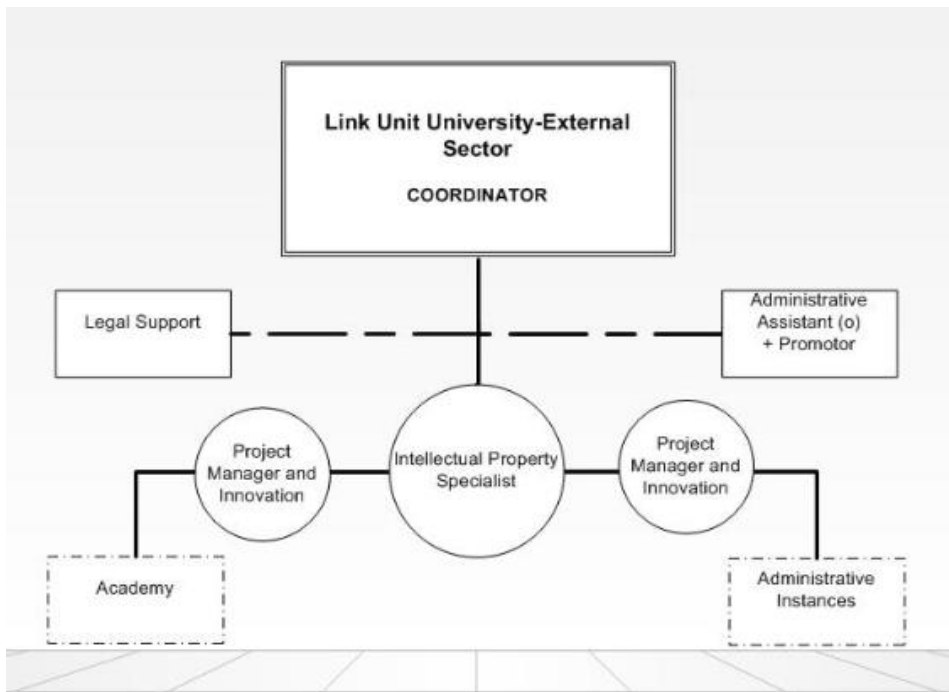


Figure 11: Proposed structures for the Link Unit University-External Sector, UNED, Costa Rica.

Source: Proposed structure for the link Unit University – External Sector. Prepared by the authors, UNED 2014.

This proposal is based on three key stages of implementation to achieve the consolidation of the unit, as shown in Figure 12. In the first phase, work in year one and two focused on the adoption of rules and procedures, training, advice to the university community and the establishment of indicators and other activities, which in turn will establish a

structure that responds quickly to all the initiatives academia and others are likely to develop through joint projects, sales service, research or advice from colleagues within the external sector. During the third and fourth year, the unit will conduct an assessment and monitor each activity or project that comprehensively boosts the university in terms of providing fast and efficient service, not only to the organizations and companies that are linked via these mechanisms, but also to college officials who are involved in the process. It is important to note that from the fourth year onwards, the subject of intellectual property will be incorporated into the unit, which is vital in units such as these, as they must review each contract and ensure clarity in the management of intellectual property products and innovations arising from these linkages. To ensure efficiency and measure the impact of the unit within the university, both qualitatively and quantitatively, for the fifth year, an evaluation of years one, two, three and four is envisioned as presenting the operational and strategic performance of the unit. All of these processes are conducted in order to ensure the continuous improvement of the unit and of the linkage activities in which the university participates.

ACTION PLAN PROPOSAL, LINK UNIT UNIVERSITY-EXTERNAL SECTOR - UNED 2015 - 2020					
YEAR -1	University Council – Approve the Linkage Unit	Presentation of the Procedure to the Rectory Council	Advising	Recruiting and Selection the staff	Institutional Culturalization
YEAR - 2	Consolidate the Institutional Framework	Establish roles and functions for the Foundation	<ul style="list-style-type: none"> • R&D Training • Innovation • Intellectual Property 	Establish Indicators	Institutional catalog for External Projects
YEAR - 3	Operationalization of the Unit	Accompaniment			
YEAR - 4	Support on Intellectual Property Matter	Accompaniment			
YEAR - 5	Evaluation to the Link Unit Continuous Improvement				

Figure 12: Action plan proposal, Link Unit University – External Sector, UNED Costa Rica

Source: Action plan proposal, Link Unit University – External Sector. Prepared by the authors, UNED 2014.

The participation of officials from the Department of International Relations, as well as the cooperation of the UniTransfer project, presented a unique opportunity for learning about best practices in this area. This experienced served as a benchmark for developing a proposal for the creation of a liaison with the external sector that is responsible for promotion and offering assistance with the development of knowledge transfer

activities and links to the public and private sector in an externally organized and regulated manner.

UniTransfer project development activities allowed for showing the capacity that the university has on the issue of bonding, experiences in different sectors of the country and a significant demand for services in various sectors and agencies.

These findings allow us to understand the dynamics that until today has been the subject of UNED's objectives for linking with the external sector. Following the completion of workshops and visits to scientific institutions, as well as national and international linkage entities, there has been a change in mentality and approach for understanding the links between the university and the external sector. It is now understood that the generation of knowledge must be applied in order to have meaning and that the transfer of this knowledge to the external sector powers the development of communities, one of the main objectives of higher education. Undoubtedly, the experience, the knowledge gained and the transfer of this knowledge to the office has generally been a positive experience for the officials of the directorate, as well as the immediate environment in which it operates.

The university must develop an excellent approach for promoting sustained interaction with business and government within a knowledge-based society that seeks to address the challenges of globalization. The university should create synergy between all parts of the triple helix model. However, currently, there remains a gap between academia and industry, which needs to be diminished as the institution develops the necessary procedures and links.

At the institutional level, the various workshops, meetings and events that address internationalization and cooperation have used these opportunities to convey the experience of bonding among all other staff at the institution in the areas of nanotechnology, biotechnology, R&D and innovation and technology transfer, among others. Undoubtedly, the importance of this experience lies in improving the capabilities of the university and of its officials, as well as the ensuing positive impact on

the country and the possibility of having a greater impact on the development of society where UNED can provide the platform for regulating and facilitating the interaction between institutions.

Importantly, both the officials involved in the workshops and the authorities have shown much interest in liaising with the external sector; thus, the UniTransfer project proposal and a plan of action was developed. College board officials have issued resolutions in favour of binding actions carried out by the university's foundation.

FUNDEPREDI is developing its regulations in accordance with the regulations of the University Link Unit – External Sector in order to work with and take advantage of articulated link networks that have been developed at the institutional level, in order to efficiently respond to a productive public sector.

The university community was consulted about the possibility of creating a link unit with the external sector, which is considered to have many benefits for the university, including:

- ⇒ contribute to research, generation and transfer of knowledge
- ⇒ contribute to and strengthen the development of society (and the productive state sector)
- ⇒ improve business processes (training, research and extension)
- ⇒ achieving recognition of the role of public universities in the country's sustainable development
- ⇒ the university must participate actively and directly in the development of the country
- ⇒ the university must generate alternative funding sources to finance its work
- ⇒ allow feedback for curricular reform

⇒ design and impact of the university within society

6 Conclusions

Various models were analysed concerning the university's relationship with the external sector in several countries and research was conducted about the possibilities that UNED can provide; this was completed via interviews, workshops and surveys. The results have shown that the relationship between the university and the external sector becomes more strategic every day in terms of developing its activities, as well as its mission as an institution of higher education. The following reasons for creating a link unit within UNED are highlighted as avenues for promoting the following functions:

- ⇒ a great deal of institutional knowledge and products generated that can be transmit to the external sector
- ⇒ institutional interest expressed through institutional arrangements and policy proposals
- ⇒ an existing history and experience in this field
- ⇒ the university has a foundation that already has to his credit several years of experience in the management of funds
- ⇒ there is a clear need for new resources to enable the university to perform multiple actions
- ⇒ public and private organizations have expressed their desire for university services in various areas
- ⇒ it is an effective way to deliver stimuli to academics and researchers

⇒ it connects students and academics to the real world

One of the primary strengths for the development of relationships within UNED is its model of distance education, based on information and communication technologies and infrastructure in university centres across the country, allowing it to respond immediately to regional sectors that do not have the support of other institutions of higher education. UNED is also currently in an important cyclical period; as the university's research scope begins to expand, the institution is working towards the development of science and technology in its laboratories, which will undoubtedly promote more relevant research in all regions, which will lead to a higher capacity link.

It is therefore proposed that a liaison with the external sector should be instituted to act as an interface between university areas and programmes that provide training services, research and technology transfer to businesses, public institutions and organized groups that require assistance on issues where UNED is able to meet existing demand.

The proposal will aim at: a cultural change in terms of establishing linkage and the transfer of knowledge within UNED; strengthening links with companies and national and international agencies for the development and innovation of the institution and society; promote the generation of innovation and development projects in coordination with national and international companies and organizations, and heighten and promote the supply of academia in government and sectors in different regions of the country.

The proposal aims to develop the structure, procedures and regulations necessary for use by the university community and the administrative divisions of negotiation linkage projects, so that it can serve as a platform for regulating activities with the productive sectors, institutions, government and those organizations with links to the university.

Clearly, using the methodology learned in UniTransfer and activities throughout this period involved stronger criteria; this has led to experi-

ence acquired and knowledge about best practices that otherwise would not have been possible. This knowledge is listed below:

- ⇒ creation of a network of experts in the field of attachment and with knowledge in areas of intellectual property, technology transfer, R&D, sales of services, entrepreneurship and research
- ⇒ research and development is a priority in developed countries
- ⇒ links with the external sector should be a priority in higher education
- ⇒ there must be a clear and relevant legal framework on the issue of linking universities with the external sector in order to enable carrying out research, development, technology and knowledge transfer from university to society in a fluent manner.
- ⇒ the promotion of the concept of the triple helix in higher education (university, business and government)
- ⇒ as determined in the precious responses, it is possible to create links where all involved are working towards a single goal

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