

## La importancia de la vinculación universidad-empresa-gobierno en México

*The importance of University-Industry-Government linkage in Mexico*

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### Resumen

El objetivo de este artículo es analizar la importancia de la vinculación universidad-empresa-gobierno desde la mirada del Plan Nacional de Desarrollo (PND) 2013-2018, y desde dos enfoques relevantes; el primero es la importancia de la vinculación de las Instituciones de Educación Superior (IES) con el sector productivo apoyado por el gobierno, y el segundo, la importancia de la ciencia, la tecnología y la innovación. La metodología utilizada para este trabajo es cualitativa puesto que parte de un modelo alternativo y simplificado, elaborado con base en referentes teóricos y empíricos aplicados principalmente en países desarrollados. La percepción de este análisis es la falta en México de una vinculación contundente debido al divorcio aparente entre las IES y el sector producto —ambos persiguen fines distintos y sostienen lenguajes heterogéneos—, y a la falta de correspondencia entre el calendario escolar y los ciclos de actividades desarrolladas en las empresas.

**Palabras clave:** Vinculación, IES, Sector productivo y gobierno.

### Abstract

The aim of this paper is to analyze the importance of linking University-Industry-Government from the point of view of the National Development Plan (PND) 2013-2018, and two relevant approaches; the first is the importance of Higher Education Institutions (HEIs) linking with the productive sector, supported by the Government, and the second, the importance of science, technology and innovation. The methodology used for this study is qualitative as part of an alternative and simplified model, based in theoretical and empirical references applied mainly in

developed countries. The perception of this analysis is the lack in Mexico of a strong bonding because of the apparent divorce between the HEIs and the product sector -both pursue different goals and maintain heterogeneous languages-, and the lack of correspondence between the school calendar and cycles of activities carried out in companies.

**Key words:** Linkage, HEIs, Productive Sector and Government.

**Fecha Recepción:** Febrero 2015

**Fecha Aceptación:** Marzo 2015

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## Introduction

The purpose in this article is to analyze processes linking University-Industry-Government from the point of view of the National Development Plan (PND) 2013-2018. One of the goals of this is: "Mexico with Quality Education", where we hold five points for the generation of intellectual capacity in Mexico<sup>1</sup>, focusing on two main items: 1) linking of education with the social and economic needs; and (2) science, technology and innovation.

These approaches are still limited, so it is essential to question what model or existing models could serve for the achievement of better results in the productive and social sectors in the region, as well as better reflexes inside and outside the Higher Education Institutions (HEIs).

The importance of linking University-Industry-Government -one of the axes of the HEIs is linkage, accepted by some scholars as the fourth substantive function- is manifested in public policies from the impulse towards innovation, where the work of the University is disputed in the generation, application and transfer of knowledge (Vite, 2009).

During the last decades, Mexico has shown persistent ups and downs in the relationship University-Productive sector, as well as little investment in science, technology and innovation in comparison with other countries, reflecting the increasing decline in the three latest federal public administrations in terms of production and application of knowledge.

In this way, linkage has become a fundamental premise in the fulfillment of the goals set in the educational plans, shared with the productive sector and the Government. This analysis, with a

descriptive qualitative approach, seeks, based on a simplified, and alternative model, developed with related theoretical and empirical references applied mainly in developed countries such as the Group of Eight (G8) (United States, Russia, Germany, United Kingdom, France, Japan, Italy and Canada), be the triple helix model of Etzkowitz and Leydesdorff, proposed in the Decade of the nineties of the 20th century, and which remains valid, implemented in developed and developing countries in an effective manner, throwing successful cases of linkage, some of them documented as "best practices" in Mexico as a result.

This work consists of five sections: abstract or overview, introduction, explanation of the methodology of the document, review of literature which defines the importance of the linkage between University-Industry-government approach of PND-2013 - 2014 and, finally, the conclusions.

### **Survey Methodology**

This research is the result of a comprehensive review of literature, following the documentary qualitative method. Various international and national authors and even national plans and programs of education, in order to establish and publicize the importance of linking both institutions of higher education, and for the productive sector, and consequently, the government consulted in Mexico, so as to achieve reaching a partnership that benefits all three sectors or propellers -of according to Etzkowitz and Leydesdorff- for economic development in Mexico. Furthermore, definitions of linkage, modes or models that reflect other and best practices in developing countries probably useful for Mexico were analyzed.

### **Importance of university-business-government**

A brief review of previous literature on the subject of study and the theoretical foundations shown to identify the importance of linking the IES in productive and social sectors supported by the government.

Gould linking defines as "integral process that articulates the substantive functions of teaching, research and extension of culture and services of HEIs for effective and efficient interaction with the socioeconomic environment." Moreover, defined as:

... The set of policies, plans, regulations, resources, administrative activities and liaison activities and projects through which HEIs carry out a systematic and coordinated manner, but not bureaucratic, its relations with the sectors, public, social and productive resources are the inputs of the system, administrative-operational activities transform inputs into results ... linking actions and projects completed in a timely manner, as their plan and quality criteria (Gould, 2002, p. 35).

From this definition, the university-industry linkage appears as relacionista process known as a result of cooperation or agreements promoted mainly by the IES (Nielsen, Chrautwald, and Juul, 2013), where a series of management processes articulate the "knowledge" known as the "know-how". This bet in the era of the knowledge society comes from the analysis made by Gibbons in the nineties; in recent years have discussed the form of knowledge production and application of this, known as Mode 1 and Mode 2, a way to identify knowledge production (Gibbons et al., 1997; Etzkowitz and Leydesdorff, 2000; Casas and Dettmer, 2006).

Of course, the process of linking the academic and productive sectors dating from the late eighteenth century, when both systems, educational and production of the most advanced nations of the world at that time, were separated. The first tended toward humanism, tempered by the intervention of the Church and the nobility, and the second was based on an agricultural and craft economy, characterized by the grouping of workers in unions (Rivera, 2006).

Gibbons mode 1 remains in force today, focusing especially on the disciplinary investigation, ie the same IES produce it, and does not apply in solving problems because only consists of basic and academic research. Meanwhile, mode 2 bet on the application and solution of problems mentioned by the Consejo Nacional de Ciencia y Tecnología (CONACYT). Not only generates knowledge but also applies feature that responds to business or government sector (FCCyT, 2013), ie, this knowledge is to be broader and practical, tends to be useful to the company or any economic unit, taking out negotiation between academic and productive or social sector (houses and Dettmer, 2006).

Based on this interpretation, the importance of linkage to produce and apply knowledge (mode 1 and mode 2) takes place in 3 areas: university-industry-government. At the international level have been documented successful experiences with the model of the Triple Helix (TH), which integrates the three spheres (Etzkowitz and Leydesdorff, 1995), and where a facilitator scheme

that hybrid organizations are in proposed themselves as innovative. This scheme has been the basis of momentum in some developed countries. Your project is that the actions of the university are the creators of scientific, technological and innovative knowledge to then transfer to the productive sector and consequently strengthen economic development in the region (Etzkowitz and Leydesdorff, 2000; Etzkowitz, 2008; Quispe, Victorino and Atriano, 2014).

Undoubtedly, the model TH betting that the interaction between university-industry-government is the key to improving conditions for knowledge innovation. We can summarize that the relationship between these three areas is used as an end and not a means for solving specific problems (Quispe, Victorino, and Atriano, 2014).

McGuinness (2008) analyzes the Kentucky case in the United States with respect to the importance of the link, and the results have been overwhelming. After ten years of being involved with the IES, after the reform established by the state, they improved their levels of education and per capita income. The social responsibility of HEIs, translated into concrete actions and development projects could focus on specific results responding to the issues identified as priorities for public policy.

Similarly, in Mexico have been documented as best practices to the following: Mota and De Ibarrola (2012) reported the importance of linking in updating the curricula of educational provision into two Technological Universities (UUTT) following the skills approach, since these powers are attributed the capacity to manage training to new needs. In their conclusions, the authors note that the initiative of international organizations, the federal government implements public policy to place the competencies as a new paradigm in human resource training. Such actions encourage HEIs to build a competency-based curriculum best option for graduates integrate into the workplace and responsive to the dynamics of globalization.

According to Rivera, Ocampo and Arredondo (2011), the Autonomous University of Baja California (UABC), university services, where researchers and academics actively involved in various processes and procedures with the productive sector with the support of the government are made state and federal; for example, the development of research projects of the calls that promotes CONACYT through the following programs of incentives for research, technological development and innovation: Innovapyme, INNOVATEC and PROINNOVA. With these supports have created educational programs such as bioengineering, semiconductors and microelectronics, renewable energy and aerospace, who engage in productive activities. From the

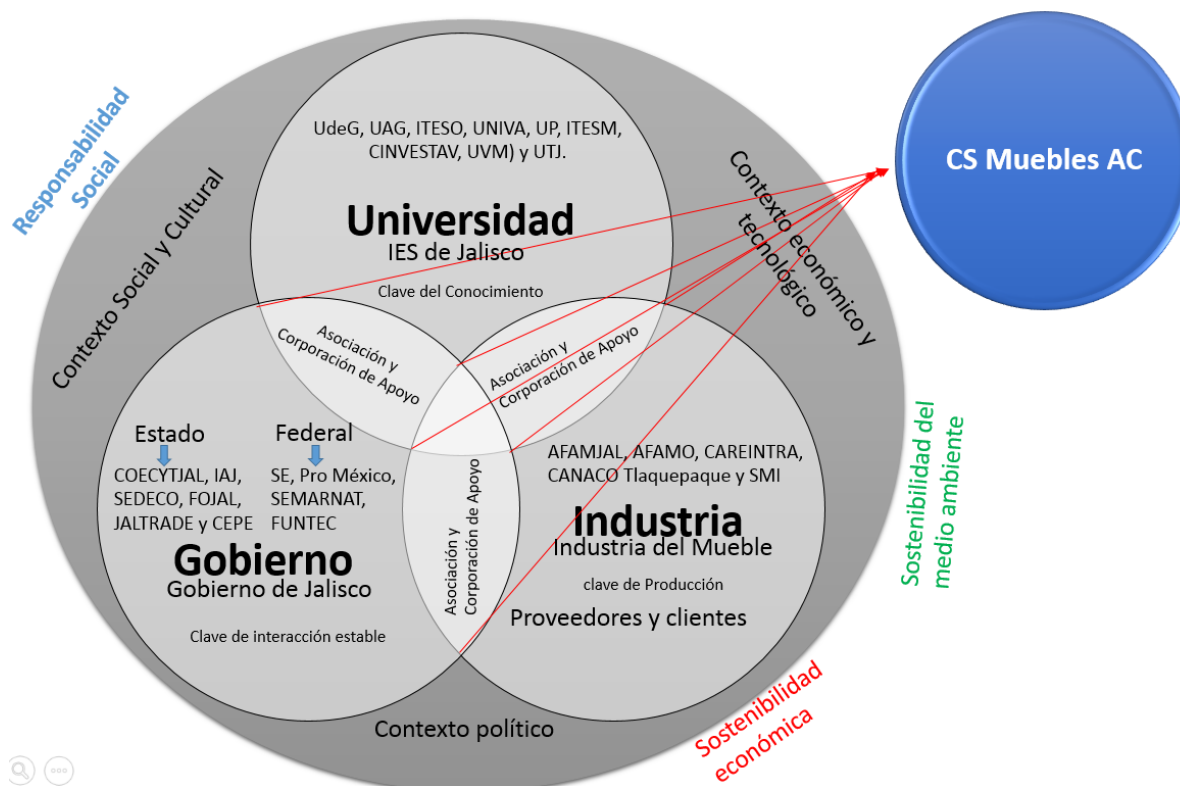
above, it appears that the UABC is based on the TH model to strengthen its educational infrastructure and, in turn, support the competitiveness of the industry.

In the state of Jalisco for linking the University of Guadalajara (University of Guadalajara) with the furniture industry, region Cienega and government involvement, particularly the State Council of Science and Technology of the State of Jalisco (COECYTJAL) was documented and the Ministry of Economic Development (SEDECO). Government participation represents the third helix that helps implement the TH model. In that sense, Rivera and Diaz (2010) documented the results of the Programme for University-Industry (PROVEMUS), speaking through advice and consultancy conducted by an expert consultant and students:

The first half of 2010 were favorably changed after receiving advisory business management by a consultant, teacher Eduardo Díaz Sierra, project leader and a group of nine undergraduates of CUCIÉNEGA five from the degree of CPA and the remaining four industrial engineering, being the following the most relevant results: improvement in strategic planning processes; transformation of the distribution of the production plant (layout), improving the production process; strengthening the administrative organization, particularly in developing operating manuals; continuous staff training including the use of manuals and implementation of a total quality program; improving organizational climate among operational staff, employees and management; Outline strengthening leadership in the company, by the definition of the business leader profile, as well as knowledge of the different styles of administrative leadership exercised by intermediate and controls some techniques in decision-making by leaders; and systematization of administrative control and regulatory function of the planning, operation and implementation of administrative tools applied in the firm (Rivera and Diaz, 2010, p. 2).

In this sense, recently Geronimo and Rivera (2014) documented experience as an important link in the involvement of different Higher Education Institutions (HEIs) with the productive sector of furniture Jalisco and his government part, and which was built a model adapted to the integration university-industry-government.

Figure I. Triangulación Triple Helix Model (IES-Furniture Industry and government of Jalisco, 2014).



Source: (Gerónimo y Rivera, 2014)

This model already has the civil Social aggregate or quadruple helix; in this case, the coordinating center "CS Furniture AC" becomes the quadruple helix to the furniture industry, which has over 1000 members from different cameras and agencies and Decoration Industry of Jalisco, such as: Association Furniture Manufacturers of Jalisco (AFAMJAL) Furniture Manufacturers Association of Ocotlan (AFAMO), section CAREINTRA furniture, furniture industry Chamber of Jalisco (CIMEJAL), Mexican Society of Interior Designers (SMI) and the National Chamber of Commerce (CANACO) Tlaquepaque, which group the majority of companies in the sector. In addition, contracts were signed recently with Higher Education Institutions (HEIs) to strengthen this important industrial sector of furniture Jalisco. The main axes of the articulating center are: competitiveness, joint purchasing, innovation, design and technology, marketing and export, and sources of funding (funding program and financial advisory).

The CS articulating center furniture, the furniture sector AC Jalisco serves between 5-10 projects per year, which bind state universities with furniture companies, relying on the state and federal government.

The main results had the productive sector to engage in their activities IES was the detonation of the third edition of the national competition for furniture design, scholarships from companies in order to learn by designers, what students have learned in the classroom, workshops and training courses for entrepreneurs by consultants in Jalisco furniture companies. For example, only in 2010 and 2011 were treated 176 furniture companies, increasing productivity on average 20%, sales on average 20% and formalizing many informal enterprises, which met all necessary records on government bodies. In 2014 he began to integrate the Mexican Council of Furniture and Decoration occasion of the problems and challenges that the industry of furniture in Mexico, whose detonator body faces was the CS furniture, AC, to combine with other manufacturers associations furniture in different states of Mexico (Geronimo & Rivera, 2014).

These examples are references that can be taken as "best practices" for building links between the three areas; undoubtedly the Triple Helix model has been the basis and strategy for knowledge generation and innovation. In turn, already exist in this major modifications to HT by technological advances and innovations in our era of knowledge-based dynamic linking helices. In that sense, Ahonen & Hämäläinen (2012) mention a fourth helix or quadruple helix of HT, "civil society" (see Figure 1). They claim that these processes are a spiral of innovation, a "creation of local innovation in a quad helix".

This quadruple helix although it was a project, currently already applied in some regions of the United States and other countries, for example, the New York Academy of Sciences took part in their region gather a group of leaders different institutional spheres to develop a series of discussions with the aim of articulating the creation of an area of consensus; a venture capital company to provide business consulting, technical and financial assistance to start-ups (Rickne, Laestadius and Etzkowitz, 2013).

The link between university-industry-government has been the focus of numerous pieces of literature (Rickne, Laestadius and Etzkowitz, 2013); placed to college in the lead role in the innovation process and product knowledge, although in some situations the government assumes



the primary or dominant role in the development of projects and provides resources for the new initiative.

In Mexico, the link remains limited, there is no linkage policy to promote the transfer of scientific, technological and innovation between HEIs and the productive sector knowledge. The NDP 2013-2018, part of a series of diagnoses, some institutional dynamics and, above all, action plans coordinated with each other lead to fruition goals. However, this implies a degree of institutional coherence that covers the social, political and economic aspects. For example, (Rivera and Rivera, 2013) analyzed university-industry linkages last six years through the NDP 2007-2012 Mexico, reaching the conclusion that the government starts from the PND denote the importance of linking academia with productive sector, materializing a series of actions to take into account public policy as university-enterprise. This conclusion hits first the political aspect when detailing the actions of attachment, and then do it on the social and economic aspects of university-industry-government linkages, before this several HEIs in Mexico have shown how important it is linked with the productive sector.

The Casalet and Casas (1998) research, in diagnosis of UNAM and FLACSO, project funded by CONACYT-ANUIES, show the need for both HEIs and the productive sector linked to detonate joint projects. One point they found is that "there was always pairing through contracts, agreements or institutional programs" but informally. Although the results were representative, including homes and Valenti (2000) assert that the vast majority of students in the higher education level in Mexico who wanted to be linked with the productive sector is achieved through personal contact, individually or promoted by teachers some races, but were part of the curriculum of the same.

Ten years after the diagnosis of Casalet and Casas (1998), many researchers in Mexico analyzed the National Surveys of both Institutional and Corporate Bonding (ENAVI and ENAVES), making a slight comparison to see the conditions in which educational institutions are in collaboration with companies in Mexico face the challenges of this new substantive axis "linking". Their findings indicate that there is likely to develop partnerships with industry emphasizing "the possibilities or conditions" in which HEIs are in Mexico. Cabrero, Arellano, Cardenas and Ramirez (2011) identified three challenges that inhibit collaboration activities: internal organization, communication and resource availability.

The first takes place by the mismatch between the school calendar and cycles of activities in companies, factor determining the lack of related teacher training activities and the lack of supply of services that have to support HEIs as these companies are unaware. The second has to do with the former; it is to improve communication between actors, and the third has to do with the availability of resources, ie 9 out of 10 HEIs established in its mission collaboration with industry; also noted that have some institutional policy purposes linkage and about 75% with an institutional legal framework (organizational manuals, procedures, etc.) to manage projects and exercise resources from businesses or organizations to carry out projects bind (Cabrero, Arellano, Cardenas and Ramirez, 2011).

During the administration of president Calderón and what will the current administration of President Peña Nieto, a multidisciplinary team of experts from the UNAM, CONACYT and the Consultative Forum on Science and Technology (FCCyT) met to produce a single document summarizing effects of investment in science, technology and innovation in the country, with a focus on university-enterprise and supported by the government. They spoke of having "programs to support research into the general policy, state IES better research capabilities and links with the productive sector and the existence of a scientific community open and organized in networks" (FCCyT, 2013, p. 18). Also in this document the need to strengthen links with the academic and peers at institutional, national and international level is established, since there is a "dislocation which has caused a slight association of graduate programs with the productive sector, leaving application area knowledge that trained human resources in S & T acquired during their preparation in graduate "(FCCyT, 2013, p. 24).

### **The importance of linking through the National Development Plan 2013-2018**

In this sense, the Mexican government through the National Development Plan (NDP) 2013-2018 has expressed the need to involve IES with the productive sector, from two main points; 1) Strengthen the institutional capacities of linking campuses and higher with the productive sector average, and encourage ongoing review of educational provision; 2) Encourage the establishment of institutional linkages tips.

The federal government plays will propose to transform Mexico, a plan defining the way we all want, the way of progress. All this in a new era, the era of information or knowledge society, which is divided into eight parts and wherein five main goals are pointed to transform Mexico:

- Mexico in Peace
- Inclusive Mexico
- Mexico with Quality Education
- Mexico Prospero
- Mexico with Global Responsibility

A national goal is "Mexico with Quality Education". This article is emphasized because its goal seeks to ensure the complete development of all Mexicans and have a prepared human capital, innovation leading source of all students to their highest potential.

The diagnosis of goal 3 indicates that "there is a high proportion of young people who do not perceive that education provides skills, competencies and capabilities for insertion and successful job performance." This is important to get involved in productive sector activities in advance, either doing their internships or a collaborative project. Within the IES is necessary to innovate the educational system for the formulation of new options and modalities. The NDP states that 18% of participants in the public consultation strengthens the view that technological careers and are linked to the productive sector; Additional HEIs have options open and distance education, technical and vocational careers that allow immediate return to work (Republic, 2013).

Since education like Korea or Japan quality will, is necessary for plans and programs of study are modified based on market needs, as regards the analysis of Reynaga doctor in the previous NDP "flexible plans of action... and strengthen institutional bodies and mechanisms to articulate a coherent way, provision, vocations and overall development of students, labor demand and the imperatives of national and international development "(Reynaga, 2011).

That is, it is inevitable to reconcile the educational offer to the requirements of the productive sector as companies require specific and rapid responses, plus the NDP referred to the need to "develop mechanisms to certify that those who have work experience but not with formal studies can demonstrate their knowledge and skills through an official document "(Government of the Republic, 2013).

On the other hand, investment in science, technology and innovation is practically on the floor, according to the figures mentioned in the NDP 2013-2018. "The global knowledge production

reached only 0.5% of the total" speaking of OECD countries. Of course, we have made great efforts to increase and exceed 1%, although it has not advanced as rapidly as they have in Europe and the United States, where higher numbers are invested to boost research and development. Meanwhile, Mexico occupies the last places in terms of investment in science, technology and innovation, due to a disconnect between universities and companies. On the one hand, employers have little contributed to the research and development, contrary to showing OECD countries (Government of the Republic, 2013).

For example, in 2011 published the National Innovation Program, supported by Article 3 of the Constitution, the law of Science and Technology and the National Development Plan 2007-2012, to strengthen scientific and technological research and innovation as a guiding principle of the economy. One of the keys to strengthening business innovation is generating units Bonding and Transfer of Knowledge (UVTC), in order to implement projects of technological development and innovation as well as links between the academic and private sectors, public. Unfortunately, Mexico still has a few links, no conclusive results as the Institute of Technology Massachusetts Stanford University, to name some. You need to keep the spirit of creating university-industry linkage to solve specific problems through knowledge and research (Intersectoral Committee for Innovation, 2011).

Significantly linking university research centers and businesses, is essential in achieving objectives and consequently the economic development of Mexico. There are numerous research centers, but have not been underutilized because the university and the company do not communicate as intended; it seems that both pursue a different purpose (Saavedra, 2009). Various literatures agree on the importance of finding ways of linking to HEIs with the productive sector, link and generate mutual cooperation, same that can be consolidated and developed through government involvement through strengthening policies and programs.

This reinforces the same PND 2013-2018, through the following statement:

Additionally, one way to encourage youth to participate in national development is driving greater linkage between economic and social needs of each region with educational programs. To do this, ensure relevance and allow, through technical professional careers and graduate level, students are inserted directly in the productive sector. Finally, for the scientific, technological development and

innovation are pillars of sustainable economic and social progress, a strong link between schools, universities, research centers and the private sector is required. Moreover, it should increase public investment and encourage private investment in innovation and development. Efforts towards the transfer and use of knowledge will add value to Mexican products and services, in addition to strengthening the competitiveness of the national workforce (Government of the Republic, 2013, p. 68).

Given this, the Government of the Republic through the PND recognizes the vital linkage between IES and the productive sector as one of the most essential strategies. To this aim within the objectives and strategies set out in the NDP, the following lines of action and national policies link:

Table I. Action lines linking PND 2013-2018

<b>Objetivo 3.5. Making scientific, technological development and innovation pillars for sustainable economic and social progress.</b>	
<b>Strategy</b>	<b>Lines of action</b>
<b>Strategy 3.5.4.</b> Contribute to the transfer and use of knowledge, linking higher education institutions and research centers to the public, social and private sectors.	Promoting the link between higher education institutions and research centers with the public, social and private sectors.
	Develop linkages and creating sustainable units linkage and knowledge transfer promotion schemes.
	To promote the entrepreneurial development of higher education institutions and research centers to promote technological innovation and self-employment among young people.
	Encourage, promote and simplify registration of intellectual property between higher education institutions, research centers and the scientific community.
	Promote the generation of small high-tech companies.
	Promote patenting to encourage innovation.

Source: Own calculations based on the NDP 2013-2018.

Furthermore, within the transversal approach "Democratizing productivity", to strengthen the institutional capacities of entailment made the following proposals:

1. Strengthen the institutional capacities of linking campuses and higher with the productive sector average, and encourage ongoing review of educational provision.
2. Promote the establishment of institutional linkages tips.
3. Increase public investment and encourage private investment in innovation and development activities in research centers and companies, particularly in the creation and expansion of high-tech enterprises.
4. Establish a monitoring system for graduates of high school and college level, and conduct studies to detect needs of employers sectors.

In addition to mentioning the NDP 2013-2018, the Education Sector Programme 2013-2018 includes some lines of action that appear from the plan:

Table II. Action lines linking PSE 2013-2018

<b>Strategy 2.4</b> Encourage scientific and technological research and promote the generation and dissemination of knowledge of impact on the country's development.	<b>Strategy 2.5</b> Strengthen the relevance of job training, upper secondary and higher education to meet the education requirements of the country.
<b>Lines of action</b>	
2.4.6 Support to institutions of higher education to its internal organization fosters links with the productive and social requirements.	2.5.5 Develop methodologies for measuring the extent of linking educational institutions with the productive sector.
2.4.8 Promote linking researchers with degrees and programs and higher education.	2.5.6 Promote the dual training and other schemes that allow the partial accreditation of study in business.
2.4.9 To encourage student participation in research.	2.5.7 To promote professional practices and internship programs or stay in the workspace.

Source: Authors' calculations based on the PSE 2013-2018.

In addition to the transverse lines with special emphasis on "Democratizing productivity", the following are mentioned:

1. Deepen the link between the education sector and productive, and encourage ongoing review of educational provision.
2. Flexibilizing or remove administrative regulations hinder or prevent unnecessarily linking school-business.
3. To promote the transfer of technology, strengthening the link between higher education institutions, research centers and the productive sector.

As we can see, the Government of the republic in the current presidential term has an interest in the link between the academic and promotes productive sector where the relationship is based on the age of the knowledge society and a goal by all Mexican IES.

In this sense, the Mexican government begins to realize and emphasizes through the NDP 2013-2018 on the importance of linking the three areas that relate Etzkowitz and Leydesdorff (1995) model of the Triple Helix, landing in cases like which relate McGuinness (2008), Mota and De Ibarrola (2012).

### **Conclusions**

The model of the "TH" and added "civil society" have been widely adopted in different parts of the world to promote regional innovation system, with the recognition that today no company can compete successfully in markets increasingly globalized without the collaboration and collective learning.

This creation of new propeller called "civil society" is the result of the participation of university-industry-government as a coordinating center where detonate collaborative projects between the three propellers to meet the supposed economic and social aspects, and also invest in science, technology and innovation to increase competitiveness.

Only when Mexican companies are supported by the universities and the government will be able to compete with any foreign market. Knowledge and innovation are seen as capable of generating skills, highlighting three major categories in production and learning in our era of knowledge; 1) learning by doing; 2) using and learning; 3) learning by interacting. These complement and

strengthen the increasing emergence of knowledge, committed to innovation and consequently to the knowledge of students, consultants, teachers, researchers and all those involved.

The federal and state governments are already paying more attention to the axis of linkage and created a series of actions that take as linking policies to strengthen the capacity of HEIs with the productive and social sector. You have to see whether trained or investment can strengthen the capacity of HEIs, but what is clear is that with these actions the Mexican government is already pushing to linking development and economic growth.

The government should allocate more funds to detonation of HEIs and the productive and social sector. As a result, HEIs and the productive sector begin to generate collaborative projects. That is, the government should value more the application of knowledge because only in this way can create strong public policies that grow the economy. With the involvement of HEIs in the productive and social sectors, the quality of education would rise, skills (theory and practice) would develop the competitiveness of regions would increase and the goal of win-win is achieved.



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