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Title: The triple helix as a successful model for integrating multidisciplinary workgroups on innovation projects in the Technological University of Tula-Tepeji, Mexico

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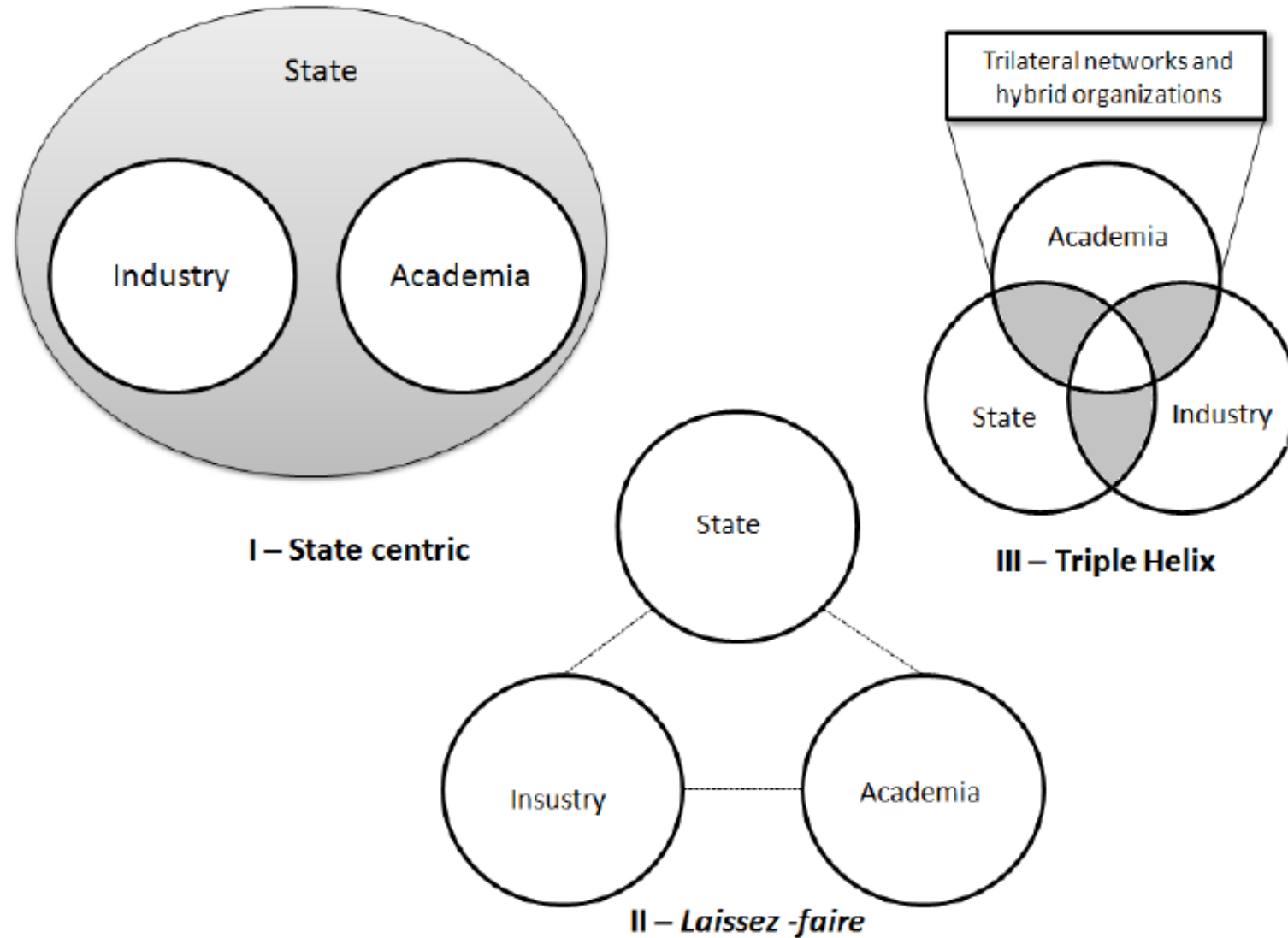
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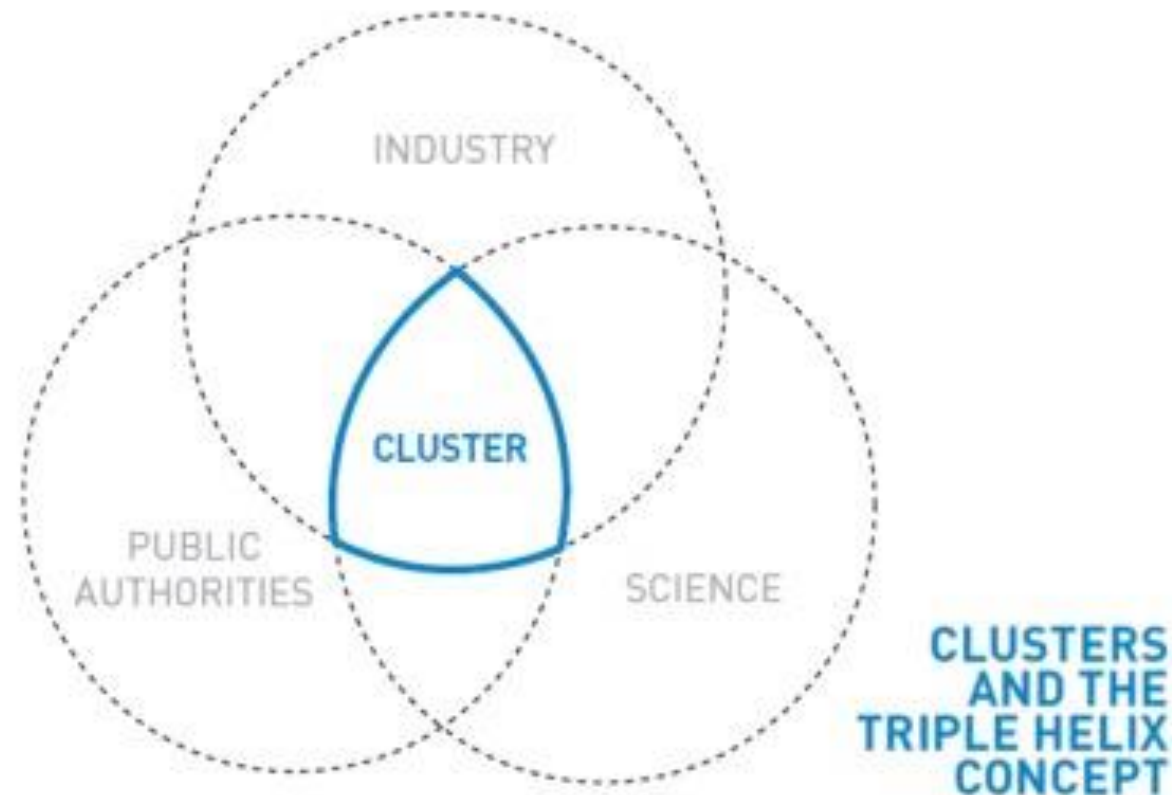
From the State centric model to the Triple Helix model



The concept of the Triple Helix

University-Industry-Government initiated in the 1990s by Etzkowitz (1993) and Etzkowitz and Leydesdorff (1995), encompassing elements of precursor works by Lowe (1982) and Sábato and Mackenzi (1982).

Interprets the shift from a dominating industry-government dyad in the Industrial Society to a growing triadic relationship between university-industry-government in the Knowledge Society.



Perspectives for approaching the Triple Helix dynamic

A (neo) institutional perspective which examines the growing prominence of the university among innovation actors through national and regional case studies (e.g. in Latin America: Mello and Rocha, 2004; Etzkowitz, Mello and Almeida, 2005; Saenz, 2008; Bianco and Viscardi, 2008; Luna and Tirtido, 2008; in Africa: Konde, 2004; Kruss, 2008; Booyens, 2011; in the US: Campbell et al. 2004; Feldman and Desrochers, 2004; Boardman 2009; Wang and Shapira, 2012; in Europe: Klofsten et al. 1999; 2010; Inzelt, 2004; Geuna and Nesta, 2006; Lawton Smith and Bagchi-Sen, 2010; Geuna and Rossi, 2011; Svensson et al. 2012)

A (neo) evolutionary perspective, inspired by the theory of social systems of communication (Luhmann, 1975, 1984) and mathematical theory of communication (Shannon, 1948)

Academic Groups in the Universidad Tecnológica de Tula-Tepeji

The Universidad Tecnológica de Tula-Tepeji is a reference point for analyzing and comprehending of the developing of Academic Groups in the context of the mexican Technological Universities.

There are 12 Academic Groups (AGs / CAs),
8 – En formación (Initial stage)
4 – En consolidación (In consolidation stage)

The (AGs) participants in this project were:

Environmental Systems and Engineering
Administrative Models, Accounting and Fiscal
Poles of Economic Development Academic Group

All of them in Consolidation stage

Academic groups and its interaction with the Industry

According to the basic concepts given in the official website of PRODEP and focused on the Technological Universities (UUTT, spanish acronym), an Academic Group is:

“In the Technological Universities, an Academic Group (CA) is a group of professors or academic personnel, who shares one or more innovative lines of Applied Research and Technological (LIIADT) , which are mainly aimed at **assimilation , development, transfer and Improvement of technologies and processes to give today all the productive sector and services of a particular region.**”

Intervention region



Hidalgo State

**2,858, 359 inhabitants (INEGI,
2015)**

84 municipalities

**7 industrial parks, most of them in
the southern belt of the Hidalgo
territory.**

**The industrial cluster is located in
Atitalaquia, Hidalgo**

The link was done with a company developer of diagnosis instruments

The project (two stages, 2014 and 2015) was funded by the Programa de Estímulos para la Innovación-CONACYT (National Programm for Funding the Innovation)

The project was developed during two stages:

Stage I

The description and analysis of the Mexican medical service

The estimation of the critical values for the economic scaling of the prototype

The estimation of production volume, storage and distribution

Preliminary estimation of total costs (considering the prototype characteristics and two scenarios of production)

Stage II

The activities were focused on the implementation of the previous stage, considering the inclusion of the suppliers and service providers.

In this stage the marketing strategy was developed and represented the central core of this phase.

The total cost was adjusted to the prototype modification. The structure of the projects was done by using the CANVAS model (Ferreira-Herrera, 2016).

Results

- * Connection between the Technical University of Tula-Tepeji and the industrial sector
- * Academic Groups interactions
- * Project implementation
- * Strengthening of the work groups

Conclusion

The model of the triple helix is perfectly suited to the needs of industry and the philosophy of the Technological Universities , however it is still necessary to refine the mechanisms of participation, it might be given in an harmonious and productive environment

To solve more than one issue:

On one hand the solution to immediate problems of the industrial sector and secondly, allows to get better training to students by integrating them to real scenarios, enrichment of teacher expertise and to reach new levels of prestige and academic recognition.

Etzkowitz, H., & Leydesdorff, L. (1997). Introduction to special issue on science policy dimensions of the Triple Helix of university-industry-government relations. *Science and Public Policy*, 24(1), 2-5.

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Ferreira-Herrera, D. C. (2016). El modelo CANVAS en la formulación de proyectos. *Cooperativismo & Desarrollo*, 23(107).

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