





Joint mechanism of institutions of higher education for the creation a Social Innovation Ecosystem in Istmo de Tehuantepec, México

Propuesta de mecanismo de articulación entre Instituciones de Educación Superior para impulsar primer Ecosistema de Innovación Social en el Istmo de Tehuantepec, México

Landa-Torres, Iris Adriana ^{a*}

^a  Universidad Veracruzana •  KYR-5580-2024 •  0000-0002-4828-2612 •  713131

CONAHCYT Classification

Area: Social Sciences
 Field: Geography
 Discipline: Economic geography
 Subdiscipline: Regional development

 <https://doi.org/10.35429/JLE.2024.8.14.2.10>

History of the article:

Received: June 28, 2024
 Accepted: December 29, 2024

*  [\[ilanda@uv.mx\]](mailto:ilanda@uv.mx)





Abstract



In 2023, was announced the Universidad Tecnológica del Sureste de Veracruz (UTSV) as the host of the first Industrial Innovation Center of the Isthmus of Tehuantepec. Since then, we develop mechanisms that facilitate the establishment of the first Social Innovation Ecosystem. The objective of this article is to describes the efforts made concerning the proposal and designing a Social Innovation Ecosystem. The first stage, the implementation of “The IES Articulation Mechanism” as an action complementary to the promotion of the Program for the Development of the Isthmus of Tehuantepec and the Interoceanic Corridor of the Isthmus of Tehuantepec. A critical path and articulation mechanism were designed based on the loose coupling proposal. The contribution of this article is the documentation of mechanisms for collaborative work to promote social innovation among Higher Education Institutions to achieve local development.

Resumen

En 2023 se anunció que la Universidad Tecnológica del Sureste de Veracruz sería sede del primer Centro de Innovación Industrial del Istmo de Tehuantepec. Desde entonces se ha trabajado en desarrollar instrumentos que faciliten la instauración del primer Ecosistema de Innovación social. El objetivo de este artículo es describir los esfuerzos realizados para operacionalizar la propuesta y diseñar un Ecosistema de Innovación Social en el Istmo de Tehuantepec y la puesta en marcha de una primera etapa “El Mecanismo de Articulación IES” como acción complementaria para el impulso del Programa para el Desarrollo del Istmo de Tehuantepec y el Corredor Interoceánico del Istmo de Tehuantepec. Se diseñó una un mecanismo de articulación basado en la propuesta organizacional de los acoplamientos flojos. La contribución de esta ponencia es la documentación de mecanismos de trabajo colaborativo para impulsar la innovación social entre las Instituciones de Educación Superior e impulsar el desarrollo local.

| Propuesta de mecanismo de articulación entre Instituciones de Educación Superior para impulsar primer Ecosistema de Innovación Social en el Istmo de Tehuantepec, México. | | |
|--|--|---|
| Aim | Methodology | Conclusions |
| Describes the proposal and desing of a Social Innovación System in the Isthmus of Tehuantepec  | The design of a critical route for the first stage of a Joint Mechanism  | Loosely coupled joint ↓ Coordinated according to Leyton ↓ Development according to Löwit ↓ (agreements, training, commitment letter, equipment) |

Social Innovation Ecosystem, Joint Mecanism, Istmo de Tehuantepec

| Propuesta de mecanismo de articulación entre Instituciones de Educación Superior para impulsar primer Ecosistema de Innovación Social en el Istmo de Tehuantepec, México. | | |
|---|--|--|
| Objetivo | Metodología | Conclusiones |
| Describir el primer Ecosistema de innovación social en el Istmo de Tehuantepec  | Elaboración de una ruta crítica para un mecanismo de articulación  | Articulación flojamente acoplada ↓ Coordinación nivel según Leyton ↓ En desarrollo según nivel de maduración de Löwik ↓ (Acuerdos, Formación, Carta compromiso, catálogos de |

Ecosistema de innovación social, Mecanismo de articulación, Corredor Interoceánico del Istmo de Tehuantepec

Citation: Landa-Torres, Iris Adriana. [2024]. Joint mechanism of institutions of higher education for the creation a Social Innovation Ecosystem in Istmo de Tehuantepec, México. Journal-Law and Economy. 8[14]1-10: e2814110.



ISSN 2524-2113 /© 2009 The Authors. Published by RINOE-México, S.C. for its Holding Republic of Peru on behalf of Journal-Law and Economy. This is an open-access article under the license **CC BY-NC-ND** [<http://creativecommons.org/licenses/by-nc-nd/4.0/>]

Peer review under the responsibility of the Scientific Committee **MARVID**[®]- in the contribution to the scientific, technological and innovation **Peer Review Process** through the training of Human Resources for the continuity in the Critical Analysis of International Research.



Introducción

The Isthmus of Tehuantepec is located between the states of Oaxaca and Veracruz, is the narrowest land area in North America, between the Pacific Ocean and the Gulf of Mexico has a distance of 300km, which makes it a very attractive and competitive space in the field of global logistics platforms. (Programa Istmo, 2023).

This region is an opportunity for the creation of a multimodal platform that offers new maritime routes and rail connections to reduce travel times, as well as the opportunity to develop regional cabotage and connect local, national and international markets. Finally, the Isthmus region is rich in natural, human, energy and water resources, making it an integral and attractive space to promote regional development and economic growth.

For centuries, the Isthmus has attracted countless governments, companies and projects that have been interested in installing infrastructure to take advantage of its competitive and comparative advantages. It was during the current federal government (2019-2024) that the Interoceanic Corridor of the Isthmus of Tehuantepec (CIIT) project was presented, the backbone of a broader planning process headed by the Programme for the Development of the Isthmus of Tehuantepec (PDIT).

The PDIT is an integrated project that is based on the CIIT but seeks to promote other complementary strategies, including the Poles of Development for Wellbeing (PODEBIS) that have proposed the creation of an Industrial Production Ecosystem, aimed at developing industrial corridors that promote the productive vocations of the region (agro-industry, food, metals, wood, transport equipment, petrochemicals, textiles, chemicals, plastics and rubber, and machinery and equipment) to include the communities of the region and trigger regional development.

On the other hand, the Technological University of Southeast Veracruz (UTSV) is strategically located in the city of Nanchital, Veracruz, right in the middle of 4 PODEBIS, with physical spaces, specialised laboratories, recognised researchers and the political disposition to collaborate hand in hand with the Isthmus Programme.

On 22 August 2023, the UTSV officially announced the creation of the first Centre for Industrial Innovation in the Isthmus of Tehuantepec (CEIIT), the first of a 'Network of Industrial Innovation Centres of the Isthmus of Tehuantepec' as an initiative to strengthen human capital with the aim of 'raising regional competitiveness, the attraction of investment and the development of jobs with greater added value, enabling a cutting-edge, collaborative and innovative technological environment, operated on a triple helix strategy but with a penta helix implementation, which supports entrepreneurs, as well as micro, small and medium enterprises, to strengthen their capacity for innovation, technological adoption and digital transformation; favouring the consolidation of the regional innovation ecosystem'.

The CEIIT is directly linked to Priority Objective 2 of the Tehuantepec Isthmus Development Programme 'Promote a new model of economic growth for development for the benefit of the entire population of the Isthmus of Tehuantepec', Specific Action 2.1.3 'Promote the development of innovation in the agricultural and livestock sectors, processing industry and services to increase the welfare of the population of the Isthmus of Tehuantepec'.

The Innovation Centre to be installed in the UTSV will focus on meeting the technological and training needs, particularly those generated within the development poles in:

- Coatzacoalcos I
- Coatzacoalcos II
- Jáltipan
- Texistepec

The Centre's mission is 'to be a reliable mechanism for the articulation of penta-helix efforts that promote innovative and endogenous development of the productive chains of the Isthmus of Tehuantepec region'; its general objective is 'to contribute to the development of the productive chains of the Isthmus of Tehuantepec region, through the training of local talent and attention to technological needs for the acceleration of technological adoption processes and the increase of innovation capacities for the development of products with greater added value'.

The first specific objective consists of 'Implementing an Industrial Innovation Centre that contributes to increasing regional competitiveness, attracting investment and the development of jobs with higher added value, particularly for entrepreneurship and MSMEs', the goal of this objective being 'Design, installation and implementation of an Industrial Innovation Centre of the Isthmus of Tehuantepec Campus Coatzacoalcos at the Technological University of Southeast Veracruz equipped with 4.0 technologies'; being the Higher Education Institutions (HEI) a strategic actor for the processes of Innovation and Technological Development, the development of Human Talent and Technological Adoption.

Although the first Industrial Incubation Centre is planned at the UTSV, it has been indicated that this effort requires collaboration and inter-institutional cooperation with other HEIs in the region, in a first stage, to later connect with other innovation centres in other parts of the country and the world.

In the medium term, the participation and collaboration of the private initiative and business organisations is also projected, which in a first stage were brought together in the framework of the Collaboration Agreement for the 'Strengthening of knowledge for productive activity and human development in the Isthmus of Tehuantepec' signed on 19 December 2021.

This effort faces the challenge of moving from the design to the implementation of the Industrial Innovation Centre, as well as achieving an effective communication mechanism to establish clear and precise channels for inter-institutional collaboration.

Thus, this article presents the documentation and proposal of an articulation mechanism and the critical path for the implementation of the Industrial Innovation Centre at UTSV.

Ensuring that the Innovation Centre is the core of a social Innovation Ecosystem that drives industrial development, as well as the inclusion of the community to achieve local development.

Theoretical Foundations

Social Innovation Ecosystems

Social innovation is understood as the 'development and implementation of new ideas for the satisfaction of social needs and the creation of new social partnerships, which are not only concerned with the provision of goods, but also with the development of the capabilities of individuals'. ([Foro Consultivo Científico y Tecnológico AC, 2017](#)), this implies that social innovation generates:

- Social value and contributes to human development and well-being,
- Collectively builds the future of a community, establishes new ways of doing things and
- It establishes new ways of doing things and achieves better outcomes
- Offers cost efficiencies
- Strengthens the participation of the community itself and the beneficiaries; and
- Generates citizen actors of democracy.

Social innovation must be managed from a systemic approach that is preferably generated in intersectoral spaces, so these exchanges and flow of work and information generate social innovation ecosystems. A social innovation ecosystem is considered to be:

[...] a living entity in which diverse actors interact is also the set of relationships and flows of resources and knowledge, which allows their assimilation in all aspects, giving rise to the emergence of entrepreneurship ([Foro Consultivo Científico y Tecnológico AC, 2017, pág. 41](#)).

According to the report Mapping the World of Social Innovation, an ecosystem of social innovation requires certain enabling factors, including: active civil society, financing, new technologies, networks and cooperation platforms between different strategic actors, a supportive legal framework and the political will to drive change. ([Sotelo Marquez, 2018](#)). The importance of generating a social Innovation Ecosystem is the capacity to generate strong interconnections that end up in new hybrid and flexible organisational models that facilitate communication, work and the achievement of established objectives and goals, above all, it promotes the incorporation and inclusion of different actors of a community, benefiting everyone equally.

From the theoretical review of Innovation Ecosystems, the priority of generating organisational models that allow articulation to facilitate communication and the flow of ideas and information stands out. Therefore, in the first stages for the creation of the Social Innovation Ecosystem of the Isthmus of Tehuantepec, a mechanism of articulation between Higher Education Institutions (HEIs) was proposed to ensure prompt and coordinated responses to the needs of the region in terms of industrial development, innovation, development of productive projects and the solution of needs and problems of the Isthmus region.

Loosely Coupled Organisms

As the HEIs are a strategic actor to consolidate the implementation of the first Centre for Industrial Innovation in the Isthmus of Tehuantepec (CEIIT), there must be a strategy that facilitates communication, synergy and collaborative work that leads to the achievement of the main objectives and goals established by the CEIIT. This implies an effort to eliminate individualism in decision-making and to consolidate a loosely coupled articulation, understanding this idea as “the image that coupling events gives answers, but that each event also retains its own identity and some evidence of its physical or logical separation” (Weick, Caldera- González, & Ortega-Carrillo, 2009, pág. 95). The advantages of those organisations that opt for loose couplings are (See figure 1):

Box 1

| | |
|---|--|
| Can provide a sensitive detection mechanism | perception is more precise when a medium perceives a thing and the medium contains many independent elements that can be delimited on the outside. |
| May be good for localized adaptation | If all the elements in a large system are loosely coupled together then any one element can adapt and modify a single local contingency without affecting the entire system. These local adaptations can be rapid, relatively inexpensive and substantial. |
| A greater number of mutations and novel solutions can be retained | Greater “cultural security is preserved, which is called upon in times of radical change, providing solutions to problems and greater diversity for adaptation. |
| Quickly adaptable to unique local conditions and problems | If there is a breakdown in any part of the system, this breakdown is closed and does not affect other parts of the organization. |
| Should be relatively inexpensive to get up and running | The reduction in the need for coordination results in fewer confluences, fewer inconsistencies between activities, fewer discrepancies between categories, and the activity “keeps coordination costs to a minimum.” |

Figura 1

Advantages of loosely coupled organisations. Elaborated with information from Weick, Caldera-González & Ortega-Carrillo (2009).

Loose couplings can take advantage of the combination of other methodologies and articulation processes, however, Weick, Caldera-González, & Ortega-Carrillo (2009) identify certain elements for the generation of an agenda for loose coupling between organisations (See Figure 2).

Box 2

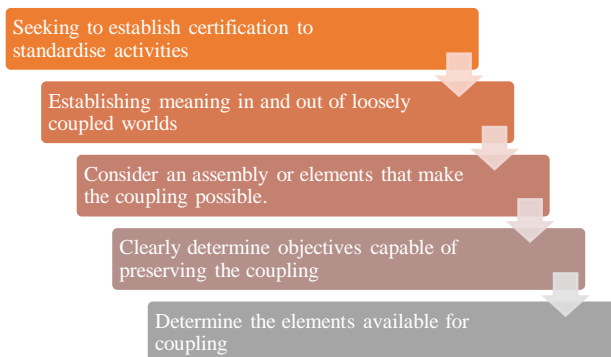


Figura 2

Loose coupling agenda. Elaborated with information from Weick, Caldera-González & Ortega-Carrillo (2009).

Loose coupling is a basic proposal for the construction of articulation mechanisms, understanding articulation as the synergy that results in the joint action of two or more actors, and whose value exceeds their simple sum. Leyton (2018) citing Corbett and Noyes recognises that articulations can reach up to six levels of intensity (see Figure 3).

Box 3

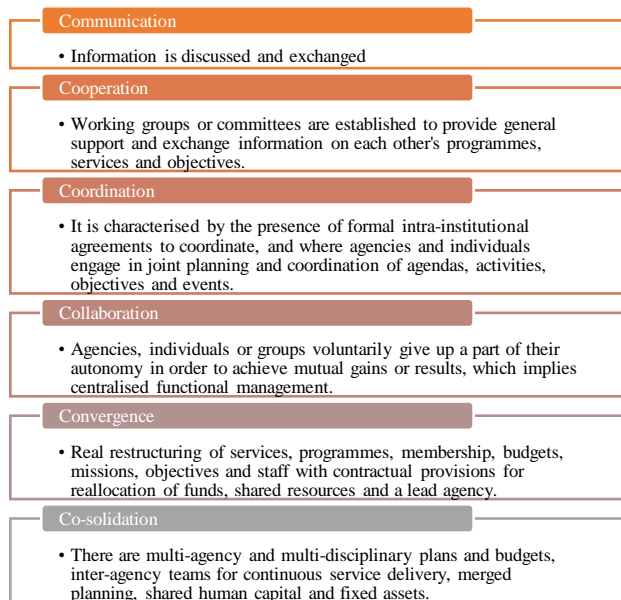


Figura 3

Levels of articulation. Elaborated with information from Leyton (2018)

According to Löwik, Oude Alink, & Pulles (2017) in an innovation campus, defined by the author as a new innovation ecosystem that is located in a specific geographical space, with a building equipped with high quality technology, which houses innovation practices among residents and partners, which is oriented to business development; there are levels of maturity, which may vary depending on the specific characteristics of the project, complexity and participants. In general, an innovation campus understood as an ecosystem or a living lab according to Schuurman, Herregodts, Georges & Rits (2019) has four stages in its life cycle: birth, growth, maturation and adaptation; in each stage, the articulation requirements vary, in figure 4 the levels of maturity in an innovation campus can be visualised.

Box 4

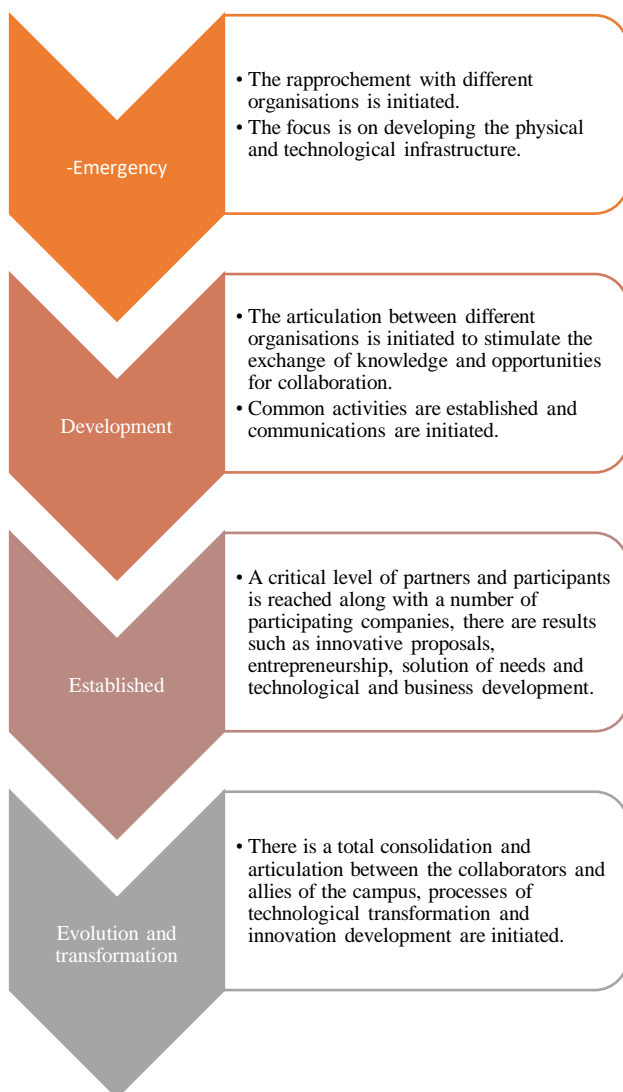


Figura 4

Levels of maturity in an innovation campus. Own elaboration with information from Löwik, Oude Alink & Pulles (2017)

Marco Normative

The proposal to create Social Innovation Ecosystems is aligned with the National Development Plan 2019-2024 (Gobierno de México, 2019), the Education Sector Plan 2019-2024 (Diario Oficial de la Federación, 2020), the Regional Programme of the Isthmus of Tehuantepec 2020-2024 (Diario Oficial de la Federación, 2020a), the Isthmus Programme 2023-2024 (Diario Oficial de la Federación, 2023), the Veracruz Development Plan 2019-2024 (PVD) (Gaceta Oficial, 2019) and the 2030 Agenda (Naciones Unidas, 2015).

With respect to the NDP 2019-2024 it is aligned to:

Axis 1. Policy and Government

- i. Ensuring employment, education, health and welfare.
- ii. Ethical regeneration of institutions and society
- iii. Specific strategies

Axis 2. Social policy

- i. Potentiators of welfare programmes

Axis 3. Economy

- i. Detonating growth
- ii. Regional Programmes

2. Programme for the Development of the Isthmus of Tehuantepec

The education sector plan is aligned to:

- Priority Strategy 2.7 Guarantee the right of the population in Mexico to enjoy the benefits of the development of science and technological innovation, by promoting scientific, humanistic and technological research.
- Specific action 2.7.5 Develop programmes in emerging areas to contribute to the sustainable solution of national and regional technological problems.
- Specific action 2.7.6 Establish regional research and postgraduate centres, laboratories and social innovation networks operating as consortia of HEIs, with emphasis on the less developed areas of the country, in particular the Central-South and South-South-East regions.

- Specific action 2.7.7 Encourage the social commitment of HEIs to form skilled, responsible and honest citizens, as well as projects that offer sustainable solutions to the challenges of their communities and the country.
- Priority Strategy 6.4 Strengthen vertical and horizontal coordination for the implementation of the new National Education Agreement.
- 6.4.6 Define effective mechanisms for state linkages between HEIs, government bodies, business organisations and civil society organisations for the relevance of the educational offer, scientific and technological innovation and its application in the territories.

In relation to the Isthmus Programme

Priority objectives

1. Strengthen social and productive infrastructure in the Isthmus of Tehuantepec region.
- Priority Strategy 1.3 Strengthen social infrastructure in terms of basic services in urban and rural networks and equipment for health, culture, education and public spaces to ensure the integral development and well-being of the population in the Isthmus of Tehuantepec region.
 - Specific activity 1.3.4 To build and improve urban and rural equipment in the sectors of health, culture, education and public spaces for the urban and rural localities of the Isthmus of Tehuantepec.
- 6.2 Promote a new model of economic growth for the development for the benefit of the population of the Isthmus of Tehuantepec.
- Priority Strategy 2.1 Design and implement, based on the productive holidays of the Isthmus of Tehuantepec, programmes that generate productive linkages with regional value chains that favour the increase of productivity in all sectors of the Isthmus of Tehuantepec.
 - Specific activity. 2.1.3 Promote the development of innovation in the agricultural and livestock sectors, the processing industry and services to increase the wellbeing of the population of the Isthmus of Tehuantepec.

6.3 Ensure the articulation of emerging actions for the population living in extreme poverty in the Isthmus of Tehuantepec.

- Priority strategy 3.1 Link the Mexican Government's public policy to increase the scope of attention to the vulnerable population of the Isthmus of Tehuantepec.
- Specific action 3.1.1 Take steps to ensure that agencies and other public institutions analyse schemes to focus resources from budgetary programmes on the 79 municipalities of the Isthmus of Tehuantepec, especially those with the highest incidence of extreme poverty.

The Veracruz Development Plan contributes to the axes of Economic Policy, Education and Human Development, particularly to the strategy that seeks to reduce poverty, inequality and social vulnerability through work that stimulates productivity in the communities.

Finally, the CEIITs also contribute to the 2030 Agenda, in particular to SDG 9 'Industry, innovation and infrastructure', which promotes the construction of infrastructure and promotes inclusive, sustainable and innovative industrialisation. It also indirectly aligns to SDGs 1, 2, 4, 8 and 10.

Methodology

Based on the rationale of the Social Innovation Ecosystem and the importance of articulation for the correct flow of ideas, information and collaboration, as well as its alignment with the national legal framework and the 2030 Agenda.

It was recognised that for the first CEIIT to be installed at UTSV it was necessary to implement methodologies that would establish the first steps of strategic planning.

To this end, a critical path for the implementation of an HEI articulation mechanism in the Isthmus region was implemented.

The 'critical path' is a methodology that identifies the activities to be carried out within a process. In this case, the process to be addressed by this critical path is the implementation of the Social Innovation Ecosystem of the Isthmus of Tehuantepec.

The colours established in the route correspond to a traffic light system where green means activity in process, yellow means activity in design, orange means activity in research process and red means activity not started.

In addition to the critical route, the first steps of an articulation mechanism between HEIs in the Isthmus region were designed based on Weick's proposal with loosely coupled organisations, Leyton (2018) to measure the degree of articulation and Löwik, Oude Alink & Pulles (2017) on innovation campuses.

Results

The critical path established the need for at least 6 first steps for the implementation of the first CEIIT within the UTSV facilities, by the second quarter of 2024, the first step has been fully achieved and is therefore in green, the next two steps have been advanced through meetings, discussion forums and agreements in working tables; steps 4 and 5 are in orange as they have started the design of the coordination, The last two steps are in red because they have not started their work (See figure 5).

Box 5

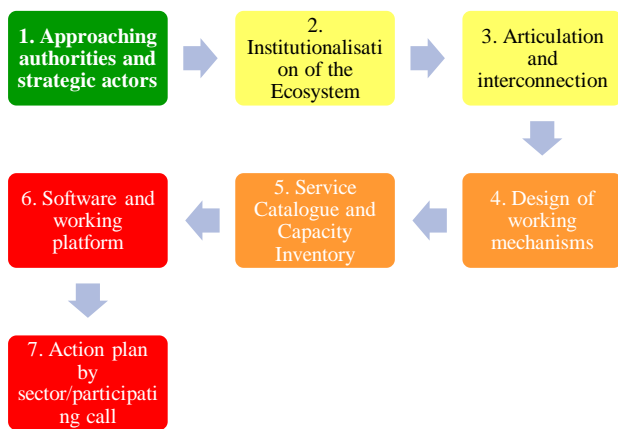


Figure 5

Critical path CEIIT

Own elaboration

Step 3 "Articulation and interconnection" resulted in the articulation proposal which takes up the idea of loosely coupled articulations, since HEIs and Research Centres respond to different legal constitutions and types of organisations, the idea of loose coupling allows them to collaborate, coordinate and cooperate without losing their individuality, nor violating any normative framework governing them.

Thus, Figure 6 presents the proposal for an articulation mechanism recognising that loose coupling will allow for a "coordination" level of articulation, i.e. formal inter-institutional agreements are presumed to allow for coordination between the entities, this level of coordination will entail joint planning, coordination of agendas, objectives and activities.

This mechanism is in a stage of development and the most important achievements are the proposal of a "Training of trainers" training, the signing of a letter of commitment for collaboration and a "Catalogue of laboratory equipment" has been initiated to measure the capacities of HEIs, making it clear that UTSV will function as headquarters and as an articulating node (see figure 6).

Box 6

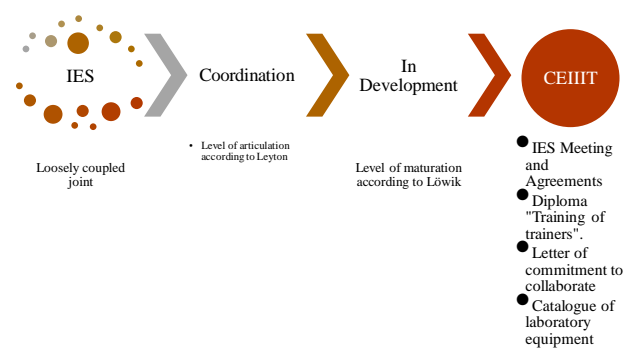


Figure 6

Proposed articulation mechanism. Own elaboration

Figure 7 shows the composition of the first CEIIT based at UTSV, in addition to working under the paradigm of the Penta-helix, it would seek the complementation of efforts by aligning and integrating information through a Development Observatory, promoting Programmes and Public Policies, the alignment and cooperation of the different Incubation Centres, Growth Nodes, Innovation Centres, Innovation Centres, Academic and Institutional Networks of Higher Education, all this linked and in coordination with different Chambers of Commerce, governmental agencies, PODEBIS and those companies that would be installed in the CIIT.

This composition would also imply the efficient and effective use of technological and frontier resources, the advances in the different lines of research and the work carried out according to the region's vocations. In addition to the work models that the Technological Universities and the Polytechnics particularly keep, such as the Dual Model, Language certification, training for work through CONOCER, and the NODOS.

Box 7

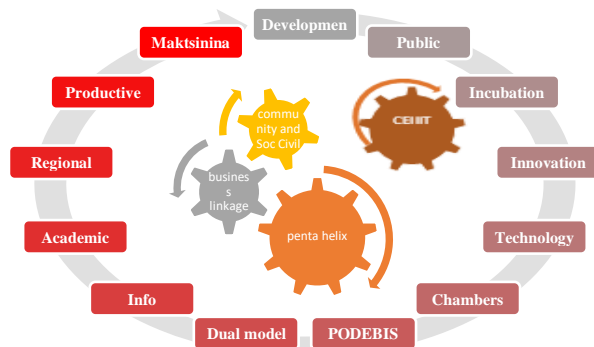


Figure 7

Composition of the first CEIIT

Own elaboration

Conclusions

Loose coupling is considered to give certainty to the institutional independence of each of the participants, while at the same time offering spaces for collaboration and the generation of innovative knowledge in an economical and efficient way. Finally, loose coupling will also allow other institutions to join or leave the alliance in the medium term, as well as to adapt to the needs of the environment.

It will be necessary to determine the ideal or desired level of articulation for the CEIIT, however, it is possible to start with the first 4 levels based on specific mechanisms that facilitate the articulation process.

From the description of the levels of maturity it is possible to determine that CEIIT is in transition between the level of emergence and development, since there is a multidisciplinary group for the strengthening of human and productive talent in the region, as well as space, infrastructure and strategic allies.

And we initiated a process of articulation mainly between HEIs to be able to respond to the needs and challenges that the implementation of the CEIIT implies.

At present, the speed of coupling between HEIs and the coordination of the work is on hold due to the campaigns and the presidential election that took place in recent months, as well as the upcoming change of federal government. The CIIT and the PODEBIS are expected to have a high chance of continuity, and CEIIT also has the opportunity to remain within the programmes and public policies of the next federal government.

In order to achieve a complete articulation, implementation and proper functioning of the CEIIT, some opportunities must be seized and certain challenges that have arisen must be addressed.

One of the most important opportunities is the political will that existed during the government of President Andrés Manuel López Obrador and that the incoming president Claudia Sheinbaum Pardo has mentioned will continue in relation to promoting the Isthmus Programme and the CIIT.

In addition, the Inter-institutional Group for Human Strengthening in the Isthmus of Tehuantepec, which has been in session for the last three years, has been in constant communication and has signed letters of commitment. The HEIs and academic bodies that have participated in the inter-institutional groups are represented by leaders and agents of change committed to the Isthmus region and to the regional development and well-being of the Isthmian population.

The main challenges include institutionalising agreements to give continuity to the articulation mechanism, achieving individual and joint budgets to consolidate the first CEIIT and collaborative work, strengthening communication systems, digital platforms as channels of communication and information flow, and identifying capacities to address the problems of Industry 4.0 that will be installed in the PODEBIS of the Interoceanic Corridor of the Isthmus of Tehuantepec.

In conclusion, the implementation of the first Industrial Innovation Centre of the Isthmus of Tehuantepec has the opportunity to be consolidated and strengthened, the articulation mechanisms and the critical path documented in this article were validated by the inter-institutional groups, so its execution is possible, relevant, replicable and scalable.

Declarations

Conflict of interest

The author declares that she has no conflict of interest. She has no known competing financial interest or personal relationship that would have appeared to influence the article reported in this article.

Author contribution

Landa-Torres, Iris Adriana. I contribute to the idea, research, development, and the conclusions. The complete article was designed, written and reviewed by my self.

Availability of data and materials

The datasets used or analyzed during the current study are available from the corresponding author upon reasonable request.

Funding

This work has been funded by CONAHCYT grant.

Acknowledgements

Iris Adriana Landa Torres
I am grateful to the Universidad Tecnológica del Sureste de Veracruz and to Julio César Sandria Reynoso, for the trust given to me to act as the rector's advisor in the collaborative project with the Program for the Development of the Isthmus of Tehuantepec and with the Interoceanic Corridor of the Isthmus of Tehuantepec.

Abbreviations

CEIITT Industrial Innovation Centre of the Isthmus of Tehuantepec

CIIT Isthmus of Tehuantepec Interoceanic Corridor

IES Higher Education Institutions

PDIT Programme for the Development of the Isthmus of Tehuantepec

UTSV Technological University of Southeastern Veracruz

References

Antecedents

Diario Oficial de la Federación. (2020a). *Programa para el Desarrollo del Istmo de Tehuantepec 2020-2024. Corredor Interoceánico del Istmo de Tehuantepec*. Recuperado el 2024 de junio de 28, de

Diario Oficial de la Federación. (2023). *Programa Institucional del Corredor Interoceánico del Istmo de Tehuantepec 2023-2024*. Recuperado el 2024 de junio de 24.

Programa Istmo. (2021). *Comunicado conjunto Integración del comité regional para fortalecer el conocimiento y el desarrollo humano en el Istmo de Tehuantepec*. Recuperado el 2024 de junio de 26.

Programa Istmo. (2023). *Istmo de Tehuantepec: Competitividad global para la inversión y el desarrollo*. Recuperado el 27 de junio de 2024, de Brochure en español: [htt_de_Tehuantepec-Competitividad_global_para_inversi_n_y_el_desarrollo.pdf](http://de_Tehuantepec-Competitividad_global_para_inversi_n_y_el_desarrollo.pdf)

Basics

Foro Consultivo Científico y Tecnológico AC. (2017). *Ecosistema de Innovación social en México* (Vols. ISBN 978-607-9217-47-1). (J. Franco, Ed.) CDMX: Foro Consultivo Científico y Tecnológico AC. Recuperado el 2024 de junio de 27.

Leyton, C. (2018). *Mecanismos Institucionales de articulación para programas de combate a la pobreza rural. Domuneto de Trabajo*. Recuperado el 2024 de junio de 15, de

Löwik, S., Oude Alink, W., & Pulles, N. (2017). *The innovation campus: key challenges and success factors in different stage of maturity*.

Innovation and Product Development Management. Recuperado el 2024 de junio de 27, 2551_THE_INNOVATION_CAMPUS_KEY_CHALLENGES_AND_SUCCESS_FACTORS_IN_DIFFERENT_STAGES_OF_MATURITY

Supports

Diario Oficial de la Federación. (2020). *Programa sectorial derivado del Plan Nacional de Desarrollo 2019-2024*. CDMX: Secretaría de Educación Pública. Recuperado el 2024 de junio de 28, de

Gaceta Oficial. (2019). *Plan Veracruzano de Desarrollo 2019-2024*. Xalapa. Recuperado el 2024 de junio de 28, de

Gobierno de México. (2019). *Plan Nacional de Desarrollo 2019-2024*. CDMX: Diario Oficial de la Federación.

Naciones Unidas. (2015). *Objetivos de Desarrollo Sostenible*. ONU. Recuperado el 2024 de junio de 28, de

Discussions

Schuurman, D., Herregodts, A. L., Georges, A., & Rits, O. (2019). *Innovation management in living lab projects: The innovatrix framework*. *Technology Innovation Management Review*, 9(3), 64–73. Obtenido de

Sotelo Marquez, P. (2018). *Innovación Social en México*. *Social Innovations Journal*. Recuperado el 2024 de junio de 25, de

USTV. (2023). *Propuesta para conformación de primer Ecosistema de Innovación Social*. Nanchital.

Weick, K., Caldera- González, D., & Ortega-Carrillo, M. (Julio/Diciembre de 2009). *Las organizaciones educativas como sistemas flojamente acoplados*. *Gestión y estrategia*(36), 95-110.