



IBERO4JOBS

DELIVERABLE NAME: D2.1 ANALYSIS OF INSTITUTIONAL DIAGNOSIS

Project ID	101082890
Project full Title	Ibero4Jobs: To strengthen higher education institutions in Latin America, in articulation with the business sector promoting the employability of students and contributing to the sustainable growth of the regions.
Project duration	36
Coordinator	Universidad de Caldas
Beneficiaries	Cámara de Comercio de Manizales por Caldas, Fundación Luker, Fundación Ronsel, Instituto Politécnico de Porto, Universidad Autónoma de Manizales, Universidad Autónoma de Nayarit, Universidad de Caldas, Universidad Tecnológica de Nayarit, Universidade de Vigo
Funding scheme	ERASMUS-EDU-2022-CBHE-STRAND-2
Work package	WP2
Deliverable Nr.	Entregable N°2
Due date	31/10/2023
Actual submission date	27/10/2023
Version	1
Author (name, beneficiary)	María Isabel Doval, Maruxa Alvarez (Uvigo)
Leading beneficiary	Universidade de Vigo
Contributing beneficiaries	Cámara de Comercio de Manizales por Caldas, Fundación Luker, Fundación Ronsel, Instituto Politécnico de Porto, Universidad Autónoma de Manizales, Universidad Autónoma de Nayarit, Universidad de Caldas, Universidad Tecnológica de Nayarit, Universidade de Vigo
Dissemination Level	SEN-SENSITIVE



Content

1. Executive Summary.....	2
2. Description of the Deliverable	3
3. Implementation	3
4. Summary of Findings, Concluding Remarks.....	21
5. Dissemination.....	34
Annex.....	34
Definitions, Acronyms and Abbreviations.....	34

1- EXECUTIVE SUMMARY

Here we present D2.1, “*Analysis of Institutional Diagnosis*” where we establish the baseline from which we should start our next action plans. For the design and development of this strategic deliverable we have started from the main conclusions and agreements made during kick-of meeting (WP1), the project requirements and also follow-up project meetings. We do this by focusing on the strengths and good practices that we have identified in our ecosystem (Ibero-America and Europe) in terms of university-business-society relations, and also on what the different target groups have been telling us, their needs, interests and overall vision.

The WP2 and D2.1 were piloted by UVigo, in collaboration with IPP. Those activities took place in Manizales (Colombia) and Nayarit (Mexico), in September 4 to 9, 2023.

This report is made up of two fundamental elements: *Methodological analysis structure by dimensions and Stakeholder process map*. D2.1 also includes activities related to the following dimension: *Theoretical-practical workshops on action and In-depth dialogue visits with stakeholders*.

This document describes the agenda that was developed during the WP2 and main conclusions. In the light of the results obtained and the excellent work carried out in

both territories, we consider that the objectives of this WP2 have been achieved in a very satisfactory manner for all parties.

2- DESCRIPTION OF THE DELIVERABLE

What it's about, where it comes from, and its relationship to other Deliverables. We present D2.1, "*Analysis of Institutional Diagnosis*" where we establish the baseline from which we should start our next action plans. For the design and development of this strategic deliverable we have started from the main conclusions and agreements made during kick-of meeting (WP1), the project requirements and also follow-up project meetings. We do this by focusing on the strengths and good practices that we have identified in our ecosystem (Ibero-America and Europe) in terms of university-business-society relations, and also on what the different target groups have been telling us, their needs, interests and overall vision. We settled on a model of participatory and inclusive research, and our main concern during the development of this D2.1 was that all voices should be heard.

This is why this report is made up of two fundamental elements:

- **Methodological analysis** structure by dimensions with model contrast that allows understanding potentialities and gaps.
- **Stakeholder process map**: Synthetic infographic-type document with a map of stakeholders and relationships accompanied by a document summarizing findings and main ideas.

Following this procedure, D2.1 also includes activities related to the following dimension:

- **2.1 Theoretical-practical workshops on action (focus groups and meetings)**
- **2.2 In-depth dialogue visits with stakeholders (visits and interviews)**

(with UVigo, IPP are Leaders and U Caldas, UAM, UTN, UAN, CCMPC, FunLuker, FunRonsel act as Co-leaders).

In addition, we have designed and implemented different tools for diagnosis and evaluation (online questionnaires, *ad hoc* forms...), as well as on-demand training and resources design for those involved on this participatory methodology. All these resources can be found on the project's Repository Platform.

There were preparatory online meetings as well as post meetings, to recap and prepare the next steps.

The results of this deliverable form the basis for the design and development of the next WP3 (*Transfer of university-industry articulation methodologies to promote employability*: D3.1 – Training cycle in work methodologies articulated with the business sector and D3.2 – Methodology for the articulation of partner universities), with UVigo, IPP as Leaders.

Duration and location. The activities took place in Manizales (Colombia) and Nayarit (Mexico), lasted 4 days in September 4 to 9, 2023, at the partners' premises (campuses of the 4 partner universities, foundations and associations) and at the premises of local companies. UVigo was responsible for the activities in Manizales (Colombia), and IPP in Nayarit (Mexico).

Partners involved and roles. The WP2 was piloted by UVigo, in close collaboration with IPP. But it has been a networked effort, where all the other partners have also collaborated very actively, as co-designers of the methodology and implementation and also as facilitators in Manizales and Nayarit. UCaldas and UAM were responsible for coordinating the agenda in Manizales and planning all the work with UVigo, supported by CCMC and FunLuker. UAN and UTN did the same in Mexico, together with IPP. The FunRonsel has also supported WP2 from Europe.

3- IMPLEMENTATION

METHODOLOGICAL ANALISIS STRUCTURE

In this section we will describe the methodology, the implementation and the main results we have found.

The analysis was conducted using a methodology that combined qualitative analysis procedures and participatory methods to obtain a holistic and detailed understanding of the subject under investigation, taking into account the time we had available for WP2. The following are the main techniques employed:

1. Document Analysis: An exhaustive analysis of documents related to the research topic was carried out, including academic literature, institutional reports, and relevant **regulations. This provided a solid foundation of historical and theoretical information.**

2. Best Practices Analysis: The identification and comparison of best practices in similar contexts were performed through a comparative analysis. This allowed for the identification of successful patterns and lessons learned that could be applied to the case under study.

3. Interviews: In-depth interviews were conducted with experts and key stakeholders in the research topic. These conversations provided valuable qualitative insights, allowing for the exploration of opinions, experiences, and specialized knowledge.

4. Study Visits: Visits to entities and business related to the subject of study were carried out. This allowed for direct observation of practices and situations, providing contextual and practical understanding.

5. Online Questionnaires: Online questionnaires were massively sent through the communication channels of Ibero-America's partners. These questionnaires collected both quantitative and qualitative data, enabling the analysis of perceptions and opinions from a broad audience.

6. In-Person Meetings: In-person meetings were organized with specific interest groups. These meetings facilitated real-time interaction and the exchange of ideas.

7. Focus Group: Focus group sessions were held with strategically selected participants. These group sessions provided a space for discussion and the collection of opinions and perspectives in an interactive environment.

Main techniques employed

The combination of these techniques allowed for a comprehensive research approach, leveraging both quantitative and qualitative data, as well as the experiences and perceptions of various sources. This methodology was designed to obtain a comprehensive understanding of the subject under study and provide a solid foundation for decision-making and the formulation of next steps. In both territories, Manizales and Nayarit, procedures were harmonised according to the needs and interests of each territory.

The following **stakeholders** have been taken into account:

- **Academia:** Students, Teachers / researchers, University Government; Management and administration
- **Productive sector, companies**
- **Youth labour market** (14 - 28 years old)
- **Society in general & the third sector**

Minimum standards were established for the preparation of the focus groups and the selection of interviewees: gender balance; any size; familiar SMEs are welcome; with current links to the university, or not; meetings places: outside or inside the university; scalable to realities and circumstances. For the focus groups a common and simple system was also devised: they should be formed with representatives from each sector. Previously, the main ideas must have been collected (Identified points of consensus and key findings) around these:

- *What have been the main benefits of university-business/society collaborations in our region?*
- *What obstacles have you faced in university-business/society collaborations in our region?*
- *What are the underlying factors that have facilitated these university-business/society collaborations in our region? (the levers of change)*
- *What strategies or actions do you think could be implemented to strengthen university-business /society collaboration in our region?*

The following was asking the experts to rank the importance of those findings. Then, a final report was presented to the experts for feedback and validation.

The **entities** involved were:

	University sector	Productive sector	Youth labour market	Society & Public sector
Colombia	UCaldas, UAM	CCMC and 6 local companies	CCMC	Colombia: FunLuker, CCMC, SENA, CONFA
México	UAN, UTN	Business Chamber, 6 local companies	National Employment Service	México: National Institute of Social Economy
Portugal	IPP	---	---	
Spain	UVigo	---	---	FunRonsel

Entities involved in WP2

We now describe the **procedure** followed and the **results** obtained. The following actions were carried out to determine the State of the Art:

First of all, we must highlight the **DOCUMENTARY ANALYSIS** both from Latin America (Manizales and Nayarit) and Europe (Spain and Portugal). The following elements were reviewed:

- Policies, Legislative and guidance documents, government and local regulations, general laws
- University protocols, institutional documents related to the university-industry relationship, collaboration agreements, internship programs, academic programme reports provided by the universities
- Documentation derived from the social part (companies and associations)
- Scientific literature and previous Research reports

Here is an overview of some key aspects in this regard:

Policies

Colombia:

1. **National Development Plan (NDP):** The Colombian government periodically updates the NDP, which includes strategies and policies to foster economic growth and development. It often addresses the promotion of research, innovation, and entrepreneurship, emphasizing the role of universities in driving these initiatives.
2. **Science, Technology, and Innovation Policy:** Colombia has a National Policy for Science, Technology, and Innovation (*Colciencias*), which outlines the government's strategies for promoting research and development. It encourages collaboration between universities, research centres, and industries to drive innovation and improve employability.
3. **Higher Education Act (Law 30 of 1992):** This law governs higher education in Colombia and has been updated over time. It includes provisions related to university-industry collaboration, particularly in research and development projects.
4. **Regulatory Framework for Internships:** Colombia has established regulations for internships (Law 1780 of 2016), ensuring that students have access to practical experience during their studies. These regulations help bridge the gap between education and industry.
5. **Promotion of Entrepreneurship:** Various policies, such as the Entrepreneurship Law (Law 1014 of 2006), aim to stimulate entrepreneurship and the creation of start-ups. These efforts encourage university graduates to become entrepreneurs, thereby improving youth employability.
6. **Dual Education Programs:** Dual education programs are being promoted in Colombia (Law 1910 of 2018), which involve collaboration between educational institutions and companies. These programs enable students to gain practical skills and knowledge while studying, enhancing their employability.
7. **Technological and Industrial Parks:** Colombia supports the development of technological and industrial parks, which serve as hubs for innovation and collaboration between universities and businesses. They are governed by specific regulations and policies that promote research, development, and technology transfer.
8. **Labor Laws:** Colombian labour laws, including the Labor Codes, regulate employment practices. These laws influence how universities and industries engage in hiring, training, and retaining young talent.
9. **Education Quality Assurance:** The Colombian Ministry of Education has established quality assurance mechanisms to ensure the quality of higher education. This includes accreditation and

evaluation processes that encourage universities to improve educational outcomes, thereby enhancing employability.

10. **Vocational Training and Employability Programs:** The Colombian government, through entities like the National Learning Service (SENA), offers vocational training and employability programs to help young people acquire practical skills and find employment.

These policies, legislative documents, and regulations reflect Colombia's commitment to strengthening the collaboration between universities and industries, fostering research and innovation, and improving the employability of young people. They provide a comprehensive framework to address the challenges and opportunities in these areas, aiming for sustained economic development and a skilled workforce.

México:

1. **National Development Plans:** Mexico's National Development Plans outline strategies for fostering research, innovation, and education. These plans often emphasize the importance of strengthening university-industry relations to drive economic growth and improve the employability of young people.
2. **Science, Technology, and Innovation Policy:** The National Program for Science, Technology, and Innovation provides guidance on research and innovation initiatives in Mexico. It encourages collaboration between academia and industry to promote economic development and job opportunities for young people.
3. **Higher Education Legislation:** Mexico has a legal framework that governs higher education. Provisions within this legislation address university-industry collaboration, internship programs, and the development of job-ready skills. Specific provisions may vary depending on the state and institution.
4. **Labor Laws:** Labor laws in Mexico significantly influence how universities and industries engage in hiring, training, and retaining young talent. These laws play a crucial role in shaping internship programs and employment relationships, ensuring that labour rights are protected.
5. **National Youth Employment Program:** Mexico has a National Youth Employment Program aimed at enhancing the employability of young people. This program offers incentives for companies to hire and provide training to young workers.
6. **Technological Parks and Innovation Hubs:** Mexico has established technological parks and innovation hubs that serve as collaborative spaces for universities, businesses, and start-ups. These spaces facilitate research, innovation, and knowledge transfer between academia and industry.
7. **Academic and Industrial Agreements:** Universities in Mexico often enter into agreements and partnerships with businesses and industries. These agreements outline the terms of collaboration, research projects, and internship opportunities.
8. **Entrepreneurship and Innovation Initiatives:** Mexico supports entrepreneurship and innovation through various government initiatives and programs. These initiatives aim to encourage start-ups and innovative enterprises while fostering collaboration with universities.
9. **Academic Quality Assurance Mechanisms:** The Mexican Ministry of Education has established quality assurance mechanisms to ensure the quality of higher education. These mechanisms often include accreditation and evaluation processes to help universities maintain and improve the quality of their educational programs, thus enhancing the employability of graduates.

These policies, legislative documents, government regulations, and general laws in Mexico reflect the government's commitment to strengthening the relationship between universities and industry. The goal is to enhance the employability of young people by providing them with the skills, knowledge, and practical experiences they need to succeed in the job market and to drive innovation and economic development in the country.

European Union (EU):

1. **Horizon 2020 and Horizon Europe:** Horizon 2020 and its successor, Horizon Europe, are EU research and innovation programs. They encourage collaboration between universities and industry to drive innovation, research, and economic growth. These programs fund projects that involve academic and industry partnerships.
2. **European Higher Education Area (EHEA):** The EHEA aims to create a unified and cooperative higher education system across Europe. As part of this initiative, the Bologna Process encourages the adoption of common educational structures and facilitates academic mobility, which enhances employability.
3. **European Qualifications Framework (EQF):** The EQF is a reference framework that helps link different national qualifications systems. This aids in recognizing and comparing qualifications across the EU and promotes the mobility of students and workers.
4. **Erasmus+ Program:** The Erasmus+ Program supports education, training, youth, and sport in Europe. It promotes student and staff mobility, which fosters cross-border learning experiences and helps improve employability.
5. **European Framework for Key Competences:** This framework sets out key competences necessary for personal fulfilment, social inclusion, active citizenship, and employment. It guides educational policies and practices to ensure that students acquire these essential skills.
6. **European Research Area (ERA):** The ERA promotes a unified research area within Europe. It encourages collaboration between academia and industry to drive innovation, research, and technology transfer.
7. **Youth Guarantee:** The Youth Guarantee is a policy initiative that ensures that all young people in the EU receive a good-quality offer of employment, continued education, apprenticeship, or a traineeship within four months of leaving formal education or becoming unemployed.
8. **European Structural and Investment Funds (ESF):** ESF provides funding to support social inclusion, economic development, and education and training. Some funds are used to improve employability, particularly among young people.
9. **Quality Assurance in Higher Education:** The EU promotes quality assurance mechanisms in higher education to ensure that programs are aligned with labour market needs and international standards, thus enhancing the employability of graduates.
10. **Digital Education Action Plan:** - The Digital Education Action Plan promotes digital skills and innovation in education, with a focus on preparing students for the digital job market.

These EU policies, legislative documents, and regulations underline the commitment to strengthen the relationship between universities and industry. They aim to enhance the employability of young people by providing them with a high-quality education, practical experiences, and opportunities for cross-border mobility. These initiatives also drive innovation and contribute to the development of a skilled workforce across the European Union.

Universities

In Colombia and Mexico, universities play a significant role in fostering university-industry relations and improving the employability of young people. These efforts are guided by various protocols, institutional documents, collaboration agreements, internship programs and academic reports. Here's an overview of these key elements:

1. **University Protocols and Institutional Documents:**
 - **University Mission Statements:** universities include in their mission statements a commitment to bridging the gap between academia and industry. This underscores the

importance of preparing students for the workforce and driving innovation and economic development.

- **Strategic Plans:** Universities often outline strategies for strengthening university-industry relations and employability in their strategic plans. These plans may set specific goals, such as increasing the number of internships or research collaborations with industry.
2. **Collaboration Agreements:**
 - **Memoranda of Understanding (MOUs):** Universities frequently enter into MOUs with businesses and industry associations. These agreements outline the terms of collaboration, research partnerships, and knowledge transfer initiatives.
 - **Dual Education Agreements:** Collaboration between universities and businesses in the implementation of dual education programs, as specified in dual education agreements, is becoming more common. These agreements may define the roles and responsibilities of each party in these programs.
 3. **Internship Programs:**
 - **Regulatory Framework:** Universities often have specific regulations governing internship programs. These regulations address issues such as student eligibility, the duration of internships, and evaluation procedures.
 - **Collaborative Internship Agreements:** Universities partner with companies to provide internship opportunities for students. These agreements outline the terms of the internships, including supervision, learning objectives, and evaluation criteria.
 4. **Academic Programme Reports:**
 - **Program Review Reports:** Academic programs at universities often undergo periodic review processes. These reports assess the program's effectiveness in preparing students for the job market and may include recommendations for improvement.
 - **Employability Metrics:** Universities may produce reports that measure the employability of their graduates. These reports analyse employment rates, job placement, and the relevance of graduates' skills in the labour market.
 5. **Research Collaboration Frameworks:**
 - **Industry Research Centres:** Some universities establish research centres in collaboration with industry partners. These centres focus on applied research and innovation, addressing real-world challenges.
 - **Technology Transfer Offices:** Many universities have technology transfer offices to facilitate the commercialization of research findings and innovations. These offices promote collaboration with industry for knowledge and technology transfer.
 6. **Entrepreneurship and Innovation Initiatives:**
 - **Incubators and Innovation Hubs:** Universities often operate business incubators and innovation hubs that provide support to student and alumni entrepreneurs. These initiatives promote start-up creation and self-employment among young people.

These protocols, institutional documents, collaboration agreements, internship programs, and academic reports collectively reflect the commitment of Colombian universities to strengthen their connections with industry, enhance the employability of their graduates, and contribute to the economic and social development of the country. These efforts aim to provide young people with the skills and experiences needed to thrive in the job market and foster innovation and entrepreneurship in Colombia.

Documentation

- **Collaboration agreements:** These documents outline the terms, objectives, and expectations of the partnership, which can include research projects, internships, or employment opportunities for students.
- **Letters of Intent:** Companies and universities may exchange those to express their mutual interest in collaborating. These documents can lay the foundation for more

formal agreements and signal a commitment to strengthening university-industry relations.

- **Internship Contracts:** Documentation related to internships, such as contracts, agreements, and evaluation forms, is essential in ensuring that students receive meaningful and educational experiences in companies.
- **Corporate Social Responsibility (CSR) Reports:** Companies may produce CSR reports highlighting their commitment to social and environmental responsibility. These reports may detail initiatives related to education, training, and employability for young people.
- **Industry Surveys and Studies:** Industry associations often conduct surveys and studies to assess skills gaps and labour market trends. Such reports can provide valuable insights for universities to align their programs with industry needs.
- **Employer Surveys and Feedback:** Companies often provide feedback and input to universities regarding the skills and competencies they seek in new hires. This feedback can influence curriculum development and university programs.

Both in Ibero-America and the EU the documentation derived from the social part, specifically companies and associations, serves as a foundation for university-industry collaboration and efforts to improve the employability of young people. These documents help establish expectations, outline commitments, and provide valuable data and insights that drive successful initiatives in this regard.

Scientific literature and research reports

This literature on university-industry relations and the improvement of employability of young people in Colombia, Mexico, and the European Union (EU) provide valuable insights and evidence-based recommendations. Here's an overview of the type of research we have found in these regions from the last 3 years. Another relevant source is the report by the World Bank, "Skills for Work: Skills Development and Job Placement of University Graduates in Colombia" (2019), which evaluates the impact of government interventions on youth employability.

Colombia:

- Colmenares-Quintero, R. F., Rojas, N., Kerr, S., & Caicedo-Concha, D. M. (2020). Industry and academia partnership for aquatic renewable energy development in Colombia: A knowledge-education case. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 181.
- Corsino, M., & Torrisi, S. (2023). University engagement in open innovation and intellectual property: evidence from university–industry collaborations. *Journal of Industrial and Business Economics*, 1-33.
- Lima, J. C. F., Torkomian, A. L. V., Pereira, S. C. F., Oprime, P. C., & Hashiba, L. H. (2021). Socioeconomic impacts of university–industry collaborations—a systematic review and conceptual model. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 137.
- Pertuz, V., Miranda, L. F., Charris-Fontanilla, A., & Pertuz-Peralta, L. (2021). University-industry collaboration: a scoping review of success factors. *Entrepreneurship and Sustainability Issues*, 8(3), 280.
- Reina, D. R., Rapini, M. S., & Corradi, A. A. (2024). Motivations for University-Industry Interaction: A Typology of Academic Scientists at the National University of Colombia. *Innovar*, 34(92).

- Reyes Reina, D., Agnes Corradi, A., & Siqueira Rapini, M. (2021). Emergence and Scale-up of Frugal Innovations: The Relevance of University-Industry Interaction. *Journal of technology management & innovation*, 16(3), 3-12.
 - Roncancio-Marin, J., Dentchev, N., Guerrero, M., Díaz-González, A., & Crispeels, T. (2022). University-Industry joint undertakings with high societal impact: A micro-processes approach. *Technological Forecasting and Social Change*, 174, 121223. transfer model from the United Kingdom to Colombia. *Cogent Engineering*, 7(1), 1829805.
 - Salazar-Elena, J. C., Castillo, Y. Y., & Álvarez, I. (2023). Overcoming innovation barriers through collaboration in emerging countries: the case of Colombian manufacturing firms. *Industry and Innovation*, 30(4), 506-529.
 - Vélez-Rolón, A. M., Méndez-Pinzón, M., & Acevedo, O. L. (2020). Open innovation community for university–industry knowledge transfer: A Colombian
1. **University-Industry Collaboration and Employability:** Research in Colombia explores the impact of university-industry collaboration on employability.
 2. **Impact of Government Initiatives:** Researchers assess the effectiveness of government policies and initiatives aimed at fostering university-industry relationships and improving the employability of young people.
 3. **Skills Mismatch and Education Relevance:** Research in Colombia frequently examines the skills gap and whether academic programs align with industry demands.
 4. **Corporate Social Responsibility:** Studies may explore how companies' corporate social responsibility programs in Colombia contribute to education and employability initiatives.

Mexico:

- Gámez-Pérez, K. M., Sarmiento, A. M., García-Reyes, H., & Velázquez-Martínez, J. C. (2020). An international university-industry collaboration model to develop supply chain competences. *Supply Chain Management: An International Journal*, 25(4), 475-487.
 - Guerrero, M., Herrera, F., & Urbano, D. (2021). Does policy enhance collaborative-opportunistic behaviours? Looking into the intellectual capital dynamics of subsidized industry–university partnerships. *Journal of Intellectual Capital*, 22(6), 1055-1081.
 - Lozano, A. G., & Ortíz, R. G. (2020). Collaboration strategies between higher education institutions and the Mexican aerospace industry. In *EDULEARN20 Proceedings* (pp. 4339-4347). IATED.
 - Morales, Y. N. R., & Suárez-Rocha, J. (2022). Management model for university-industry linkage based on the cybernetic paradigm: Case of a Mexican university. *International Journal of Information Technologies and Systems Approach (IJITSA)*, 15(1), 1-18.
 - Nsanzumuhire, S. U., & Groot, W. (2020). Context perspective on University-Industry Collaboration processes: A systematic review of literature. *Journal of cleaner production*, 258, 120861.
 - Puerta-Sierra, L., & Jasso, J. (2020). University-industry collaboration. an exploration of an entrepreneurial university in Mexico. *Journal of technology management & innovation*, 15(3), 33-39.
 - Sarabia-Altamirano, G., Martínez-Burnes, J., & Ramírez-de León, J. A. (2022). Knowledge and Technology Transfer Channels Used by the Academy: Evidence from Mexico. *Journal of the Knowledge Economy*, 1-25.
 - Terán-Bustamante, A., Martínez-Velasco, A., & López-Fernández, A. M. (2021). University–industry collaboration: a sustainable technology transfer model. *Administrative Sciences*, 11(4), 142.
1. **Dual Education Programs:** Mexican research often delves into dual education models and their effectiveness in enhancing employability.
 2. **Government Policies and University-Industry Collaboration:** Researchers in Mexico evaluate the impact of government policies, such as *ProJoven* or similar programs, on the relationship between universities and industry.

3. **Innovation and Entrepreneurship:** Studies in Mexico explore how university-industry partnerships foster innovation and entrepreneurship.
4. **Employability Metrics:** Research often focuses on developing metrics and indicators to measure employability outcomes.

European Union (EU):

- Alpaydin, U. A. R., & Fitjar, R. D. (2021). Proximity across the distant worlds of university–industry collaborations. *Papers in Regional Science*, 100(3), 689-711.
 - Baleeiro Passos, J., Valle Enrique, D., Costa Dutra, C., & Schwengber ten Caten, C. (2023). University industry collaboration process: a systematic review of literature. *International Journal of Innovation Science*, 15(3), 479-506.
 - Corsino, M., & Torrisi, S. (2023). University engagement in open innovation and intellectual property: evidence from university–industry collaborations. *Journal of Industrial and Business Economics*, 1-33.
 - Ćudić, B., Alešnik, P., & Hazemali, D. (2022). Factors impacting university–industry collaboration in European countries. *Journal of Innovation and Entrepreneurship*, 11(1), 33.
 - Marinho, A., Silva, R. G., & Santos, G. (2020). Why most university-industry partnerships fail to endure and how to create value and gain competitive advantage through collaboration—a systematic review. *Quality Innovation Prosperity*, 24(2), 34-50.
 - Lilles, A., Rõigas, K., & Varblane, U. (2020). Comparative view of the EU regions by their potential of university-industry cooperation. *Journal of the Knowledge Economy*, 11, 174-192.
 - Mascarenhas, C., Marques, C. S., Ferreira, J. J., & Galvão, A. R. (2021). The influence of research and innovation strategies for smart specialization (Ris3) on university-industry collaboration. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 82.
 - Pesti, c., tamášová, v., lajčin, d., & bodonyi, e. (2021). University-industry collaboration as a drive for innovation in europe—a literature review with a systematic approach. *Ad alta: journal of interdisciplinary research*, 11(2).
 - Santos, P., Veloso, L., & Urze, P. (2021). Students matter: The role of doctoral students in university–industry collaborations. *Higher Education Research & Development*, 40(7), 1530-1545.
1. **Horizon 2020 and Horizon Europe Research Projects:** Research projects funded by Horizon 2020 and Horizon Europe often explore university-industry collaboration, innovation, and employability enhancement.
 2. **Erasmus+ Impact Studies:** Research assesses the impact of the Erasmus+ Program on employability, mobility, and skills development. These studies may be conducted by various institutions and are available through the European Commission's Erasmus+ program website.
 3. **University-Industry Knowledge Transfer:** Research in the EU explores mechanisms for knowledge transfer between academia and industry.
 4. **Youth Employment Initiatives:** Researchers investigate the effectiveness of youth employment initiatives, such as the Youth Guarantee, across EU member states. Reports and evaluation studies by Eurofound and the European Commission offer insights into these initiatives.
 5. **Vocational and Technical Education:** Research often examines the impact of vocational and technical education programs on the employability of young people. Research conducted by Cedefop (the European Centre for the Development of Vocational Training) and other EU institutions in this regard.

We have also identified and analysed a collection of **GOOD PRACTICES (GP)**, in Europe and Ibero-America (identified during the Kick-off meeting and afterwards, by all partners and stakeholders)

After collecting all information from a) and b), we analysed the data and highlight some key findings:

Understanding the situation in Manizales: The socio-economic and business situation in this region is closely intertwined with its universities, which play a significant role in shaping the local landscape. By capitalizing on its strengths, addressing weaknesses, exploring new opportunities, and preparing for potential threats, the region can continue to thrive as a hub of education, research, and innovation while ensuring a more resilient and prosperous future. Here is a SWOT analysis of the region, focusing on its relationship with the universities:

<p>Strengths</p>	<ul style="list-style-type: none"> - Educational Excellence: The Manizales-Caldas region is renowned for its higher education institutions. These institutions attract students and researchers from across the country and beyond, contributing to a highly educated population. Some studies have pointed to university activity as the second most important activity in the city. - Research and Innovation Hub: The universities in the region foster research and innovation in various fields, promoting partnerships with local businesses and government entities. This emphasis on innovation can drive economic growth and competitiveness. - Skilled Workforce: Graduates from the local universities provide the region with a pool of skilled and knowledgeable workers, supporting various industries, including education, healthcare, and technology. - Cultural and Social Enrichment: The universities organize numerous cultural and social events, making the region a vibrant and intellectually stimulating place. This culture promotes tourism, which, in turn, benefits local businesses.
<p>Weaknesses</p>	<ul style="list-style-type: none"> - Economic Dependency: The region is heavily reliant on the coffee and manufacturing sectors, but also on education. An over-dependence on these sectors can create vulnerability during economic downturns and limit diversification opportunities. - Talent Drain: Many graduates from the local universities seek opportunities in larger Colombian cities or abroad, causing a brain drain. Retaining and attracting talent to the region is challenging. - Limited Industrial Base: While research and innovation are strong, the region lacks a robust innovative industrial base that trusts universities to convert these ideas into successful businesses, impacting job creation and economic growth.
<p>Opportunities</p>	<ul style="list-style-type: none"> - Economic Diversification: The region can leverage the intellectual capital of its universities to foster new industries, including technology, biotechnology, and eco-tourism. Encouraging entrepreneurship and offering incentives to start-ups can facilitate economic diversification. - Regional Collaboration: Collaborating with neighbouring regions such as Pereira and Armenia to create a knowledge and innovation corridor can stimulate economic growth. Sharing resources and knowledge can benefit all regions involved. - Promote Cultural Tourism: The region's cultural and educational assets can be further promoted to attract tourists interested in cultural experiences, academic events, and ecological tourism. - CCMPC provides support associated with the processes of productivity and competitiveness, in inter-institutional articulation, for 18 municipalities in Caldas. The objective with these clusters is to connect international infrastructures to entrepreneurs and institutions. entrepreneurship and innovation programmes. It also has a Creativity and Innovation Laboratory - <i>Neurocity</i>, which aims to generate skills and competencies through the design of recreational, pedagogical and entrepreneurial social innovation tools. - FunLuker: is a business foundation that creates and promotes social innovation solutions for development and equity through strong public, private and academic partnerships.
<p>Threats</p>	<ul style="list-style-type: none"> - Economic Fluctuations: The region needs to diversify its economic base to reduce vulnerability. - Competition: The region faces competition from larger Colombian cities, like Bogota and Medellin, for talent, investment, and business development. Staying competitive requires continuous innovation and improvement. - Regulatory Challenges: Changes in government policies, funding, or regulations can significantly impact the relationships among University and business sector and, consequently, the socio-economic stability of the region. - Innovative practices to improve the university-business relationship, based on BP and which place the student and the company at the centre of all programmes.

SWOT Manizales

Understanding the situation in Nayarit: this territory has a unique socio-economic and business situation, closely tied to the presence of universities in the territory. Nayarit is a region with significant potential, but it faces economic and infrastructure challenges. Leveraging its natural beauty, agricultural resources, and universities, Nayarit can diversify its economy and promote sustainable development. By addressing weaknesses, seizing opportunities, and preparing for potential threats, Nayarit can work towards a more stable and prosperous socio-economic and business environment that

benefits both the local community and the broader region. Here's a SWOT analysis of the region, taking into account the role of universities:

<p>Strengths</p>	<ul style="list-style-type: none"> - Natural Beauty: Nayarit boasts stunning natural attractions, including pristine beaches, lush forests, and diverse ecosystems. This natural beauty provides opportunities for tourism and eco-friendly businesses. - Agricultural Resources: The region is known for its agricultural products, including tropical fruits and seafood, which can support local businesses and exports. - Cultural Heritage: Nayarit has a rich cultural heritage, including indigenous communities and traditional festivals. This cultural diversity can be leveraged to promote tourism and local artisanal industries. - Universities: The presence of universities contributes to a pool of educated individuals and research capabilities, creating a strong knowledge base.
<p>Weaknesses</p>	<ul style="list-style-type: none"> - Economic Disparities: Despite its strengths, Nayarit faces economic disparities, with a significant portion of the population living in poverty. This poses challenges for businesses in terms of both the labour force and consumer spending. - Limited Industry Diversification: The local economy is heavily reliant on tourism and agriculture. A lack of diversification makes the region vulnerable to fluctuations in these sectors. - Talent Drain: Many graduates from the local universities seek opportunities in larger Mexican cities (e.g., Guadalajara, Mexico City) or abroad, causing a brain drain. Retaining and attracting talent to the region is challenging. - Limited Industrial Base: While research and innovation are strong, the region lacks a robust innovative industrial base that trusts universities to convert these ideas into successful businesses, impacting job creation and economic growth. - Infrastructure Gaps: Some areas in Nayarit suffer from inadequate infrastructure, including transportation and utilities, which can hinder business development and accessibility to markets.
<p>Opportunities</p>	<ul style="list-style-type: none"> - Tourism Growth: Nayarit can capitalize on its natural beauty and cultural heritage to attract tourists seeking eco-tourism, adventure, and cultural experiences. - Agribusiness Expansion: The State can invest in the development of agribusiness and seafood processing to enhance the quality and value of its agricultural products for domestic and international markets. - Knowledge-Based Economy: Universities in Nayarit can collaborate with local businesses to create a knowledge-based economy, emphasizing research and innovation in agriculture, sustainable tourism, and eco-friendly technologies.
<p>Threats</p>	<ul style="list-style-type: none"> - Climate Change: Nayarit is vulnerable to the impacts of climate change, including extreme weather events and rising sea levels, which can disrupt the tourism and agriculture sectors. - Economic Dependency: The region's dependence on tourism and agriculture makes it susceptible to economic downturns, natural disasters, and global market fluctuations. - Competitive Tourism Market: Nayarit faces competition from other Mexican and international tourist destinations. To stand out, the region must continually innovate and improve its offerings. - Regulatory Challenges: Changes in government policies, funding, or regulations can significantly impact the relationships among University and business sector and, consequently, the socio-economic stability of the region. - Innovative practices to improve the university-business relationship, based on BP and which place the student and the company at the centre of all programmes.

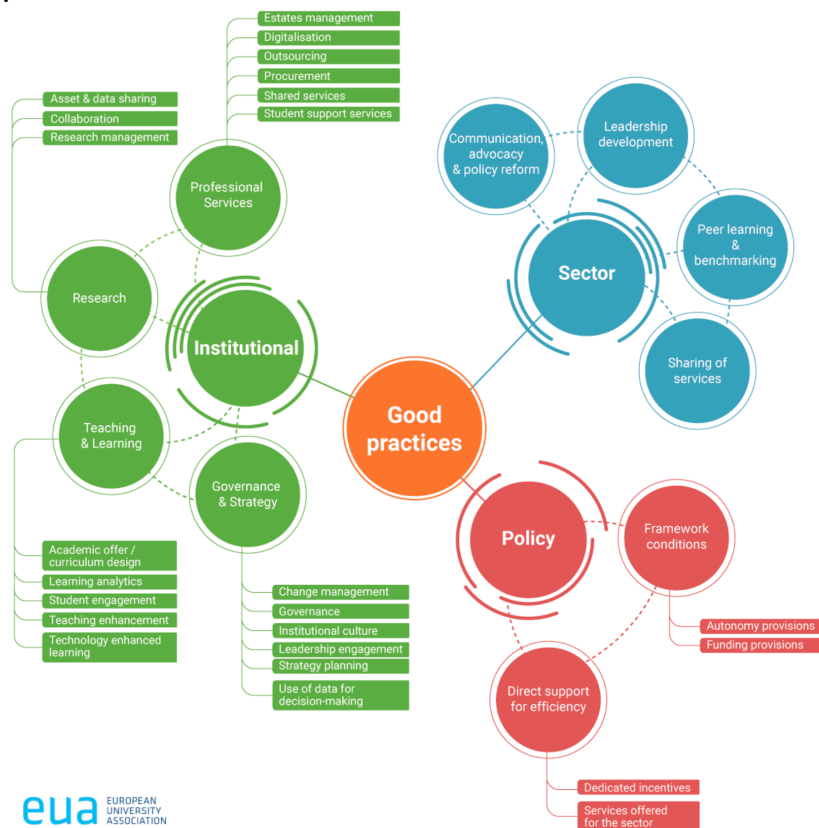
SWOT Nayarit

Findings about Regulatory Framework: A quite robust regulatory framework supporting collaboration between universities and companies has been identified in both regions. Laws and regulations related to higher education and research provide a solid foundation for fostering these relationships.

Findings about University Protocols, policies and strategic plans: Universities in Manizales and Nayarit have established protocols and policies to promote collaboration with companies. These include collaboration agreements, internship programs, and technology transfer mechanisms. It is clear from this analysis that Universities need to understand the urgency of training in effective personal and interpersonal skills, as these competences represent a major success factor in almost every aspect of the business world today, independently of the sector. All Universities involved in Ibero4Jobs organize activities that aim to connect students with market with the objective to improve their personal and professional competences, and indeed the quality of their

future employment. We found **Common Challenges**: a lack of coordination among stakeholders, the gap between academic training and the skills required by companies, and the need for increased investment in applied research about professional competences. There have been both progress and mishaps in the deployment of dual education programs and the relationship between universities and business; that is why this model should arise from a strong commitment of the business sector. It is necessary to take a look at the advantages of participating in a model that can take advantage of education as direct experience of the business world.

Findings about Innovative Plans and Programs: developed by business associations and foundations that facilitate university-industry-society collaboration. These initiatives promote joint research, technology transfer, and community engagement. They serve as excellent models for enhancing collaboration among universities, businesses, and the broader society. **Identification of Best Practices (BP)**, such as joint research projects, business incubation programs, and active involvement of companies in university advisory boards. These BP can serve as models for other institutions. There are good practices found in Europe that can be transferable with modifications to Ibero-America. Some of the BP are described below. However, it is still necessary to integrate all areas and raise awareness with companies, regarding the implementation of BP. For the selection we used the *University Efficiency Hub (EUA Model)*, with qualitative selection criteria. Among others, we took into account the background (how the BP was initiated and the need behind it), the benefits/impacts (what difference it made), the success factors (what made the BP a success and why it is relevant) and its potential for replicability.



Qualitative selection criteria for BP. Source: *University Efficiency Hub* (<https://efficiency.eua.eu>)

Ibero-America	
<p>Colombia (identified by UCaldas, UAM, FunLuker, CCMC, Swisscontact-Colombia)</p>	<ul style="list-style-type: none"> • Dual Education: a perspective based on the Swiss model which promotes innovation without relying on the government. Vocational training schools and training centres are fundamental spaces of this experience. The dual training has some challenges such as outreach, leadership, incentives, and culture. • Innovative programs of CCMC related with equity and employability-training models. • Extension services of the Food Technology Unit (UTA): Continuing education (courses, diplomas, workshops), laboratory analysis. It offers continuing education services on topics of interest to businessmen, entrepreneurs, students and other actors in the agri-food sector. It provides food physicochemical analysis services to entrepreneurs, researchers and users who require reliable and affordable results, researchers and users who require reliable and affordable results. • Integrative Practice: Internship agreement between the Universidad Autónoma de Manizales (UAM) and the Corporación Para el Desarrollo de Caldas (CDC). It is focused on contributing to the training of socially responsible professionals through links with development scenarios from the economic, political, cultural, social, environmental and technological innovation dimensions and contributing to the transformation of organisational and/or community problems that promote development at local, regional, national and international level. The objective is to strengthen relations with actors from civil society, business, the state and graduates, favouring participation in national and international networks and alliances that contribute to the sustainable development of the regions. • Business Immersion Internship. These internships offer students from the undergraduate programmes of the three faculties (Engineering, Social and Business Studies and Faculty of Health) the opportunity to get to know the business system and the real workings of a company by facing the solution of challenges in different areas and business sectors in order to strengthen learning in context and training in soft skills. At the same time, it seeks to strengthen the relationship between the university and the company through activities that generate shared value. • Social Practice Peace and Competitiveness, within the framework of the University's responsibility to society. It has coverage in 20 Colombian departments and 57 municipalities. It consists in the experience and coexistence of the students of the undergraduate programmes in some of the sixth category municipalities of Colombia, contributing to projects and/or processes of municipal public entities, CSOs, public utilities and micro, small or medium-sized enterprises. • The University in your school. The elevated costs of registering in private universities and the difficult access to public universities makes reducing this social inequality a great challenge. As a result, young adults have few labor opportunities, lower incomes, and therefore, more complex living conditions, this context also delays the country's development. That's why FundLuker created a program to grant massive access to quality technical education that allows that students while finishing high school take college courses since they are in 10th grade, so by the time they graduate from school they graduate as technicians as well. Assessment and implementations of pilots have been essential before scaling up the projects.
<p>México (identified by UAN, UTN)</p>	<ul style="list-style-type: none"> • Dual Education: model that tries to link the educational sector with the productive sector with the support of the Chambers of Commerce. There were some unsuccessful experiments in the past, especially due to the little number of available skilled companies. • Talks for employability. Talks by employers about the productive activities carried out in the companies, the benefits and the existing vacancies. To bring graduates and students about to graduate closer to the labour market, to learn from the employer about the hard and soft skills required by the company, to listen to the possibilities of personal and professional growth and development in the vacancies. • Job fair and handing out support. Fair where companies and employers that the University identifies as potential employers are invited. Support in kind is also given to micro-enterprises run by university students. Training workshops are held to provide job seekers with tools such as personal marketing and CV preparation. • Two-cycle programs (TSU+Licenciatura) model provides a closer relationship between the programme and the market. It fosters employability, so that most students can get a job after the TSU. On the other hand, many students don't come back to the university to get the Licenciatura, because it is hard to study and work at the same time (working student). • Traineeship and Internship: the student carries out a full-time project within a company for a period of time, fulfilling the hours established in the curricular map of his/her educational programme. The student will work in the company (without work commitment) under the guidance of a university lecturer and a tutor from the company, who will coordinate and supervise the student. The internship project is defined by the company in conjunction with the University, and will have the following characteristics: <ul style="list-style-type: none"> ○ That it solves a real problem of the organisation. ○ That it promotes the acquisition of experience for the student. ○ That it is in line with the profile of the student's educational programme.

	<ul style="list-style-type: none"> ○ That it involves a technical or technological contribution.
EU	
Portugal (identified by IPP)	<ul style="list-style-type: none"> • Transversal Units and Research Units within the institutions, which have evolved into a model of "associated laboratories". Productive and management application areas led by companies are now also collaborative laboratories, with multi-year funding from public agencies such as the "National Innovation Agency". • Policy for 2030 that incorporates aspects of education and vocational training, with complements of qualification and requalification in digital skills, including a scholarship program for higher education, higher vocational training, general and scientific training, technical training and work-related training. • Night University: Bachelors or graduate and master's degree programs, with night schools for working students, also taking up the doctoral processes in companies. All these courses are created based on the needs of the territory and a strong articulation with the business fabric. In fact, almost all the degrees have an entrepreneurial project. • CDIO initiative was created in 2000 by American and Swedish engineering universities (MIT, KTW, Chalmers, etc.) in order to improve conceive-design-implement-operate capabilities of engineering graduates. CDIO provides guidelines for the engineering education to be aligned the engineering practice and market needs, combining strong solid scientific foundation with "real" engineering practice (experiential learning).
Spain (identified by UVigo and FundRonsel)	<ul style="list-style-type: none"> • The Employability Passport, that accredits, in a single document, participation in any activity for employment, as well as the competencies and skills in which training has been received. This document can be obtained once the studies have been completed and is intended to facilitate communication to employers of the interest and actions carried out by graduates to improve their employability. • Open Innovation: Hive of Ideas ("Colmea de Ideas"): one of the most widely used procedures nowadays for the detection and incorporation of talent in companies is the so-called "open innovation". It basically consists of launching a challenge, a need or a problem into the university environment so that students can present and develop possible solutions or improvements. • INCUVI. Within the framework of the UVIGO's programme, the entrepreneurial skills of the university community are fostered, acquiring the capacity not only to seek but also to create employment, through incubation programmes for entrepreneurial ideas: <ul style="list-style-type: none"> ○ INCUVI EMPRENDE: with the aim of fostering the entrepreneurial spirit of the university community, a tutoring of the project is offered, with the aim of developing a business model. ○ INCUVI AVANZA: training is given to people who contribute to the acceleration of entrepreneurial projects, for the planning of marketing. In addition, they will be accompanied by a mentoring process. ○ INCUVI CONSOLIDA: with the aim of consolidating viable entrepreneurial projects that respond to a real demand, a team of mentors advises the project and the entrepreneur will receive a financial contribution. • Learning Service Program: a specially designed learning experience in which students combine reflection with structured participation in community-based projects to achieve specified learning outcomes as part of an academic course and/or program requirement. • Industrial Doctorates: PhDs suggested by the industry. • New types of internships including online internships, cross-border mobility. • Job search portals at Universities. • Entrepreneurship Unit & Technology Transfer Unit. • Sandwich course, an academic degree or a course that includes strong practical work experience in addition to academic study. • Network of entrepreneurial teachers (<i>mentors</i>) and students. • Specialized training on demand: Master's degree, MOOC, Micro-credentials to address the challenges of a company. • Incorporate a new type of part-time academic staff in the university: the successful professional who devotes part of his or her/his time to teaching and research at the university. • Rural proofing measures, to bring the university closer to the rural. • School of Entrepreneurs: Programme of training for the promotion of the entrepreneurial culture in the university environment, encouraging the creation of business projects, with social and economic value. • Campus dual TIC, platform for the generation and development of talent, to cover positions offered by the ICT sector, combining training for a job with practical work experience, collaborating with different public administrations, educational centres and companies. • Return Strategy: to facilitate the integration of Galician returnees into the Galician education system, a scholarship programme is offered to study a Master's degree at any Galician university. • Youth Mentoring ("Xuventude Mentoring"): to facilitate the job search for young recent graduates, they are offered a network of mentors to strengthen the areas of self-knowledge

	and confidence, as well as the design of an itinerary, with the dual objective of achieving a network of contacts of interest and a job opportunity.
--	--

Best Practices of collaboration University-Business-Society relations (summary)

Some other **GP identified by respondents to the online questionnaires** (see below) have been:

(students):

- Internships
- internships in other countries (international mobilities)
- Multidisciplinary competitions where realistic problems are solved
- Apply quality models such as control charts to carry out indicators, statistical data and company status
- The University's collaboration with FunLuker for the new entrepreneurship courses
- DUAL programs

(staff):

- Preventive archaeology projects in the construction of public works and mega-projects,
- Agreement between the University and producers and processors of *musaceae* in Manizales and Caldas,
- University-agricultural producers strategic alliance for training and technological development,
- Agreement and collaboration between an aerospace company and the university,
- the Angel Investor model

(graduates):

- Tec de Monterrey's Business Linkage Model
- More visits and more internships in companies

(companies and employers):

- Connecting with Employment by Fundación Luker
- Project CONEXIONES, for students of Industrial Engineering and Business Administration to do their internships in the company.
- Traineeship agreements

In summary, this documentary analysis suggests that there are strong foundations for university-industry collaboration in Manizales and Nayarit but also reveals common challenges that need to be addressed. The proposed recommendations aim to improve the quality of graduate education and strengthen the contribution of universities to the economic development of the region. There is also an important catalogue of BP that can be inspiring.

We also carry out **THEORETICAL-PRACTICAL WORKSHOPS ON ACTION**, in Manizales (Colombia) and Nayarit (México), between 4 and 9 September 2023. To this end, 2 comprehensive work **Agendas (see project materials repository)** were designed, in Manizales and Nayarit, that included **Immersion exercises** with some different working schemes depending on the needs and interests of each territory, that included:

- **Focus groups** and a **final Panel discussion**, with different stakeholders from academia, productive sector, labour market of young people (14-28 years old) and society.
- **Joint analysis of Policies and Good Practices.**

Our research work also included in the same week **IN-DEPTH DIALOGUE VISITS WITH STAKEHOLDERS**, which consisted in:

- **Study visits** to local companies, universities (leaders, departments and research groups at the 4 universities), associations and foundations. 12 study visits in total (6 in Manizales, 3 in Nayarit).
- **Semi-directed and face-to-face interviews** with key decision-makers (CEO, human resources officer, responsible for internships and traineeships...) ([see project materials repository](#)). The interview consisted of questions about the general assessment of university students and their skills, their opinion of the university and the university degree of reference, the most valued skills in their company, soft and transversal skills, leadership and entrepreneurship, types of university-business collaboration they know and those they would like to activate, identification of barriers and opportunities for such collaboration, level of knowledge of the university and the university degree of reference, the most valued skills in their company, soft and transversal skills, leadership and entrepreneurship, types of university-business collaboration they know and those they would like to activate, identification of barriers and opportunities for such collaboration, level of knowledge of the university and those they would like to activate. 12 study visits in total (6 in Manizales, 3 in Nayarit). The profile of the companies was very varied:
 - Manufacture of Dairy Products; Processing and preservation of fruit, vegetables and tubers; Family Compensation Fund of the region; Textile manufacturing; Provision of administrative services to subsidiary companies; Supermarket chain and Manufacture of raw materials and products for the food sector (Manizales)
 - Tourism and catering; Culture (Nayarit)

We also designed 4 *ad hoc* Online Questionnaires ([see project materials repository](#)), addressed to employers, university students, graduates and academic staff. The questionnaires are anonymous except for the one addressed to companies and included single and multiple responses; some items are closed-response and some are open-response; some are voluntary and some are compulsory. The 4 questionnaires are different from each other, although they share some common elements. In addition to an identification section, there are questions on strategies or actions to foster known and desired university-business collaborations; benefits and impacts of such collaboration; challenges and obstacles to such a relationship; ways to strengthen the relationship; hard and soft competences; university training and resources for the establishment of relationships with businesses; etc. Open and voluntary questions were also included: to describe successful models of university-business collaboration that would be interesting to replicate and a section for suggestions and observations.

The online questionnaires were launched on 1 September 2023 and as of the closing date of this D2.1 are still open, by agreement of the project steering committee, in order to achieve the widest possible range of responses. These tools were designed by UVigo and IPP and validated by Ibero-American universities. As of the closing date of this report, the responses obtained are as follows: questionnaire for students: 337,

questionnaire for staff: 95, questionnaire for graduates: 36, questionnaire for companies and employers: 20

Although the number of responses obtained is not representative, it does help us to draw a trend, which is the same as the one we received from the participants in the focus groups, meetings and interviews. In any case, more effort is needed to disseminate the questionnaire to all target groups. A preliminary analysis of the results can be found in the [project materials repository](#).

For the development of WP2 **we have directly mobilised a total of 220 people** in Manizales and Nayarit. The total number of activities carried out, their objectives and the people involved are presented below.

People mobilised in Manizales, Colombia

Date and location	Activities	Purpose	Nº people involved	Profile
4 Sept. (UCaldas)	1 meeting	Welcoming protocol and organisation of the agenda. Obtaining information and identifying challenges	7	rector and government team, deans, teachers and researchers, technicians of the employment units)
5 Sept. (UAM)	1 meeting	Welcoming protocol and organisation of the agenda. Obtaining information and identifying challenges	19	rector and government team, deans, teachers and researchers, technicians of the employment units)
6 Sept. (FunLuker)	1 meeting	Obtaining information and identifying challenges	3	director and coordinators
7 Sept. (CCMC)	1 meeting	Obtaining information and identifying challenges	3	project management and support technicians
8 Sept. (UAM)	1 focus group / Panel	Presentation and validation of results.	32	teachers, entrepreneurs, graduates, students
Interspersed visits	6 Study visits	Obtaining information and identifying challenges	6	entrepreneurs and team managers
Permanent: Coordinators in Manizales	Support and facilitation	...	2	Project managers of Ibero4Jobs
Permanent: UVigo	Implementation and coordination of action	...	2	Coordinator and researcher
			Total: 74	

People mobilised in Nayarit, México

Date and location	Type of activity	Purpose	Nº people involved	Profile
5 Sept. (UAN, UTN)	2 meetings, 1 focus group, 1 visit	Welcoming protocol and organisation of the agenda	43	rector and government team, deans, teachers and researchers, civil organisations, students, business chambers, other staff)
6 Sept. (UAN)	1 meeting 4 focus groups	Obtaining information and identifying challenges	59	deans, teachers and researchers, graduates, technicians, academics of "vinculación"
7 Sept. (UAN)	3 focus group	Obtaining information and identifying challenges	29	National Employment Service, National Institute of Social Economy, companies, chamber of commerce, students,

				graduates, academics of “vinculación”, coordinators
8 Sept. (visits)	3 Study visits	Obtaining information and identifying challenges	12	entrepreneurs and team managers, education authorities, academics of “vinculación”, staff and teachers
Permanent: Coordinators at Nayarit	Support and facilitation	...	2	Project managers of Ibero4Jobs
Permanent: Universidade de Vigo	Implementation and coordination of action	...	2	Coordinator and researcher
			Total: 147	

4- SUMMARY OF FINDINGS, CONCLUDING REMARKS

The WP2 captured and highlighted the current capacities of the partners, identified the actions already undertaken to achieve the main objectives of the project, located the barriers and levers of change as well as the interests and needs of each interest group. A series of recommendations are proposed to enhance the university-industry relationship in Manizales and Nayarit. These recommendations include strengthening ties between universities and the business sector, promoting applied research, and adapting academic programs to meet the evolving demands of the job market. Here is a summary of the main results

What companies value most in a university student (competences):

- Commitment and perseverance: you must demonstrate a high degree of commitment to the company and your work, as well as a persevering attitude towards challenges.
- Dependability and accountability: you should be recognised for your dependability and accountability in your job responsibilities.
- Problem-solving skills: have the ability to identify and deal effectively with problems that arise in the business environment.
- Initiative and willingness to join the company: show initiative in seeking opportunities to contribute to the success of the company and be willing to be an active part of the organisation.
- Learning ability: must have the ability to learn and adapt to new situations and challenges.
- These general competences are valued by employers and can contribute significantly to the employability and success of students in their future careers.

Consideration about commitment of companies to the University, and vice versa

- It is suggested that not all opportunities for collaboration have yet been taken.
- It is acknowledged that there is room for improvement, as there has not been as much collaboration as expected or as deemed necessary.
- The importance of avoiding politicisation of projects is emphasised.
- The lack of commitment on both sides is reiterated, together with the lack of follow-up of established agreements (convenios)

Graduate assessment:

- Companies value in graduates their commitment, perseverance, seriousness, knowledge, initiative to learn new things and technical and practical skills.
- Commitment to the company, responsibility, problem-solving skills and initiative are particularly appreciated.

Relevant skills:

- The most relevant competences for university graduates include theoretical/technical knowledge, practical training/know-how, willingness to work, ability to learn and problem-solving skills.
- Practical skills and the ability to solve problems are highly valued.

Strengths of Universities/Degrees:

- Universities are praised for their broad and analytical vision, as well as their ability to propose solutions.
- Professional partnerships and certifications are highlighted, as well as the quality of the teaching staff.

Weaknesses of Universities/Degrees:

- Weaknesses are mentioned such as lack of updating in training due to lack of large companies, lack of focus on entrepreneurship, poor communication with the market, perception of internships as a mere academic obligation and lack of clarity in the degree.
- The need to prepare students in current trends, entrepreneurship and relevant skills is highlighted.

Education and the Future:

- Current training is considered adequate for the present, but it is pointed out that the education system needs to better prepare students for the future, as some careers could become obsolete in 10 years.

Competences of Graduates:

- It is mentioned that the graduates of these universities are well prepared and have a good overall performance and attitude.
- The advantage is highlighted that students can study and work at the same time, which prepares them for the world of work.

Needs for Improvement:

- Areas for improvement are mentioned, such as attitude, communication, adaptation to changing situations and students' own initiative.

Technical Skills and Soft Skills:

- Companies value the ability to work in a team, effective communication and leadership.
- It is noted that English is not critical for all positions, but some positions require English at managerial level.
- Job Placement Departments:
- It is mentioned that graduates can fit in most departments, except in very specialised areas.
- Leadership:
- Leadership is considered important for promotion in the company, and the possibility of access to internal leadership programmes is mentioned.

University-Company Collaboration:

- Companies are involved in agreements for internships and training.
- Project funding measures, dual programmes and collaboration in social projects are mentioned as opportunities to enhance university-business collaboration.

Benefits of Collaboration:

- University-business collaboration can lead to the creation of applied knowledge, the improvement of employability, the dissemination of knowledge and the promotion of entrepreneurship.

Obstacles to Collaboration:

- Obstacles such as lack of awareness of collaboration opportunities, lack of dialogue between universities and companies, and lack of human and financial resources are pointed out.

Engagement with the University:

- It is stressed that business-university collaboration can be improved and that both sides need to engage more.

Participation in Academic Programmes:

- Companies express interest in participating in the definition of study programmes and in actions such as fundraising and sponsorship.

Challenges for the University:

- Challenges for the university are raised, such as reinforcing values, improving the follow-up of graduates and using new technologies.

Successful Models of Collaboration:

- Specific successful models of collaboration between universities and companies in other regions were identified.

Companies:

- Companies are willing to collaborate with universities in order to improve employability rates.
- Companies consider that work should be done on the soft skills of trainees and graduates in order to improve their performance in working life.
- The articulation between companies and SENA is highlighted.

EVALUATION of the different activities, tasks, strategies and visits done during the whole week. The evaluation of WP2 was done in two moments, both in Manizales and in Nayarit:

- a) At the end of the panel, on 9 September, with all participants. Method: satisfaction questionnaire (happy face emoticons).
- b) At the end of the week, on 9 September, with all partners involved. Method: satisfaction questionnaire (the questions were the following: *1. Did I enjoy the working week? 2. Did I like the way we work on the agenda and schedules? 3. Do I believe that all exercises contribute to the Project? 4. Does what I learn this week benefit me? 5. Am I satisfied with my personal contribution? 6. Am I satisfied with the group work? 6. Elements for improvement*)

Results: all people involved is highly satisfied. Suggestion: time for interviews must be reduced, they are too long.

In the light of the results obtained and the excellent work carried out in both territories, we consider that the objectives of this WP2 have been achieved in a very satisfactory manner for all parties. Interaction and collaboration among the participants allowed for understanding of deliverables and deadlines, paving the way for a successful execution of the following WPs. But beyond all this, which are still requirements of the Call, it has helped us to know each other much better and be stronger as a consortium. We are very satisfied with the results obtained and we believe that the methodology followed can be inspiring for the following WPs. So far, the work packages and related project activities have been fully implemented. The needs for the training in Europe in April need to be defined.

We both UVigo and IPP want to highlight and appreciate the systematic and proactive collaboration of all partners throughout this process. We particularly value the support and accompaniment of the coordinator (UCaldas) in all the necessary administrative and bureaucratic procedures, and the time that the different companies generously gave us during visits, interviews and focus groups.

University-business collaboration can improve employability and foster entrepreneurship, but faces obstacles such as lack of dialogue and resources. Greater commitment from both sides is needed.

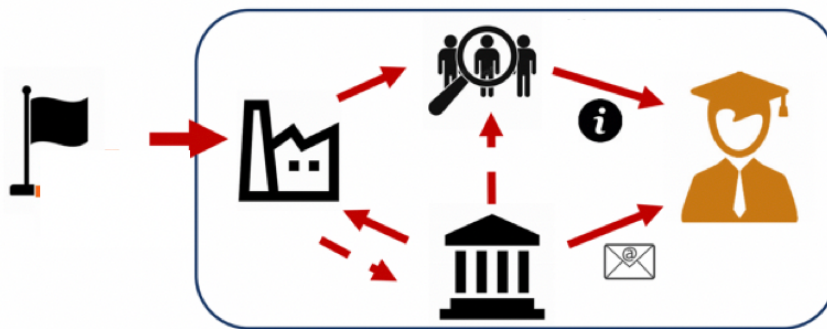
The combination of all the results obtained allows us to establish a preliminary **roadmap** and to set **priorities**, and also allows us to make a **stakeholder process map**. We always talk about **trends**, as the analysis could not be carried out with all the desired thoroughness, due to the time constraint set for WP2.

- **STAKEHOLDERS PROCESS MAP**



Stakeholders at Academia (Source: Kettunen, J. (2014). The stakeholder map in higher education. *International Proceedings of Economics Development and Research*, 78(1), 34-38.)

Stakeholders at Industry (Source: Yu, H., Sedlezky, S., Wong, K., Hernandez, T., Larsen, P., & Stephenson, G. (2018). Stakeholders of Pop-Up Retail Operations. *Pop-up Retail Strategies in an Omnichannel Context*.)



The stakeholders process map



Stakeholders Map

In a clockwise direction we find our stakeholders:

- **Productive sector, companies:**
 - a) representatives of the productive sector of the territory (business associations/corporations, CEOs, HR/talent recruitment, Head of Corporate Social Responsibility, academic supervisor or tutor, head of the R&D&I unit, among others)
 - b) emerging high-impact companies in the area (if any).
- **Academia:**
 - with **Students always at the centre** (students in the last years of their degree + graduates and representative of Alumni)
 - **Teachers / researchers** (researchers in the domain ; mentors, academic tutors, among others)
 - **University Government** (representatives of the government team in charge of relations with the companies; head of the Employment and Entrepreneurship Unit; responsible for internships, placements, practicum... for students in companies; head of Fundraising, sponsorship and patronage; responsible for spin-offs, patents, R&D&I contracts with companies, among others)
 - **Management and administration** (any administration and management position related to the project).
- **Society in general & the third sector:** local/regional government representatives, representatives of society in the University Board, Foundations, NGOs, among others).
- **Youth labour market** (14 - 28 years old): job seekers, youth employment & policies

The stakeholders process map allows us to conclude that in university-industry relations the **channels of communication** between the different parties involved are not fully known by all those involved. There are several situations that generate noise, disturbing the flow of communication and preventing it from being efficient. All actors recognise some of the agents (in Manizales, SENA as an important stakeholder), and are clear about their roles. However, communication between them does not flow efficiently or is unidirectional.

The process map shows that universities appear to have a range of programmes and partnerships aimed at preparing their students for the labour market and encouraging

entrepreneurship through internships, business projects and other professional development opportunities. They are also involved in broader initiatives related to employment and economic development in the region. We have also found **similarities** in the offer of the universities, related by all stakeholders:

- University-business collaboration has benefited both parties by improving student employability, strengthening academic training and adapting curricula to the demands of the labour market. It has also fostered greater integration between academic theory and work practice.
- Collaboration Agreements with state agencies related to employment, which provide opportunities for students to undertake professional internships.
- Internships and Stays: Students participate in internships and stays in companies as part of their academic training.
- Project Development in Business Incubators, which fosters entrepreneurship and the development of new businesses.
- Innovative programmes such as dual programmes are not (or not currently) available due to challenges with the availability of local companies.

Emphasis is needed on the development of **soft skills** related to leadership, personal management, planning and teamwork. Also has is remarkable that young people lack **emotional** resilience and it is crucial to work on their development in order to adapt to the labour market.

Bureaucratic obstacles related to the need for prior agreements between the university and companies:

- Some companies lack adequate internal organisation to assist with training.
- Communication between companies and the university may be limited during stays.

Some companies are **not interested in receiving students**, others are eager, but regard them as cheap labour. Shortage of internship opportunities due to the lack of industry in the region, resulting in an insufficient offer for graduates. Links with the labour market through internships, followed by job placements. Some internships with the public sector are identified as not so relevant if students plan to work in the private sector.

Part-time employment for students, allowing them to combine work with their studies. The **adaptation to the needs and preferences of the students** in the selection of companies is also highlighted. This is a challenge for the internal organization of the universities, as the classes' timetable would have to be compatible with the students' work.

External Professional Certifications, especially in the field of Information Technology (IT), which adds value to the students' education.

- Collaboration with Certification Bodies and Companies to ensure quality education and employment opportunities for their students.

Service Projects provided by the University in areas such as engineering and gastronomy.

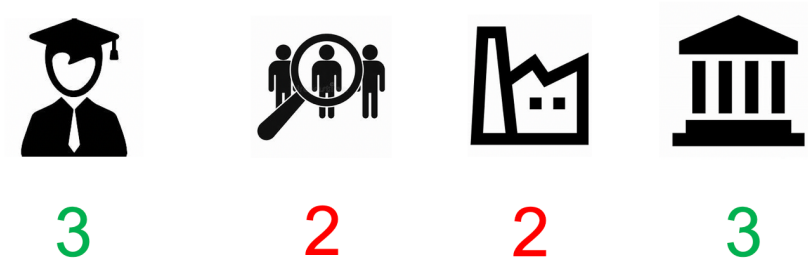
Employment Exchange: The university provides an employment exchange to help students find jobs once they complete their studies.

Business Events and Conferences, which broaden students' vision of job opportunities.

- Some universities are part of a **Network for the Development of the Social Economy**, a developing network that seeks to promote the social economy, involving various actors, including the state and society, at different levels. The University plays an important role as one of the participants in this initiative.
- **Collaborations between universities and companies** have brought several benefits for both the educational institutions and the companies involved:
 - **Employability:** Collaboration has increased employment opportunities for students, better preparing them for the labour market.
 - **Drop-out avoidance:** It has contributed to reducing student drop-out by providing students with relevant practical experiences.
 - **Strengthening vocational training:** The collaboration has enriched the training of students, ensuring that they are better prepared for their future careers.
 - **Strengthening links:** It has strengthened links between business and the university through improvements to the curriculum.

After presenting the relationship map and its results, we proceeded to **validate** it in a **final focus group or Panel**. The result is as follows, for both territories because **there are not significant difference among Manizales and Nayarit on these issues**.

The perception of the degree of collaboration between Universities and Companies/Industry is medium-low, with a score of 3 on a scale of 1-5 for Students and Academia (lower in Nayarit, closer to 2), and even lower (fail) for job seekers and companies.







Recruitment of university graduates and Internships and business immersion for students are identified as the first options for collaboration for all stakeholders. However, there are other dynamics that have not been fully tested and proven yet:

- Development of joint research projects for the development of new products/services.
- Provision of consultancy/laboratory services through contracted research and/or use of instrumentation.
- Specific training for company staff, training on demand.
- Involvement of companies in university activities (lectures, etc.), steering committees and as advisors.

UNIVERSITY-INDUSTRY MODEL

Most significant collaborations

				
Recruitment	✓	✓	✓	✓
Internships	✓	✓	✓	✓
Joint investigations				✓
Provision/use of services			✓	
Training for companies/University				
Talks, fairs...	✓	✓		✓



UNIVERSITY-BUSINESS MODEL

Students and alumni

COLLABORATIVE ACTIONS CARRIED OUT:

35% none; 35% internships; 30% talks.

COMMUNICATIONS RECEIVED WITH OPTIONS TO COLLAB.

20% none, 25% regularly (3 times/year or more)

OBSTACLES TO COLLABORATION:

60% of companies are unaware of the possibilities for collaboration

60% lack of dialogue with universities

50% students are unaware of communication channels

MEASURES TO PROMOTE COLLABORATION:

50% grants for work placements/internships

50% meeting spaces with companies

41% collaborative research projects



UNIVERSITY-INDUSTRY MODEL

Companies

COLLABORATION ACTIONS CARRIED OUT : 100% internships, 30% analytical/laboratory services; 15% joint research projects; 15% lectures

OBSTACLES TO EU COLLABORATION: Lack of awareness of collaboration possibilities by companies and lack of dialogue between the actors involved.

MEASURES TO PROMOTE COLLABORATION:

60% development of research projects

50% access to other services provided by the university

30% training of the company's staff in specific skills



UNIVERSITY-INDUSTRY MODEL

Employment agencies

ACTIVE PARTNERSHIP ACTIONS: recruitment of students and graduates, participation in job-training talks and job fairs

OBSTACLES TO EU COLLABORATION: Lack of awareness of collaboration possibilities by companies and lack of dialogue between the actors involved.

PROPOSED MEASURES TO PROMOTE PARTNERSHIP: Improved communication with the alumni office (promotion of the SENA exchange).



UNIVERSITY-INDUSTRY MODEL Universities

COLLABORATION ACTIONS CARRIED OUT: 60% internships, 60% invitations to companies to participate in events; 50% promotion of collaboration agreements with companies; 40% joint research projects.

OBSTACLES TO EU COLLABORATION:





70% Lack of knowledge of collaboration possibilities by companies
70% Lack of financial resources to develop research projects;
60% lack of dialogue

MEASURES TO PROMOTE COLLABORATION:

60% collaborative research projects
50% research projects transfer
35% of teaching staff on placements in companies

UNIVERSITY-INDUSTRY MODEL

Student competences most valued by employers

				
Work experience	✓	✓		
Theoretical knowledge (programme)	✓			✓
Specific technical knowledge			✓	
Troubleshooting	✓		✓	✓
Effective communication		✓		
Digital skills		✓	✓	✓
Languages		✓	✓	
Attitude / emotion		✓	✓	

UNIVERSITY-INDUSTRY MODEL

Challenges



Work on **real company** projects/challenges in order to be able to enter the world of work with a better preparation.



Jointly develop **projects** and implement new research and development. Obtain greater knowledge and use of the **services offered by the universities**.



Articulate a **structure for dialogue** that involves all the actors involved in the labour market integration of university students. Work on the **management of students' emotions** and **improve** job search **procedures**.



Improve and **certify** students' digital **competences** and soft skills. **Promote** collaborative **projects** with companies

Then, with the same actors, a participatory dynamic was proposed to first identify **the challenges in the short-medium term (6-12 months)**.

UNIVERSITY-INDUSTRY MODEL

Challenges



Work on **real company** projects/challenges in order to be able to enter the world of work with a better preparation.



Jointly develop **projects** and implement new research and development. Obtain greater knowledge and use of the **services offered by the universities**.



Articulate a **structure for dialogue** that involves all the actors involved in the labour market integration of university students. Work on the **management of students' emotions** and **improve** job search **procedures**.



Improve and **certify** students' digital **competences** and soft skills. **Promote** collaborative **projects** with companies

And secondly, to agree on some realistic, efficient and feasible ideas to **address those challenges**:

The teachers propose:

1. Incorporating challenges in the official curriculum, which implies having good and more innovative work materials for the management of internships, being able to select good companies where to send students to do internships, having more options to interact with the business world.
2. Teacher internship programme in business organisations and entities, immersions for teachers and researchers.
3. Implementation of public-private collaborative roundtables, or common places where universities, companies, public administrations and the social partners sit down to collaborate and exchange BP. Teachers also want to be present at these roundtables and be valued as active and valuable agents.
4. The creation of advisory councils by area of knowledge (including academia, business, graduates and government). This council would aim to provide input for updating curricula, defining collaborative projects, identifying and addressing the needs of these sectors and establishing effective feedback between business and academia.
5. Creation of a University-Business unit to organise and manage a portfolio of services from the university to business and vice versa.
6. A "Sponsor/Mentor" plan for the professional accompaniment of students.

7. Agreements for internships
8. Project development in business incubators
9. Part-time employment
10. Other international mobility programmes.
11. Need to train students in soft skills, especially language skills (English) and teamwork
12. Need to continuously train teachers in professional skills, keeping them updated with market's best practices.

Companies, industry propose:

1. Organise and manage a portfolio/catalogue of services from the university to the company, and vice versa.
2. Appropriate electives for professional development: Offer more training in communication, professional attitude and leadership, possibly through electives.
3. Role of Alumni and Former Students: The relevance of alumni and former students in promoting the university and improving the employability of graduates is recognised.
4. The university must be proactive in promoting its programmes and creating job opportunities for its graduates, without neglecting the provision of educational services.
5. Fostering entrepreneurship among students and supporting projects with potential for success.
6. Inviting external partners to enrich the training of students.
7. Need to train students in soft skills.

The university (leaders of the organisation and technicians) propose:

1. Elective subjects in professional digital competences.
2. Company-valid certification in digital competences, supported by partners.
3. Recognition of participation in this type of extraordinary activities, within the career path.
4. Holding annual job fairs.

5. Support Open Innovation programmes.
6. Fostering the Social Economy: The need to establish partnerships with other educational institutions to develop social economy ecosystems and the creation of a network of social economy nodes was highlighted.
7. To promote students to stay in their own areas rather than moving to large urban centres. This could be achieved, for example, by strengthening the social economy and supporting small businesses.
8. Need to train students in soft skills.

Students propose:

1. Incorporate job search tools into the official curriculum (CV writing, job interview preparation, etc.).
2. Incorporate emotion management tools in the official curriculum.
3. More and better approach of students to real work situations. Some programmes already include integrative courses, which are highly regarded by both students and teachers.
4. More international mobility programmes available to students, with scholarships and financial support.
5. Strengthen language training, as it is an important requirement but is not sufficiently covered.
6. Agreements for internships
7. Project development in business incubators
8. Part-time employment
9. Other international mobility programmes.
10. Need to train students in soft skills.

5- DISSEMINATION

Evidence from the project website:

Manizales

- <https://ibero4jobs.com/en/universidad-de-vigo-y-la-uam-se-unen-para-fortalecer-el-sector-empresarial/>
- <https://ibero4jobs.com/en/fundacion-luker/>
- <https://ibero4jobs.com/en/el-proyecto-ibero4jobs-financiado-por-erasmus-diagnostica-la-relacion-academia-y-sector-productivo-en-cuanto-a-oportunidades-laborales-de-estudiantes-universitarios-de-latinoamerica/>

Nayarit

- <https://ibero4jobs.com/en/universidad-tecnologica-de-nayarit-2/>
- <https://ibero4jobs.com/en/universidad-tecnologica-de-nayarit-3/>
- <https://ibero4jobs.com/en/universidad-tecnologica-de-nayarit-4/>
- <https://ibero4jobs.com/en/universidad-tecnologica-de-nayarit-5/>
- <https://ibero4jobs.com/en/secretaria-de-extension-y-vinculacion-uan-3/>
- <https://ibero4jobs.com/en/secretaria-de-extension-y-vinculacion-uan/>
- <https://ibero4jobs.com/en/centro-cultural-casa-fenelon/>
- <https://ibero4jobs.com/en/universidad-tecnologica-de-nayarit/>
- <https://ibero4jobs.com/en/visita-universidad-de-porto-a-nayarit/>
- <https://ibero4jobs.com/en/secretaria-de-extension-y-vinculacion-uan-2/>

Universities' portal:

- <https://www.autonoma.edu.co/blog/noticias/universidad-de-vigo-y-la-uam-se-unen-para-fortalecer-el-sector-empresarial>
- <https://www.lapatria.com/galerias/universidad-de-vigo-y-la-uam-se-unen-para-fortalecer-el-sector-empresarial>

Twitter / X:

- <https://x.com/maribeldoval/status/1664667215231164419?s=46&t=M7wBFRjicGX3rgYNLYpJeA>

ANNEX

DEFINITIONS, ACRONYMS AND ABBREVIATIONS

EASY:

- Encourage entrepreneurial competences, recognising individual competences, assemble resources and launch venture to allow establishing new business.
- Advise on business entrepreneurship. Permanent service open to any student and faculty member
- eStablish a teacher entrepreneurship network.
- “I”deas Hive. Launch an open innovation programme to conduct student projects.

GP/BP: GOOD PRACTIC/BEST PRACTICE: in the context of the relationship between universities and businesses refers to established and effective approaches, strategies, and actions that foster collaboration and mutual benefit between these two sectors. It encompasses ethical, efficient, and successful methods that enable universities and businesses to work together for common goals, such as advancing research, innovation, education, and economic development

CONFA: Caja de Compensación Familiar de Caldas is present in Manizales and in different municipalities where workers, members and their beneficiaries have access to subsidies, education, recreation, housing, credit and health services, contributing to improve their quality of life. It is close and friendly and knows and understands the people of Caldas and Manizales, those who seek innovation without losing tradition.

CSO: A civil society organization (CSO) or non-governmental organisation (NGO) is any non-profit, voluntary citizens' group which is organized on a local, national or international level.

SENA: Servicio Nacional de Aprendizaje (Colombia)