MULTISECTORAL GOVERNANCE FOR SKILLS DEVELOPMENT:

AN ANALYSIS OF THE OPEN PLATFORM FOR INNOVATION AND DEVELOPMENT OF JALISCO (PLAi)

MA Candidate:

Natalia Acosta Ponce

Supervisor:

Oscar Valiente

Degree: Erasmus Mundus International Master in Education Policies for Global Development (GLOBED)

Faculty: College of Social Sciences

Department: School of Education

July 2025

Acknowledgements

I am deeply grateful to PLAi and to those people who are part of it and have been part of it. I have grown so much as a person and a professional during my time there that I will always remember that place and that team with joy and appreciation. I hope this work helps it improve and, in doing so, reach many more people in the most beneficial ways possible.

I will always be grateful to Nadia Mireles for believing on my ability to face big challenges and for trusting me with opportunities that have done nothing but make me learn.

I owe special thanks to Margarita Niño and Jorge Vargas, for helping me with the selection and contact of the right people to interview. The support of my 23 interviewees was invaluable. I'm deeply grateful for their generosity and for sharing their time and confidence to discuss their perspectives with me.

I also would like to thank Carlos Bañuelos, for leaving the door open for me to come back and eventually share my findings with the team.

The GLOBED journey has been one of the best decisions of my life. Beyond the experience of living and learning abroad, the people I have met along the way have made it extraordinary. My warmest thanks go to my friends from the eighth cohort for their encouragement and kindness that has made me feel so accompanied during this process. Barcelona, Glasgow, Paris, and Nicosia would not have been the same without you.

My heartfelt thanks go to my professors for their commitment, openness, and willingness to share their knowledge. Special thanks to my supervisor Oscar Valiente for his honesty, guidance and reassurance when the path felt very overwhelming. Oscar, the "*molt bé*'s" meant more than you can ever imagine.

I couldn't have embarked on this journey without the unconditional support of my mom, Cecy, and Tania. A lifetime will not be enough to thank you for so much. Finally, here's a loving remembrance of my angels in heaven, who have never stopped watching over me.

Abstract

Skills policies have seen significant growth in recent years due to factors such as changing labour markets, the increasing economic interdependence of countries, and accelerated technological advances. The literature on skills development has also expanded its scope to include terms such as governance and ecosystems. The relevance of studying this topic relates to its inclusion in the global agenda, the knowledge gap associated to the limited research available about these policies on Latin America, and it also relies on the potential of improvement for the case.

In this sense, this study will use the single-case study of Jalisco and the Open Platform for Innovation and Development of Jalisco (PLAi) to study the roles of stakeholders, the objectives underlying policy implementation, and the available cooperation mechanisms. The approach will be qualitative, and I will utilise two main methods: semi-structured interviews and policy documentary analysis.

Key findings include the identification of Jalisco's geographic location towards the United States as fundamental to the establishment of a skills ecosystem; the roles of stakeholders respond to a functionalist logic, in which PLAi acts as an intermediary; there are conflicting views on the economic and non-economic motivations that drove the creation of the policy, as well as clear power asymmetries in its design; and finally, several cooperation initiatives are recognized and analysed according to the degree of involvement of the actors. The results unveil some tracks for additional research in the future, as well as practical recommendations that are intended to be presented to PLAi’s representatives.

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List of abbreviations

AI	Artificial Intelligence
CGECDE	Coordinación General Estratégica de Crecimiento y Desarrollo Económico [General Strategic Coordination of Economic Growth and Development]
CIBTF	Comité Interuniversitario de Bolsas de Trabajo y Formación [Inter-university Committee for Job Banks and Training]
CITEJ	Comisión Interinstitucional de Educación Tecnológica [Inter-institutional Commission for Technological Education]
CME	Coordinated Market Economies
COECyTJAL	Consejo Estatal de Ciencia y Tecnología [State Council of Science and Technology]
COEPES	Comisión Estatal para la Planeación de la Educación Superior de Jalisco [State Commission for Higher Education Planning]
CONALEP	Colegio Nacional de Educación Profesional Técnica [National College of Professional Technical Education]
HEI	higher education institutions
ICT	Information and Communication Technologies
LME	Liberal Market Economies
MIND	México, Innovación y Diseño
MSME	Micro, Small & Medium Enterprises
OECD	Organisation for Economic Co-operation and Development

PLAi	Plataforma Abierta de Innovación y Desarrollo de Jalisco [Open Platform for Innovation and Development of Jalisco]
SICyT	Secretaría de Innovación, Ciencia y Tecnología [Ministry of Innovation, Science and Technology]
SSI	sectoral system of innovation
STEM	science, technology, engineering and mathematics
TAE	Programa Talento Altamente Especializado [Highly Specialized Talent Program]
TVET	Technical and Vocational Education and Training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UofG	University of Glasgow
US	United States
WB	World Bank

1. Introduction

The past fifteen years have seen a growing interest in the skills agenda and the development of policies in this respect. The unemployment rates generated by the 2008 recession, the inclusion of skills development in the United Nations (UN) Sustainable Development Goals, and the purpose to keep countries competitive within the global value chains, are some of the reasons that explain this growing concern (Valiente, 2014; Green and Henseke, 2016). Additionally, studies such as *The Future of Jobs* by the World Economic Forum (2025) or frameworks such as the *Skills Strategy* by the Organisation for Economic Co-operation and Development (OECD, 2019) have pointed out the importance of lifelong learning strategies, as well as upskilling and reskilling initiatives that respond to a world significantly impacted by digital transformation.

The approach to the skills agenda has also grown in scope. The issue has been studied from perspectives such as the Human Capital Theory and the Political Economy of Skills. Furthermore, recent studies consider beyond the role of the state or the market, and the participation of other actors is increasingly being analysed in a view that promotes **multisectoral governance** and looks at sub-national dynamics. Most of the research in this regard has been carried out in countries in the global north, which can lead to erroneous assumptions when put into practice. For this reason, this dissertation focuses on a regional case in Latin America, that of Jalisco, which will be described in more detail below.

1.1. Context: Jalisco and PLAi

For more than sixty years, Jalisco, a state in western Mexico, has seen the continuous establishment of multinational electronics and information technology companies such as Hewlett Packard, Intel, and Kodak. This has been possible due to its proximity to the US, as well as economic factors related to labour costs and reduced tariffs. Since the 2000s, government institutions have been established to promote innovation,

science and technology in the state, setting an agenda that has remained in place to this day.

In 2019, PLAi was enacted as a public policy with the objective of preparing citizens with the skills required for the jobs of the future, making use of virtuality. Five years after its adoption, it is worth analysing the role of this institution within the state's skills ecosystem. Through this case-study, an analysis will be conducted on how skills governance is implemented through a multisectoral strategy involving various types of stakeholders.

1.2. Rationale of the study and relevance

As mentioned before, the **purpose** of this research will be to deepen into the role of PLAi in relation to the development of skills and consider the participation of other actors in this process. The study of this topic will be primarily motivated by its **substantive relevance** because of the “real-world societal importance of the case” (Toshkov, 2016, p. 289) when considering the scope of the institution and the actual possibilities I have of sharing findings with decision-makers, potentially generating significant changes in practice. In the mid of a government transition at the national and state levels, and within the structure of PLAi, understanding whether and how the skills governance works will provide them with information to determine courses of action and improvement strategies, potentially transforming PLAi’s interactions towards other actors and the services provided. As far as the **scientific relevance** is concerned, the study intends to present a theoretical discussion and ideally generate new ideas about the multisectoral governance of skills in the Latin American context.

Another significant aspect to address is the **personal motivation** of studying this policy. Selecting it as a case-study is of interest to me because I worked in PLAi from 2020 to 2024 in different positions and I have partially observed its evolution. Nevertheless, the interaction of this institution with other stakeholders in the context of the state’s innovation and skills development agenda is a theme that has not been analysed yet.

1.3. Dissertation structure

With the intention of fulfilling the goal established on the previous section, this dissertation will be structured in the following way. A Literature Review is presented in Chapter 2 as a first theoretical approach to frame the topic. It includes the standpoint of international organisations towards the skills development agenda, the political economy perspective which provides the basis of institutional arrangements and power asymmetries; it also describes the progressive formation of a skills ecosystem approach that includes the involvement of a variety of actors from different sectors.

The review will lead to the recognition of the knowledge gap and the subsequent presentation of the Methodology in chapter 3. This one will begin with the analytical framework, research questions and hypotheses, followed by a justification of the research design. Data collection methods used for this study will be described in detail, as well as the analysis process and what was used for it to be done. An ethical section is added to address the procedures completed to fulfil the requirements of the University of Glasgow (UofG) - School of Education Ethics Committee. On this chapter I also reflect on my positionality towards the subject of study and identify potential biases.

On chapter 4, the findings from the documentary review and the interviews will be presented and described. At the same time, these results will be analysed using the framework developed throughout the dissertation which aligns with the research questions and focuses on **objectives of the policy**, **mechanisms of cooperation**, and **roles of the stakeholders**.

Finally, the conclusions will be displayed on chapter 5 by bringing back the research questions, presenting answers, discussing the theoretical approach selected, and introducing some proposals for potential further research to be considered for the future, and even the possibility to be used as reference for other contexts. Additionally, some policy recommendations are set on this section as a complimentary result of this project.

2. Literature Review

"They [skills policies] are much more complex than many other policies because they are located at the intersection of education, labour market, industrial and other policy domains".

OECD (2019: 28)

Collaborative networking for skills development is a policy strategy that has been increasingly discussed over the last 15 years as a consequence of the digital transformation, the speed of technological advances, and profound changes in labour markets. A robust literature on governance and skills regimes can already be found. This chapter presents a mapping, from the general to the particular, of how this issue has been looked at, the main ideas and theoretical concepts related to the topic, as well as locating the state of the art in Latin America and in Jalisco.

This analysis required a documentary review in digital libraries in English and Spanish, to broaden the perspective of the case to be taken for the study. After this exercise, it is hoped to identify the main debates on the subject, perspectives that have been considered, and therefore, knowledge gaps with which the present thesis can contribute to increase the understanding of the topic[1].

2.1. Global agenda on skills

The perspective of international organisations on skills development has been a leading one in the last decades. Although there has been a relatively homogeneous stance on the importance of skills formation among international organisations, the motivations and purposes behind these policies have been contrasting. While some highlight that skills development policies are required to address the problem of inequality between and within countries (UN, 2023), others focus mainly on

[1] It is necessary here to clarify that throughout this dissertation, the term 'skills' is used to refer to a set of knowledge, attributes, and capacities that have productive value, are socially determined, enable individuals to perform activities or solve problems, and can be acquired and enhanced through learning (OECD, 2012; Green, 2011).

facing the changes on the labour markets due to digital technologies (OECD, 2019) and tackling the lack of skilled human resources from an economic perspective (WB, n.d.). A more detailed account of these positions is given in the following lines.

By one hand, the **UN**'s 2030 Agenda for Sustainable Development explicitly incorporated the skills development concern as two targets of the Goal 4, Quality Education. Firstly, in a general matter as to "increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship" (UN, n.d., target 4.4.); and secondly, there is reference to the "knowledge and skills needed to promote sustainable development" (UN, n.d., target 4.7.), which includes topics such as culture of peace, human rights, and global citizenship.

On the other hand, **The World Bank** (WB) affirms that this type of policy is directly related to the economic growth, and competitiveness of countries, estimating that "the global economy could gain an estimated US$6.5 trillion in the next seven years by closing workers' skills gaps, representing 5-6 percent of their GDP" (n.d.). Additionally, the WB states that this strategy enables workers "to move out of low-productivity activities" (2018, p. 1). The Bank also enhances "efforts to create conditions for a market for lifelong education and training services" (2018), promotes a reduction in the firms' constraints by providing them credit oriented towards training, and ensuring the companies a levelled playing field regarding public training opportunities.

The **OECD** presents a stance more focused on the importance of coordination among institutions through its *Skills Strategy Framework* presented in 2012 and updated in 2019. Similarly to the WB, it also focuses on economic gains rather than social benefits, which are considered secondary, as Valiente states (2014). In this sense, it highlights the potential of offshoring and the strengthening of global value chains through the provision of workers with adequate skills which allows countries "to specialise in sophisticated industries, such as complex business services and high-tech manufacturing industries" (2019, p. 55). The organisation insist that governance policies require 1) arrangements within the government (central and sub-national levels); 2) the integration of a variety of stakeholders throughout the whole policy cycle; 3) the conformation of a shared system with strategic information about changes in trends and opportunities available; and 4) the diversification of funding sources as well as the improvement of allocation and accountability mechanisms.

In the case of the United Nations Educational, Scientific and Cultural Organization **(UNESCO)**, a vision focused on issues of equity and sustainability can be identified. For instance, in its *Strategy for Technical and Vocational Education and Training (TVET) 2016-2021* and the updated version that comprises 2022-2029, UNESCO has aligned the issue of skills development with topics such as gender equality and green economies, going beyond economic progress by also considering social and environmental concerns. Additionally, the strategy considers the creation of multisectoral and multilevel stakeholder platforms to keep a common ground for 'the world of work' and the 'world of education' (UNESCO, 2015; UNESCO, 2021).

2.2. Political Economy approaches to skill formation

Besides the stance posed by international organisations about skill development, it is relevant to identify that several theoretical approaches have made contributions on this respect. Bryson (2017) lists three main viewpoints: 1) human resources management and organisational studies; 2) learning theory, centred on pedagogical processes, and individual competencies; and 3) political economy of skill, which is interested on the role of institutions and actors "in relation to skill formation, utilization, and value" (2017, p. 20), as well as issues such as income inequalities or skills supply and demand. Considering the purpose of this study, the **political economy approach** addresses several key elements which will be described on the following sections.

Statist and market models of coordination

As mentioned before, Political Economy of Skill is particularly interested in the role of institutions and their stance towards coordination. Hence, identifying the state and the market approaches in these terms is a useful baseline.

The **statist approach** to coordination is mainly characterised because is driven by state-funded vocational institutions, while the participation of the employers, companies and unions is limited (Busemeyer and Trampusch, 2011; Persson and Hermelin, 2022). The main critiques towards this model are related to the difficulty to keep the training content updated, its low quality, and that it has low impact on improving employability levels among the participants (Valiente and Capsada-Munsech, 2021).

Regarding the **market approaches**, they assume that competition will eventually bring about a match between supply and demand of skills. In general terms, they promote the privatisation of training and the reduction of regulations (Valiente and Capsada-Munsech,

2021). Liberal Market Economies (LME), such as the US, foster the acquisition of general skills rather than specific ones. This agenda promotes that after general education, on-the-job training should follow (Busemeyer & Trampusch, 2011). Critics have argued that this model reinforces stratification and, therefore, inequalities (Thelen, 2014); besides, the lack of intermediate skills has been noted (Valiente et al., 2020).

In the context of a new century, amidst pressures on firms due to globalization and the technological revolution, an additional perspective was introduced by Hall and Soskice (2001) to describe the relationships that market economies establish strategically with multiple actors towards the fulfilment of their interests. The authors call this variety the **Coordinated Market Economies (CME).** They integrate forms of non-market coordination, embrace innovation, allow the exchange of information, promote the development of specific skills, as well as considering the role of intermediary as substantial (Busemeyer, 2009; Busemeyer and Trampusch, 2011). The main criticism raised against this concept is that it is focused on national strategies, without paying attention to regional particularities (Schröder and Voelzkow, 2016).

By the other hand, in a comprehensive proposal that focuses on training and considers both spheres, market and state, Busemeyer and Trampusch (2011) integrate the firms' involvement and the governments' commitment in skills development as analytical dimensions. The result is a typology that includes the following categories of **skills regimes**: 1) statist, with low involvement from firms but high involvement from government; 2) liberal, with low involvement from public actors and firms, relying on a market equilibrium; 3) segmentalist; with active participation from firms and low commitment from public entities; and the 4) collective, with high involvement from the public and private sectors. The latter will be discussed later with more detail, as it is closely related to the concepts of governance.

Finally, as an additional comparative framework for skills regimes, Estevez-Abe et al. (2001) classify by types of skills, in increasing order of portability: 1) firm-specific; 2) industry specific; and 3) general. The first ones are provided through the company's on-the-job-training; the second ones are acquired and certified through apprenticeships and depend on strong vocational systems; while the last ones can be useful in any industry and therefore are less institutionalised. The main argument of the authors is that the set of skills may have several economic implications such as potential poverty traps or strong incentives for individuals to keep their training tracks (2001).

A mismatch problem in a rapid-change context

It is worth tracing the origins of skill regimes and therefore identifying the problem they seek to address. In the first instance, talent development policies arise as a response to the recognition of a mismatch between the skills owned by the individuals and the ones needed by the labour market. Literature about this issue has centred commonly on the supply side of the problem (Brunello and Wruuck, 2021) which can be presented in two ways: a shortage of qualified labour or the overqualification of the people (Capsada-Munsech and Valiente, 2020). According to the human capital approach, this mismatch will eventually be resolved by the self-regulation of the market (Becker, 1962).

Nonetheless, this argument has been questioned when analysing the uneven growth of skills demand (Brown and Lauder, 2006), and the complexities of regional labour contexts (Dobbins and Plows, 2017). There are two factors identified by Goldin and Katz (2007) in the dynamics of skills development that generate significant changes: “in the relative supply of more-educated workers, which has mainly occurred through changes in schooling, and the change in the relative demand for more-educated workers, which has been driven by skill-biased technological change” (2007, p. 6).

In a more general and critical view of the skills-based approach, Brown et al. (2010) question the assumption that ‘learning equals earning’, stating that the accumulation of credentials is not necessarily related to increases in income: “Wage inequalities cannot be narrowed through better education or increasing skill levels because the global labour market is congested with well-educated, low-cost workers” (2010, p. 12). Additionally, they mention (2010) that those who can access ‘better jobs’ are a minority. The argument is based on dynamics such as increasing access to higher education, practices such as offshoring or outsourcing to emerging economies and a war for talent around the world.

On the other hand, Reich's (1991) work stands out because it also brings into the debate the implications of inequality and social polarisation that skills disparities may have. Nevertheless, contrary to the perspective of Brown et al. (2010), he argues that the standard of living of citizens is increasingly related to their skills, the quality of the work they have, and the contribution they can make to global value chains, rather than to the financial success of corporations or industries *per se*.

In an analysis similar to that of Brown et al. (2010), Finegold and Soskice (1988) conclude that solely focusing on training initiatives or educational innovations is far from enough. These authors claim that a broader transformation is required for economies to move to a high-skill equilibrium characterised by innovation and specialised goods; this strategy implies labour market developments and the involvement of partners such as unions. Finegold and Soskice propose a model characterised by multilateral governance with an active role from educators, employers and employees, in which the government's role goes beyond unilateral policy making, as it "should be more concerned with the provision of information, research and development, and coordination" (1988, p. 46).

2.3. Sub-national governance of skill formation

As shown above, to a greater or lesser extent, international organisations and authors who have addressed the issue of skills development have also highlighted the importance of skills training strategies being accompanied by governance and coordination processes. Governance is defined by Ganter de Otero (2020) as a shift from a top-down to a more horizontal perspective of coordination among different kinds of interdependent actors. This happens within various levels and types of institutions or networks, enabling "access to and diffusion of knowledge, financial resources and the capacity to mobilise other actors around specific agendas" (2020, p. 153). Given the criticisms towards the statist and market approaches to align the supply and demand of skills (Robalino et al., 2012), besides the need to have a more holistic approach (Finegold and Soskice, 1988), the idea of **skills governance** tries to address some absences in the political economy debate by proposing a more decentralised system of skills formation, in addition to the inclusion of a broader range of stakeholders (Emmenegger et al., 2019; Borrás and Elder, 2014). Numerous models of skills governance analysis have been proposed in this regard, as will be discussed in the following lines.

Innovation helixes and the role of intermediaries

In a context where the importance of knowledge for economic development was starting to be elucidated and recognised, Etzkowitz and Leydesdorff (1995) coined the 'triple helix model of innovation' to refer to the relationship between university, industry and government to drive innovation. In their text, the authors state that the roles of these 3 actors are increasingly overlapping. In 2009, this framework was extended through the work of Carayannis and Campbell to include civil society, the media and the public as a **'quadruple helix' in the co-creation of innovation**. It is argued that cultural aspects and social dynamics influence the demand for innovation processes and their respective feedback. Additionally, this complement is in accordance with open innovation characterized by the close collaboration among regional stakeholders, although the understanding of it remains in progress (McAdam and Debackere, 2018).

The helixes model of innovation can be complemented with the principles of the **collective skill formation systems.** These are described by Emmenegger et al. (2019) as structures characterised by a strong commitment by public and private institutions, demonstrated through public policy and established standards for cooperation. Emmenegger et al. (2019) frame cooperation into six core task areas 1) system development, 2) content definition, 3) financing, 4) organisation of training provision, 5) matching of demand and supply and 6) monitoring, examination and certification. According to this approach, there are three levels of **cooperation:** collaboration is the strongest form with two or more actors whose joint action creates mutual benefits; it is followed by coordination, which involves behavioural changes due to information exchanges; and the simplest form: information exchange.

Nevertheless, the creation of these formation systems could generate **dilemmas and conflicts** because of low incentives and perceived high risk from the private sector to take over the provision of training completely on their own. Finegold and Soskice explain this issue as a 'freeride problem', in which companies are afraid of being poached by other companies after investing in training of human resources, so they prefer not to do it (1988). Consequently, skills-related policy making processes "instead interact with institutional underpinnings created and maintained by the state as well as the formal and informal non-market institutions governing labour relations" (Emmenegger, 2019, p. 26). Therefore, the authors emphasise the relevance of **intermediary organisations** that play an important role in the management,

organisation and reform of the systems as they tend to stand in the middle between employers and the workforce (Dobbins and Plows, 2017). Additionally, they play a strategic role in promoting alignment within and between networks to address skills mismatches and therefore have a better systemic functioning (Petersen et al., 2016; Chuan and Ibsen, 2022; Valiente and Capsada-Munsech, 2021).

Another theoretical contribution that includes this mediator role is the **sectoral system of innovation (SSI) approach**, which considers a set of actors organised around certain types of technologies (Malerba, 2005, as cited in Petersen et al., 2016). It identifies and defines the role of the 'innovation intermediary' between the demand and supply of skills and establishes that in high-tech sectors it is necessary to keep abreast of technological developments. This approach also becomes crucial when considering **skills development at the local level**, as it allows the coordination of relationships with various subnational stakeholders in the face of global innovation networks (Petersen et al., 2016).

In this regard, we may identify the need of a **multi-layer perspective** since decentralisation has been a feature described among the approaches presented above as a characteristic of skills governance. Valiente and Capsada-Munsech (2021) point out that as skill formation regimes are often enacted at the sub-national level, they are strongly influenced by the characteristics of the region concerned. In addition, decentralisation can bring benefits in terms of resources, infrastructure and stakeholder relations, since "such institutions and activities facilitate information exchange and allow for trust building" (Emmenegger et al., 2019, p. 27).

Another framework that highlights the importance of context is the **high skills ecosystem approach**, proposed by Finegold (1999). This one is focused on the variety of actors involved in the decision-making processes when it comes to technology-driven environments and objectives. Furthermore, complementing Finegold's assertion, several authors have recognised a high level of interdependence between the organisms that make up this type of ecosystem (Emmenegger et al, 2019; Ramsarup et al., 2023), as they cannot develop or transform themselves in isolation, but rather require multi-scale networks to ensure their dynamism and sustainability.

Practical cases around the world

Sanchez Puerta et al. (2015) have presented a useful categorisation of policies for skill development. The first type refers to the **firms-based/on-the-job training** that takes place after school and during the job. Probably, the most referred case among literature to exemplify the collectivist skill regime is the German dual apprenticeship programs. These are usually referred to as examples with high involvement from the public and private sectors, and a key role played by labour unions and employer associations (Thelen, 2014).

The other type belongs to the **institution-based training** which usually takes place before employment and may be technical and vocational trainings or active labour market programs. There is acknowledgement that this kind of strategies are particularly context-sensitive (Sanchez Puerta et al., 2015). The Asian Tigers have been successful at overcoming the challenges of this type of training. For instance, Singapore's pre-employment TVET programs (Ashton and Green, 1996) and China's TVET policies (Sun and Yuan, 2023) have been recognised because of their high levels of governance.

In the case of Latin America, most initiatives may be identified as institution-based training, although there are also hybrid experiences. For example, Chile launched the 'Joven program' in the 1990s that includes classroom and internships. This program targeted young, low-income, and unskilled population and was replicated in other countries such as Argentina, Peru and the Dominican Republic (UNESCO-UNEVOC, 2013). Also noteworthy are the National Training Services in Brazil [Serviço Nacional de Aprendizagem Industria] and Colombia [Servicio Nacional de Aprendizaje] that focus on addressing mismatches in specific sectors or firms through apprenticeships (Centro Interamericano para el Desarrollo del Conocimiento en la Formación Profesional, n.d.; Álvarez Fonseca and Pérez Vargas, 2017).

In Mexico, the National College of Professional Technical Education [Colegio Nacional de Educación Profesional Técnica, CONALEP] stands out at the national level as a technical post-secondary offering that also includes certification of specialised skills (CONALEP, n.d.). Other initiatives also oriented towards skills development are the Competency-Based Human Resources Training Program [Programa de Formación de Recursos Humanos Basada en Competencias] and the Program for the Development of the Software Industry [Programa para el Desarrollo de la Industria de Software], both focused on strategic economic sectors (Gutiérrez Díaz and Zempoalteca Ramírez, 2019).

Jalisco has the Training Institute for Work [Instituto de Formación para el Trabajo, IDEFT] and PLAi that stand out as initiatives that promote skills development. In the case of PLAi, in 2023 a study was published on the feasibility of the institution to offer programs related to the digital transformation of Micro, Small & Medium Enterprises (MSMEs), technology, video game development, industry 4.0, and soft skills (Coordinación General Estratégica de Crecimiento y Desarrollo Económico de Jalisco et al., 2023).

2.4. Research gap

The literature on skills development regimes is vast and the work of institutional political economy emphasise the importance of stakeholders collaborating systematically. Although exceptional, some texts can be found that present critical positions to the mainstream, and one-fits-all view of the skills regime. The case studies analysed by the New Political Economy branch of skills are predominantly concentrated in European and East Asian countries. Although several initiatives can be found in Latin America and Mexico, especially since the 1990s, there is no analysis comparable to that carried out in the aforementioned regions, and the information that can be accessed is limited to the descriptive and not so critical dimension of the policies.

No studies of the skills regime were found that overlap with the principles proposed by the multi-helix innovation models, which could imply a potential opportunity for further analysis of the dynamics of information sharing, challenges, and coordination strategies that are required. On the other hand, there is a lack of studies that focus on regional or local cases, in line with the arguments put forward in the literature.

A gap is also recognised in the lack of systematised research on the ecosystem that is taking shape in Jalisco to become a pole of innovation and technological development. A mapping in this regard, in addition to integrating information on the previous elements mentioned, would allow researchers to carry out, in the medium term, comparative studies between local initiatives within Latin America that would help in decision-making for policymakers. Finally, regarding the proposed case study, it is worth exploring the role of PLAi as an intermediary, according to the terms framed above, and to see the institution as a ‘comprehensive-multi-service approach’ (Sánchez Puerta et al., 2015).

3. Methodology

3.1. Analytical framework

The previous section presented a Literature Review on the skills regime, skills governance models, as well as multi-helix innovation models. To establish the methodology of this research, it is convenient to present an analytical framework that supports the objectives of the study. In this sense, three components that are key to this research can be identified and are described below and represented on Figure 1.

Stakeholders Analysis

The study of stakeholders and the roles they play is a fundamental part of the research because of the relevance of identifying the dynamics that occur between various sectors so that an ecosystem of skills can be developed and established. In this sense, it will be very useful to analyse skills governance systems according to the **core task areas of cooperation** proposed by Emmenegger et al. (2019). Besides these authors, the framework applies some ideas from Petersen et al. (2016) and Chuan and Ibsen (2022) that consider the existence of **intermediary actors**.

Policy objectives

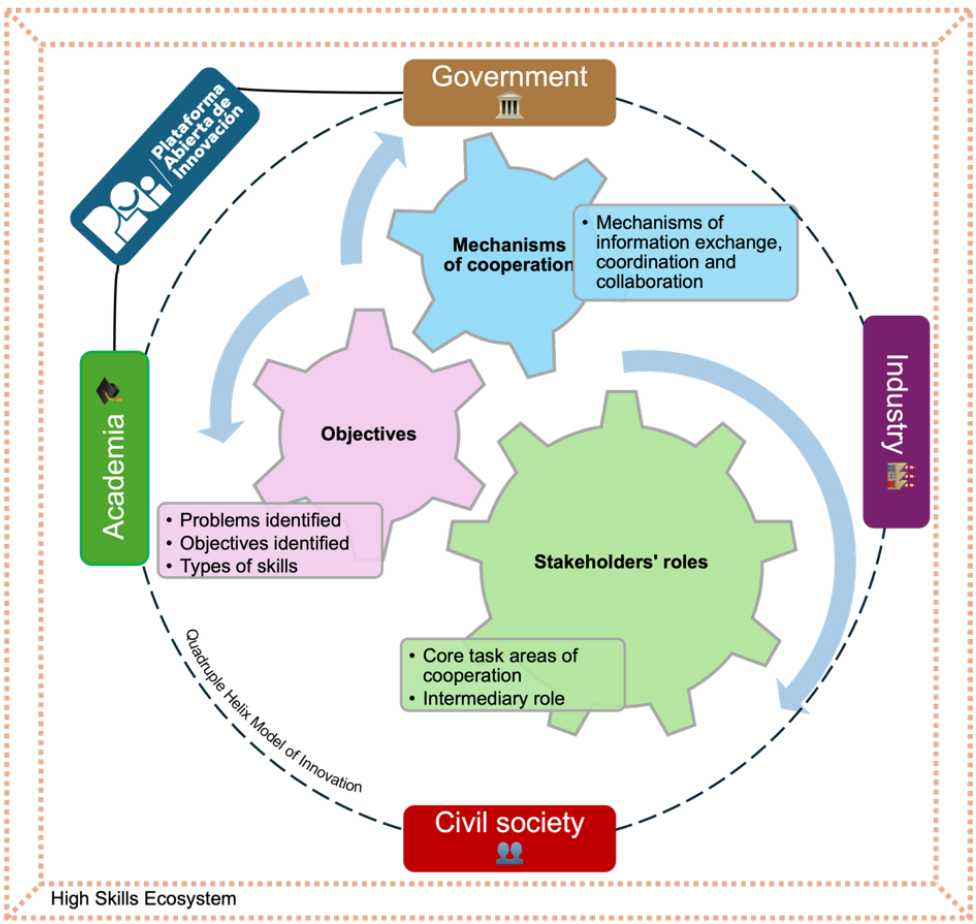
It is of particular interest for this research to analyse the rationale of this public policy. The analysis of this component can be carried out from the context and agenda-setting by analysing the problematics that the policy intended to solve, according to the policy texts and the perceptions of those involved. The **enactment theory of Ball et al.** (2011) is also considered, as it situates those involved in the creation of policies as active stakeholders and highlight the fact that policies are interpreted differently by different actors. The **political economy of skills approach** is helpful to identify the interest underlying the policy, the contributions made by Hall and Soskice (2001) and the toolkit provided by Busemeyer and Trampusch (2011) are essential. The **classification of skills** by their portability proposed by Estevez-Abe et al. (2001) is applicable to the analysis of the policy design as well.

Mechanisms of cooperation

The approach will involve the identification of **cooperation mechanisms** among the stakeholders. The framework proposed by Emmenegger et al. (2019) is used to portray the mechanisms and analyse trends in relation to institutional barriers, conflict dynamics, if any, and communication strategies.

Finegold's approach towards **high skill ecosystems** (1999) will be integrated throughout the study with the purpose of analysing whether the elements to create and maintain a system are reflected in the case of Jalisco. Furthermore, the identification of actors will be required to study governance dynamics. In this case, the **quadruple helix model of innovation** will be implemented in a cross-cutting manner across the variables of study. It is important to highlight that this helix model is useful in the study to map the actors but is not intended as a reductionist strategy. It is recognised that stakeholders are diverse and that there is heterogeneity within each helix (Carayannis et al., 2018).

Figure 1. Analytical Framework



Source: Own elaboration

3.1.1. Research questions and hypotheses

Given the analytical framework presented before, the case of Jalisco and its Open Platform for Innovation and Development are used as a case of study and the following research questions are raised.

Main research question

1. What is the role of the Open Platform for Innovation and Development of Jalisco and other key stakeholders in the skills ecosystem of the state and how they interact to enable governance?

Sub questions

2. What are the objectives pursued by PLAi in relation to skills formation and development for the state according to the policy design and the visions of the actors involved in its implementation and enactment?
3. What have been the main cooperation mechanisms developed among key actors to enhance skills governance and to what extent they have been perceived as effective?

Hypotheses

1. Stakeholders have focused their roles on core areas of cooperation based on their institutional strengths, and a pattern can be identified regarding the inputs they have contributed to the ecosystem systematically. It can be recognised that PLAi plays a role of intermediary both within the ecosystem and between the ecosystem and the public in Jalisco.
2. The objectives underlying the creation of this public policy are fundamentally economic and based on a market logic aligned with the Human Capital Theory, in which training the workforce in highly specialized technical skills will suffice to balance labour supply and demand.
3. There are some coordination mechanisms that are more likely to emerge within the Jalisco ecosystem because they are limited to simple actions such as sharing information, while collaboration strategies are more difficult to implement because they require strong elements of willingness and resources from institutions to act jointly with other stakeholders.

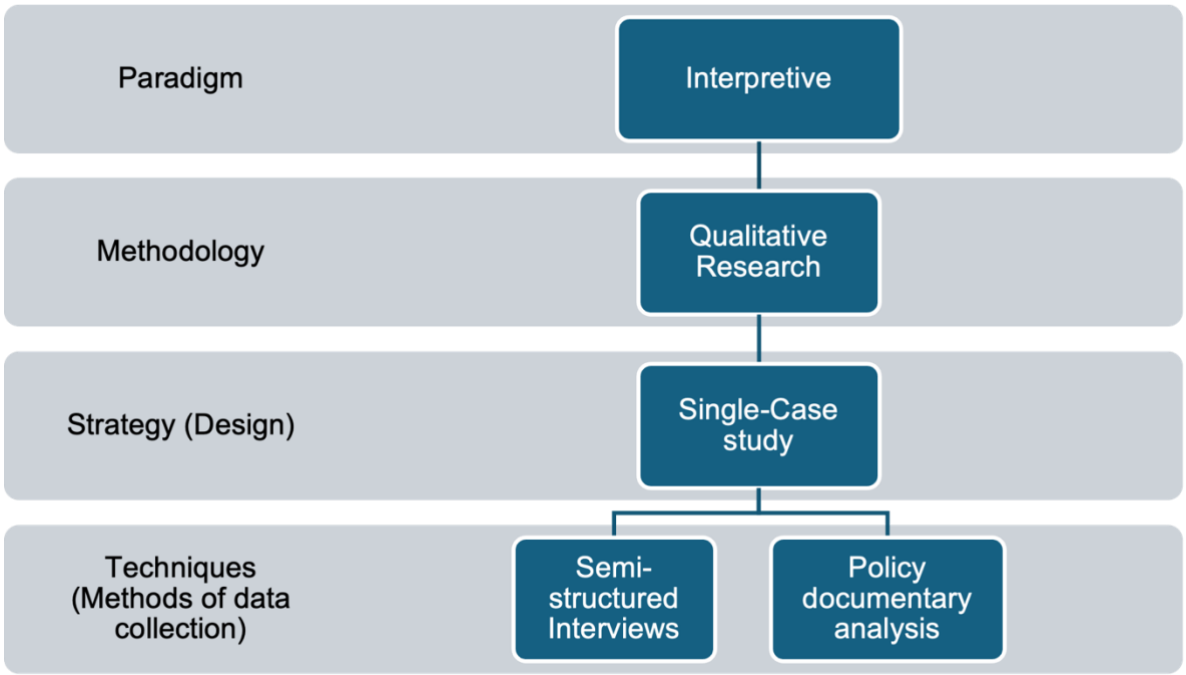
3.2. Research Design

The research proposal presented requires an interpretivist paradigm in which the discourses, perspectives, meanings, and social construction of political agendas are analysed. In educational research, the interpretive approach focuses on social practices and affirms that human action is linked to meanings that occur within specific contexts. According to this epistemology, knowledge is always socially constructed, partial, perspective-based, iterative and non-linear (Usher, 1996).

In that sense, a qualitative methodology is proposed. This type of focus looks at the relationship between elements within a system that is characterised by dynamism, and a subjective and constantly changing attribution of meaning (Cohen et al., 2018). In terms of data, qualitative inquiries tend to use verbal, unstructured, and non-statistical strategies to analyse social realities (Hammersley, 2013).

The approach towards the explanations of phenomena and inferences will be possible through a single-case study design that will enable the observation of aspects in a specific institution (PLAi) within a certain context (Jalisco, Mexico). This type of study is “an in-depth investigation of a specific, real-life ‘project, policy, institution, program or system’ from multiple perspectives in order to catch its ‘complexity and uniqueness’” (Simons, 2009, as cited by Cohen et al., 2018, p. 375). Adelman et al. (1976) agree with this view, stating that the advantage of this type of study is that it is down to earth, recognises the complexity of social realities, and the knowledge gained from research can be translated directly into action.

Figure 2. Research approach overview



Source: Own elaboration

3.2.1. Data collection

As of data collection methods, the single-case study allows the usage of several data sources which "provide convergent and concurrent validity on a case, and they demand of the researcher an ability to handle and synthesise many kinds of data simultaneously" (Cohen et al., 2018, p. 387). For that purpose, this research will include textual and oral sources of information: policy documentary analysis and semi-structured interviews. An overview of the Research Design is shown on Figure 2.

Documentary analysis

In the first stage, documentary analysis was carried out. This technique makes it possible to partially answer the questions, obtain context information, and analyse the change and evolution between the current situation and the original idea of the policy (Bowen, 2009). The analysis of policy document intended to get an outlook of "the values, assumptions and ideologies underpinning the policy process" that reflect educational intentions of policymakers (Codd, 1988, p. 236).

The policy papers to be reviewed include laws, bills, transcripts of speeches, or plans that are in the public domain and contain information on the objectives established or

mentions about stakeholders involved or coordination mechanisms. The documents analysed were:

- Bill presented before Congress to justify the creation of PLAi (Secretaría General de Gobierno, 2019)
- Organic Law that Creates the Decentralised Public Organisation Called the Open Platform for Innovation and Development of Jalisco (Gobierno de Jalisco, 2019)
- Press conference: "Launch of the Open Platform for Innovation (PLAi)" (Alfaro, 2019)
- Jalisco State Governance and Development Plan 2018-2024. Vision 2030. (Dirección General de Planeación y Evaluación Participativa, 2022)
- PLAi's Institutional Development Plan 2020-2025. Vision 2030. (PLAi, 2024)

The selection of documents or videographic material was of no probability, since the official texts useful to the study were chose directly.

Semi-structured interviews

To complement the findings of the documentary review, semi-structured interviews were conducted to obtain data on the differentiated perspectives of various actors involved in the creation and development of PLAi. Interviews are a useful technique to understand phenomena, gain contextual understanding, and identify interests, motivations, opinions, and experiences (Cohen et al., 2018) of actors who participated in the legislation or development of this policy. It is particularly relevant for this study to look at the similarities and differences between the perspectives.

A judgement sampling was used, since no randomised process was conducted. An overview of the potential participants' profiles is provided on Appendix A. To have an efficient sample that ensured diversity and representativeness of each sector, interviews were planned with 3-5 representatives as follows: a) from government, b) from academia, c) from industry, d) from civil society, and e) from PLAi. The commonalities among the participants are that: they must have been involved in the creation or development of the institution; they are adults; and they have leadership positions within the sectors they represent.

The topics covered were the perspective about Jalisco's skills formation and development current situation; objectives addressed by PLAi according to the participants' viewpoints; mechanisms of coordination used to achieve the objectives; and the prospective of the institution within the skills ecosystem in the state. The

interview guide can be found on Annex B. The time required to complete the interviews was between 30 - 60 minutes.

Access to the Field and Negotiation Methods

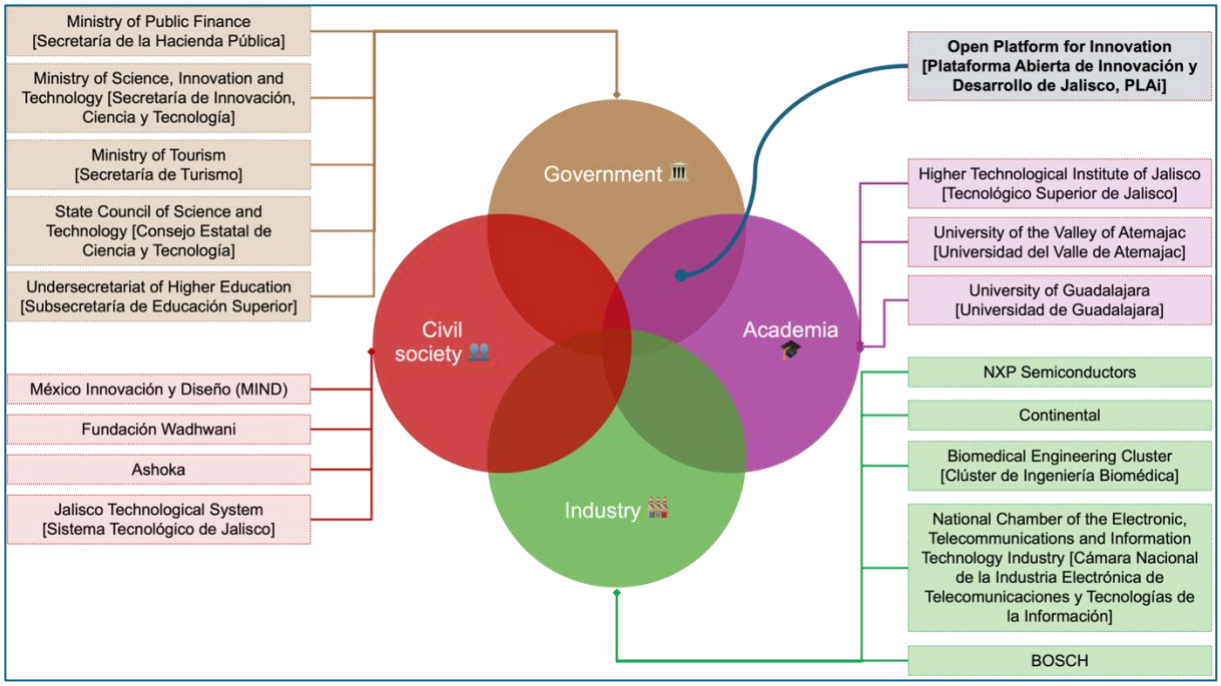
I initiated contact with PLAi's team by reaching out to the General Director and the Planning Director in November 2024. I carefully explained my research objectives and methodology, emphasizing how the study could provide valuable insights for the institution. I shared detailed information about the interview topics and data collection methods for their review, and the initial actors' mapping to have as a reference.

After receiving Ethical Approval from the UofG School of Education Ethics Committee, I followed PLAi's formal protocols, working through their Alliance Coordination to obtain a list of names and contacts of key stakeholders who were directly involved in the institution's creation and/or development. This collaborative approach helped secure their support, resulting in their assistance in identifying and connecting me with these representatives.

Hence, I selected potential participants from the list provided and sent the interview requests via email. If needed, some participants were additionally contacted through Telegram or WhatsApp, as these were their preferred communication channels for the follow-up.

The participants were generally forthcoming in their responses, and while they were informed of their right to decline any questions, none chose to do so. Although the original expected number of interviews were 10-15, several interviewees suggested additional key stakeholders who might provide valuable insights for the research, generating a snowball effect. At the end, 23 interviews were conducted. The distribution of representatives considering the helixes of reference is as follows: a) 5 from government, b) 3 from academia, c) 8 from industry, d) 4 from civil society, and e) 3 from PLAi. The actors' map on Figure 3 represents the institutional sample for this method.

Figure 3. Map of Jalisco's Innovation Ecosystem Actors considered for semi-structured interviews



Source: Own elaboration

Participants were offered the choice between in-person or virtual interviews; 48% opted for the latter, which were conducted via Zoom using my UofG institutional account. For those who preferred in-person interviews, the majority were held at either the *México, Innovación y Diseño* (MIND) offices or PLAi's facilities. All in-person interviews took place within the Guadalajara Metropolitan Area (Photographic Evidence in Annex C).

Encountered Challenges

The data collection process presented several temporal and contextual challenges. The initial timing of interview requests in mid-December coincided with year-end commitments, including fiscal closures, annual reports, and seasonal festivities. Consequently, some potential participants expressed limited availability and requested to postpone their interviews until January 2025, which affected the original data collection timeline.

A more significant obstacle emerged from the political context, specifically the 2024 electoral cycle in Jalisco. This implied administrative changes within PLAi, as the institution underwent a leadership transition process. The data collection period overlapped with the handover procedures, making it challenging to keep

communication, as the team was primarily focused on the changeover. Furthermore, the organisational restructuring required additional effort to familiarise incoming personnel with the research scope and maintaining contextual awareness across PLAi.

Contingency Planning

My contingency plan focused on maintaining a substantial pool of potential interview participants. While the original research design contemplated a maximum of 15 interviews, the provided list mapped 33 potential participants.

I did not need to implement this measure, as the number of interviews was successfully achieved without complications, and participant response rates met the initial research requirements. In fact, due to a snowball effect where participants referred other potential interviewees, I had to request an Amendment from the Ethics Committee to increase the approved range of interviews from 10-15 to 15-25.

3.2.2. Data analysis

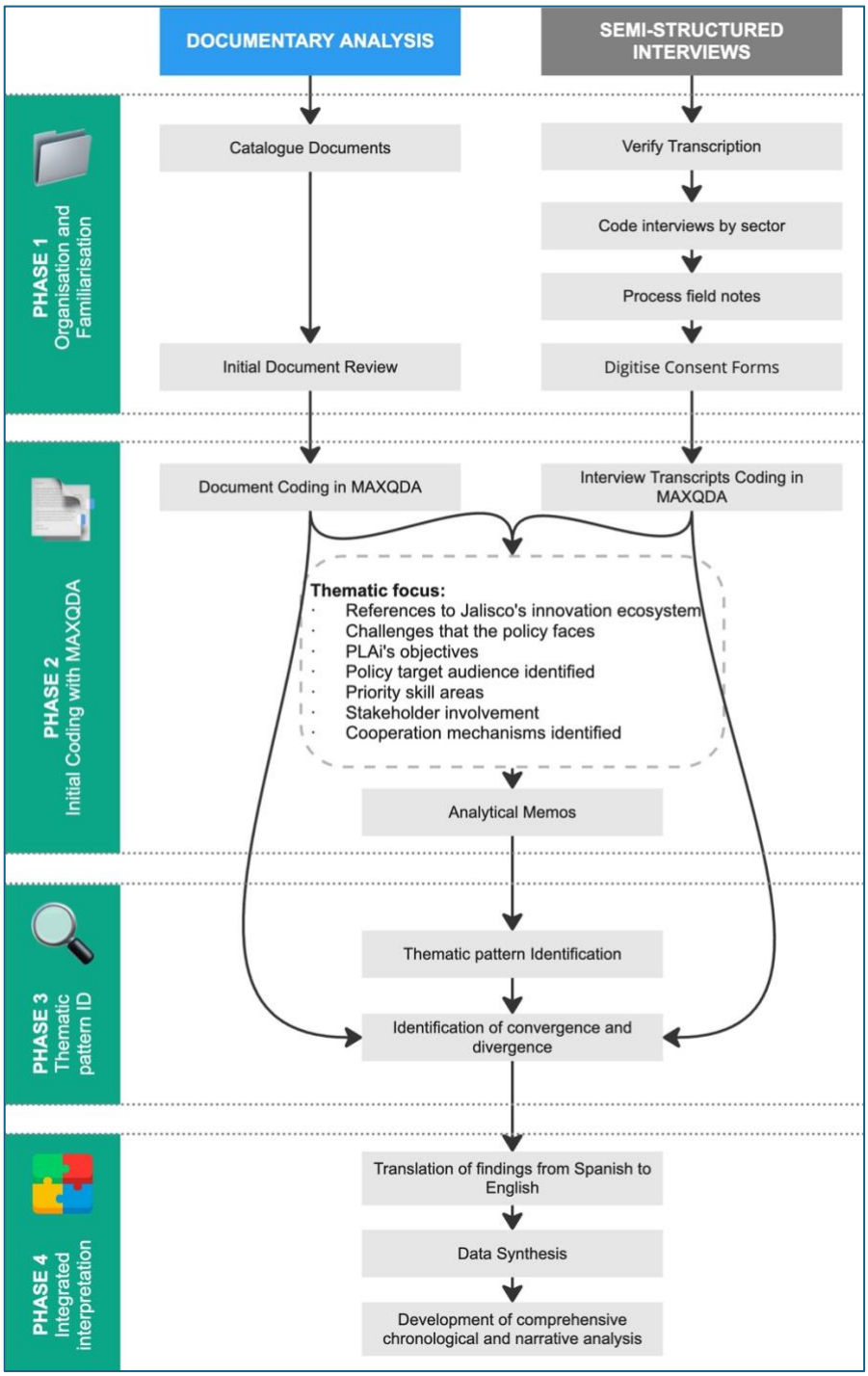
Among other activities, data analysis includes processing the information obtained, organising it and interpreting it to obtain answers to the research questions posed. This also involves creating categories, identifying patterns, discrepancies and regularities (Cohen et al. 2018).

Qualitative content analysis

Qualitative content analysis “is a method for systematically describing the meaning of qualitative material. It is done by classifying material as instances of the categories of a coding frame” (Schreier, 2012, p. 1). This analysis proceeded through parallel streams for both documentary analysis and semi-structured interviews (see Figure 4).

In the first phase of data organisation and familiarisation, documents were systematically catalogued according to type and publication date. An extraction framework was developed to synthetise the information provided by the documents (see Appendix D).

Figure 4. Data analysis plan



Source: Own elaboration

For interviews, automated transcription provided by Zoom was generated while recording. During the revision, I noticed that the simultaneous processing of voice generated by Zoom had numerous mistakes and was not reliable enough, which significantly increased the time of proofreading. I then decided to use the software Google Pinpoint to upload the audio files and create the transcriptions. These

documents also required double-checking, but they had significantly fewer errors, and the revision was less time-consuming.

Following what was established on the Ethics Application, after receiving the transcripts via email, WhatsApp, or Telegram, participants were granted a one-week period to review them, with tacit approval assumed if no changes were requested. Interviews were coded according to the stakeholder's sector and a consecutive number according to the date of the interview; for instance, in the case of an Academia representative: ACA + consecutive number (e.g. ACA01).

The second phase involved initial coding using MAXQDA, a Computer Assisted Qualitative Data Analysis Software. The reasons for selecting this software were that it allowed more options for visual representations than other similar applications; and it provided several alternatives to categorise by colours, tags, and groups, which was particularly useful to compare among stakeholders.

Qualitative content analysis enables the researcher to identify what is relevant for the stakeholders (Cohen et al., 2018), and the similarities and differences in the responses through a systematic generation of thematic categories. The document review and interview analysis were focused on a system of codes related to the analytical framework and research questions proposed (Appendix E).

The third phase focused on thematic pattern identification. The coding system shown before, as well as the development of analytical memos were useful to identify convergence and divergence both between methods and across stakeholder sectors. This phase incorporated triangulation and cross-referencing between documentary findings and interview data.

The fourth phase focused on integrated interpretation of the results. The translation of findings and specific quotes from Spanish to English was aided by an AI translator, *DeepL Translate,* and verified thereafter. I produced a synthesis of both data sources, culminating in the development of a narrative that contributes to a comprehensive analysis of this case and is presented on the following chapter.

3.3. Ethical considerations and positionality

The present study was low risk because the semi-structured interviews did not involve travel to unsafe places, the participation of children, nor sensitive topics were discussed with the participants, but rather issues related to their work. Regarding confidentiality issues, the participations in the study were de-identified and anonymised, by using codes designed to track the sector to which the interviewees belong.

All materials gathered during the process of data collection, including the participants' personal information, were systematically organised and uploaded to my UofG OneDrive account for secure storage. They will be eliminated once the degree is awarded. Interviewees were asked to express their informed consent (Appendix F), after sharing with them the Privacy Notice (Appendix G) and the Participant Information Sheet (see Apprendix H). This project was reviewed by the School of Education Ethics Committee of UofG and approved during November 2024.

In terms of positionality, it is worth noting that I worked at PLAi between 2020 and 2024. I was involved in the creation of foundational institutional documents and the management of internal projects, which both enriches and potentially biases my understanding of the selected case. Nevertheless, I have remained on the sidelines regarding the interactions that PLAi has developed with other institutions or its role within the skills ecosystem in Jalisco, so there is a genuine interest to inquire into this topic. Apart from the three representatives of PLAi, I did not know any of my interviewees prior to this study.

4. Findings

This chapter groups the findings according to the reference variables that were described on the Analytical Framework section. I draw them upon conceptual contributions from diverse approaches such as political economy of skills, skills ecosystems, and the quadruple helix of innovation.

Under the guidelines proposed by these theoretical frameworks, a complex ecosystem can be recognised in Jalisco in which the following are identified: asymmetries of power related to the strategic geopolitical position of the state; contrasting viewpoints rather than a simplistic consensus regarding the skill formation goals; various levels of commitment to cooperate; a functionalist ecosystem in which stakeholders have assumed specific roles; and the emergence of institutions such as PLAi that are intermediaries. Next, I will address as a starting point the perspectives on the ecosystem in Jalisco, to then develop the topics according to the research questions previously established.

4.1. Perception of Jalisco's ecosystem

Jalisco's sectoral focus on technology over the last 60 years and its geographical location in relation to the United States (US) have created incentives and conditions for the conception of a skills ecosystem in the region to respond to the global value chains requirements. It is important to explain its features and the perspectives of the actors involved because one of the assumptions of skills governance is that it is very context-sensitive (Sanchez Puerta et al., 2015).

The position in a country that borders with the US and sharing similar time zones are undoubtedly exogenous factors that have systematic implications. In addition, Jalisco's location on the west coast of the country towards the Pacific Ocean has provided commercial advantages due to its ports and foreign trade (PAI02), coupled with investment in roads and airports (GOV05; IND07) that allow connectivity with the

rest of the country and other countries. These characteristics partially explain the continuous establishment of electronics and high-tech companies in the state.

The interviews (IND01; IND02) let me understand other factors that also influenced the origins of these vocational dynamics in Jalisco 60 years ago. On the early sixties, Adolf B. Horn was assigned as the US General Consul in Guadalajara. During his mission, he established contact with companies such as Kodak, Motorola, and Hewlett Packard to set up operations in the state. In addition, he promoted the establishment of a branch of the American Chamber of Commerce in Guadalajara (Jiménez, 2000). This person would align closely with Finegold's definition of a 'catalyst' element to create an ecosystem (1999).

These efforts were encouraged by low labour costs in manufacturing and then boosted by the North American Free Trade Agreement, that came into force in 1994, amid a series of neoliberal policies pushed in Mexico by the WB and the International Monetary Fund (Castro, 2012). The number of companies setting up operations in the state increased significantly (IND02; GOV01), as did their expectation of keeping wages relatively low compared to other economies: "even reaching half the price of a position in the US" (IND06).

Starting in the 2000s, government and industry representatives began promoting various coordination mechanisms and institutions to develop talent, as the universities were no longer able to meet the demand that was "profoundly shaped by the global workings of capitalism and decisions about production locations and technology mixes" (Kruss et al., 2015, p. 29). As stated before, the proximity to the US is a factor that should not be overlooked. Graf suggests an analysis of the policies "taking place in the neighbouring countries as integral parts of the production models and stratification systems of these regions, and how they shape and are shaped by different socio-economic and political processes that increasingly transcend the national paradigm" (2021, p. 385). According to the transnational dimension of skills formation, a dominant coalition made up by state actors and employers tend to increase the strategies and coordination to secure the export-led growth (Ivardi and Wanklin, 2025). Finegold's high skills ecosystem (1999) might also be useful when analysing the phenomenon of interdependence among the 'organisms'.

One the most evident signs of political will from the government was to create a Ministry of Innovation, Science and Technology in Jalisco (SICyT) in 2013, which was unique in the country for a long time (SOC03; IND05; IND06; IND07; ACA01). Interviewees also highlighted that the State Council of Science and Technology (COECyTJAL) is one of the strongest at the national level, due to the governance of its processes and the resources it invests compared to other states in Mexico (GOV01; PAI03; IND07). In addition, the existence of these actors has been complemented by public policy to attract investment in research, development, and support to MSMEs. In general terms, participants agree that there is a collaborative dynamic between the stakeholders, strengthened over the least 20 years by mechanisms and institutions that have enabled coordination. Finegold (1999, p. 66) describes these set of conditions as a "supportive host environment".

The systematic leverage of these government strategies can be studied from the perspective of political economy (Busemeyer and Trampusch, 2011), which studies the role of the state into the formation of training systems and labour markets as means to foster a sense of identity and citizen cohesion, for example: references of the state as a 'Mexican Silicon Valley' (IND04) or the skills system as a 'unique model' (ACA01). One of the government representatives (GOV01) shared that even though incentives in Mexico are not as competitive as in alternative countries, talent is something that has attracted investment from large corporations. In fact, various interviews (GOV01; IND07; IND08) highlighted the perception that their biggest competition is in other countries, rather than their concern for other companies in the state. This perception within the industry cluster leads to the formation of 'collective competition goods', defined by Graf (2020) as micro-level negotiations among the actors to strengthen the competitiveness of a cluster; skills formation is an example of these kinds of goods.

This first section began by describing the skills ecosystem that has developed in Jalisco and arguing that its emergence has been due to geographical factors, such as the northern border with the US, but also the dynamics of nearshoring that have been fostered on the state, generating additional pressures and an alleged skills shortage. It went on to suggest that these transnational implications and the interest within the industry cluster to ensure competitiveness has motivated collective action towards the development of skills. The subsection below includes a deeper analysis of the rationale behind PLAi as a public policy of reference to study Jalisco's case.

4.2. Rationale of PLAi as a skills development policy

This section aims to respond to the sub-question related to the **objectives** pursued by PLAi in relation to skills formation and development, according to the visions of the actors involved in its implementation and enactment. The segment assesses the hypothesis that the purposes underlying the creation of PLAi are fundamentally economic and based on a market logic, in which training in highly specialised technical skills will suffice to balance labour supply and demand.

The following **findings** were developed: First, the formulation of PLAi as a public policy is essentially oriented at providing government support so that the industry can cover its human resources needs. The focus is on economic development in the more instrumental purpose of education. However, as a second finding, it can be highlighted that there are critical positions regarding the need to also consider demand-side issues, evaluate the working conditions offered, and perceive PLAi as having a goal beyond the economical. The following lines will delve into what problems were perceived from the beginning, what purposes PLAi fulfils in discourse and policy text, and the perception among stakeholders.

Identification of the problem

The perceived problems explicitly stated in both policy documents and interviews, provide a comprehensive view of the rationale behind the enactment of this education policy. It is also interesting to compare the elements that were established since the legislative proposal with those perceived in practice but not identified when PLAi was created.

The following issues stand out among those interviewed, which also coincide with the elements presented in the initiative before Congress when PLAi was introduced as a proposal. First, there is a widespread perception of a **talent deficit** with respect to the needs of the high-tech industry, in particular. This is attributed to the small number of graduates in science, technology, engineering and mathematics (STEM) degrees, as well as a significant **deficit in English language skills**. The interviews with stakeholders allowed me to delve deeper into the impacts of this deficit beyond what was established in the policy documents.

On the one hand, this mismatch between the needs of the productive sector and the skills of the job-seeking population has, according to the representatives interviewed,

a direct impact on the **rising cost of hiring**, a condition that has been addressed by large corporations but has made it difficult for MSMEs in the sector to survive. Some interviewees state that the talent shortage is generating a quality problem, since the minimum requirements are decreasing.

"We hire people who lack basic technical knowledge of mathematics, electronics, engineering, and physics, people who don't have good communication skills. Putting together teams with such unfiltered talent makes it seem to the outside world that the quality of engineering in Mexico is medium to low."

-IND02

On the other hand, it has been identified that the **ramp-up** time in companies, particularly in the technology sector, is currently nine months. This indicator measures the time it takes for a recent graduate from being hired to acquire all the necessary skills for the position. It is interesting to note that this ramp-up time has not decreased since 2001 according to one of the interviewees (GOV01).

In this regard, the **rigidity of traditional higher education systems** and the length of educational programmes are also recognised as problematic. A government representative (GOV01) pointed out that HEIs use the same mechanism as in the 13th century in Bologna, when universities were created. It was noted that a degree in systems engineering, for example, may take students four to five years and when the programs are finally completed, the knowledge is likely obsolete because of technological advances. Along the same lines, other interviewee (ACA03) noted that the curricular updates take universities between three to four years. This becomes challenging when facing the emergence of technologies such as Artificial Intelligence (AI) -launched officially on 2022-, because the topic is most likely not formally integrated into the educational programs of most universities, and its inclusion becomes urgent considering that, 3 years after its public launch, there are thousands of AIs (ACA03).

Even access to tertiary education poses a significant challenge in Jalisco, as 'only 35% of those who aspire to study higher education can access it' (Alfaro, 2019). It is interesting to note that this percentage is not only related to the availability of places,

but also to admission criteria. According to one of the interviewees (IND08), at least in the case of engineering, there are usually more places available than people accepted into the programmes. This is because applicants do not meet the minimum scores required, leaving 'empty seats'. This can be explained by a lack of coordination between the skills acquired in upper secondary education and those expected at the higher level, as well as a lack of flexibility in the systems for providing access and levelling mechanisms, for example.

Another significant aspect highlighted as a concern among some of the representatives was the issue of the **lack of professionalisation of MSMEs**. It was suggested that rapid advances in digitalisation could pose a threat to their survival if they did not have the necessary tools and skills: "if we do not address this issue, thousands of jobs in Jalisco could also be at risk of disappearing" (Alfaro, 2019).

The issues presented above are reflected in the policy documents used to justify the creation of PLAi before Congress and in the decree establishing it, as well as being supported by some of the representatives interviewed. However, they should be interpreted with caution because there is no full consensus on the definition of these problematics, and there are nuances that can be identified. For example, one interviewee questioned whether having a skills shortage is really a drawback and even raised the possibility of it allowing the industry to remain competitive (IND07).

"I think that a deficit is healthy in a way, because it pushes salaries up and ensures that there continues to be more talent. If talent is scarce in a way, then you're going to look for the best and you're going to try to ensure that the person who is with you doesn't leave. So, you're going to create optimal conditions for growth, in a win-win situation."

-IND07

Besides the perspectives explained before, there were also evidence of concern among some interviewees about labour conditions, and how these also affect the 'talent development market' in Jalisco and the retention of staff. For instance, GOV02 pointed out that many formal jobs don't even provide the benefits required by law. Additionally, SOC02 stated that there is a gap between the salary a recent graduate expects to receive and what the industry is willing to pay for that job. Consequently,

many graduates end up preferring to venture into informal work or even to migrate to the US. This shift towards the demand-side of the labour market 'mismatch' is aligned with the critiques posed by authors such as Dobbins and Plows (2017) or Valiente and Capsada-Munsech (2021).

Deepening the critical look, it is worth mentioning that especially representatives of the government and civil society helixes emphasized their concern for other types of social problems. When asked about the greatest development challenges in the state, some referred to issues such as the high costs of connectivity in Mexico (SOC03), environmental issues (SOC01), management of resources such as water and energy (GOV04), and even the symbolic appeal of organised crime among youth populations (GOV03). However, although civil society associations have joined forces in recent years to collaborate with PLAi, there is no record of this sector having been represented in the initial design of public policy, since priority was given to companies and industrial clusters, as will be raised in the next subsection.

Objectives pursued

The previous subsection identified the issues that justified the creation of PLAi: a skills shortage in relation to the needs of the productive sector, a lack of professionalisation among MSMEs, and a systemic inability from the HEIs to quickly update educational programmes. With these factors in mind, there is an alignment with the definition presented in the *Institutional Development Plan* (PLAi, 2024) as a public strategy to provide relevant and innovative training and innovation, that promotes the digitisation of MSMEs, and access to Information and Communication Technologies (ICT).

It is interesting to note that PLAi is established in the *State's Development Plan* (Dirección General de Planeación y Evaluación Participativa, 2022) as a strategic project within the 'Economic Development and Growth' track, with the goal of fostering innovation through its on-demand courses and certifications and developing skills in accordance with the requirements of the region and the industry. PLAi is the only education policy aligned in the aforementioned section, rather than the 'Social Development' pathway, unlike all other educational strategies of the State.

"The purpose of PLAi, although it is to train, is not for people to know more, but for them to have a job. So, if people have a job and if companies have trained personnel there is economic development in the state".

-PAI01

One of the interviewees pointed out that PLAi's original approach as a facilitator of the private sector was evident in the structure of its Governing Board, which includes chambers of commerce and representatives of enterprises (GOV03). This feature is one of the elements in which the **political economy** focuses on, as it is concerned about whose viewpoints are represented when designing a policy. Hall and Soskice (2001) argue that enterprises substantially influence the development of collective institutions, particularly at the sectoral or regional levels. Their interest on education and vocational standard setting is related to securing production strategies that are dependent on high levels of industry-specific and enabling long-run commitments with other companies (2001).

In addition to analysing the officially established objectives, Ball et al. suggest exploring the understanding of educational actors towards the policy, especially because these viewpoints may vary depending on experience and context: "Policy actors are always positioned; how policies are seen and understood is dependent on 'where' we are figuratively and literally" (2011, p. 28). Among the **perspectives** from the stakeholders interviewed, some of them align with the narrative of the problems mentioned before, and the aim PLAi pursues. Filling the gap left by universities by creating continuing education programmes for upskilling or reskilling (ACA03), training people in work-related topics (GOV03), or accelerating knowledge after graduation to always remain relevant (IND08) are some purposes perceived by the interviewees.

Surprisingly, among all the helixes analysed, there were representatives that referred to PLAi as an institution that fulfils the purpose of 'democratising' knowledge and innovation by allowing that the content is accessible to more people (GOV04; SOC01; GOV02). They associate this to the virtual academic programs of the Platform, and its geographic scope, as it has even reached other countries. Another objective not considered on the policy text but pointed out by one civil society representative (SOC01) is related to setting the agenda by introducing narratives within the social imaginary and emphasising the relevance of certain skills for employability.

Regarding the **skills** this public policy focuses on, one of the findings is that within the categories proposed by Estevez-Abe et al. (2001) to define the type according to their level of portability, PLAi is dedicated to developing industry-specific skills and general skills. Some examples of the former identified in official documents or interviews are electronics, software development, advanced manufacturing, semiconductors, blockchain, embedded software and Kubernetes. In the case of the general skills, English was strongly emphasised as needed, as well as soft skills, public speaking, basic finances, project management and digital inclusion. Broadly speaking, there is a certain consensus among the interviewees that the skills taught at PLAi should be aimed at the general public, without necessarily requiring a specific profile to access the programme.

As noted before, firm-specific skills are not among the targets of this public policy. According to Estevez-Abe et al. (2001) work, this may be because these abilities are only useful on one company and lack transferability. By the other hand, when economies tend to lack guarantees, they promote more portable skills. From an institutional perspective, enacting policies centred on one specific firm may lead to a free-riding problem (Finegold and Soskice, 1988) where companies take advantage of training mechanisms without assuming the costs (Martin, 2011). In that sense, according to Emmenegger et al., (2019) and Chuan and Ibsen (2022) government's involvement and the emergence of intermediaries should dispel the risk, avoid the subordination of the skills regimes to private interests, and warrant that people get skills that are valuable beyond any individual enterprise.

Furthermore, when referring to workers' adaptability towards the labour market demands, Chuan and Ibsen (2022) emphasised that foundational and social skills are essential, besides technological proficiencies, communication and leadership. There are even proposals to take a more comprehensive look at vocational training strategies and provide education that people can use for life, not just for work. These includes the 'transversal skills' (OECD, 2019) and the incorporation of topics such as environmental care and contemporary social challenges (Ramsarup et al., 2023).

4.3. Mechanisms of cooperation within the skills ecosystem

The research sub-question related to **coordination mechanisms** variable studies which actions are recognised among key actors and to what extent they have been perceived as effective. This part investigates whether stakeholders are likely or not to get involved in certain types of collaborative dynamics depending on the level of commitment required.

To classify the initiatives identified in the documents and interviews, the typology by Emmenegger et al. (2019) was used to categorise cooperation into information exchange, coordination, or collaboration. The data of this study led to the emergence of two key findings: firstly, that information exchange initiatives are the most common within Jalisco's ecosystem because are the ones that involve less commitment from the parties, but are regarded as the less effective by stakeholders. Secondly, the most complex and effective cooperation mechanisms imply greater involvement and investment from the State. These strategies are unpacked in the following subsections.

Information exchange

Among the stakeholders with whom PLAi interacts and who make up the skills ecosystem in Jalisco, numerous efforts can be recognised among the actors involved to constantly exchange information through dialogue forums, regular meetings, and committees. As for this kind of mechanism promoted by the governments, two examples were brought up from the data collection: the State Commission for Higher Education Planning *[Comisión Estatal para la Planeación de la Educación Superior de Jalisco, COEPES]* and the Inter-institutional Commission for Technological Education *[Comisión Interinstitucional de Educación Tecnológica, CITEJ]*. The former seeks to strengthen higher education in the state and to establish links with universities, the government, and businesses; the latter, acts as a consultative body to ensure that decisions related to the development of technological education are geared to meet the demands of today's labour market. Both mechanisms have representation from the 4 helixes of reference and PLAi. It is noteworthy that these government-led forums are the ones in which the civil society is more present.

Other two forums can be identified as leaded by the academia. The first one is the Inter-university Committee for Job Banks and Training *[Comité Interuniversitario de Bolsas de Trabajo y Formación, CIBTF]* that aims to promote employability by

responding to the needs of the labour market. Besides representatives of universities, this committee has the participation of government and PLAi authorities. The second academia-driven mechanism refers to the *Technical Councils* organised by the universities in which they present their curricula to the industry representatives and inquire about the progress of graduates on the labour market. Additionally, industrial chambers frequently organise *Industry-Focused Working Groups* to identify industry needs and then seek out potential training providers.

In the case of PLAi, it has also a dialogue mechanism for information exchange which is its *Governing Board*. By law, it must meet at least one time a year to identify potential needs in industry and entrepreneurship, and tailor its services in response to them. It is comprised of a representative of the Governor, SICyT, three representatives from other government offices, and three representatives from the strategic sectors of the state, which are not explicitly specified, but had been historically related to the industry of high technology.

Regarding the effectiveness of this type of mechanism, testimonies from industry and civil society representatives reveal a critical stance. Some of the interviewees (SOC03) stated that historically, roundtables have had little to no impact. Although they are recognised as a good communication strategy, they are criticked as limited because of the lack of effort and commitments (SOC02). Other participants noted the absence of transition between dialogue and concrete actions, by prioritizing public relations over the consolidation of joint projects and the discussion of complex issues (IND02). Even though this level of cooperation mechanism is strongly criticised, it is also acknowledged (SOC4) that these forums serve as occasions to identify training needs, which makes them an important part of the skills system functioning.

Coordination

Starting in 2022, the Jalisco government has introduced a series of transversal public policies with the aim of coordinating the efforts of those involved on Jalisco's talent development. These policies play a significant role in the state in promoting a sustainable manner that will transcend time, regardless of changes in the Administration Office. The mechanisms at this level of cooperation have involved the establishment of training guidelines at all educational levels, from basic to higher education, including continuing education. These policies go beyond dialogue, as they

are accompanied by a budget, work plans, specific strategies, and thematic working groups. According to Emmenegger et al. (2019), these types of strategies imply transformation to stakeholders' behaviours upon the information exchanged.

Three integrative public policies have been developed within the State that are related to skills development and take PLAi into account as one of the key actors. This first one was the *Jalisco Tech Hub Act* which was generated after a Governor's visit to the Silicon Valley in California in 2022 where he met with representatives of high-tech companies that resulted in investment commitments of up to $724 million USD (Coordinación General Estratégica de Crecimiento y Desarrollo Económico, CGECDE, 2022). This motivated the creation of a public policy that ensured the articulation between the helixes to become the hub of innovation, high technology and talent recognised at a national and Latin-American level. The policy establishes targets for 2024 and 2030, indicators such as the creation of formal jobs and foreign direct investment, students who have taken an English course, and enrolment in careers related to technology or engineering.

Subsequently, in 2023 the first efforts were made to consolidate the *Jalisco Employability System,* a public policy related to promote talent development, generate opportunities and create an environment conducive to professional growth. The COVID-19 working groups to recover employment levels in the context of the pandemic were the precedent mechanism that served as a reference to establish the basis for this policy (GOV05). An inter-institutional council was created in 2024 by law to elaborate a plan that: aligns the secondary and tertiary education systems; focuses the development of the skills required by the labour market; promotes apprenticeships through a dual system; and develops a strategy using business intelligence from the data generated on universities and enterprises (Gobierno de Jalisco, 2024). From 2025, the new administration has been working on strengthening the policy by including the civil society sector, considering social mobility and the employability of vulnerable populations such as migrants and returnees, caregivers and women with cancer (Consejo Interinstitucional del Sistema Estatal de Empleabilidad, 2025).

Finally, the policy *Jalisco Technological Education System (Edutec Jalisco)* aims to coordinate upper secondary and higher technological education with the productive sectors and generate talent. Similarly to the case described before, an inter-institutional commission was formally constituted. It establishes general actions,

specific activities, indicators, and targets towards 2030. For instance, it lists a specialized programs on emerging technologies, the organisation of hackathons, English proficiency certifications, among others. It considers budget for equipping spaces with laboratories, and infrastructure to develop tech projects. It also pretends to have a data platform for monitoring the progress of student (CITEJ, 2024).

There is much greater acceptance of this type of policy, as its effects are evident in the attainment of certifications, the updates required by the industry, and integration into the workplace. Among the interviewees, the three policies aforementioned are recognised as strategic to accelerate the process of upskilling and reskilling of people who already have a job or providing updated and high-quality formation to students "who are in that last mile" (ACA01). Additionally, it was identified that these strategies allow for links between different levels of education, as well as articulation with some information exchange working groups: "so, nothing is disjointed" (ACA01).

Collaboration

This level implies that stakeholders act together for mutual benefits and because it is preferable to work in partnership rather than individually (Emmenegger et al., 2019). The mechanisms identified among the interviewees that align with the definition presented by the authors involve funding calls or collaboration agreements between PLAi and other stakeholders to generate or disseminate training content that aligns with certain thematic areas.

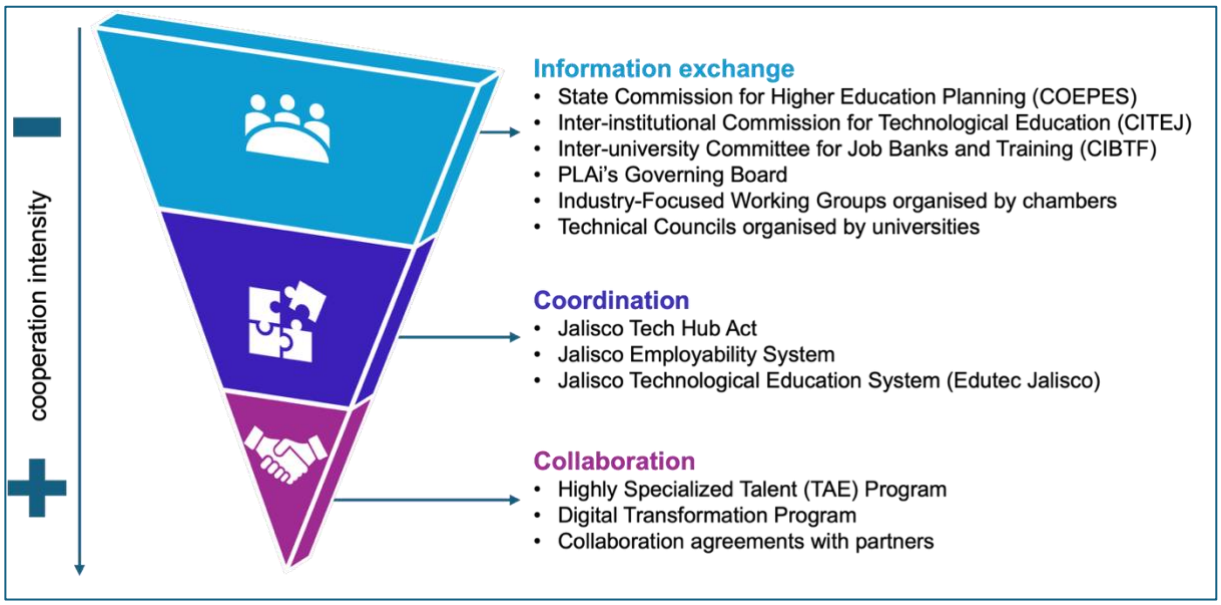
A key stakeholder in this sense has been COECyTJAL that publishes funding calls frequently and has adopted the concept of "effective linkage" (GOV01) to condition the participation on calls to the collaboration with other stakeholders. For example, the *Highly Specialized Talent Program* (TAE) has the goal of generating and delivering content for the specialization and retraining of talent in Jalisco. For several years, the Council has required the selected participants to collaborate with PLAi to virtualise the contents, in exchange for the economic benefit. In addition, the call for proposals contemplates that the educational resources may be replicated to generate a greater impact on society.

Another example is the *Digital Transformation Program* also launched by COECyTJAL. The aim is to support entrepreneurs from MSMEs, that have received skill formation at PLAi, by providing economic resources and support from university students to identify

their operational needs and digitise some of their processes. This route of inter-institutional support benefits the entrepreneurs by applying the skills acquired in their field, in addition to allowing the students the opportunity to practice in a real business case. Although PLAi actively participates in these types of mechanisms, it has not led any of these calls so far, as it does not have the budget to do so.

Finally, the *collaboration agreements* that PLAi, through its Alliance Coordination, has signed with a variety of partners is another representation of this type of mechanism. Most of them have as an objective to generate or implement continuing or higher education content. It is noteworthy that the institution has reached agreements with all the 4 helixes referred on this dissertation to create educational material, beyond the industry-related topics. For instance, there has been collaboration with civil society organisations for the creation or distribution of courses related to soft skills, social innovation and social entrepreneurship. Also, other state public entities such as the Ministry of Finance or the Ministry of Tourism have approached PLAi to request services for the creation of courses or diplomas on topics such as governmental innovation (GOV03) or territorial management (GOV02), respectively.

Figure 5. Mechanisms of cooperation within the skills ecosystem of Jalisco



Source: Own elaboration, based on Emmenegger et al. (2019)

The main feature of this level of cooperation is that concrete results are obtained within specific time frames, and there is a logic of mutual benefit between the parties (Emmenegger et al., 2019). In the calls for proposals issued by the Government, especially COECyTJAL, the concept of “effective linkage” is used to refer to the participation of academia, government, and industry, in addition to the inclusion of PLAi as a facilitating agent. The launch of these programs is characterised by the complexity of its implications in terms of economic resources, logistics, selection and monitoring process. The perception towards this type of mechanisms is generally more accepted among the stakeholders interviewed by referring to them as “very well defined with very well-established expected outcomes” (SOC01) or participants who qualify these projects between universities, government, and enterprises as increasingly “accurate” and “precise” (ACA03).

Figure 5 presents an overview of the mechanisms of cooperation. The evidence shown in this section suggests that information exchange mechanisms tend to be more easily generated because they require less involvement between the parties and tend to be limited to dialogue without leading to concrete actions or behavioural changes. The second level of cooperation is more effective because, as Robalino et al. (2012) state, “the key actors plan for the long term and interact repeatedly [and] there are institutionalized arenas for political exchange”. Although there is still autonomy among stakeholder functions, actions are coordinated to achieve common goals. Lastly, at the third and most complex level, PLAi has sign legal instruments to formalise the collaboration with other institutions when the potential of mutual benefit is perceived. Besides, it was identified that there has been an important leadership by governmental institutions that encourage the willingness of other actors to collaborate, those who otherwise may not be interested.

4.4. Roles of PLAi and other key stakeholders within the skills ecosystem

After analysing the objectives behind an initiative such as PLAi and the mechanisms that have been put in place, it is pertinent to delve into the answer to the general research question of this thesis about the role of PLAi and other stakeholders within the Jalisco’s ecosystem. This part addresses the hypothesis concerning that stakeholders’ roles are defined by their institutional strengths, and that PLAi plays an intermediary role both within the ecosystem and between the ecosystem and the public.

The following findings were obtained from this section: first, it was observed that the helix model, although functional for categorising actors in Jalisco's skills ecosystem, is limited in reflecting the heterogeneity of interests and the potential for conflict between the parties; second, even though the civil society is increasingly been named on the discourses and has been taking part on the provision of content related to soft skills, it still is underrepresented on Jalisco's skills regime; third, the roles assigned to the actors reflect functional specialisation that seeks to complement the strengths of each stakeholder, as shown on Figure 6; finally, it can be identified that, in the face of weaknesses or lack of incentives, intermediary institutions such as PLAi play a strategic role in linking actors, delivering content and certifying training services.

As explained in the previous chapter, both the interviews and the documentary policy analysis were conducted taking into consideration the 4 spheres of reference. My baseline analysis used the quadruple helix model of innovation (Carayannis and Campbell, 2009) as a starting point, because: the literature review highlighted such models regarding innovation ecosystems; it was a functional option to organise the research information; and such narrative can be identified in various official documents and speeches. Besides this classification, to answer this question, I used the framework of the six core task areas of cooperation proposed by Emmenegger et al. (2019). According to Leydesdorff (2012, p. 29), "at the level of society, these dynamics of exchanges and communication in different domains are structured by mutual expectations which limit the scope of the possible dynamics".

The first core area mapped is **system development**. In the case of Jalisco this has been primarily led by governmental institutions through the legislation of public policies such as *Edutec Jalisco* or the *Tech Hub Act*. These bases have been essential to coordinate the efforts of other stakeholders towards the development of an innovation ecosystem on the State. Besides, it has provided the conditions through budgetary allocations and the creation of institutions. The reasons for the government to be an active promoter of innovation and skills development are related to several factors already addressed when analysing the regional ecosystem and the history of multinationals establishing on the State. This is also in line with the vision of the state's vision about its own role, as it must be "giving rise to new collaboration schemes for the delivery and provision of relevant and flexible programs through multiple networks

and providers that contribute to the appropriation of knowledge and the development of new professional skills" (Secretaría General de Gobierno, 2019: IX).

The design of strategies in this regard has predominantly responded to the needs of the technological sphere; however, contrasting views can be elucidated in the interviews. For example, there are stances from the civil society regarding how the system should develop innovation "beyond technology" (SOC01), considering elements such as social mobility, urban infrastructure, and the current challenges of democracy. Another representative of a civil society organisation questioned what happens to innovation that is not used, or what happens to research after it is published (SOC02), especially given its potential to solve problems beyond economic benefit. The contrasting views regarding innovation are one of the weaknesses of the Helix Models. It overlooks the tendency of power dynamics, as it assumes that a 'balanced configuration' between the spheres will generate synergies to drive innovation, and the participation of more than two parties will facilitate the resolution of conflicts or tensions through dialogue and incentives for participation (Ranga and Etzkowitz, 2013).

The **content definition** is a task primarily conducted by the industry and the government. The former usually identifies training needs through business chambers that collect information and seek potential providers to generate such content. Meanwhile, the government establishes the priority thematic areas in the Development Plans and the focus of public strategies is driven towards these sectors. In the Plan for the administration from 2018-2024, besides electronics and information technology, other sectors such as agribusiness, handicrafts, automotive, construction, electrical energy, pharmaceuticals, fashion, furniture, and chemical products were also listed as strategic. However, government's efforts to provide training in ICT and electronics are clearly more comprehensive and consistent than those aimed at other fields (ACA01; ACA02).

By the one hand, this strategy might be seen as beneficial by the Quadruple Helix Approach in the sense that the state is moving towards a 'smart specialization' by focusing on a perceived regional strength, setting priorities, and reinforcing means such as clusters (Carayannis et al., 2018). This viewpoint aligns with some interviewees' suggestions about "focusing on just one sector, so it's much easier to know who you're going to reach out to" (GOV02) or the need "to define what we want to be the best at" (GOV04). The key problem with this scheme is the potential of overlooking the remaining economic sectors that are not considered as 'strong' or

‘competitive’ as the tech one, and worsening inequalities across the state, affecting students, employees or entrepreneurs related to these apparently lagging segments. In this regard, McCann and Ortega-Argilés argue that to avoid the “strengthening of existing monopoly positions and the associated negative lock-in effects” (2015, p. 1300), policy interventions must upgrade the local supply chains, improve the labour-training systems, and consider the region’s existing features and potential assets to design tailored policies (2015).

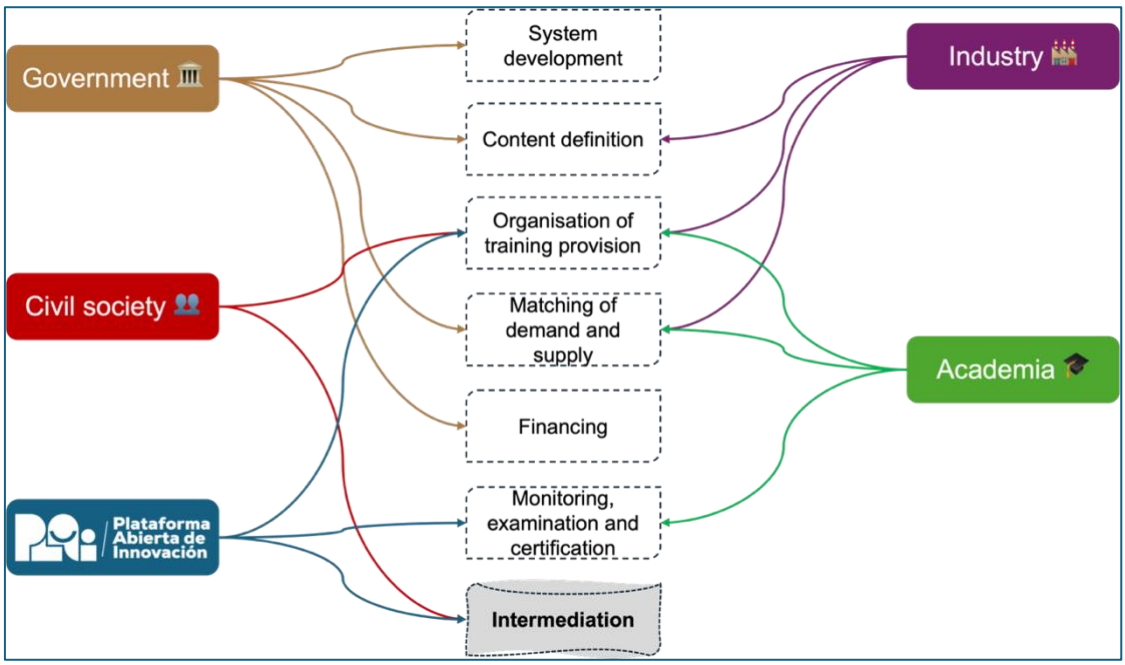
Now turning to the **organisation of training provision**, it could be identified that the disciplinary experts and the specialised knowledge about topics such as cloud computing, web services, and software development, has been principally provided by the industry and the academia. Additionally, organised civil society has been particularly strategic in providing content on soft skills and employability skills. It is worth mentioning that this participation seems limited in the case of Jalisco, compared to the scope envisioned by the quadruple helix model, which states that citizens should take ownership of innovation processes (Carayannis et al., 2018).

Even though PLAi is a HEI, it does not have a full-time academic staff of professors and researchers; this is why disciplinary experts available in other helices are called upon. Stakeholders recognise that PLAi's main contribution is related to the educational design -instructional and multimedia- of programmes and their virtualisation (SOC01; IND04; GOV02). The leverage of technology is highlighted among all the helixes as a means of increasing reach and facilitating access (SOC01; SOC02; GOV01; IND07; IND08; ACA01) among the population. However, there were also expressions of concern for people who do not have the necessary infrastructure to connect, or the preference of some to have synchronous opportunities for their learning (SOC03; ACA03).

In terms of **matching demand and supply** of skills, the main efforts have been made through information exchange mechanisms mainly, as explained on the previous subsection. Industrial chambers regularly organise meetings to obtain information about training requirements (IND08; IND07) and they also do research to identify the key competencies of interest within the industry (PAI03). Similarly, the universities host technical councils to consult with industry on the relevance and connexity of programmes with the labour market (IND07) and they usually distribute follow-up surveys to graduates to identify whether they apply what they learned in their

programme to their work and what was missing (ACA02). Additionally, the government of the State has made efforts to effectively match demand and supply through the public policy *Jalisco Employability System*. This core area was pointed out as dimension in need for strengthening since it is acknowledged that the 'last mile' between training the users and connecting them with employability opportunities is still lacking systematisation (PAI03).

Figure 6. Roles played by stakeholders within the skills ecosystem of Jalisco



Source: Own elaboration, based on Emmenegger et al. (2019)

Regarding the **financing** core area, skills development programmes have been financially supported by the state government through the allocation of an annual budget to institutions such as PLAi, funding calls such as the *Highly Specialized Talent (TAE)* or policies such as the *Tech Hub Ac*t. Surprisingly, contrary to what is assumed regarding intermediaries and government intervention to prevent free riding (Emmenegger et al., 2019), it seems that the practice has moved towards what was proposed as a possible solution. When asked about the capabilities of enterprises to provide training, one industry representative argued that is preferable for companies to focus their efforts on the commercial part of business than on "peripherical issues" (IND07). Wolf (2020) and Finegold (1999) address this issue by pointing out how beneficial public policies related to skills are for companies because they significantly decrease their investment risks related to qualifying the labour force.

"There is no activity that a cluster or a government can do that the company cannot do. […] But the fact that they do it for you makes it easier, cheaper, and more convenient. As a company, you can make a plan to train your employees, but it will take time, money, and effort".

-IND07

Finally, with respect to **monitoring, examination and certification,** besides what universities offer with traditional academic programmes, PLAi also has the authority to issue officially valid certifications, diplomas and degrees, and has become known for the validation of continuing education programs. One of the interviewees highlighted an experience with PLAi related to a course on employability skills that was offered alongside with additional courses to obtain a diploma upon the completion of the series (SOC03). It was also emphasized during the interviews that the official validity offered by PLAi is an added value in comparison to simple certificates with no curricular value, and the fact that is free as opposed to certificates issued by platforms such as edX or Coursera (IND03); also, the examination part is an advantage when comparing it to the acquisition of knowledge through platforms such as YouTube (IND08).

Another significant aspect of cooperation beyond the model proposed by Emmenegger et al. (2019) is the role of **intermediary** (Petersen et al., 2016; Chuan and Ibsen, 2022), which is key to the analysis of this ecosystem. Petersen et al. explain that no single institution is capable of fully addressing the deficiencies of a system and "a range of organisations may perform different intermediary roles" (2016, p. 410). In the case of Jalisco, the interviews let me identify civil society initiatives that seek to generate links between the helices, share information, promote employability and support small and medium-sized enterprises (SOC02; SOC04). The institutions recognised are non-profit associations that were created on the initiative of businesspeople. Petersen et al. (2016) argue that private intermediaries are more focused on industry specific issues, trying to support local companies with the development of their capabilities and mediate between local and transnational companies.

On the other hand, PLAi, as a public institution is seen as an 'enabler' (PAI01) or 'multiplier' (GOV01), allowing the scope of training to be greater. It also allows knowledge to take the form of educational content that is accessible to the target audiences (SOC02) and aims to generate connections within the ecosystem (SOC03).

Petersen et al. identify public intermediaries as “publicly-funded organisations that focus on mainly public good objectives” (2016, p. 409) and generally dominate skills development networks specially in technological sectors.

4.5. Theoretical implications

The **Quadruple Helix of Innovation approach** is pertinent to some extent because it reflects the transition between a political economy and a knowledge economy. It describes the dynamic of stakeholders transcending sectoral boundaries, and the institutional permeability that allows the cooperation within different kinds of mechanisms (Ranga and Etzkowitz, 2013). Nevertheless, this case demonstrates that the context is strongly influenced by power dynamics in which for instance the industry is more represented than other helices such as the civil society. Given these asymmetries and the potential for conflict, the model appears to have certain weaknesses.

Hence, the model assumes that innovation approaches are functionalist and focused on “the creation of new markets for innovative goods and services” (Ranga & Etzkowitz, 2013, p. 255). This emphasis coincides with the one proposed by Hall and Soskice (2001) from a **Political Economy perspective** that is also centred on the economic value of skills development. However, this case showed that among the stakeholders there are concerns beyond the economic growth, for instance using innovation and skills for the solution of mobility problematics on the metropolitan area or leveraging the patents by addressing public health issues. Social skills among the population were emphasised as a priority among the interviewees, rather than just the skills related to work or productivity; even topics such as culture of peace, and the inclusion of neurodivergent people to the labour markets were risen.

With respect to the topic of innovation, skills development and governance, the **research to date has tended to focus on the Global North**. Both the Helix Models literature and Finegold’s high skills ecosystem proposal (1999) are based on the case of the Silicon Valley in California or refer to examples such as Sweden or Canada (Ranga and Etzkowitz, 2013). Although there have been discursive references about Jalisco as the Mexican Silicon Valley, is imperative to draw a clear distinction in terms of context, as well as social and economic realities. Brown (2022) argues that the skill ecosystem approach needs adaptations for the global south that address questions of inequality and complement the skills strategy with other development improvements related to infrastructure and services, for instance.

5. Conclusion

In the previous lines, we analysed the case study of PLAi in the state of Jalisco. This research aimed to analyse how skills governance works through the identification of the role that PLAi and other stakeholders play within the ecosystem.

Returning to the questions posed at the beginning of this study, it is now possible to state that the **role of stakeholders** responds to a functional specialization in which actors participate according to their strengths and interests within the ecosystem. The state's predominant role in defining a talent development agenda for innovation is demonstrated. Furthermore, it was argued that PLAi along with other civil society actors, seek to fulfil the role of intermediaries.

One of the more significant findings to emerge from this research is that the **objectives** underlying the skill development policy studied are strongly influenced by the context and the perception of problematic issues among the stakeholders. In the case of PLAi, even though the enactment of the policy predominantly reflects the view of the industry, in the practice other non-economic concerns have been raised among the actors, as well the addition of 'democratisation' of knowledge and educational content as one of PLAi's purposes. The study has also identified that Jalisco's skills ecosystem is comprised by multiple **mechanisms of cooperation**. In those requiring greater commitment, the interviewees recognised greater effectiveness, but more difficulty to implement. In contrast, when it comes to information-only mechanisms, there are more initiatives, but less effectivity acknowledged.

5.1. Contributions and policy recommendations

The study offers some **insights** into the creation and development of a high-skills ecosystem in Latin America. Key governance variables were emphasized, such as the role of stakeholders and their strategies for cooperation. The results supported the idea that skills ecosystems should adopt a holistic approach that looks beyond the economic rationale and considers the characteristics of a state in the global south.

In this regard, several critiques were pointed out about the limitations of the Helix Models and the High Skills Ecosystem concept. The study also raised important theoretical issues related to the relatively new transnational dimension of skills which points out the unique characteristics of cross-border regions and the impacts related to dynamics such as nearshoring.

The findings of this study have several practical implications. One valuable aspect provided by the Quadruple Helix of Innovation is the placement of the civil society as a co-creator in the open innovation models. This would be one of the major **areas of improvement to recommend**. The inclusion of 'user stakeholders' in the design of strategies might be a reasonable way to reflect the regional context into the policy actions (McAdam and Debackere, 2018).

Another line of action with potential towards the future is adopting a broader thematic perspective that also includes social innovation and provides the population with spaces to design and propose solutions to social problematics. In addition to keep providing content related to socio-emotional skills, given the rise of technologies such as artificial intelligence, it is advisable to include topics related to humanism and digital citizenship. The establishment of mechanisms to identify training needs in regions outside the Metropolitan Area and consider their respective economic vocations would also be impactful. This, along with supporting local firms, will be vital to prevent the inequality gap from widening further.

It would be recommended to promote collaborative mechanisms such as micro credentials supported multilaterally by various types of institutions. Although PLAi already has an initial model in this aspect, it will be very interesting to observe that certifications are validated by various sectors. Another possible collaborative strategy to consider is complementing the degree programs of those about to graduate from university with PLAi specialized courses and giving them credit value. This would allow recent graduates the flexible access to updated content, addressing the gap faced by traditional HEIs.

Looking ahead to the coming years, the nearshoring is expected to increase through the consolidation of the semiconductor industry in Jalisco. A key policy priority should therefore be to ensure the supply side of skills by regarding the quality of continuing programs, collaborative skills certification, and the continuation of cooperation mechanisms. However, greater attention must also be paid to the demand-side, ensuring that working conditions are fair and workers' rights are respected. The challenge is to collaboratively promote

optimal conditions for the ecosystem to be sustainable. In the case of PLAi, it will be necessary to establish user traceability strategies and systematise mechanisms to connect them with other sectors.

As a final recommendation, it is necessary for citizens to understand the tools provided by ecosystem stakeholders. One of the problems identified was that internal stakeholders know each other well, but the public is unaware of the services they can access.

5.2. Limitations and further research

This research was **limited** in several ways. First, the project used a case study on a highly context-sensitive topic. This may restrict the results to internal validity and make them difficult to transfer to other settings. Second, the judgment sampling used for the study fulfilled its intended purpose for the research, but it does not represent the perspectives of the wider population. The way in which interview participants were selected was overtly selective and likely to be biased. Furthermore, the groupings used may be very restrictive and may not fully represent the people I interviewed.

It is recommended that **further research** be undertaken with the following purposes:

1) To assess the impact of PLAi and whether the continuing education programs have been effective to improve the users' employability.

2) To include the viewpoint of unions and employees' representatives to compare the perspective in both sides of the skill issue: supply and demand.

3) To analyse the matter of free riders within the skills ecosystem in order to understand it and propose strategies to avoid the practice.

4) To investigate how does the interaction between multi-level skill governance mechanisms (international, national, local) work, and how is misalignment addressed. This would allow us to visualise the potential, or lack thereof, of international cooperation in this regard.

Ultimately, skills governance requires a comprehensive and systemic approach that strengthens its cooperation mechanisms, ensures its sustainability, and that doesn't worsen inequalities and gaps, but rather reduces them. In an increasingly fast-paced world, rethinking the value of education and skills development beyond its instrumental value is essential.

6. References

Adelman, C., Jenkins, D. *and* Kemmis, S. 1976. Re-thinking case study: notes from the second Cambridge Conference'. *Cambridge Journal of Education*. **6**(3), pp. 139–150. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/0305764760060306.

Alfaro, E. 2019. *Lanzamiento de la Plataforma Abierta de Innovación (PLAi). .* [Online]. [Accessed 25 September 2024]. Available from: https://www.youtube.com/watch?v=aCmYIo-mOg8&list=WL&index=2

Álvarez Fonseca, L.Y. and Pérez Vargas, O.R. 2017. Retos del SENA en el marco de la educación terciaria en Colombia. *Revista Rutas de formación: prácticas y experiencias*, (3), p. 36. [Accessed 15 September 2024]. Available from: https://doi.org/10.24236/24631388.n3.2016.632.

Ashton, D.N. and Green, F. 1996. *Education, training, and the global economy*. Cheltenham, UK ; Brookfield, Edward Elgar Publishing.

Ball, S.J., Maguire, M, and Braun A. 2011. Taking context seriously. In: Ball, S.J., Maguire, M, and Braun A. eds. *How Schools Do Policy. Policy Enactments in Secondary Schools.* Routledge. [Accessed 15 September 2024]. Available from: https://doi.org/10.4324/9780203153185

Becker, G.S. 1962. Investment in Human Capital: A Theoretical Analysis. *The Journal of political economy.* **70**(5), pp. 9-49.

Borrás, S. and Edler, J. 2014. Introduction: on governance, systems and change. *In*: S. Borrás and J. Edler, eds. *The Governance of Socio-Technical Systems* [Online]. Edward Elgar Publishing. [Accessed 15 September 2024]. Available from: https://doi.org/10.4337/9781784710194.00010

Bowen, G.A. 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*. **9**(2), pp.27–40. [Accessed 15 September 2024]. Available from: https://doi.org/10.3316/QRJ0902027.

Brown, P. and Lauder, H. 2006. Globalisation, knowledge and the myth of the magnet economy. *Globalisation, Societies and Education*. **4**(1), pp.25–57. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/14767720600555046.

Brown, P., Lauder, H. and Ashton, D. 2010. *The Global Auction: The Broken Promises of Education, Jobs, and Incomes*. Oxford University Press. [Accessed 15 September 2024]. Available at: https://doi.org/10.1093/acprof:oso/9780199731688.001.0001.

Brown, T. 2022. Skill ecosystems in the global South: Informality, inequality, and community setting. *Geoforum*. **132**, pp.10–19. [Accessed 30 June 2025]. Available from: https://doi.org/10.1016/j.geoforum.2022.03.019.

Brunello, G. and Wruuck, P. 2021. Skill shortages and skill mismatch: A review of the literature. *Journal of Economic Surveys*. **35**(4), pp.1145–1167. [Accessed 30 June 2025]. Available from: https://doi.org/10.1111/joes.12424.

Bryson, J. 2017. *Disciplinary Perspectives on Skill* [Online] (J. Buchanan, D. Finegold, K. Mayhew, & C. Warhurst, eds.). Oxford University Press. [Accessed 11 June 2025]. Available from: https://doi.org/10.1093/oxfordhb/9780199655366.013.1.

Busemeyer, M.R. 2009. Asset specificity, institutional complementarities and the variety of skill regimes in coordinated market economies. *Socio-Economic Review*. **7**(3), pp.375–406. [Accessed 15 September 2024]. Available from: https://doi.org/10.1093/ser/mwp009.

Busemeyer, M.R. and Trampusch, C. 2011. The Comparative Political Economy of Collective Skill Formation *In*: M. R. Busemeyer and C. Trampusch, eds. *The Political Economy of Collective Skill Formation* [Online]. Oxford University Press, pp.3–38. [Accessed 30 June 2025]. Available from: https://doi.org/10.1093/acprof:oso/9780199599431.003.0001.

Capsada-Munsech, Q. and Valiente, O. 2020. Sub-National Variation of Skill Formation Regimes: A Comparative Analysis of Skill Mismatch Across 18 European Regions. *European Education*. **52**(2), pp.166–179. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/10564934.2020.1723421.

Carayannis, E.G. and Campbell, D.F.J. 2009. ‘Mode 3’ and ‘Quadruple Helix’: toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*. **46**(3/4), p.201. [Accessed 15 September 2024]. Available from: https://doi.org/10.1504/IJTM.2009.023374.

Carayannis, E.G., Grigoroudis, E., Campbell, D.F.J., Meissner, D. and Stamati, D. 2018. The ecosystem as helix: an exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as Quadruple/Quintuple Helix Innovation Models. *R&D Management*. **48**(1), pp.148–162. [Accessed 15 September 2024]. Available from: https://doi.org/10.1111/radm.12300.

Castro, M. 2012. *The Impact of Government Intervention in the Industry: A Case Study of the Electronics industry in Jalisco, Mexico*. Master's thesis. Simon Fraser University. [Accessed 15 September 2024]. Available from: https://summit.sfu.ca/item/12477

Centro Interamericano para el Desarrollo del Conocimiento en la Formación Profesional. n.d. Servicio Nacional de Aprendizaje Industrial – SENAI. [Accessed 15 September 2024]. Available from: https://www.oitcinterfor.org/instituci%C3%B3n-miembro/servicio-nacional-aprendizaje-industrial-senai

Chuan, A. and Ibsen, C.L. 2022. Skills for the Future? A Life Cycle Perspective on Systems of Vocational Education and Training. *ILR Review*. **75**(3), pp.638–664. [Accessed 15 September 2024]. Available from: https://doi.org/10.1177/00197939211015205.

Codd, J.A. 1988. The construction and deconstruction of educational policy documents. *Journal of Education Policy*. **3**(3), pp.235–247. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/0268093880030303.

Cohen, L., Manion, L. and Morrison, K. 2018. *Research methods in education.* Eighth edition. Routledge. [Accessed 15 September 2024]. Available from: https://doi.org/10.4324/9781315456539

CONALEP. n. d. Misión y Visión. [Accessed 15 September 2024]. Available from: https://www.conalep.edu.mx/misionvision

Comisión Interinstitucional de Educación Tecnológica. 2024. *Plan de Trabajo 2024-2030.* Sistema de Educación Tecnológica de Jalisco.

Consejo Interinstitucional del Sistema Estatal del Empleabilidad. 2025. Cuarta Sesión Ordinaria del Consejo Interinstitucional del Sistema Estatal del Empleabilidad. [PowerPoint presentation]. Análisis de la política de “Desarrollo de talent y vinculación laboral al estilo Jalisco”, 11 February 2025, Guadalajara.

Coordinación General Estratégica de Crecimiento y Desarrollo Económico. 2022. Política pública industrial para el impulso de la competitividad e innovación que consolide a Jalisco como el líder en América Latina en diseño y manufactura de alto valor agregado aprovechando los esfuerzos realizados en la estrategia de innovación, talento y alta tecnología “Jalisco Tech Hub Act”. Gobierno de Jalisco. [Accessed 20 June 2025]. Available from: https://portalesmuli.s3.amazonaws.com/coordinacioneconomia/documents/politica_publica_jalisco_tech_hub_act_vmarzo23.pdf

Coordinación General Estratégica de Crecimiento y Desarrollo Económico, Secretaría de Innovación, Ciencia y Tecnología, Plataforma Abierta de Innovación y Desarrollo de Jalisco, and ACSI Research. 2023. Estudio sobre las necesidades de educación continua y superior en la población jalisciense y la factibilidad de que la Plataforma Abierta de Innovación y Desarrollo de Jalisco (PLAi) ofrezca programas relacionados con la transformación digital de PyMEs, competencias tecnológicas para la industria de las TI, desarrollo de videojuegos, industria 4.0 y habilidades blandas para la inserción laboral. [Accessed 15 September 2024]. Available from: https://repositorio.plai.mx/handle/123456789/87

Dirección General de Planeación y Evaluación Participativa. 2022. PLAN ESTATAL DE DESARROLLO JALISCO 2018-2024. VISIÓN 2030. ACTUALIZACIÓN. [Accessed 20 June 2025]. Available from: https://plan.jalisco.gob.mx/wp-content/uploads/2024/06/Plan-Estatal-de-Desarrollo-2a-Edicion-V0.5.pdf

Dobbins, T. and Plows, A. 2017. Labour market intermediaries: a corrective to the human capital paradigm (mis)matching skills and jobs? *Journal of Education and Work*. **30**(6), pp.571–584. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/13639080.2016.1255315.

Emmenegger, P., Graf, L. and Trampusch, C. 2019. The governance of decentralised cooperation in collective training systems: a review and conceptualisation. *Journal of Vocational Education & Training*. **71**(1), pp.21–45. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/13636820.2018.1498906.

Estevez-Abe, M., Iversen, T. and Soskice, D. 2001. Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State *In*: P. A. Hall and D. Soskice, eds. *Varieties of Capitalism* [Online]. Oxford University PressOxford, pp.145–183. [Accessed 15 June 2025]. Available from: https://doi.org/10.1093/0199247757.003.0004.

Etzkowitz, H. and Leydesdorff, L. 1995. ´The Triple Helix -- University-Industry-Government Relations: A Laboratory for Knowledge Based Economic Development'. *EASST Review*, **14**(1), pp. 14-19, [Accessed 15 September 2024]. Available from: https://ssrn.com/abstract=2480085

Finegold, D. 1999. Creating self-sustaining, high-skill ecosystems. *Oxford Review of Economic Policy*. **15**(1), pp.60–81. [Accessed 15 June 2025]. Available from: https://doi.org/10.1093/oxrep/15.1.60.

Finegold, D. and Soskice, D. 1988. THE FAILURE OF TRAINING IN BRITAIN: ANALYSIS AND PRESCRIPTION. *Oxford Review of Economic Policy*. **4**(3), pp.21–53. [Accessed 15 June 2025]. Available from: https://doi.org/10.1093/oxrep/4.3.21.

Ganter De Otero, J.P. 2020. Comparing the integration of technical vocational education and training (TVET) in systems of innovation: Towards a new cultural political economy of skills? *In*: M. Pilz and J. Li, eds. *Comparative Vocational Education Research* [Online]. Wiesbaden: Springer Fachmedien Wiesbaden, pp.149–162. [Accessed 30 June 2025]. Available from: https://doi.org/10.1007/978-3-658-29924-8_9.

Gobierno de Jalisco. 2019. LEY ORGÁNICA QUE CREA AL ORGANISMO PÚBLICO DESCENTRALIZADO DENOMINADO PLATAFORMA ABIERTA DE INNOVACIÓN Y DESARROLLO DE JALISCO. Periódico Oficial, CCCXCVI, pp. 23-30. [Accessed 27 June 2024]. Available from: https://docs.mexico.justia.com/static/pdf-

js/web/index.html?file=/estatales/jalisco/leyes/ley-organica-que-crea-al-organismo-publico-descentralizado-denominado-plataforma-abierta-de-innovacion-y-desarrollo-de-jalisco.pdf

Gobierno de Jalisco. 2024. Acuerdo del ciudadano Gobernador Constitucional del Estado de Jalisco, mediante el cual se crea el Consejo Interinstitucional del Sistema Estatal de Empleabilidad. [Accessed 27 June 2024]. Available from: https://apiperiodico.jalisco.gob.mx/api/newspaper/getAsset?q=newspaper/22218/1716590663-2024-05-25-VIII.pdf

Goldin, C. and Katz, L. 2007. *The Race between Education and Technology: The Evolution of U.S. Educational Wage Differentials, 1890 to 2005* [Online]. Cambridge, MA: National Bureau of Economic Research. [Accessed 15 September 2024]. Available from: https://doi.org/10.3386/w12984.

Graf, L. 2020. Skill formation in cross-border contexts: The case of the trinational Upper Rhine region *In*: M. Pilz and J. Li, eds. *Comparative Vocational Education Research* [Online]. Wiesbaden: Springer Fachmedien Wiesbaden, pp.131–147. [Accessed 30 June 2025]. Available from: https://doi.org/10.1007/978-3-658-29924-8_8.

Graf, L. 2021. Leveraging Regional Differences and Cross-Border Collective Institutions: The Case of Skill Formation and Employment in the Border Region of France, Germany, and Switzerland. *Swiss Political Science Review*. **27**(2), pp.369–389. [Accessed 30 June 2025]. Available from: https://doi.org/10.1111/spsr.12442.

Green, F. 2011. What is Skill? An Inter-Disciplinary Synthesis. Centre for Learning and Life Chances in Knowledge Economies and Societies. [Accessed 30 June 2025]. Available from: https://www.llakes.ac.uk/wp-content/uploads/2021/01/Green-What-is-Skill-final.pdf

Green, F. and Henseke, G. 2016. The changing graduate labour market: analysis using a new indicator of graduate jobs. *IZA Journal of Labor Policy*. **5**(1), p.14. [Accessed 30 June 2025]. Available from: https://doi.org/10.1186/s40173-016-0070-0.

Gutiérrez Díaz, E. and Zempoalteca Ramírez, R. A. (2019) 'Programa para el Desarrollo de la Industria del Software (PROSOFT)', *Revista Latinoamericana*

de Investigación Social, **1**(2), pp. 31–51. Available at: https://revistasinvestigacion.lasalle.mx/index.php/relais/article/view/1788

Hall, P.A. and Soskice, D. 2001. An Introduction to Varieties of Capitalism *In*: Hall, P.A. and Soskice, D. eds. *Varieties of Capitalism* [Online]. Oxford University PressOxford, pp.1–68. [Accessed 30 June 2025]. Available from: https://doi.org/10.1093/0199247757.003.0001.

Hammersley, M. 2013. *What is qualitative research?* London: Bloomsbury. London: Bloomsbury

Ivardi, C. and Wanklin, L. 2025. Growing through skills: the integration of transnational dimensions into growth regimes. *Socio-Economic Review*. [Accessed 30 June 2025]. Available from: https://doi.org/10.1093/ser/mwaf023.

Jiménez, R. 2000. *Por el aprecio de mis amigos*, Editora El Sol, S.A. de C.V, Guadalajara, Mexico.

Kruss, G., McGrath, S., Petersen, I. and Gastrow, M. 2015. Higher education and economic development: The importance of building technological capabilities. *International Journal of Educational Development*. **43**, pp.22–31. [Accessed 30 June 2025]. Available from: https://doi.org/10.1016/j.ijedudev.2015.04.011.

Leydesdorff, L. 2012. The Triple Helix, Quadruple Helix, …, and an N-Tuple of Helices: Explanatory Models for Analyzing the Knowledge-Based Economy? *Journal of the Knowledge Economy*. **3**(1), pp.25–35. [Accessed 30 June 2025]. Available from: https://doi.org/10.1007/s13132-011-0049-4.

Martin, C.J. 2011. Political Institutions and the Origins of Collective Skill Formation Systems *In*: M. R. Busemeyer and C. Trampusch, eds. *The Political Economy of Collective Skill Formation* [Online]. Oxford University Press, pp.40–67. [Accessed 22 June 2025]. Available from: https://doi.org/10.1093/acprof:oso/9780199599431.003.0002.

McAdam, M. and Debackere, K. 2018. Beyond 'triple helix' toward 'quadruple helix' models in regional innovation systems: implications for theory and practice. *R&D Management*. **48**(1), pp.3–6. [Accessed 22 June 2025]. Available from: https://doi.org/10.1111/radm.12309.

McCann, P. and Ortega-Argilés, R. 2015. Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy. *Regional Studies*. **49**(8), pp.1291–1302. [Accessed 22 June 2025]. Available from: https://doi.org/10.1080/00343404.2013.799769.

OECD. 2012. *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies* [Online]. OECD. [Accessed 30 June 2025]. Available from: https://doi.org/10.1787/9789264177338-en.

OECD. 2019. *OECD Skills Strategy 2019: Skills to Shape a Better Future* [Online]. OECD. [Accessed 16 April 2024]. Available from: https://doi.org/10.1787/9789264313835-en.

Persson, B. and Hermelin, B. 2022. Decentralised cooperation between industries and local governments in a statist skill-formation system: an analysis of industrial schools in Sweden. *Journal of Vocational Education & Training*. **74**(4), pp.645–663. [Accessed 16 April 2024]. Available from: https://doi.org/10.1080/13636820.2020.1829007.

Petersen, I., Kruss, G., McGrath, S. and Gastrow, M. 2016. Bridging skills demand and supply in South Africa: The role of public and private intermediaries. *Development Southern Africa*. **33**(3), pp.407–423. [Accessed 16 April 2024]. Available from: https://doi.org/10.1080/0376835X.2016.1156518.

PLAi. 2024. Plan Institucional de Desarrollo 2020-2025 Visión 2030. Plataforma Abierta de Innovación y Desarrollo de Jalisco. [Accessed 16 April 2025]. Available from: https://plan.jalisco.gob.mx/wp-content/uploads/2024/11/Plataforma-Abierta-de-Innovacion-y-Desarrollo-de-Jalisco.pdf

Ramsarup, P., McGrath, S. and Lotz-Sisitka, H. 2023. Reframing skills ecosystems for sustainable and just futures. *International Journal of Educational Development*. **101**. [Accessed 16 April 2024]. Available from: https://doi.org/10.1016/j.ijedudev.2023.102836.

Ranga, M. and Etzkowitz, H. 2013. Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society. *Industry and Higher Education*. **27**(4), pp.237–262. [Accessed 16 April 2024]. Available from: https://doi.org/10.5367/ihe.2013.0165.

Reich, R.B. 1991. *The Work of Nations: Preparing Ourselves for 21st Century*. Westminster: Knopf Doubleday Publishing Group.

Robalino, D., Almeida, R. and Behrman J. 2012. 'Policy Framework: The Economic Rationale for Skills Development Policies. In D. Robalino, R. Almeida, and J. Behrman, eds. *The Right Skills for the Job? Rethinking Training Policies for Workers.* Washington, DC: World Bank. [Accessed 30 June 2025]. Available from: https://doi.org/10.1596/978-0-8213-8714-6.

Sanchez Puerta, M. L., Robalino, D. A., Strokova, V.; Lord, N. and Perinet, M.M.A. 2015. *Skills and jobs: lessons learned and options for collaboration (English).* Washington, D.C.: World Bank Group. [Accessed 30 June 2025]. Available at: http://documents.worldbank.org/curated/en/926401467993178388

Schreier, M. 2012. *Qualitative Content Analysis in Practice* [Online]. SAGE Publications Ltd. [Accessed 30 June 2025]. Available from: https://doi.org/10.4135/9781529682571.

Schröder, M. and Voelzkow, H. 2016. Varieties of Regulation: How to Combine Sectoral, Regional and National Levels. *Regional Studies*. **50**(1), pp.7–19. [Accessed 16 April 2024]. Available from: https://doi.org/10.1080/00343404.2014.904040.

Secretaría General de Gobierno. 2019. INICIATIVA DE DECRETO QUE CREA EL ORGANISMO PÚBLICO DESCENTRALIZADO DENOMINADO PLATAFORMA ABIERTA PARA LA INNOVACIÓN Y DESARROLLO DE JALISCO Y EXPIDE SU LEY ORGÁNICA. Gobierno de Jalisco.

Sun, Q. and Yuan, D. 2023. The Evolvement of Lifelong Education in China: A Policy Perspective. *In*: K. Evans, W. O. Lee, J. Markowitsch and M. Zukas, eds. *Third International Handbook of Lifelong Learning* [Online]. Springer International Handbooks of Education. Cham: Springer International Publishing, pp.569–597. [Accessed 30 June 2025]. Available from: https://doi.org/10.1007/978-3-031-19592-1_25.

Thelen, K. 2014. *Varieties of Liberalization and the New Politics of Social Solidarity* [Online] 1st ed. Cambridge University Press. [Accessed 15 September 2024]. Available from: https://doi.org/10.1017/CBO9781107282001.

Toshkov, D. 2016. *Research design in political science*. London New York: Macmillan education, Palgrave.

UNESCO. 2015. *Strategy for technical and vocational education and training (TVET) 2016-2021.* UNESCO. [Accessed 30 June 2025]. Available from: https://unesdoc.unesco.org/ark:/48223/pf0000245239

UNESCO. 2021. *Strategy for technical and vocational education and training (TVET) 2022–2029.* UNESCO. [Accessed 30 June 2025]. Available from: https://unevoc.unesco.org/pub/unesco_strategy_for_tvet_2022-2029_discussion_document.pdf

UNESCO-UNEVOC. 2013. Chile Joven, Job Training Programs in Latin America. Available at: International Centre for Technical and Vocational Education and Training. [Accessed 30 June 2025]. Available from: https://www.skillsforemployment.org/sites/default/files/2024-01/fm11g_012412.pdf

United Nations. 2023. The Sustainable Development Goals Report. Special edition. Towards a Rescue Plan for People and Planet. [Accessed 30 June 2025]. Available from: https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf

United Nations. n.d. Quality Education. Goal 4 Targets. [Accessed 30 June 2025]. Available from: https://www.un.org/sustainabledevelopment/education/

Usher, R. 1996. 'A critique of the neglected epistemological assumptions of educational research', in D. Scott & R. Usher, eds. *Understanding educational research*, (pp. 9-32). Routledge.

Valiente, O. 2014. The OECD skills strategy and the education agenda for development. *International Journal of Educational Development*. **39**, pp.40–48. [Accessed 15 September 2024]. Available from: https://doi.org/10.1016/j.ijedudev.2014.08.008.

Valiente, O. and Capsada-Munsech, Q. 2021. 'Regional governance of skill supply and demand: implications for youth transitions', in Bürgi, R. and Gonon, P. (eds.) *Governance Revisited: Challenges and Opportunities for Vocational Education and Training.* Series: Studies in vocational and continuing education

(20). Peter Lang: Bern, pp. 303-330. Available at: https://eprints.gla.ac.uk/258965/

Valiente, O., Zancajo, A. and Jacovkis, J. 2020. The coordination of skill supply and demand in the market model of skill formation: testing the assumptions for the case of Chile. *International Journal of Lifelong Education*. **39**(1), pp.90–103. [Accessed 15 September 2024]. Available from: https://doi.org/10.1080/02601370.2019.1678692.

Wolf, S. 2020. Tools and means to understand different TVET models in developing countries: An approach to the epistemological opening up of international TVET in development cooperation *In*: M. Pilz and J. Li, eds. *Comparative Vocational Education Research* [Online]. Wiesbaden: Springer Fachmedien Wiesbaden, pp.57–78. [Accessed 28 June 2025]. Available from: https://doi.org/10.1007/978-3-658-29924-8_4.

World Bank. 2018. World Bank Education Overview: Skills (English). World Bank Education Overview. Washington, D.C.: World Bank Group. [Accessed 15 September 2024]. Available from: http://documents.worldbank.org/curated/en/806751541081039061/World-Bank-Education-Overview-Skills

World Bank. n.d. Skills Development. World Bank. [Accessed 15 September 2024]. Available from: https://www.worldbank.org/en/topic/skillsdevelopment

World Economic Forum. 2025. *Future of Jobs Report 2025.* World Economic Forum. [Accessed 28 June 2025]. Available from: https://www.weforum.org/reports/the-future-ofjobs-report-2025

7. Appendices

Appendix A. Judgement sampling for semi-structured interviews

Sector/ Type of organisation	Justification	Specific profiles of interest
Government	The Government of Jalisco is the main funder of PLAi through public resources approved each year. The institution was created in 2019 at the initiative of the Government to contribute to the "Development and economic growth" axis.	• Representatives from the Ministry of Innovation, Science and Technology • Representatives from the State Council of Science and Technology
Academia	Academic institutions have played a relevant role because they have worked in alliance with PLAi for the design and implementation of courses.	• Chancellors of Universities in Jalisco • University Liaison or Partnership Officers
Industry	Interviewing industry representatives is important because the need to train specialised human talent usually arises from that sector.	• Chambers or institutes related to ICT and entrepreneurship • CEO or IDI representatives of tech companies in the State
Civil society	This sector is relevant because they are the direct recipients of the services offered by PLAi.	• Civil Society Organisations' Representatives
PLAi	The participation of PLAi's representatives will be fundamental because it will involve an exercise of self-reflection and will allow contrasting the institution's point of view from the inside with that of its external stakeholders.	• General Director • Director of Planning • Project Management and Evaluation Coordinator

Appendix B. Interview Guide

Participant code:	
Date of interview:	
Blocks	**Question guide**
Introduction	· Researcher presentation / brief explanation of the project
	· Signature of consent forms regarding the explicit use of their names and positions, quotes obtained from the interview, recording of the session, etc.
Interviewees information	· Could you please give me your name and position?
	· How much experience do you have in the sector you belong to?
Jalisco's strategic position	· To what factors do you attribute the fact that Jalisco has attracted transnational companies, especially those related to technology, for more than 60 years?
	· What characteristics differentiate what happens in Jalisco in relation to innovation and technology from other states in Mexico?
	· In your opinion, what is required for the innovation ecosystem in Jalisco to be sustainable?
PLAi's objetives	· In your opinion, what need did the creation of PLAi come to solve?
	· Could you share with me your experience as a witness/driver of the formation/development of the initiative?
	· What do you see as the main challenges for the region in terms of development?
	· Specifically on the issue of training, how can skills development contribute to these challenges?
Stakeholders' roles and interactions	· What role or functions do you consider the institution you represent plays within the skills ecosystem?
	· What inputs or resources do you consider the sector you represent offers to the skills ecosystem?
Skills governance / Mechanisms of cooperation	· What are the main actors you have had to coordinate with to foster skills development?
	· What are the most important coordination mechanisms for PLAi to achieve its objectives?
	· What areas of opportunity do you identify in the coordination of key actors and how could PLAi contribute to this?
	· How do you think PLAi can improve its collaboration strategies with the public, private and social sectors?
Conclusion	· Any concerns or comments about this research?
	· Acknowledgements and follow-up contact agreements
Observations:	

Appendix C. Photographic Evidence of the locations where some of the interviews were conducted

Ciudad Creativa Digital (CCD) Building Complex

México, Innovación y Diseño (MIND) Building

Coworking spaces at PLAi

Office at the Ministry of Innovation, Science and Technology (SICyT)

Appendix D. Extraction Framework for the Document Analysis (Sample)

Document Title	"INICIATIVA DE DECRETO QUE CREA EL ORGANISMO PÚBLICO DESCENTRALIZADO DENOMINADO PLATAFORMA ABIERTA PARA LA INNOVACIÓN Y DESARROLLO DE JALISCO Y EXPIDE SU LEY ORGÁNICA"
Type of document	Legislative proposal
Author	General secretary of the Government of Jalisco
Date of publication	October 30, 2019
References to Jalisco's innovation ecosystem	N/A
Problems to be faced by the policy	"el mercado laboral actual requiere cada vez más de nuevas competencias profesionales, algunas veces no ofertadas por la formación profesional existente, generando con ello un déficit de capital humano y una brecha entre la oferta educativa y la demanda laboral"
Objectives persued by PLAi	"ofrecer educación de calidad y contribuir a mejorar y acelerar la formación de recursos humanos mediante un modelo educativo innovador y flexible, de acuerdo a las necesidades de las diversas regiones y sectores económicos estratégicos del Estado, basada en diversos ambientes para el aprendiza¡e, apoyándose en las tecnologías de información y comunicación actuales y emergentes, incrementando la oferta educativa innovadora y abierta a esquemas de colaboración interinstitucional."
Policy's recognised target audience	general population
Types of skills considered	•professional skills •use and adoption of information and communication technologies •emerging technologies
Stakeholders involved	"Impulsar estrategias de participación y colaboración con los **sectores público, privado y social**, para proyectar sus actividades y servicios en los sectores estratégicos del Estado de Jalisco"
Role of stakeholders	N/A
Cooperation mechanisms	"Establecer **acciones de coordinación o convenios de vinculación** con otras instituciones, tanto nacionales como internacionales, con las que pueda ofrecer conjuntamente sus servicios educativos, generando para ello las condiciones de soporte tecnológico necesario"
Additional information	Document presented as a Law Bill to the Congress

Appendix E. Coding framework

Code	Definition
Context	General perceptions regarding economic, social, educational, and digital transformation dynamics.
Jalisco's ecosystem	Distinctive elements in Jalisco that have enabled the establishment of technology companies, the conditions for this to occur, and the state's position compared to other states or countries.
Objectives	Purposes of PLAi as a public policy for skills development within the Jalisco ecosystem.
Type of skills	Priority or necessary skills.
Social problems	Social issues that affect the state's development.
Target population	Population to which PLAi's actions are, or should be, directed.
Roles / Stakeholders	Inputs that are recognized as contributions from each stakeholder and from themselves.
Governance / Cooperation mechanisms	Cooperation mechanisms and perceptions of collaboration among actors.
Areas of improvement	Elements that have opportunities for improvement within PLAi or the skills ecosystem in Jalisco.

Appendix F. Informed consent

University of Glasgow | School of Education

Formulario de consentimiento (Spanish version)

Título del proyecto: Gobernanza Multisectorial para el Desarrollo de Competencias: Un Análisis de la Plataforma Abierta de Innovación y Desarrollo de Jalisco (PLAi)

Nombre de la investigadora: Natalia Acosta Ponce

Nombre del supervisor: Oscar Valiente

Marque la casilla que corresponda

Sí ☐ No ☐	Confirmo que he leído y comprendido la Hoja de información del participante del estudio mencionado y que he tenido la oportunidad de formular preguntas.
Sí ☐ No ☐	Entiendo que mi participación es voluntaria y que soy libre de retirarme en cualquier momento, sin dar ninguna razón.
Sí ☐ No ☐	Doy mi consentimiento para que las entrevistas sean grabadas en audio.
Sí ☐ No ☐	Reconozco que se devolverán copias de las transcripciones a los participantes para su verificación.
Sí ☐ No ☐	Reconozco que se hará referencia a los participantes mediante seudónimo.

Estoy de acuerdo en que:

Sí ☐ No ☐	Se anonimizarán todos los nombres y demás material susceptible de identificar a las personas.
Sí ☐ No ☐	El material se tratará de forma confidencial y se guardará de forma segura en todo momento.
Sí ☐ No ☐	El material se destruirá una vez finalizado el proyecto.
Sí ☐ No ☐	El material podrá utilizarse en futuras publicaciones, tanto impresas como en línea.
Sí ☐ No ☐	Renuncio a mis derechos de autor sobre cualquier dato recopilado como parte de este proyecto.
Sí ☐ No ☐	Reconozco que la confidencialidad puede ser imposible de garantizar.
Sí ☐ No ☐	Reconozco que se me ha facilitado un Aviso de Privacidad en relación con este proyecto de investigación.

Estoy de acuerdo en participar en este estudio de investigación ☐

No acepto participar en este estudio de investigación ☐

Nombre del participante .....

Firma ..... **Fecha** .....

Appendix G. Privacy Notice

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Aviso de privacidad (Spanish version)

Aviso de privacidad para la participación en el proyecto de investigación: «Gobernanza Multisectorial para el Desarrollo de Competencias: Un análisis de la Plataforma Abierta de Innovación y Desarrollo de Jalisco (PLAi)» realizado por Natalia Acosta Ponce.

Sus datos personales
La **Universidad de Glasgow** será lo que se conoce como «Responsable del Tratamiento» de sus datos personales tratados en relación con su participación en el proyecto de investigación «Gobernanza Multisectorial para el Desarrollo de Competencias: Un análisis de la Plataforma Abierta de Innovación y Desarrollo de Jalisco (PLAi)». Este aviso de privacidad le explicará cómo la Universidad de Glasgow tratará sus datos personales.

Por qué los necesitamos
Estamos recopilando datos personales básicos como su nombre y datos de contacto para llevar a cabo nuestra investigación. Necesitamos estos datos para concertar la hora y el lugar de las entrevistas y hacer un seguimiento de los resultados de la investigación.

Solo recogemos los datos que necesitamos para el proyecto de investigación. Su información personal será desidentificada y su participación será seudonimizada. La transcripción de las entrevistas se compartirá una vez procesada para que sea verificada o enmendar, de ser necesario.

Tenga en cuenta que puede resultar imposible garantizar su confidencialidad (por ejemplo, debido al tamaño del grupo de participantes, la ubicación, etc.).

Consulte la **Hoja de información del participante** adjunta.

Base jurídica para el tratamiento de sus datos
Debemos tener una base jurídica para procesar todos los datos personales. Dado que el tratamiento se realiza con fines de investigación académica, nos basaremos en la **Tarea de Interés Público** para procesar los datos personales básicos que nos proporcione. En cuanto a los datos de categorías especiales recogidos, los trataremos sobre la base de que son **necesarios para fines de archivo, investigación científica o histórica o fines estadísticos.**

Además, para cumplir con nuestras obligaciones éticas, le pediremos su **consentimiento** para participar en el estudio (véase el **Formulario de consentimiento** adjunto).

Qué hacemos con ellos y con quién los compartimos
Todos los datos personales que nos facilite serán tratados por: Natalia Acosta Ponce, estudiante de la Universidad de Glasgow en el Reino Unido. Además, existen medidas de seguridad para garantizar que sus datos personales permanezcan seguros: seudonimización y almacenamiento seguro de archivos y dispositivos protegido con contraseña. Consulte el **Formulario de consentimiento** y la **Hoja de información para el participante** que acompañan a este aviso.

Si lo solicita, le facilitaremos una copia de los resultados del estudio y detalles de cualquier publicación o producto posterior.

CoSS Privacy Notice/CREC/February 2020

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¿Cuáles son sus derechos?
El Reglamento General de Protección de Datos (GDPR) establece que las personas tienen ciertos derechos, entre ellos: solicitar acceso, copias y rectificación o supresión de datos personales y oponerse al tratamiento. Además, los interesados también pueden tener derecho a restringir el tratamiento de los datos personales y a la portabilidad de los datos. Puede solicitar acceso a la información que procesamos sobre usted en cualquier momento.

Si en algún momento cree que la información que procesamos sobre usted es incorrecta, puede solicitar verla y, en algunos casos, pedir que se restrinja, corrija o borre. También puede tener derecho a oponerse al tratamiento de sus datos y a la portabilidad de los mismos.

Tenga en cuenta que, dado que estamos procesando sus datos personales con fines de investigación, la capacidad de ejercer estos derechos puede variar, ya que existen exenciones de investigación potencialmente aplicables en virtud del GDPR y la Ley de Protección de Datos de 2018. Para obtener más información sobre estas exenciones, consulte UofG Investigación con categorías personales y especiales de datos.

Si desea ejercer alguno de estos derechos, envíe su solicitud a través del formulario web o póngase en contacto con dp@gla.ac.uk.

Quejas
Si desea presentar una queja sobre cómo hemos tratado sus datos personales, puede ponerse en contacto con el Responsable de Protección de Datos de la Universidad, que investigará el asunto. Puede ponerse en contacto con nuestro responsable de protección de datos en dataprotectionofficer@glasgow.ac.uk.

Si no está satisfecho con nuestra respuesta o cree que no estamos tratando sus datos personales de acuerdo con la ley, puede presentar una queja a la Oficina del Comisario de Información (ICO) https://ico.org.uk/.

¿Quién ha revisado éticamente el proyecto?
Este proyecto ha sido éticamente aprobado por el Comité de Ética de la Facultad de Educación de la Universidad de Glasgow.

¿Durante cuánto tiempo los conservamos?
Sus datos **personales** serán conservados por la Universidad sólo durante el tiempo necesario para su tratamiento y no más allá del periodo de aprobación ética (01/12/2025). Transcurrido este plazo, los datos personales se eliminarán de forma segura.

Sus datos de **investigación** se conservarán durante un periodo de diez años de acuerdo con las directrices de la Universidad de Glasgow. En la hoja de información del participante y en el formulario de consentimiento que se adjuntan a este aviso se ofrecen detalles específicos en relación con el almacenamiento de los datos de investigación.

Appendix H. Participants Information Sheet

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Hoja de información del participante

Título del proyecto y datos del investigador

Gobernanza Multisectorial para el Desarrollo de Competencias: Un Análisis de la Plataforma Abierta de Innovación y Desarrollo de Jalisco (PLAi)

Investigadora: Natalia Acosta Ponce

Supervisor: Oscar Valiente

Curso: Tesis de Maestría (GLOBED)

Se le invita a participar en un proyecto de investigación sobre políticas de desarrollo de competencias y mecanismos de gobernanza.

Antes de decidir si desea participar, es importante que entienda por qué se está llevando a cabo la investigación y en qué consistirá. Tómese su tiempo para leer detenidamente la información de esta página y, si lo desea, coméntelo con otras personas. Pregúnteme si hay algo que no esté claro o si desea más información.

Espero que esta hoja responda a todas sus preguntas sobre el estudio.

1. ¿Cuál es el objetivo del estudio?

El propósito de este estudio es conocer las prácticas de gobernanza de competencias como estrategia de política pública educativa para responder a las demandas del sector productivo, con especial enfoque en el ámbito tecnológico.

2. ¿Por qué he sido elegido(a)?

Se le ha pedido que participe porque ha participado en la creación o desarrollo de PLAi y forma parte de alguna de las cuatro hélices de la innovación (gobierno, academia, industria o sociedad civil).

3. ¿Es obligatorio participar?

No está obligado(a) a participar en este estudio. Si decide no participar, seguirá exactamente igual que hasta ahora. Si, después de haber empezado a participar, cambia de opinión, hágamelo saber y no utilizaré en mi escrito ninguna información que me haya proporcionado.

4. ¿Qué pasará conmigo si participo?

Si participa le haré algunas preguntas sobre lo que piensa del ecosistema de innovación en Jalisco, las dinámicas en torno al desarrollo de competencias, la gobernanza de competencias y el papel de PLAi en lo anterior. No tiene que contestar ninguna pregunta que no quiera. Esto tomará entre 30 y 60 minutos, según su disponibilidad. Grabaré las respuestas en una grabadora de voz para poder escuchar después con atención lo que se ha dicho.

Terminaré de recopilar datos en febrero de 2025.

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5. ¿La información que le proporcione en este estudio será confidencial?

Los datos proporcionados serán desidentificados, lo que significa que eliminaré todos los identificadores directos del estudio, utilizaré un código para referirme a esta entrevista y emplearé un seudónimo en la versión final de la tesis o en publicaciones posteriores. Conservaré todos los datos que recopile sobre la entrevista en un archivero cerrado con llave y, posteriormente, en un espacio de almacenamiento digital seguro administrado por la Universidad de Glasgow, protegido con contraseña, y destruiré estos datos al final del proyecto.

6. ¿Qué pasará con los resultados de este estudio?

Analizaré los datos que recoja de los participantes y los presentaré en la disertación que estoy escribiendo para mi titulación, Máster Internacional en Políticas Educativas para el Desarrollo Global. Todos los participantes recibirán un resumen escrito de los resultados, o el texto completo (si lo solicitan), y también presentaré la información a mis colegas.

7. ¿Quién ha revisado el estudio?

Este estudio ha sido revisado y aprobado por el Comité de Ética de la Facultad de Educación de la Universidad de Glasgow.

8. ¿Con quién puedo ponerme en contacto para obtener más información?

Si tiene alguna duda sobre este estudio, puede preguntarme a mí, Natalia Acosta Ponce (2984997A@student.gla.ac.uk);

o a mi supervisor, Oscar Valiente (oscar.valiente@glasgow.ac.uk);

o al Comité Ético de Investigación de la Facultad de Educación (education-ethics@glasgow.ac.uk).

Gracias por leer este documento.