



- ▶ **Vulnerable youth, digital skills and vocational training in Latin America**

Vulnerable youth, digital skills and vocational training in Latin America

© International Labour Organization 2024

First published in Spanish in 2023



Attribution 4.0 International (CC BY 4.0)

This work is licensed under the Creative Commons Attribution 4.0 International. To view a copy of this licence, please visit <https://creativecommons.org/licenses/by/4.0/>. The user is allowed to reuse, share (copy and redistribute), adapt (remix, transform and build upon the original work) as detailed in the licence. The user must clearly credit the ILO as the source of the material and indicate if changes were made to the original content. Use of the emblem, name and logo of the ILO is not permitted in connection with translations, adaptations or other derivative works.

Vulnerable youth, digital skills and vocational training in Latin America, Geneva: International Labour Office, 2024 © ILO.

This is a translation of a copyrighted work of the International Labour Organization (ILO). This translation has not been prepared, reviewed or endorsed by the ILO and should not be considered an official ILO translation. The ILO disclaims all responsibility for its content and accuracy. Responsibility rests solely with the author(s) of the translation.

This Creative Commons licence does not apply to non-ILO copyright materials included in this publication. If the material is attributed to a third party, the user of such material is solely responsible for clearing the rights with the rights holder and for any claims of infringement. Any dispute arising under this licence that cannot be settled amicably shall be referred to arbitration in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL). The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of such a dispute. Queries on rights and licensing should be addressed to the ILO Publishing Unit (Rights and Licensing) at rights@ilo.org. Information on ILO publications and digital products can be found at: www.ilo.org/publns.

Vulnerable youth, digital skills and vocational training in Latin America

ISBN: 9789220402955 (print)

ISBN: 9789220402962 (web PDF)

Also available in Spanish:

Juventudes vulnerables, competencias digitales y formación profesional en América Latina

ISBN: 978-92-2-038645-3 (print)

ISBN: 978-92-2-038646-0 (web PDF)

The designations employed in ILO publications and databases, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the ILO concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The opinions and views expressed in this publication are those of the author(s) and do not necessarily reflect the opinions, views or policies of the ILO. Reference to names of firms and commercial products and processes does not imply their endorsement by the ILO, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

Table of Contents

Foreword	5
Executive Summary	9
Introduction	14
1. Young people, work, education and vocational training in the current context of Latin America and the Caribbean	17
2. Young people, the labour market and digital skills	20
2.1 Vocational Training Systems and their role in adapting skills to the labour market	22
2.2 Young people: transitions, trajectories and vulnerability	24
2.3 Digital divides, digital skills and transversal skills	27
3. The mismatch between digital skills training and vulnerable young people	33
3.1 Challenges in reaching the target population	35
3.1.1. Difficulties in recruitment	36
3.1.2. Barriers to entry	37
3.1.3. Challenges to ensure continuity	39
3.2. Institutional capacities of vocational training systems	41
3.2.1. Training offer provision model	41
3.2.2. Integration of vulnerable sectors as a legal, political or technical institutional mandate	43
3.2.3. Anticipation of demands and inter-institutional articulation	44
3.2.4. Difficulties in the adoption of reference frameworks for digital skills	46
3.2.5. Teacher training	49
4. Recommendations	51
Bibliography	57
5. Annexes	64
Annex I. Methodological Strategy	64
Annex II. Interview guideline: blocks of information	65
Annex III. Itinerary of interviews and qualified informants	67

Foreword

Labour markets in Latin America and the Caribbean have been recovering from the severe impact of the crisis unleashed by the COVID-19 pandemic. However, the situation is still fraught with uncertainty in a context of slow economic recovery and compounding crises.

In recent months, young women and men have experienced a faster recovery in employment supply than adults, but conditions of labour and social vulnerability continue to prevail. As the *Labour Overview 2022: Latin America and the Caribbean*¹ points out, structural deficits in decent work persist, expressed in higher levels of unemployment, lower labour force participation and employment rates than the adult population, and precarious labour market conditions with high rates of informality, which particularly affects vulnerable young people.

It is important to note the persistence (and, in some countries, increase) of large numbers of young people, particularly young women, who have no access to job, education, or training opportunities.

The theme of this publication is timely in that the pandemic has accelerated some processes of change in the labour market, as has been the case with digitisation. This implies that there are challenges and opportunities to match the potential for new job creation with a demand for more knowledge-intensive skills.

The debate on digital skills, the digitisation of vocational education and training, and the digital transformation of both work and training is at the core of national and international agendas concerning the world of work and training. Much hope is pinned on the effects of digital skills development in terms of increasing employability and retention in the labour market.

This document is part of the research agendas of both the ILO Regional Office and ILO/Cinterfor on digital skills, vocational training and the labour market integration of young people, particularly those in vulnerable conditions. It aims to contribute to generating knowledge and practical inputs for reflection and action on the design of training policies so that young people can access labour markets in which these digital skills are increasingly relevant with greater chances of success.

The fieldwork of this study focused on analysing the experiences of six institutions that make up the ILO/Cinterfor network of vocational training institutions in Latin America and the Caribbean: the Paula Souza Centre (CPS) in Brazil; the National Training and Employment Service (SENCE) in Chile; the National Learning Service (SENA) in Colombia; the Technical Institute for Training and Productivity (INTECAP) in Guatemala; the National Institute for Technical Vocational Training (INFOTEP) in the Dominican Republic; and the National Institute for Employment and Vocational Training (INEFOP) in Uruguay.

The publication features empirical findings and theoretical reflections, as well as recommendations for public policy on vocational training and labour markets. It also outlines initiatives for institutional strengthening of skills providers in the region.

¹ ILO, *Labour Overview 2022: Latin America and the Caribbean*.

We are convinced that this document will be a valuable contribution to the discussion of this topic in the region and provide useful guidelines for decision-makers in the institutions tasked with providing much needed quality vocational training for young people in the region, particularly those in vulnerable conditions.

Claudia Coenjaerts

Regional Director a.i. of the ILO Office for Latin America and the Caribbean

Anne Caroline Posthuma

ILO/Cinterfor Director



Executive Summary

The crisis unleashed in the aftermath of the COVID-19 pandemic generated profound economic and social consequences. Latin America and the Caribbean was one of the worst affected regions (ECLAC 2021a), particularly in terms of job losses and decreasing incomes (ILO 2020a, 21). While young people returned to employment faster than adults during the recovery phase (Maurizio 2022; ILO 2022), structural deficits in youth employment persist. Young people in the region have consistently (and for decades) shown higher rates of informality and lower rates of employment and labour force participation, accentuated by persistent gender, socio-economic, territorial and ethnic-racial inequalities (ILO 2020b)^{2 3}.

In this context, the development of digital skills training policies is expected to be a useful tool to provide answers to some issues pertaining to youth employment through:

- a. promoting integration trajectories for young people in dynamic sectors of the economy, specifically in sectors that use new technologies in production processes that require digital skills (which would be associated with a better quality of employment (ECLAC 2021d));
- b. strengthening the capacity to adapt to change of those currently employed in the less dynamic sectors of the economy, in the informal sector, and in jobs with a higher risk of automation and/or requiring the updating of digital skills (a population that can be considered vulnerable from the point of view of their employment situation);
- c. improving the employability of young people who are unemployed or not participating in the labour market (especially the most vulnerable population in socio-economic terms).

This document aims to contribute to the generation of knowledge and practical inputs for the design of training policies so that young people (particularly those in vulnerable situations) can successfully enter a labour market in which digital skills are increasingly relevant in all sectors, and ideally also enter more dynamic sectors of the economy, where digital skills are already key to employability.

The empirical part of the research focused on the analysis of the experiences of six institutions that make up the ILO/Cinterfor network in Latin America and the Caribbean: the Paula Souza Centre (CPS) in Brazil; the National Training and Employment Service (SENCE) in Chile; the National Learning Service (SENA) in Colombia; the Technical Institute for Training and Productivity (INTECAP) in Guatemala; the National Institute for Technical Vocational Training (INFOTEP) in the Dominican Republic; and the National Institute for Employment and Vocational Training (INEFOP) in Uruguay.

² IDB, *Statistics Portal of the Information Centre for the Improvement of Learning (CIMA)*.

³ CIMA/IDB, calculations based on Harmonized Household Surveys, methodology available in the Harmonized Indicators Manual. Note: Latin America and the Caribbean (LAC), simple average calculated based on the latest available data for each country since 2006. Database accessed on 17 September 2021. Available at: <https://cima.iadb.org/es/regional-overview/coverage/neet>

Main findings

The main finding of the research is that there is a significant mismatch between the offer of training on digital skills and the outreach towards young people in vulnerable situations who may benefit from these offers. The region's technical, vocational and educational training (TVET) systems are increasingly incorporating digital skills into their training proposals. Access and enrolment of vulnerable populations has also increased. However, both processes seem to be running in parallel, with little interconnection.

The theoretical argument, which combines the active labour market policy (ALMP) literature with the sociological approach to transitions, argues that TVET systems can be understood as one of the institutional structures through which the transition processes of young people into the world of work are channelled. Indeed, matching TVET offering to the characteristics demanded by the labour market can play an important role in improving the labour market transitions of young people. In the case of the most vulnerable young people, whose transitions are marked by complexity and non-linearity, this role is even more relevant.

Although the mismatch between digital skills training and vulnerable young people's participation in it can be explained by several factors, including structural ones associated with persistent social inequality in Latin America and the Caribbean, this study identifies two types of mechanisms linked to the functioning of TVET systems. The first is related to targeting problems in the population of vulnerable youth. The second is related to the institutional characteristics and mechanisms that guide vocational training in vocational training institutions (TVET).

1. Challenges in reaching the target population

When adapting TVET centres offering to the needs of young people in vulnerable situations, as well as to the requirements of the labour market, certain imbalances can be observed. The main consequence is that many young people fail to succeed in vocational training aimed at developing digital skills. From the fieldwork, there are three main challenges identified in terms of the training offer: *a)* difficulties in recruitment, *b)* barriers to entry and *c)* weaknesses in ensuring continuity.

These challenges are as obstacles at different points of an ideal training path. Difficulties in recruitment cause institutions to fail to connect with the most vulnerable populations. Barriers to entry are obstacles for those who, although they are aware of the educational offer, cannot access it for various reasons. Gaps in ensuring continuity cause a large part of the vulnerable population that can access training to have difficulties in sustaining and completing their training. Furthermore, a gap exists between the sense of urgency that overwhelms people in vulnerable socio-economic situations, and the non-immediate promise of better labour market integration in the future.

A joint view of these three challenges resembles a process of exclusion in stages, in each of which the most vulnerable populations might be left out, particularly those most distant and disconnected from the education system and the labour market. It should be noted that the mechanisms do not derive from decisions taken with the explicit objective of excluding the most vulnerable population but are, to a large extent, unintended results of limited resource allocation processes.

In short, the challenges of focusing on the needs of the most vulnerable sectors of the population are linked to training capacity issues. If the demand for training exceeds the capacities to meet it (not only through quotas, but also as the methodological and conceptual dimensions required to cater to these populations), the institutions have no incentive to try to attract students who are further away from the system with proximity strategies (difficulties in recruitment). Rather, the opposite happens: incentives are generated to establish selection mechanisms (barriers to entry). Likewise, the shortage of quotas in the most sought-after training programmes may discourage the establishment of strategies to protect trajectories, transferring this responsibility to the student body (difficulties in ensuring continuity).

2. Institutional capacities of vocational training systems

The second set of findings related to the mismatch between young people in situations of socio-economic vulnerability and vocational training in digital skills refers to a set of factors related to the institutional characteristics of TVET systems:

- a. the frameworks to manage and define the training offer, and the selection of participants:** to successfully match the available training with inclusive access by vulnerable young people, it would appear that the institutional capacities to decide on the design of the curricular proposals, the requirements of the selective processes and the development of support and levelling-up strategies are more important than the model for providing the training offer. What is seen as key to the inclusion of vulnerable young people are unified digital skills frameworks across TVET centres and, with this, of training paths in digital skills that are comprehensive from the basic levels of training to the most advanced.
- b. institutional mandates:** the absence or weakness of institutional mandates to include vulnerable youth as part of the target population may discourage TVET actors from deploying strategies to include them. When inclusion mandates are weakly delimited, the perceived sense of “developing social policies” puts a strain on the institutional mandate to provide training for the labour market.
- c. strategies to anticipate training demands and inter-institutional articulation:** all the institutions analysed develop strategies to identify the demands of the labour market and express them in their training offer. However, in general, training demands fail to address the vulnerability perspective. In many cases, this perspective is promoted by institutional actors specialised in social policy who form alliances with TVET systems. The result of this lack of vulnerability-targeted strategies is a training offer focused largely on traditional trades, of short duration and with little demand for digital skills.
- d. the existence of digital skills frameworks:** while training proposals linked to information and communication technologies (ICT) have increased in recent years, not all institutions have approved digital skills frameworks. Where they do exist, their content varies from very operational models to those that reflect more holistic and systemic visions that integrate, for example, 21st century skills. Although frameworks facilitate the inclusion of digital skills, their existence does not necessarily ensure their mainstreaming into all training provision. Even in those institutions where digital skills are mainstreamed, the training offered to vulnerable sectors is primarily targeted and tailored to them and the curricula do not generally include either digital or 21st century skills.
- e. teacher training:** the study revealed challenges associated with teacher training and continuous upskilling and incorporating vulnerability as an integral facet of the actions of TVET centres: a) transcending teaching confined to the classroom by strengthening new pedagogical figures (socio-educational facilitators, classroom facilitators, coordinators, among other possible roles) to encourage the development of levelling-up and retention strategies; b) mainstreaming the training offer based on the national frameworks of digital skills and abilities, and connecting this type of content with the offer focused on vulnerable youth.

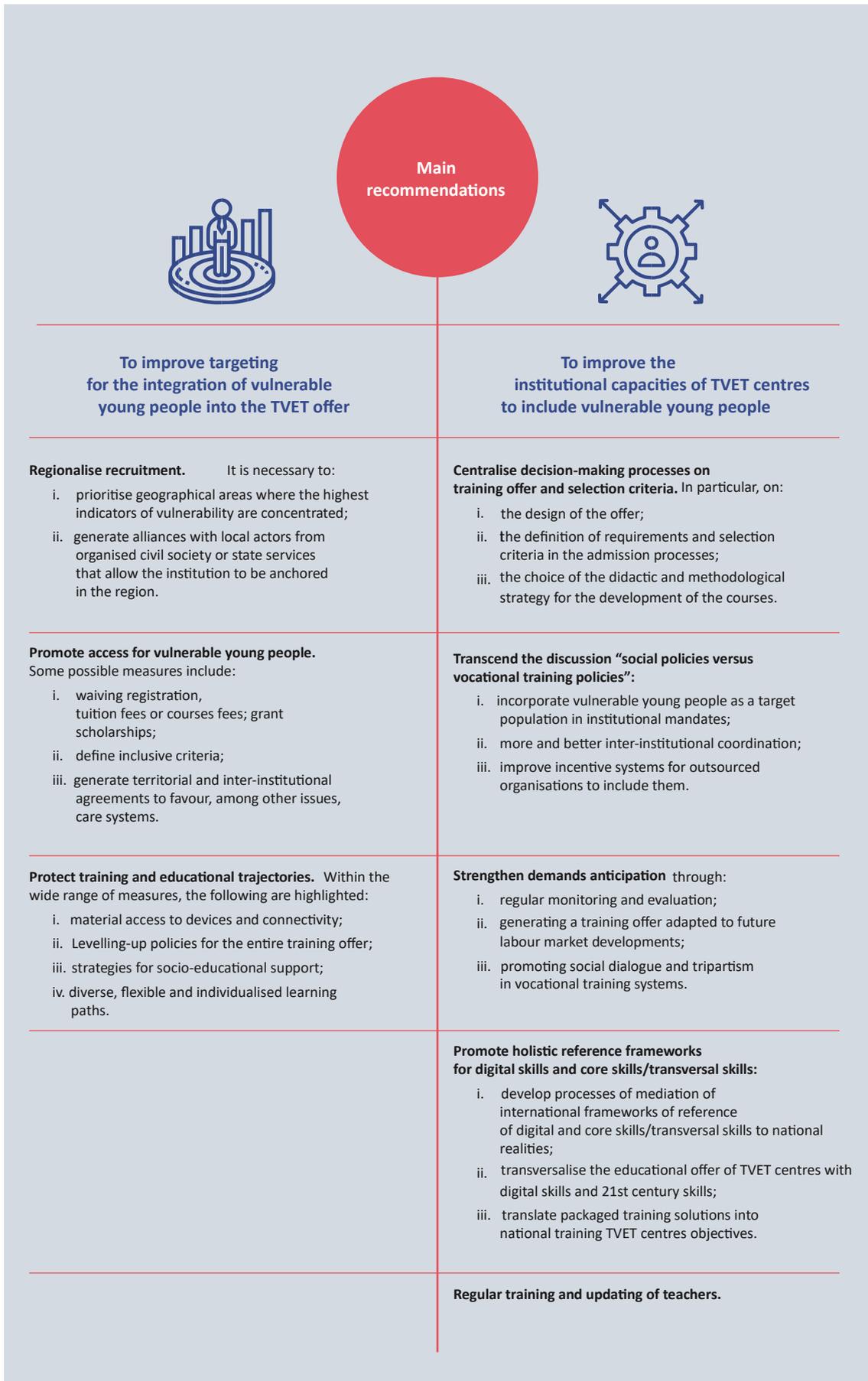
Lessons learned and recommendations

Successfully channelling digital skills training to improve the employability of vulnerable young people requires more inclusive institutions. Beyond the difficulties, there are two good reasons to be hopeful that the problems of reaching the most vulnerable population can be overcome. The first relates to the good practices and numerous positive experiences developed by the TVET centres analysed. The second stems

from the fact that, in Latin America and the Caribbean, despite the historical weaknesses of their welfare architectures, education systems (at least at the primary and secondary levels) have a long history of targeting based on a universal framework.

If the objective is to integrate the most vulnerable sectors, the challenge seems to centre on developing targeted strategies that channel resources towards the most vulnerable, but with the aim of including them in universal-based models, guaranteeing their access to quality education.

A set of recommendations is proposed below, with TVET systems in mind, in line with the problems identified, to serve as inputs for developing capacities and strategies to improve recruitment, reduce entry barriers, and strengthen the education and training pathways for the most vulnerable young people.



Introduction

This document aims to contribute to creating knowledge and practical inputs to generate training policies that enable young people (particularly those in situations of socio-economic vulnerability) to successfully enter a labour market in which digital skills are increasingly fundamental in all sectors, and ideally also enter more dynamic sectors of the economy where digital skills are already key to employability.

The context of the research lies at the intersection between the themes of labour market policies for youth, digital skills and vocational training. It articulates with action-research efforts that the ILO Regional Office for Latin America and the Caribbean and ILO/Cinterfor are already developing on youth and digital skills and transformation of vocational training institutions (TVET). It therefore aims to contribute to the development of the ILO's institutional agenda.

Given the broad scope of the topics studied, it was necessary to narrow down and focus on TVET and young people in situations of socio-economic vulnerability to address the challenges for promoting integration in the world of work, where the potential of digital skills is key⁴.

The document aims to offer a regional overview of the research theme based on the analysis of six institutions that make up the ILO/Cinterfor network in Latin America and the Caribbean: the Paula Souza Centre (CPS) in Brazil; the National Training and Employment Service (SENCE) in Chile; the National Learning Service (SENA) in Colombia; the Technical Institute for Training and Productivity (INTECAP) in Guatemala; the National Institute for Technical Vocational Training (INFOTEP) in the Dominican Republic; and the National Institute for Employment and Vocational Training (INEFOP) in Uruguay⁵.

The research methodology, which focused on the training offer, comprised the following: review of literature and documents; interviews with qualified informants from the institutions analysed; survey of statistical information in data repositories on socio-economic conditions, education, labour market and information and communication technologies in Latin America and the Caribbean; and exchanges with specialists from the ILO Regional Office for Latin America and the Caribbean and ILO/Cinterfor.

The main finding of the research is that there is a significant mismatch between the training offer in digital skills and vulnerable young people. Even if the region's technical, vocational education and training (TVET) systems are increasingly incorporating digital skills into their training programmes and broadening their reach to vulnerable populations, the two processes seem to be running in parallel, with few interconnections. Although this situation can be explained by several factors, including structural factors associated with persistent social inequality in Latin America and the Caribbean, two types of challenges linked to the functioning of these systems are identified: *a*) challenges in targeting vulnerable populations and *b*) weaknesses in institutional capacities to promote the successful integration of this population into training processes.

⁴ The survey was conducted based on semi-structured interviews with qualified informants from a set of selected TVET centres. Therefore, it is not possible to extend the conclusions to all countries in the region or to national training systems as a whole. Readers are encouraged to review the methodological annex for more details on the characteristics of the fieldwork.

⁵ In the latter case, interviews were also carried out in order to survey the experiences of the Ceibal Plan (in its role as an organisation whose mandate includes the promotion of digital skills among Uruguayan students) and the Technological University of Uruguay (UTEU) as a public tertiary-university education organisation specialising in technology-mediated training.

The document is organised into four sections. Chapter 1 provides background information on young people, labour market integration and education. Chapter 2 develops the conceptual framework focusing on the relationship between young people, the labour market, TVET systems and digital skills. In particular, the chapter addresses the role of TVET systems in matching skills to the labour market, also emphasising the transitions from school to work and the relevance of digital skills among young people in the region. Chapter 3 summarises the findings of the research, organised into two main sets of challenges: *a)* those related to targeting and *b)* those related to institutional capacities to foster contact between vulnerable young people and the supply of digital skills training. It also highlights good practices that were identified from the experiences of the six TVET centres that contributed their time, information and experiences to this work. Finally, Chapter 4 sets out the main recommendations.





1

Young people, work, education and vocational training in the current context of Latin America and the Caribbean

The crisis sparked by the COVID-19 pandemic resulted in profound economic and social consequences, despite the extraordinary efforts made by the different governments to curb it. Latin America and the Caribbean was one of the worst affected regions (ECLAC 2021a). In 2020, the region's GDP contracted by about 8 per cent compared to 2019, generating an unprecedented impact on the world of work in terms of job losses, business failures and falling incomes (ILO 2020a, 21).

In 2020, youth labour market participation and employment rates fell by about 5.5 percentage points to 42.7 per cent and 33.0 per cent respectively (ILO 2020a, 11). The youth unemployment rate increased by 2.7 percentage points in that year, reaching 23.2 per cent, meaning that approximately one in four young people participating in the labour market in Latin America and the Caribbean were unemployed (ILO 2020a, 11). In the same period, the population aged 25 and over had a participation rate of 62.2 per cent, an employment rate of 57 per cent and an unemployment rate of 8.5 per cent (ILO 2020a, 131-151). Tourism, retail and services, which were the sectors most affected by the crisis, accounted for an estimated 40 per cent of youth employment in the pandemic period (ILO 2021a).

During the recovery phase, young people returned to employment faster than adults (Maurizio 2022; ILO 2022). In the first quarter of 2022, while the regional youth employment rate was already 2.5 per cent higher than in the first quarter of 2019, in the adult population it was still 2 per cent lower than in the same period (Maurizio 2022, 44). The regional youth unemployment rate has also returned to pre-pandemic values, having fallen by 2.8 percentage points between the first quarter of 2019 and the same period in 2022 (Maurizio 2022, 45).

However, structural deficits in youth employment persist. For decades, young people in the region have consistently had lower employment and participation rates and higher rates of unemployment and informality. In the aftermath of the pandemic, this situation does not seem to be changing. In the fourth quarter of 2021, the regional informality rate (in 11 countries) among young people was 63 per cent, while that of adults was 47.6 per cent (Maurizio 2022, 45). In the first quarter of 2022, the regional youth employment rate (considering ten countries) was 41 per cent, while that of adults was 61.7 per cent (Maurizio 2022, 46). These figures must be analysed in the context of an overall economic participation rate of the population that, in most countries in the region, has not yet recovered to pre-pandemic levels of activity. There is therefore a latent risk that the unemployment rate will increase in the near future (Maurizio 2022, 23).

The downward trend in youth participation rates is partly related to a positive fact, which is the sustained increase in secondary and higher education attendance (ILO 2020a), even though there is still a significant gap and sectors that do not attend (IIEPUNESCO, CLADE and OXFAM 2021). Beyond the positive aspects of the growth in secondary education attendance, the region is still far behind the most developed countries in terms of education quality (PISA, 2018).

There is still a significant number of young people disengaged from the education system who are not participating in the labour market (ILO 2020b). According to ILO estimates for the year 2021, the rate of young people not in employment, education or training in Latin America and the Caribbean would stand at 21.8 per cent (ILO 2020b, 157). This average belies a pronounced gender inequality, as the estimated

number of young women in this situation is 29.0 per cent, while the rate is 14.7 per cent for young men (ILO 2020b, 157). Furthermore, according to data from the CIMA repository of the Inter-American Development Bank (IDB)⁶, in 2018, 24.5 percent of young people in quintile 1 (lowest income quintile) in Latin America and the Caribbean were neither studying nor working, while in quintile 5 (highest income quintile) this figure was only 7.8 percent⁷.

Significant gaps in terms of gender and socio-economic status⁸ warn of the uncritical use of the category “NEET” (neither in Employment, Education, or Training) to refer to the situation of some groups of young people in Latin America and the Caribbean without examining the underlying causes and contexts.

This is especially relevant when considering young women of low socio-economic status, whose childbearing and teenage pregnancy rates are comparatively high (Figueira, Martínez and Rossel 2016). Gender inequality in the distribution of unpaid work time and deficits in the socially organised caregiving in the region (Scuro and Vaca-Trigo 2017) explain to a large extent the gaps in labour market participation and in the proportion of young people not in employment, education or training. The caregiving burden stress generated by the COVID-19 pandemic— due to the closure of schools and care centres, and the need to maximise health care and personal hygiene— exacerbated a situation that was already particularly disadvantageous for women (ECLAC 2021a, 2021b). This is probably one of the most relevant factors in explaining why the female labour participation rate fell by 3 percentage points more than that of men during the first year of the pandemic (ILO 2020c)⁹. This marked gender bias, resulting from the combined effect of changes in the employment market, declining incomes and increased household and care work, is a consequence not noted in previous crises (ILO 2021a).

It seems apparent that the “NEET” category encompasses a wide range of situations of young people excluded from the education system in any of its form: young people dedicated exclusively to domestic tasks (most of them women), young people in search of employment and young people discouraged after unsuccessful job searches (Brunini *et al.* 2010; Filardo 2010). The policy solutions for achieving the labour market integration of these young people are not homogeneous and include, among other aspects, the need to bolster education systems, strengthen labour intermediation and information mechanisms, and develop systems for organised social caregiving (Amarante *et al.* 2011).

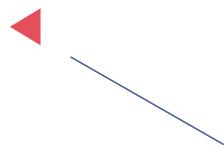
This context raises both challenges and opportunities for TVET systems. Vocational training can play an important role as a bridge to favour improved labour market integration of the most vulnerable young people who are currently disengaged from the education system and the labour market. Certain theoretical developments, based on European cases, highlight the idea of an active social policy, enabling some traditional elements of vocational training to be linked with a broad view of social policy (Bonoli 2013). This does not imply that it should be that it should be geared solely towards caring for the vulnerable population, but rather the possibility of reinforcing the way in which the institutions that make up the social protection framework of states can complement each other.

⁶ Statistics Portal of the Information Centre for the Improvement of Learning (CIMA)– IDB.

⁷ CIMA/IDB, calculations based on Harmonized Household Surveys, methodology available in the Harmonized Indicators Manual. Note: Latin America and the Caribbean (LAC), simple average calculated based on the latest available data for each country since 2006. Database accessed on 17 September 2021. Available at: <https://cima.iadb.org/es/regional-overview/coverage/neet>

⁸ To this must be added inequalities in terms of ethno-racial descent and geographical area, among others.

⁹ The employment rate for women remains 7 per cent lower in 2021 than in 2019, while for men it is 3.5 per cent (ILO 2022).





Young people, the labour market and digital skills

The fast-paced development and use of information technologies in the digital age permeates all dimensions of social life, especially the world of work and education systems. While it is often pointed out that the young population has greater digital skills (OECD 2019; ECLAC and IEO 2020), the challenges of integrating young people into the labour market continue to be a structural feature practically worldwide, and this is particularly true in Latin American and Caribbean countries, as noted in the previous section. Moreover, the COVID-19 pandemic precipitated pre-existing trends and resulted in exponential growth in the uptake of technologies in work processes.

In this context, the development of digital skills training policies is envisaged to become a particularly useful tool to answer certain youth employment problems by:

- a. promoting youth employment integration trajectories in dynamic sectors of the economy, specifically those that use new technologies in production processes that require digital skills, associated with a better quality of employment (ECLAC 2021d);
- b. strengthening the adaptability to changes of those currently employed in the less dynamic sectors of the economy, in the informal sector, and in jobs with a higher risk of automation and/or requiring digital skills updated; a population considered potentially vulnerable in terms of their employment situation;
- c. improving the employability of young people who are unemployed or not participating in the labour market (especially the most vulnerable population in socio-economic terms).

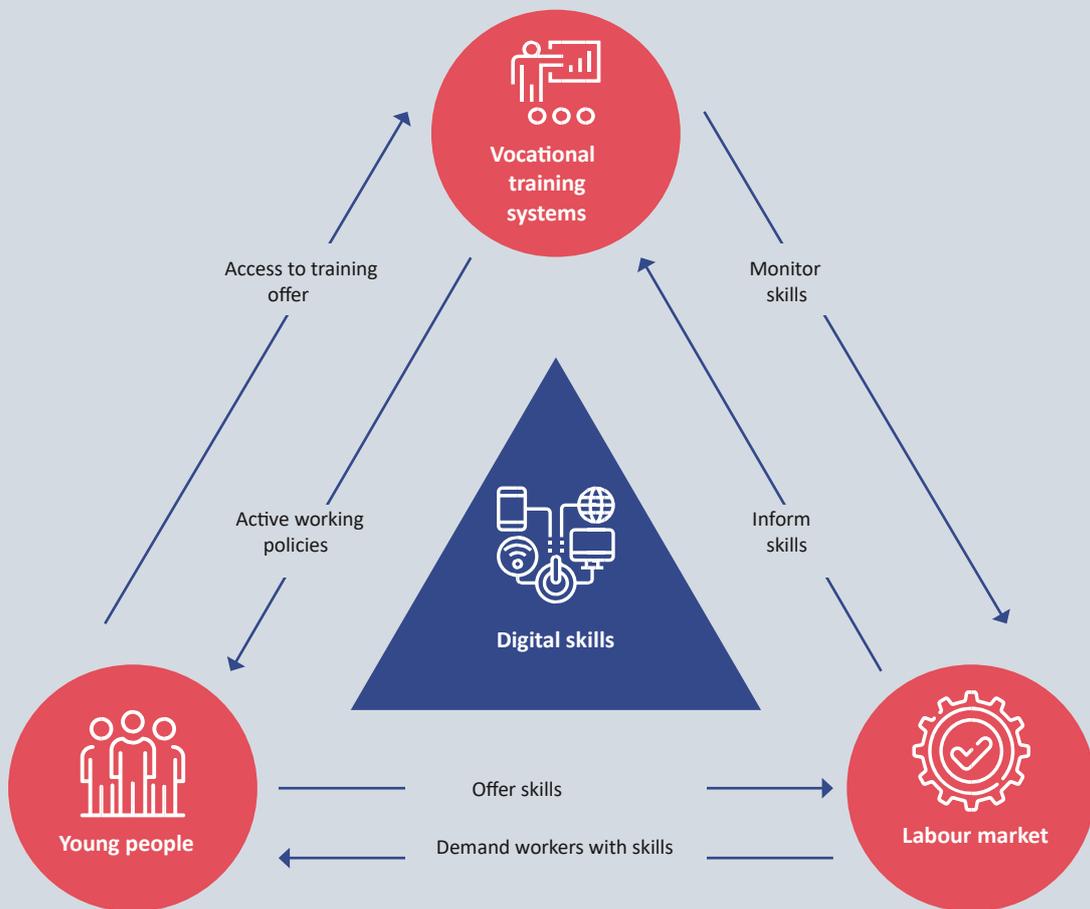
Successful trajectories of young people who are trained in digital skills and enter the labour market has been found in several studies (World Bank 2020). This confirms the relevance of the role of matching labour demand and labour supply that institutions can potentially develop through the courses and training offered¹⁰.

One of the main questions of this study is how TVET systems manage and coordinate their matching function to foster successful training and labour market integration trajectories, in particular for young people in situations of socio-economic vulnerability, and what role digital skills training plays in these processes.

This study sets out to explore some of these potentialities based on a conceptual triangle of the relationships between young people, the labour market and TVET systems, articulated around the role of digital skills (Figure 1).

¹⁰ TVET centres are not the only institutions that fulfil this labour demand-supply matching function. Education systems, public employment services and private organisations, among others, also do so.

Figure 1. Conceptual scheme



Source: : Prepared by the author.

2.1. Vocational Training Systems and their role in adapting skills to the labour market

Based on the understanding that education, training and lifelong learning are fundamental according to international standards, particularly in terms of human rights, TVET systems aim to draw up and implement active policies to guarantee them so as to promote and strengthen 'the employability of individuals (ILO 2005).

Therefore, vocational training is considered one of the links between “productive development policies (PDPs), labour policies and aspirations for decent work” (ILO-CINTERFOR 2017, 14). For this reason, TVET systems are relevant actors in the framework of active labour market policies (ALMPs).

One of the relevant functions of ALMPs is to act as a matching structure¹¹ between supply and demand in the labour market. This function entails intervening in labour supply and demand so as to align them and avoid mismatches between them¹². These policies help match supply and demand (e.g., by assisting in job searches, by profiling or by providing information), influence supply (e.g., by providing training or upskilling), create demand (e.g., by supporting the creation of micro-enterprises) or change demand structure to favour disadvantaged groups (e.g., through subsidies) (Auer, Efendioğlu and Leschke 2005, 13-14).

ALMPs are playing an increasingly important role in Latin America in addressing labour market challenges, with the aim of directly or indirectly improving the quantity and quality of employment. In the region, these policies have been geared towards a wide range of diverse goals, including increasing employment, fostering equity by increasing the employability of vulnerable groups, promoting labour mobility and quality jobs, and reducing poverty (ILO 2016). One of the main tools for achieving some of these objectives has been training¹³.

Both in Latin America and in Europe, ALMPs generally comprise programmes that target fairly well-defined social groups: *a)* unemployed people; *b)* people who are employed but have a known risk of involuntary job loss; and *c)* people outside the labour force but who are willing to work (OECD 2021).

By interrelating each of the components, a dynamic interpretation of the possible interactions can be seen in the proposed conceptual scheme..

As shown on the left side of Figure 1, TVET systems seek to guide the training of young people to act as a nexus of supply and demand between this group and the labour market. In particular, some aspects, such as the TVET systems' ability to define the content of the training offer and the entry requirements for training, are very relevant in order to have an impact on young people's job training.

¹¹ References to this function can be found in Auer, Efendioğlu and Leschke (2005, 15). This function refers to both active and passive labour market policies and their delivery institutions (both public and private employment services, training institutions, municipalities, non-governmental organisations [NGOs] and even private enterprises), whose main task is to match supply and demand in labour markets. Information systems are also part of the set of institutions that fulfil this function.

¹² For example, when companies offer jobs with training requirements that are too demanding or non-existent in relation to supply, or when individuals seek work in occupations where there is no demand for jobs.

¹³ Labour market policies can be classified as passive and active. Passive policies seek to provide income during the job searching or unemployment period. Active policies refer to actions that seek to integrate individuals into the labour market by acting on the demand or supply side of the labour market (Auer, Efendioğlu and Leschke 2005).

Likewise, the relationship between young people and TVET systems is central to the ALMPs aimed at this population: young people could access the educational policies of TVET centres, whose offer is based on skills development with some of the objectives already mentioned, particularly to match supply and demand, encourage supply, create demand, or change the structure and characteristics of demand.

The deterioration of structural employment conditions as a result of the COVID-19 crisis (ILO 2020c) represents a new twofold challenge for TVET systems. Firstly, how to integrate the use of technologies to operate in economies that are so far under-digitised. Secondly, how to contribute to improving employability and its likely impact on increasing employment, given that there has been a sharp reduction in the employed population in general terms. In turn, this situation has led to widening inequalities in certain specific population groups, namely women, informal workers and young people.

Another important variable, shown on the right-hand side of the conceptual scheme, is the degree to which TVET centres manage to capture and anticipate the training demands of the labour market and express them in their training offer. Adapting this offer to labour market transformation implies improving information management mechanisms for analysing trends and proposing new training or modifying existing mechanisms (in terms of duration, contents and modalities) (Vargas Zúñiga 2020).

Monitoring training demands becomes highly relevant due to the permanent transformations that technological change generates in the labour market. The monitoring function refers to the identification, by TVET systems, of the skills required in each country's labour markets. These processes are complementary, requiring analysis, with key informants, of the demands of enterprises, coupled with managing labour market information systems.

As a result of the non-uniform impact of technological adoption, labour markets can be expected to reward higher-skilled workers to the detriment of less skilled workers, leading to an increase in wage differentials between these groups of workers (Katz and Autor 1999).

Some papers (Acemoglu and Autor 2011; Autor 2013; Frey and Osborne 2017) posit that while technology adoption tends to favour more educated and better skilled workers, the impact of technology is tempered by the risks of automation. For this reason, routinised jobs are most at risk of being replaced by technology. While some routine jobs are not currently ranked at the lower end of the wage scale (specialised manual work in industry and accounting, for example), there is still a high risk that they will be automated. Conversely, certain lower-skilled, low-wage but non-routine jobs will remain unaffected by technological change, and their demand could even increase due to the impact of technology in other areas of the economy¹⁴.

If this assumption is correct, we are likely to expect an increase in demand for high-income, high-skill jobs and in low-skill, non-routine jobs. In this way, technological change would mostly affect medium-skilled jobs that rely on routine and cognitive tasks¹⁵.

This shift in employment patterns is what Goos and Manning (2007) call "job polarisation". Although there is no empirical evidence to show that the phenomenon of polarisation is present in the region or in developing countries (Maloney and Molina 2016), it is important for TVET centres to anticipate the impact of these changes so as to avoid training for jobs with risks of future automation, particularly for younger workers. This point gains significance in view of the evidence that jobs acquired after vocational studies run a higher risk of automation than jobs acquired after university education (ILO 2020a).

¹⁴ Routine tasks in the service sector in Latin America may have an opportunity cost advantage over automation, due to the existence of relatively cheap labour (Krull 2016, 30-31).

¹⁵ Evidence for this hypothesis has been presented, for the United States, in the work of Autor, Katz and Kearney (2006), Autor (2010), and Autor and Dorn (2013); and, for Europe, in the work of Goos, Manning and Salomons (2014).

Lastly, the lower part of the conceptual scheme intends to account for a labour market that offers more integration opportunities based on occupations with ever increasing demands for young people with digital skills and training.

In this way, this document's proposal has an implicit and dynamic vision of the trajectories that link education, training and work, while recognising the complexity and diversity of young people's transitions to the world of work and, in particular, the non-linearity of the relationship. Therefore, the matching role of TVET centres must address a wide range of social situations that we will seek to identify in the following section, focusing on vulnerable employment faced by young people'.

2.2. Young people: transitions, trajectories and vulnerability

The transition from youth to adulthood has traditionally been characterised according to certain significant events: completing the educational cycle, entering the labour market, forming a different household away from home, starting a nuclear family and the arrival of children (Filardo 2010; Hogan and Astone 1986; Walther *et al.* 2002). The timing, intensity and form of these events differ significantly between individuals and social groups and may not always apply.

Transition processes do not currently align well with inclusivity or with a logic based on sequential stages, and even the way of classifying transition events has been criticised. Other authors have opted to use alternative categories, for example, career transition or family emancipation (Casal 1996). In this context, the notions of *delinearisation* or *de-standardisation* of transitions have been coined to capture the processes by which young people move, in a diverse and non-unidirectional way, towards the assuming adult roles, or, more broadly, towards forms of social integration.

Based on conceptualisations such as *life course regimes*, several authors have tried to account for these changes and the institutional form of channelling them (DiPrete *et al.* 2017; Elder Jr. 1995; Heinz and Allmendinger 1992; Kohli 2007; Stauber and Walther 2001; Walther 2006). If transitions refer to the subjective and biographical aspects that characterise life courses, trajectories refer to the institutional structures or channels that serve as bridges where transitions take place (Hagested 1991; Stauber and Walther 2002). These institutional structures or channels include the education system and the TVET systems; the conditions of access to the labour market and housing; and support for reconciling work and early childcare, all of which shape transitions whilst also providing the setting for them.

In the absence of congruence between life courses and structures, there is a mismatch between young people's orientations, expectations and plans, and institutionalised social integration channels. Stauber and Walther point out that this mismatch results in "misleading trajectories", whereby institutions promise young people opportunities for social integration based on outdated assumptions and are therefore more likely to fail to achieve their goal and even increase the risk of social exclusion (Stauber and Walther 2002, 15-16).

Within this general framework, TVET systems can be analysed as one of the institutional channels that fosters the transition from education to work, a typical milestone in the path from youth to adulthood. The ILO classifies such transitions into three groups, combining education attendance with labour market status (unemployment, stability and satisfaction): *a) complete transition, b) in transition and c) transition not started* (ILO 2013, 48).

This classification has strengths and has allowed valuable comparative statistical information to be. However, it has two limitations. The first is that it does not capture *delinearised* trajectories. Today, young people repeatedly enter and exit the labour market, as is also the case for education. Moreover, studies have provided evidence that these more complex and difficult non-linear

transitions are more common in young people from disadvantaged backgrounds (Furlong and Cartmel 1997; Furlong, Cartmel and Biggart 2006; Wyn and White 1997). This means that the non-linearity of transitions is associated with the outcomes of young people from disadvantaged backgrounds, rather than with their choices. The second limitation of this classification is that it fails to capture the different transition pathways from education to work, e.g., by differentiating the completion (or not) of secondary education or the link to the TVET system.

Figure 2 shows a complementary scheme that seeks to synthesise a set of theoretically possible trajectories combining secondary education, vocational training and their links to the labour market. This scheme's main usefulness is that it allows us to visualise the trajectories that present the greatest difficulties, which could potentially become challenges or opportunities for TVET systems. Although it is a generic scheme, it can be adapted to analyse specific aspects, such as the one proposed in this paper regarding digital skills. There are many possible trajectories and the cycle may be interrupted and restarted several times in an individual biography, especially in young people with greater social vulnerability. Beyond this variability, some ideal-typical trajectories can be traced by way of example.

A first trajectory to be analysed is that of a young person who, after completing secondary education, manages to find a decent steady job. Adjusting the example to the scope of this paper, we could think of a young person who, throughout their educational cycle, acquires digital skills that allow them to find employment in the ICT sector or in an ICT-intensive sector, which are generally stable, have good working conditions and guarantee an adequate income. A second trajectory to be analysed is that of young people who acquire equivalent digital skills through training processes in TVET centres or technical and vocational education and training (TVET) institutions, and then move on to stable, good-quality jobs.

Other trajectories to be analysed are those that result in more vulnerable integrations, mainly due to precarious and informal conditions, although mention should also be made of jobs with a greater risk of automation or with a growing need to update skills. In these trajectories, it is important to analyse socio-demographic aspects, the socio-economic context of the household of origin and the educational pathway.

Focusing on these mechanisms is even more relevant in trajectories leading to situations where young people are unemployed or involuntarily disengaged from the labour market. These trajectories should be analysed with special emphasis for the purpose of visualising their socio-demographic characteristics and to determine where in the process and for what reasons they are unable to move towards stable integration in the labour market. It is therefore appropriate to identify those who drop out of the education system; those who fail to access vocational training programmes; those who access them but do not succeed in completing their training trajectories; or those who, despite completing their training processes, are unable to enter the labour market. These trajectories are influenced by exclusion mechanisms such as gender, age, ethnic-racial background and geographical location, which are socio-demographic characteristics historically associated with the perpetuation of inequality in the region (ECLAC 2016; UNDP 2021). There are also subjective factors related to people's personal biographies, as well as the significance and meaning they give to social integration. In addition, institutional structures or channels that may or may not favour the transitions of young people in situations of social vulnerability may also have an impact.

This paper broadly defines vulnerable young people, as those who face greater difficulties in making the transition to adulthood, as a result —among other factors— of greater exposure to social risks such as poverty and difficulties in labour market access. This greater risk is generally present in young people from low socio-economic households (poverty in their homes of origin and poor educational climate); with incomplete educational trajectories (dropping out at a very early age); with adverse personal backgrounds (early motherhood, excessive care burdens, situations of violence, abuse, problematic drug use, deprivation of liberty, among others); and with precarious and intermittent labour market integration (in general, in the informal sector).

The traceability of trajectories would potentially make it possible to outline concrete challenges for TVET systems to adapt to the situations of young people with greater difficulties in entering the labour market and to specifically address the various factors that affect these outcomes. The challenge would be framed by the role that TVET systems can play in overcoming some of the barriers faced by the most vulnerable young people —for example, through digital skills training. In some cases, at least partially addressing them entails rethinking and adjusting established traditions and mandates historically defined and perceived as central to TVET systems.

Under the proposed theoretical framework, tackling these challenges entails implementing institutional adaptation strategies to bring them into congruence with the life courses of the most vulnerable youth. In this sense, certain caveats apply when pursuing this path. For example, Stauber and Walther point out that public policies aimed at promoting social integration may have opposite consequences for a number of reasons, notably the following: *a)* lack of uptake due to differences in what social integration means for the targets of the policies; *b)* stigmatisation, due to being perceived as policies for stigmatised groups; *c)* incompatibility due to design problems, for example, in reconciling work and caregiving, especially among young women; *d)* access barriers, due to criteria or requirements that exclude certain individuals and groups; *e)* uncertainty about their effectiveness, as they often fail to reflect the structural problems of the labour market or changes in the demand for skills; *f)* legitimisation, as policies may often be seen by design experts, and even by beneficiaries, as mere attempts driven by the need to improve unemployment statistics¹⁶; *g)* propagation of prevailing gender patterns; *h)* failure to recognise cultural diversity, for example, by overlooking the labour market's discriminatory treatment of ethnic minorities (Stauber y Walther 2002, 16-17)¹⁷.

2.3. Digital divides, digital skills and transversal skills

Developing digital skills training opportunities seems to have direct potential for promoting effective trajectories that favour better labour market integration for young people, particularly the unemployed, and for those who are currently employed in less dynamic sectors of the economy and/or in occupations with a higher risk of automation (Maurizio 2022; Bashir and Miyamoto 2020).

¹⁶ Although the authors do not elaborate on this caveat, it can reasonably be assumed that they refer to measures that focus on improving statistical indicators of unemployment in the short term that do not lead to lasting improvements.

¹⁷ The list proposed by the authors is: *lack of acceptance; stigmatisation; (in-)compatibility; access barriers; uncertain effectiveness; legitimisation; 'doing gender'; 'doing ethnicity'* (Stauber and Walther 2002, 16-17).

However, pre-existing inequalities, in the form of digital divides, reveal differences in access, use and appropriation of ICTs in both individual and collective terms, which reflect structural problems of poverty, exclusion and job insecurity (Reygadas 2008).

This shows how the digital divide translates in terms of access in the region, for example, in relation to territorial, socio-economic and age-related factors.

In terms of Internet access, the Latin America and the Caribbean region ranks fourth: in 2019, 67 per cent of its inhabitants were Internet users (ECLAC 2021c). However, significant inequalities are revealed when measuring access both between Latin American and Caribbean countries, and internally between regions. The differences are significant when measured between urban and rural areas, with an average gap of 25 per cent, although this can be as high as 40 per cent in certain countries (ECLAC 2021c): among rural households in Latin America and the Caribbean, 77 per cent have no connection¹⁸.

There are also significant socio-economic gaps in Internet access. People in the richest income quintile are likely to have up to three times more access than those in the poorest quintile (ECLAC 2021c). In countries where the gap is smaller, access for the richest is almost twice as high as for the poorest. In the region, more than 40 million households have no connection, and over half of them are in the poorest two quintiles; just over 30 per cent of the population has no or limited access due to their economic status¹⁹.

When analysing the continent's figures by age groups, according to data from ECLAC's Regional Broadband Observatory (ORBA), 42 per cent of under-25s have no connection, while among those over 66, those without connection account for 54 per cent.

In particular, 18 per cent of young people in a situation of socio-economic vulnerability lack Internet access at home or in their educational environment, and 24 per cent do not have a computer in either. This is further exacerbated in the case of Internet penetration in rural areas (OECD 2020).

However, digital divides are not just about access. Overcoming the paradigmatic approach confined to physical access means focusing on the implications and meanings given to technologies in the context of effective opportunities for using them. According to ECLAC data (2020)²⁰, in 2019, fewer than 40 per cent of people living in Latin America and the Caribbean had basic knowledge of how to use computer devices (ECLAC and OEI 2020).

Analysing of appropriation processes identifies several analytical facets:

- a. motivational access: refers to various factors (social, cultural, mental and/or psychological) that have a bearing on people's interest in ICTs;
- b. physical access: understood as the availability of technological infrastructure and the technological acquisition (mobile phone, computer, Internet, among others);
- c. access to digital literacy: digital skills are acquired through formal, non-formal and informal educational processes;
- d. meaningful opportunities that promote the use of ICTs (Van Dijk 2017).

¹⁸ Data as of 2018. Regional Broadband Observatory (ORBA) of ECLAC, based on household surveys from the Household Survey Data Bank (BADEHOG). Data for Brazil, Dominican Republic and Mexico are from the ITU World Telecommunications Indicators Database, 2020; and data for Colombia are from the DANE Quality of Life Survey. Note: Data for Chile and Ecuador correspond to the year 2017.

¹⁹ Data as of 2018. Regional Broadband Observatory (ORBA) of ECLAC based on household surveys from the Household Survey Data Bank (BADEHOG). Note: Data for Chile and Ecuador correspond to the year 2017.

²⁰ Data are from ECLAC based on ITU, Facts and figures, 2019. See ECLAC and OEI (2020).

Different qualitative and quantitative research studies in the region²¹ have sought to explore the digital skills that adolescents and young people bring into play in their technological appropriation processes (Transmedia Literacy²²; DiSTO²³; ICILS²⁴; Radar²⁵, HabLatam²⁶; PIAAC²⁷).

A correlation has been found between skills levels and age, educational achievement, parental education levels, and the country's per capita income²⁸. One of PIAAC's findings for participating Latin American countries is that significant proportions of adults are found at the lowest levels of the skills scales: more than 60 per cent of adults scored level 1 or below in literacy and numeracy (OECD 2019).

Among those aged 25–65, skills were found to be highest for those with tertiary education, and lowest for those whose highest qualification was below upper secondary education. (OECD 2019). In terms of age and its influence on skills, the study shows that, while in most countries the relationship tends to follow an inverted U-shaped curve, in Latin American countries, skills decrease more or less steadily with age (OECD 2019). Latin American PIAAC countries appear to have benefited from the recent expansion in terms of access to education, with better educated younger adults showing higher proficiency than older adults.

It has also been found that, despite the inequality in the development of digital skills among adolescents, their own interests are key when it comes to learning (Scolari 2018). Adolescents' interests motivate them to generate informal learning strategies. The social and practical relevance of appropriation among adolescents highlights the relevance of subjective skills appropriation processes within the framework of the values given to technologies (Scolari 2018).

Generally speaking, digital learning in educational institutions does not provide them with the guidance or tools to change their habits to develop skills that are more reflective, strategic, transformative and/or generate their own content. Furthermore, there are no references nearby or in the educational centres, that contribute to these skills or desires to have skills along these lines (HabLatam, unpublished). Moreover, it has been noted that young people develop all their

²¹ In all the studies reviewed here, at least one of the participating countries coincides with one of the case study countries.

²² The "Transmedia Literacy: Exploiting transmedia skills and informal learning strategies to improve formal education" project of the European Union's Horizon 2020 Programme was developed between 2015 and 2018, and built a transmedia skills framework of nine categories, each of which includes 44 core skills and 190 specific skills. Colombia and Uruguay participated as Latin American countries in this study.

²³ DiSTO, "From digital skills to tangible outcomes - Improving measures and models of digital engagement", is a project developed by the London School of Economics and Political Science (UK) with the aim of studying and generating inputs to combat inequalities in the people's capacities, especially young people and adults, to use ICTs, thus impacting on the benefits obtained, with tangible results and improvements in quality of life (<http://www.lse.ac.uk/media@lse/research/DiSTO/Home.aspx>). In the case of Latin America, the project was developed in Brazil, Chile and Uruguay: <https://www.lse.ac.uk/media-andcommunications/research/research-projects/disto/Publications>

²⁴ ICILS is an international study to analyse the information literacy and computational thinking of adolescents (Fraillon et al. 2019).

²⁵ For more than 17 years, the Radar Group has been developing the study "El perfil del internauta uruguayo" (Profile of the Uruguayan Internet user) in its versions of analysis on individuals and companies.

²⁶ The project "Youth, digital skills and content gaps in Latin America - HabLatam" was financed by the Education Sectoral Fund of the ANII - Ceibal Foundation of Uruguay - and developed by the University of the Republic (UDELAR) of Uruguay and the University of Chile, between 2019 and 2021, led by Dr Lionel Brossi (FSED_2_2018_1_150808).

²⁷ The Adult Skills Survey, within the framework of the Programme for the International Assessment of Adult Competencies (PIAAC), was conducted in its latest edition in 2019 (OECD 2019). It aims to measure the competence of working-age adults (16-65 years) in three key information processing skills: literacy, numeracy and problem solving in technology-rich environments. In its three phases, in addition to OECD countries, invited countries participated, which in the case of Latin America were Chile, Ecuador, Mexico and Peru (OECD 2019).

²⁸ PIAAC concurs with similar findings for PISA test results in middle-income countries: it is concluded, then, that there is a positive relationship between national income per capita and performance, at least until a minimum threshold is reached (OECD 2019). Among the reasons identified in the study are individual backgrounds and development processes, and the policies adopted in different countries.



practical skills in navigational “know-how”²⁹ that are sufficient to meet their entertainment and social participation needs (HabLatam, unpublished).

In this sense, significant opportunities for the use of ICTs also depend on the characteristics of the formal education system in terms of adapting training to the skills demands of the labour market, an issue that has been frequently pointed out as problematic and which faces many challenges in the current context (ECLAC and OEI 2020).

As a hypothesis, the challenges of specific training in digital skills for the world of work may be linked with gaps they represent with the meanings that technologies have for young people, particularly for those who are socially and economically vulnerable. This is because their relationship with the world of formal work is generally characterised by poor quality jobs, with precarious working conditions and limited legal and social protection (ILO 2020a, 2020b). Likewise, their relationship with ICTs tends to be characterised by leisure, entertainment and socialisation, but is far removed from formal education processes. Finally, their experiences in formal education in general have been undermined by various processes of inequality and institutional exclusion mechanisms.

Appropriation can be understood as a practical and symbolic mechanism for interpreting technologies in people's everyday lives. This provides an insight into relationship between the real and symbolic representation that the world of formal work and the technologies integrated into it imply for young people in situations of socio-economic vulnerability, whose educational trajectories are generally marked by disengagement.

Thus, defining the digital skills to be developed in vocational training on offer is not a simple task.

A first question involves analysing the different ways in which literature refers to these digital skills. In general terms, “skills”, “competences”, “aptitudes”, “knowledge”, “understandings”, “dispositions” and “thoughts” are used interchangeably³⁰. In addition, studies have been developed that note the diversity of classification systems used in different countries (Bashir and Miyamoto 2020; ITU 2018; Manyika *et al.* 2017; Mateo-Berganza Diaz and Lee 2020; UNESCO 2018; Vuorikari, Kluzer and Punie 2022).

This diversity not only reflects the different ways of conceiving them, but also contexts and realities with different societal, economic and cultural traits, which have a particular bearing on access to and use of ICTs.

One of the most widespread systems for classifying digital skills for the world of work is proposed by the International Telecommunications Union (ITU), which in 2018 differentiated them into three main sets: *a)* basic, *b)* intermediate and *c)* advanced.

The ITU's approach adopts the definition of the Broadband Commission for Sustainable Development (2017) (aligned with the ILO's understanding of “skills”). It defines digital skills as a “combination of behaviours, expertise, know-how, work habits, character traits, dispositions and critical understandings” (2017, 4).

For its part, for several years the European Union has been developing the reference framework known as DigComp (2013, 2016, 2017, 2022), which defines five component areas of digital skills:

²⁹ From this perspective, digital skills are understood in terms of two dimensions of knowledge: “know-how” and “know-how-to-do”. The first refers to knowledge that is known, but not necessarily deployed in action or strategies of use, or remains in technical realisations and actions without transformation or appropriation; the second, “know-how-to-do”, implies applying a strategic, potential and intentional use of such realisations and actions on the Internet (HabLatam, unpublished).

³⁰ In this paper, no particular framework is adopted. In fact, “skills” and “competences” are referred to interchangeably. This definition has to do with two issues: on the one hand, the state of the discussion in the specialised literature, where there is no consensus; and, on the other hand, the indistinct use that has been observed in the fieldwork from the analysed experiences of the TVET centres. ³¹ Own translation.

a) information and data literacy; *b)* online communication and collaboration; *c)* digital content creation; *d)* online safety; and *e)* problem solving. In DigComp 2.1, four proficiency levels are described, each of which is subdivided into two in progressive terms: *a)* basic (sub-levels 1 and 2), *b)* intermediate (sub-levels 3 and 4), *c)* advanced (sub-levels 5 and 6) and *d)* highly specialised (sub-levels 7 and 8). Each level and sublevel represent a higher degree of complexity of competence in terms of cognitive ability, usage, and autonomy to complete the task. DigComp 2.2 further elaborates the exemplification of each of the competence areas and levels and sublevels (Vuorikari *et al.* 2022).

UNESCO, for its part, has developed an adaptation to the DigComp 2.0 digital competence framework, integrating two new competence areas. This arose from a study which identified that there are at least two areas of competencies that require a particular specificity: *a)* related to the use of devices and software; and *b)* related to particular competencies of courses linked to ICT-intensive sectors (UNESCO 2021, 2018).

Recent studies (Mann *et al.* 2020) note that there is a significant mismatch between the world of work for which formal education is equipping millions of children and adolescents, and the 21st century challenges of the information and knowledge society coupled with a digital economy that poses ever more life challenges.

Indeed, several studies reveal links between socioemotional development and successful trajectories of individuals in the academic and professional sphere (Duckworth *et al.* 2007; Duckworth and Seligman 2005; Heckman and Kautz 2013; Mateo-Berganza Díaz and Rucci 2019; OECD n. d.).

A wide range of literature points to the need to establish more holistic skills frameworks, not only confined to digital skills, but which, on the one hand, promote adaptation to the requirements of the digital economy and, on the other, also foster articulation between digital skills and developing transversal or soft skills, such as socioemotional and 21st century skills (Aguerrevere *et al.* 2020; Valencia-Molina *et al.* 2016)³¹.

These skills would thus not only favour an improvement in people's chance of employability but would also promote the individual and collective capacity to develop economically, as active and responsible citizens, all of which are key aspects to counteract future uncertainties (Mateo-Berganza Díaz and Lee 2020).

For this reason, different "transversal" skills frameworks integrate digital skills as an added dimension, with an emphasis, for example, on computational thinking (Mateo-Berganza Díaz 2021, 15-16).

According to the literature, core skills/transversal skills are, in summary, the following: self-knowledge; learning to learn; collaboration; communication; creativity; empathy; ethics; motivation; leadership; critical thinking; resilience; problem solving; teamwork (Mateo-Berganza Díaz 2021, 14-15; Mateo-Berganza Díaz and Rucci 2019; Marope, Griffin and Gallagher 2019; UNESCO 2015, 2018; UNICEF 2019; Scott 2015)³².

³¹ In general terms, such skills can be defined as those: "[...] that help people build productive and healthy lives for themselves (hence they are also called transversal or foundational skills). These skills help people of all ages to live in and adapt to an increasingly changing world. They include digital skills (such as computational thinking); advanced cognitive skills (such as critical thinking or problem solving); skills related to executive function (such as self-regulation and metacognition, which have a dynamic relationship with cognitive skills) and socioemotional skills (such as self-esteem, perseverance or empathy)" (Mateo-Berganza Díaz 2021, 15-16).

³² In the literature reviewed, among the frameworks already outlined (as well as with others, such as ATC215, Global Network, 21st century skills, and P21), there is not complete agreement on the set of all skills, although, in general, those cited here are the most prioritised.



The mismatch between digital skills training and vulnerable young people

Against the backdrop of transformations in the world of work, accelerated technological change, the advance of the demographic transition and persistent social inequality in Latin America, the fieldwork suggests that two processes are underway that, to some extent, are modifying TVET systems. The first is the growing availability of digital skills training in response to the demands of the labour market, and the digitisation of institutions themselves, where virtual offerings are expanding, and internal processes are being digitised. The second and perhaps less visible process is the increased participation of vulnerable populations in TVET centres, where, given the region's socio-economic characteristics, young people are over-represented.

In the six cases analysed, a growing offer of digital skills training was observed, indicating that, beyond the significant differences between TVET centres, this is a shared trend. The interviews also highlighted that this process was accelerated by the context of the COVID-19 pandemic.

Beyond these findings common to all the TVET centres interviewed, there are some differences. One of the main variations between TVET centres is related to the more general characteristics of the training offer, which differentiates between institutions that offer short courses and those that offer, in addition to short courses, longer courses, including technical degrees.

Based on this differentiation, it can be noted that all the TVET centres analysed include some type of training in basic and intermediate digital skills in their programmes³³. This training is generally delivered through specific courses on digital literacy or on developing digital employability skills (in-house or in alliance with companies that develop MOOCs [*massive online open courses*]) and/or through their inclusion as transversal skills in all the training provided.

As regards advanced digital skills, almost all the TVET centres analysed provide some type of training, although there is a significant difference between those offering only short refresher courses and/or complementary training for people who already have a degree (technical-vocational or university) and those that offer technical degrees in the ICT field.

As regards the second process, in recent years TVET centres have deployed different strategies towards increasing the access of vulnerable populations to training programmes. In fact, they have all adopted the goal of providing better training responses for populations with greater difficulties in finding employment and who, in the past, usually did not have access to vocational training.

This partial recalibration of the target population of TVET centres, although a shared trend, varies both in magnitude and in the strategies in which TVET centres incorporate proposals aimed especially at vulnerable populations (including young people).

These differences, largely explained by the mandates and institutional backgrounds and public policies of each institution, are reflected in the relative percentage of the most vulnerable

³³ This classification is used because it is the one usually used by the TVET centres analysed in the interviews. With these categories, reference is made in general to training in office automation and digital literacy focused on *hardware*.

population in the overall enrolment. However, the most vulnerable young people are generally included in the educational offer through targeted state-initiated programmes aimed especially at these groups.

Although simultaneous, these two processes seem to be unfolding with limited interconnection. In the various interviews conducted, significant general progress was confirmed in the expansion of digital skills training and its impact on digital literacy and upskilling processes for those already employed, and also on the success of technical degrees in the ICT field in terms of labour market integration.

However, it was also frequently highlighted that the most vulnerable population still faces significant barriers to successfully pursuing training in digital skills.

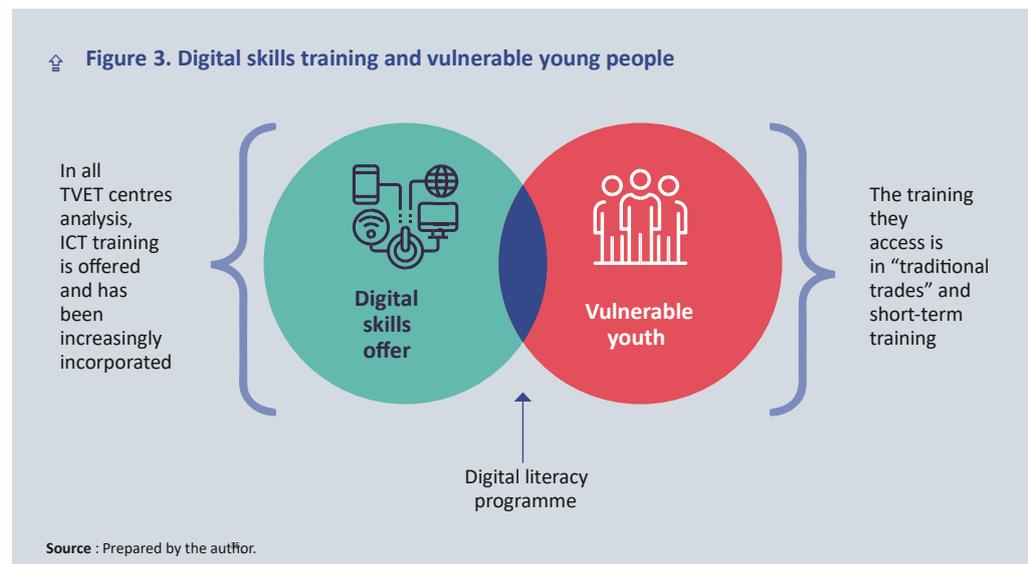
Broadly speaking, specific training in digital skills rarely reaches the most vulnerable young people in the region as students, and the proposals aimed at vulnerable populations are mainly geared towards training in traditional trades, where training in digital skills is largely absent.

A notable exception to these parallel and unconnected routes are digital literacy programmes, although even these find it hard to reach the most vulnerable population. Figure 3 shows how the two processes unfold and how tenuously they meet.

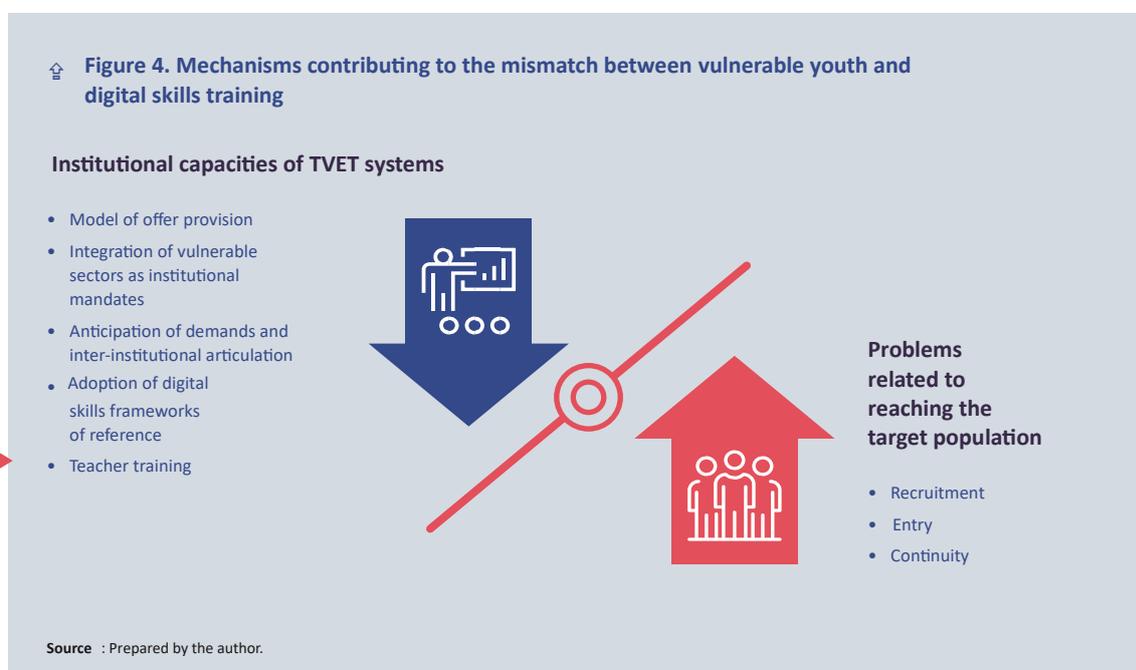
In short, the main finding of the research is that there is of a mismatch between the growing offer of training in digital skills and the likewise growing enrolment of vulnerable young people in vocational training.

TVETs are successfully channelling training trajectories in digital skills that enhance better integration in the labour market, but they fail to reach young people in situations of socio-economic vulnerability.

This result is largely explained by the historical social inequality in Latin America, given that socio-economic factors are decisive in educational trajectories. However, the research also allowed us to identify, at least as a working hypothesis, some more tangible mechanisms, directly linked to TVET systems, that could be contributing factors to this mismatch between young people in vulnerable situations and digital skills training.



Two sets of mechanisms were identified that could explain at least in part the findings observed. The first has to do with the challenges of targeting vulnerable young people. In terms strictly related to digital skills, the targeting mechanisms need to be adjusted to address these populations in a specific way and pave the way for them to improve their labour market integration by incorporating digital skills. The second mechanism identified relates to the characteristics of the institutions in which and through which vocational training takes place.³⁴



³⁴ The figure is purely schematic and does not account for orders of magnitude, nor does it claim to do so.

3.1. Difficulties in reaching the target population

Certain imbalances can be observed in adapting the training offered by TVET centres to the needs and demands of young people in situations of socio-economic vulnerability, and those of the labour market. The main consequence of this is that many vulnerable young people do not successfully undergo vocational training to develop digital skills.

Three main mechanisms were identified from the fieldwork: *a)* difficulties in recruitment, *b)* barriers to entry and *c)* weaknesses in ensuring continuity³⁴.

These mechanisms represent obstacles at different points in an ideal training pathway. Difficulties in recruitment cause institutions to fail to connect with the most vulnerable populations. The possible biases in the dissemination strategies do not help young people gain greater awareness of training opportunities that will enable them to improve their future employability. Likewise, even when promoting their inclusion, an important difficulty in recruitment is how to complement permanent

³⁴ The mechanisms identified focus on training offer, not on training demand. However, the need to integrate into the curriculum design, in a complementary manner, the relevance of the training proposals from the point of view of the potential subjects of education is affirmed. The capacity to interpret interests is relative if it does not include the voice of the actors themselves.

consultation of the labour market's needs with the integration of young people's voices in defining their training interests.

Barriers to entry are obstacles for those who, although they are aware of the educational offer, for different reasons cannot access it. For their part, shortcomings in ensuring continuity mean that a large part of the vulnerable population with access to training find it very difficult to remain in education and to complete their training processes. Furthermore, a gap exists between the sense of urgency that overwhelms people in vulnerable socio-economic situations, and the non-immediate promise of better labour market integration in the future.

A joint view of these three challenges resembles a process of exclusion in stages, in each of which the most vulnerable populations might be left out, particularly those most distant and disconnected from the education system and the labour market.

It should be noted that the mechanisms do not derive from decisions taken with the explicit objective of excluding the most vulnerable population but are, to a large extent, unintended results of limited resource allocation processes.

In short, the challenges of targeting the most vulnerable population are related to problems of coverage. If the demand for training exceeds the installed capacities to satisfy it³⁵, institutions have no incentive to try to attract students who are further away from the system with outreach strategies (difficulties in recruitment). Rather, the opposite happens: incentives are generated to establish selection mechanisms (barriers to entry) and/or no tools are generated to mitigate selection in stages.

Likewise, the shortage of quotas in the most sought-after training programmes may discourage the creation of strategies to protect trajectories, transferring this responsibility to the student body.

3.1.1. Difficulties in recruitment

The integration of young people in situations of greater socio-economic vulnerability in the training proposals of the TVET systems requires designing active strategies to promote their inclusion. Their trajectories, marked by processes of social exclusion, associated with high levels of poverty, very early disengagement from the educational system and unemployment or precarious integration in the labour market, means that it is unlikely that they will attend training centres of their own initiative.

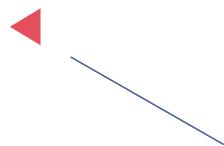
During the research, it was found that TVET centres, in general, do not develop differentiated recruitment strategies allowing them to bring training proposals closer to the most vulnerable populations. This is mainly due to the fact that the demand for training exceeds the capacity to meet that demand. This is particularly true for the most attractive training programmes, including those linked to technological innovation and to the development of digital skills.

In this situation, the most vulnerable young people are less likely to become aware of the training offer, and might learn about it later than other young people from higher socio-economic backgrounds who are interested in participating in training.

In some cases, recruitment difficulties are exacerbated by limited regional penetration of physical infrastructure in the areas concentrating the highest indicators of social vulnerability, and by the weakness of alliances favouring regional proximity to the most vulnerable populations.

Nonetheless, many TVET centres are developing decentralisation strategies. However, this does not necessarily mean that training proposals are focused on small rural localities or in urban enclaves where there may be difficulties in accessing basic services.

³⁵ By "installed capacities" we refer not only to quotas, but also to the methodological and conceptual dimensions required to attend to and monitor these populations, whose formal educational trajectories are characterised by being truncated and, therefore, with training deficits that do not favour their integration into standard educational processes. This dimension will be addressed below.



Based on recent experience during the COVID-19 pandemic, there is a certain temptation to interpret virtualisation of training as a way of dispensing with territorial proximity. An aspect frequently pointed out in the interviews is that the dissemination of the training offer through virtual channels has significant limitations when it comes to promoting the inclusion of the most vulnerable population, among other reasons, due to problems of Internet connectivity, availability of devices, general skills and digital skills in particular.

Despite these general weaknesses in connecting the most vulnerable populations with the whole range of training on digital skills, several institutions applied specific recruitment strategies in the framework of implementing targeted proposals. However, training targeted towards vulnerable populations is generally underdeveloped in terms of digital skills.

Nevertheless, it is useful to review some of the strategies deployed, as they constitute a precedent and an asset of the institutions, potentially transferable to other types of proposals. By way of example, we can mention the initiatives of INFOTEP, INEFOP and SENA, which share the general features of generating regional and inter-institutional alliances to promote the participation of vulnerable people in their training offer.

In the case of INFOTEP, its Strategic Plan 2019-2021 envisaged extending its coverage to other population groups, hence proposing various alliances at governmental level within the framework of social programmes. Some examples are: the Community Programme, the New Jobs and Opportunities for Youth in the Dominican Republic Project (NEO-RD - Quisqueya Cree en Ti) and the 14-24 Opportunity Programme. They prioritise the situation of vulnerability according to place of residence, educational level and socio-economic status. In particular, NOE-RD - Quisqueya Cree en Ti prioritises the population aged 15 to 29 residing in 13 provinces and in situations of socio-economic vulnerability.

Similarly, SENA has established territorial and inter-institutional alliances with the aim of recruiting various groups in vulnerable situations, including indigenous people, adolescents from crime-related backgrounds, victims of violence, people with disabilities, vulnerable youth, women heads of household, Afro-Colombians, among others³⁶.

In the case of INEFOP, institutional agreements are also developed with the aim of actively recruiting vulnerable groups to participate in its training offer. For example, with the Ministry of the Interior, to integrate persons deprived of liberty; with the Ministry of Livestock, for women from rural and small town contexts; and with the Ministry of Social Development (MIDES), for young people in situation of social vulnerability aged 18 to 22 who have not completed secondary education, without a formal job and are already linked to MIDES, an initiative that also includes young people leaving the system of custodial facilities for adolescents³⁷.

3.1.2. Barriers to entry

Barriers to entry refer to the different mechanisms (formal and informal) that act as obstacles for the most vulnerable young people to access vocational training in general and digital skills training in particular.

The research revealed the presence of barriers associated with the requirements to apply for and be accepted in each training offer, and with the prioritisation criteria. These barriers are as follows:

- a. financial conditions (e.g., enrolment fees, tuition fees, paid courses);

³⁶ Other groups on which SENA focuses its attention are: people in the process of reincorporation and reintegration into the labour market, adolescents disengaged from organised illegal armed groups, elderly people, adolescent workers, Afro-Colombians, among others.

³⁷ The implementation of these agreements generally takes place through civil society organisations.

- b. minimum knowledge conditions (e.g., minimum educational levels, entry test, digital skills requirements - use of tools);
- c. material conditions and necessary infrastructure (e.g., time, transport, devices, connectivity);
- d. gender conditions (e.g., difficulties in reconciling training and caregiving and domestic tasks, resulting in low autonomy in decision-making in terms of managing personal time); and
- e. conditions related to the characteristics of selection processes (e.g., prioritisation criteria).

While they have relatively different weights, any one of these barriers can act in isolation. The analysis shows that, based on the characterisation of vulnerable populations, most of these barriers have an impact on training entry opportunities due to the structural cross-cutting nature of the different inequalities faced by these populations (socio-economic, educational, digital, territorial, gender, among others).

This complexity is compounded when focusing on the most vulnerable young people, whose transition processes are more often less linear and challenging, as presented in Section 2.2.

Financial and material requirements strongly influence their chances of enrolment. Even though charging an enrolment fee is quite different from charging tuition or, even more so, paying for course fees, any financial constraints are relevant for these populations. In the context of the pandemic and the provision of fully virtual courses, new material constraints have been added. For example, in addition to the barriers associated with travel costs and time, other barriers have emerged, such as connectivity, electricity, and spaces that promote study at home, among others.

In terms of skills and educational level requirements, it is important to note that institutions stipulate different requirements depending on the type of training they offer.

In general terms, access to technical training requires, as a minimum, the completion of basic secondary education and even, in some cases, higher secondary education. In addition, access to digital skills training entails stricter educational requirements compared to other training proposals. By way of example, it was found that, for the most part, the training offer analysed in medium to advanced digital skills requires finishing secondary education and passing specific mathematics tests.

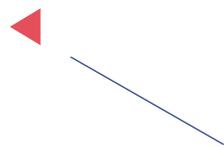
By contrast, we only observe the absence or lesser weight of economic requirements and/or requirements of minimum attained educational level in the training offers targeted at vulnerable populations. However, the lack of entry requirements means that the types of programmes aimed at these populations are not related either to digital skills or to technical training. In general, is the offer is related to shorter curricular proposals, entrepreneurship and manual/craft skills.

As for the barriers associated with selection processes, it was noted that that previously defining the prioritisation criteria and the application analysis phases provides clarity for people with training needs to evaluate their opportunities.

Where selection processes do not define them, it was observed that several TVET centres adopt the “first come, first served” rule as a final selection criterion, acting as an *ad hoc* criterion to bridge the gap between limited institutional capacities (in terms of places and vacancies) and the number of enrolment applications received.

The first-come, first-served criterion works to the disadvantage mainly of vulnerable people, as their chances of rapid enrolment in training offers are conditioned, among other things, by material issues, both for face-to-face processes (for example, going to the admissions offices has distance and time constraints) and for online enrolment (in terms of access to devices and connectivity).

In turn, explicit selection processes are usually very demanding (in terms of educational requirements, skills, infrastructure, etc., but also in terms of prioritisation criteria), thus favouring the analysis of



opportunities for people with training needs and, therefore, decision-making, but acting as disincentives for vulnerable young people to enrol.

Beyond this, several institutions have strategically defined the need to broaden their focus to people in situations of socio-economic vulnerability, which has led to a large part of their training proposals being aimed at this population. The study found not only that most institutions are increasingly targeting vulnerable population, but also that in several TVET centres decisions are taken that, in one way or another, encourage the enrolment of these sectors of the population.

This is the case of initiatives such as those of the Paula Souza Centre in the state of São Paulo, Brazil, which, while applying rigorous selection processes, effectively integrates criteria for prioritising certain inequalities by positively weighting students who received their primary education in public schools, as well as those of African descent.

Other potential examples include the fact that TVETs generally implement different strategies related to economic conditions. For example, neither SENA, nor INEFOP, nor INFOTEP charge any kind of admission or course fees. For its part, INTECAP in Guatemala waives tuition fees at the student's request.

However, while it can be argued that the population served by several of the institutions is considered a vulnerable group (e.g., because of low family income), the reality is that these young people have overcome selective processes with entry requirements generally based on successful educational trajectories.

▶ The fact that only those with the best qualifications or the best test results can gain access implies an internal fragmentation of the potential demand: those who already have certain skills will be selected, and therefore their potential for success is greater. This is particularly relevant in the Latin American context, where the average completion rate of secondary education for the first two income quintiles is 29.5 per cent, and among 20–24-year-olds it stands at 45.9 per cent³⁸.

3.1.3. Challenges to ensure continuity

The inclusion of young people in situations of greater socio-economic vulnerability in technical and vocational training programmes calls for designing and implementing continuity policies, i.e., support policies, which operate to protect training trajectories. This is one of the most challenging tasks for a TVET centre, since it involves developing capacities to underpin the training processes of students who, in many cases, the education system has failed to retain, and who have disengaged early.

The research found that the main weaknesses in promoting continuity for vulnerable students are the lack of or insufficient combination of:

- a. financial and material support;
- b. levelling-up mechanisms; and
- c. individualised socio-educational support strategies.

Economic support (monetary, material and infrastructure) to vulnerable students is key to promoting and sustaining the participation of people who would otherwise³⁹ be excluded. In the statistical information shared by some TVET centres, and especially in the interviews conducted, it was pointed out that economic factors represent one of the main factors for student disengagement, together with the difficulties of reconciling training with work, caregiving or domestic tasks (especially in the case of women).

³⁸ ECLAC, Youth Observatory for Latin America and the Caribbean. Data from 2016.

³⁹ It is not only a matter of promoting the continuity of those in a situation of socio-economic vulnerability, but also of having resources available institutionally to enable them to cope with various scenarios of uncertainty and instability, such as changes in the family income of young people's households or national/regional economic crises. In other words, it is a matter of anticipating measures to ensure the successful trajectories of students in the face of external issues.

This situation underscores the relevance of building capacities in TVET centres that allow the specific needs of these population groups to be anticipated, both policy-wise and technically, so as to guarantee their educational processes. The lack or insufficiency of support can in many cases be linked to funding shortcomings. However, a defining characteristic of targeting is precisely to prioritise the allocation of resources to those sectors with the greatest needs.

Beyond the weaknesses, certain good practices can be pinpointed that, in general, are associated with using an array of mechanisms such as subsidies, scholarships, loaning computers, paying for Internet connection, among others.

It is interesting to highlight, for example, the experience of Chile's SENCE, which has integrated the subsidy tool to favour educational continuity processes, specifically aimed at students in vulnerable situations. In the case of the Labour Scholarship Programmes, four types of subsidies are used: *a)* daily subsidy (per student, per day of attendance), *b)* per student subsidy to provide tools, *c)* subsidy for certifying and/or issuing licenses that enable the exercise of trades, and *d)* accident insurance for workers.

Meanwhile, the Reinventate Programme also provides an attendance subsidy, and is complemented by individualised support strategies, referred to as "socio-labour support". Participants can count on support during the selection, orientation and training processes, to reinforce their labour reintegration opportunities.

In addition to this experience, the SENA in Colombia has developed a Support for Sustainability strategy aimed at contributing to covering basic expenses through the payment of travel costs, support for connectivity through Internet packages and for developing individualised support through specialised teams, within the framework of agreements for inclusion of vulnerable populations, in the case of INEFOP in Uruguay.

With regard to the levelling-up and support mechanisms, SENA and INEFOP contribute, from the socio-educational and pedagogical dimension, to generating complementary strategies to ensure the continuity of students in their educational trajectories. In addition to financial and infrastructure support, strategies designed to monitor the educational processes of young people make it possible, among other things, to place each of the subjects of education at the centre of TVET centres' actions and to develop holistic processes that are not confined to merely curricular aspects and, therefore, inclusive, in that they allow the inclusion, conceptually and methodologically, of the structural inequality dimension and the situations of vulnerability experienced by these population groups.

In a similar vein to the aforementioned strategies, the experience of levelling up skills (including digital skills) and support for students at the Paula Souza Centre in the state of São Paulo, Brazil, is relevant.

With regard to levelling up, the CPS points out that, once "learning gaps" are identified in any of the students' areas of knowledge, individualised "proximity" efforts are made, with the aim of bridging these gaps⁴⁰. In addition, personalised working strategies were devised for students, enabling each case to be approached on a differentiated basis, according to the graduation and occupational profile requirements, and specific goals to be defined for each student in terms of the skills sought. To implement these strategies for supporting and sustaining students' educational trajectories, the CPS envisages a range of differentiated roles: *a)* class coordinators, *b)* educational centre coordinators, *c)* reference teachers, and even *d)* individual subject teachers.

Finally, it is worth emphasising that INEFOP developed a pilot levelling up experience through the Digital Literacy programme, aimed at addressing the students' weak basic digital skills, which at the beginning of the COVID-19 pandemic represented major barriers for the educational continuity of the participants of its entire training offer.

⁴⁰ The CPS recognises that the selection process (Vestibulinho) already determines, *per se*, the existence of certain levels of skills, insofar as passing this process allows the minimum level shared by all those who pass it to be established. In a way, a "baseline" is fixed that all those who register and complete the selection process must surpass.

3.2. Institutional Capacities of Vocational Education and Training Systems

The second series of findings related to the mismatch between young people in situations of socio-economic vulnerability and vocational training in digital skills involves a range of mechanisms linked to the institutional characteristics of TVET systems.

Some of the main institutional characteristics concern: a) models for managing, supervising and defining the training offer and selection of participants; b) institutional mandates; c) strategies for anticipating training demands and inter-institutional articulation; d) the existence of reference frameworks for digital skills; and e) teacher training.

3.2.1. Training offer provision model

The capacity of TVET centres to influence the different phases of designing and implementing their offer is a variable that contributes to the mismatch between vulnerable young people and digital skills training.

The different management models are typically associated with varying degrees of control at different stages of the process, including curricular aspects, participant selection systems, and defining strategies for recruiting and supporting the continuity of students, as well as following up on their labour market integration.

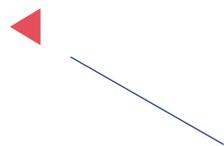
Training institutions use different organisational formats to manage the training functions they perform (ILO-CINTERFOR 2017): *a)* in-house provision model; and *b)* outsourcing model, with its variant *b.1)* packaged training solutions.

Both forms of management have strengths and weaknesses. The strengths of the in-house management model are that it favours the institutions' control of offer, access and training policies in general. However, it may suffer from rigidity in maintaining an up-to-date training offer, which takes into account changes in the skills required by the labour market. Strengthening social dialogue and tripartism in the governance of vocational training systems, and the involvement of social partners in sectoral areas of vocational training planning and management are key to keeping the training offer relevant and pertinent to the labour market's needs.

The model that delegates outsourced training delivery to training institutions or centres, and to NGOs, may have the strength of favouring a more flexible training offer, but poses issues in overseeing the training policy. TVET centres may struggle with the processes of supervising the services being provided by these organisations, coupled with a weakening of the training offer, as their decision-making capacity is often limited.

This information asymmetry between TVET centres and outsourced providers of training services can be positioned in the framework of the specialised principal-agent literature: in other words, the decisions of the agents (NGOs, training centres, etc.) affect the principal (TVET) in aspects that involve them both. This translates into accountability⁴¹ and transparency problems (because of implementers' taking decisions in an opaque and under-informed framework). The fundamental problem for principals is to find an incentive system to induce stakeholders to take courses of action towards certain outcomes (Coats 2002). For example, if training policies seek to encourage the participation of vulnerable groups, TVET centres can pay compensation to training schools for the participation of these groups.

⁴¹ This is what Dicke and Ott (1999) define as moral/ethical accountability.



These compensation schemes may work to achieve concrete actions, but may present difficulties in incentivising more complex objectives involving courses of action: while compensation may encourage the participation of vulnerable groups in job training or favour labour market integration in the short term, it may be more challenging to engage stakeholders in the follow-up, labour market reintegration and the general well-being of these groups.

A variant of the outsourced provision model is the generation of partnerships with organisations that provide standardised courses delivered through online educational platforms (e.g., Coursera, EdX, LinkedIn Learning) and through advanced IT training (through companies that design curricula and also offer international certification, including Google, Microsoft, Amazon, Cisco and Adobe) (Vargas Zúñiga 2020).

This approach has the virtue of facilitating a wide-ranging training offer and significantly increasing coverage, guaranteeing up-to-date training, without large investments in terms of, for example, teaching support. However, these modalities can pose problems in terms of the infrastructure requirements of both TVET centres and students (Fernández-Ferrer 2019), or the need to adapt courses to the particular contexts of each country's labour markets. The primary obstacle to the promise of mass access to packaged is the first, second and third order digital divides, since to a large degree, socio-economic, educational and cultural circumstances determine the possibilities of access, use and appropriation.

The study has shown that the in-house provision model fosters more favourable conditions for defining the design and implementation of the training offer, both in terms of internal coordination and supervision, and in decision-making related to the selection processes for admission to the programmes.

It has furthermore been noted that, in the provision model delegated to specialised organisations, such as NGOs or private training centres, varying degrees of independence exist in the definition of provision and admission. It has been observed that there are TVET centres whose role is only to call for training offers, without precisely defining the sectoral priorities of the training beforehand; and other TVET centres that outsource the implementation of the offer, but not its design. In other words, in these cases, the institutions stipulate the basic contents and objectives of the training policies, but controlling compliance with these contents and objectives may vary.

The same differences and similarities can be observed in the variant of the outsourcing model through packaged solutions, with regard to the control of the training offer, depending on whether the TVET centre coordinates, designs and articulates it, or whether it delegates its design completely. Negotiation initiatives between the TVET centres and the companies providing these training offers have been observed, with the aim of adapting the offer to the specific requirements of the institution and of the population to be integrated.

It was found that provision through packaged solutions has had a strong impact on the exponential increase in the offer of training in digital skills (Vargas Zúñiga 2020)⁴². However, in general terms, this coexists in a complementary, not substitutive, manner with both the in-house model and the classic outsourcing model.

These courses are having a major impact on so-called “lifelong learning”, as complementary training for active workers looking for refresher courses or university students seeking further training content⁴³. Indeed, this user profile is far removed from the characteristics of vulnerable young people.

⁴² This has been particularly relevant in the context of the pandemic (Vargas Zúñiga 2020).

⁴³ The increase in offer has been particularly large in “microlearning” type courses, i.e., short training courses aimed at developing specific skills required in certain areas of work and which tend to be of a practical nature, aimed at problem solving or the use of computer tools (Vargas Zúñiga 2020; Katz 2015). According to OECD data (2020), those who participate most in open and virtual education provision in Latin America (55 per cent) are people who combine education and work and who are therefore interested in improving their career prospects.

This exponential increase has led to widening the participation gap among vulnerable sectors, as this type of provision prioritises intermediate and advanced training, while mainly favouring those who already have (transversal and digital) skills and high levels of education (OECD 2020).

This does not necessarily mean, however, that the provision of packaged courses is entirely unsuitable for training vulnerable sectors. In short, what influences the link between this population and the vocational training offer in general (and digital skills in particular) seems to lie not so much in the provision model itself, but in the institutional capacities to decide on the design of curricular proposals, coupled with the requirements of the selection processes, and the development of support and levelling-up strategies.

Furthermore, more than the provision model itself, what is seen as key to the inclusion of vulnerable young people is the centralised definition by TVET centres of digital skills frameworks and, with this, of training trajectories in digital skills that are comprehensive from the initial to the most advanced levels of training.

In this sense, INTECAP's experience in Guatemala is interesting, which, starting from an in-house provision model, has made a commitment to digital skills training through the creation of its ICT Centre. It offers short, medium and long-term technical programmes, as well as shorter courses and refresher training in a broad range of intermediate and advanced digital skills areas, thus responding to the occupational profiles required under international standards and aligned with international certifications. To develop these courses, it has entered into agreements with the main ICT companies (Cisco, Microsoft, Linux, Autodesk, among others), and is one of the few public certifying centres in Latin America.

For its part, INEFOP in Uruguay, while providing its entire training offer through third parties (known as training entities or ECAs), has made progress in generating its own in-house proposals, particularly those related to transversal competences, like the Templar Programme and an experience with Microsoft called "Skills for employability". In the latter, a process was implemented to adapt the curriculum design, which in principle was a "packaged" provision, to the national context, with the aim of including digital literacy processes.

Finally, the SENCE experience is interesting in that it combines an outsourced type of provision, but with significant control over the design of training proposals and selection processes. This is paired with a series of economic incentives for outsourced training schools (intermediate technical training organisations or OTICs) to meet targets for integrating students into the labour market. For example, a payment is made for each person for whom the OTIC secures a formal employment contract for at least 3 months. In addition, other incentives are paid according to the quality of employment measured in terms of wages (e.g., if those jobs pay more than the national minimum income). Taken together, these mechanisms create incentives for meeting targets.

3.2.2. Integration of vulnerable sectors as a legal, political or technical institutional mandate

One issue influencing the mismatch between vulnerable young people and digital skills training is the mandates of TVET centres (legal, political and/or technical), i.e., the objectives (together with their missions and visions) that guide their actions. This becomes relevant for TVET centres to:

- a. define the inclusion of vulnerable people as a target audience for their training efforts as a strategic priority; and
- b. allocate budget funds to develop strategies that promote this inclusion (recruitment, territorialisation, individualised approaches to levelling up and continuity, among others).

The integration of vulnerable populations as part of the set of institutional mandates can be defined at the legal, political and/or technical management level.

The research found that the more recently created TVET centres (from the 1990s onwards) have integrated the most vulnerable population into their legal frameworks (founding laws and/or decrees). This means that they are clearly included in their objectives and their defined missions and visions. This is, for example, the case of INEFOP. In the case of SENCE, despite being a longer-established institution, its organisational transformation processes have included these sectors of the population as part of its legal mandates.

In the case of long-standing institutions, created in the 1960s and 1970s, specific support for these populations is not legally established, although it has been proposed in political and technical terms in each agency's current strategic planning. This group includes institutions such as INFOTEP, CPS and INTECAP.

This time factor, therefore, reveals the different perceptions of each period on the relationship between training and the world of work; linked to improved productivity (1960s-1970s) or improved employability (1990s and onwards).

The absence of institutional mandates to include vulnerable youth as part of the target population may discourage TVET actors from implementing it. This is partially due to the limited capacity for mobilisation and representation of vulnerable sectors, in turn resulting in their weaker influence on the generation of mechanisms and training proposals that cater for them. Hence, in practice, priority is given to the offer aimed at sectors actively seeking training and contributing financially to make it happen (typically employees or the temporarily unemployed and companies).

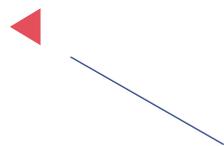
When inclusion mandates are weakly delineated, the potential for internal (and, for that matter, external) tensions over assuming responsibility for the different functions of TVET systems increases. The perceived sense of “developing social policies” puts a strain on the institutional mandate to provide work training, and this, in many cases, occurs without having the institutional capacities to develop the specific strategies that these populations require (in terms of recruitment, admission, levelling up and continuity).

While it has been noted that, in general, TVET centres have defined objectives for including vulnerable populations, it can be affirmed that the approach they adopt with these sectors is fundamentally focused on developing offers that, in general terms, concentrate on training in traditional trades, of short duration, with low digital skills requirements. Regardless of whether the inclusion is due to legal, political or technical mandates, these approaches are not significantly different.

3.2.3. Anticipation of demands and inter-institutional articulation

If institutions offer training unrelated to the occupational demands of the labour market, the integration of young people in general, and vulnerable young people in particular, will be unsuccessful, and their matching functions will be limited. One of the greatest challenges in the context of the transformations in the world of work is the capacity to anticipate market trends so as to adjust the training offer to future demand. Therefore, it is essential to understand how this process is constructed if we are to understand aspects linked to the mismatch between young people in vulnerable situations and training in digital skills.

In highly schematic terms, the definition processes —although partly determined by the previous institutional trajectory— reflect the TVET systems' relations with the environment. On one hand, they reflect the relationship with the actors in the world of work, with the aim of gathering information on employment demands and priorities. On the other hand, they are the result of



inter-institutional articulations with other organisations, which also influence the definition of certain aspects of their training proposals.

Regarding the former, at present, the different TVET centres and public employment services, despite having different objectives, share a relatively common repertoire of instruments for anticipating demand, where social dialogue and tripartism play, or should play, a fundamental role. Indeed, all the institutions analysed (albeit with differences) develop information gathering strategies that make it possible to determine the demands of the labour market and to express them in their training offer. In general, these strategies are characterised by the institutionalised participation of the social stakeholders and by systemising the views of the main actors in the world of work (employers, trade unions and governments) through: holding roundtables, opinion surveys, the use of secondary information, prospective analysis, among others. More recently, certain institutions have been using big data tools to analyse skills demand and labour market trends.

Governments, in some circumstances, may have incentives to prioritise present rather than future labour needs, particularly when unemployment figures dominate the public agenda and call for immediate responses, with no leeway for forward-looking responses. Likewise, and independently of these incentives, the analysis generally encompasses governmental definitions of development strategies and the prioritisation of certain sectors of the economy .

With respect to the second process, the construction of the training offer is also influenced by inter-institutional articulation. In addition to including some kind of tripartite representation, TVET systems usually include areas of coordination with the education system, especially in secondary education.

In this context, the challenges detected in some cases include the absence or weakness of channels or routes that allow, either from the education system or the TVET systems, to effectively guarantee young people's continuity —especially the most vulnerable— in training and/or education programmes. In other cases, difficulties of articulation and distance with both secondary education and tertiary/university education were also identified, despite the existence of formal opportunities for articulation.

These distances generate mobility problems between the different areas of education and training, in terms of the competences and skills that they develop. In fact, regardless of the formal articulation channels, a factor that has a profound impact on the trajectories of professional training in digital skills is the existence of transversal educational processes even at the initial levels, particularly at primary level. Massive training strategies in digital skills and competences in primary education operate as an important leveller given the practically universal coverage throughout the continent.

One of the strategies developed by TVET centres to ensure an updated ICT offer and to include vulnerable populations has been the institutional articulation with key actors in the fields of science, technology and innovation, and also with ministries or agencies working in social development and/or protection (e.g., MIDES in Uruguay).

The bilateral ties between TVET systems and science, technology and innovation agencies (e.g., through cooperation agreements, job placement schemes, among other policies) generate synergies that promote training in intermediate and advanced digital skills, but are generally associated with high entry barriers. At the same time, the links between TVET systems and ministries or governing institutions in the social development and/or protection areas foster the development of targeted training programmes, but generally associates with traditional trades in the system and, therefore, with limited training in digital skills⁴⁴. Moreover, in many cases, this

⁴⁴ Some examples of traditional trades with little or no training in digital skills are those related to: carpentry, shoemaking, hairdressing, handicrafts, among others.

leads to a mismatch between the type of courses offered, the demands of local labour markets and the socio-economic characteristics of the population.

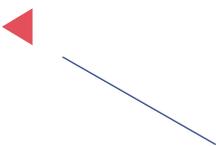
Overall, when considering the inter-institutional articulation processes for defining the training offer aimed at the most vulnerable people and related to the definition of training in digital skills, the fragmentation of TVET systems already been pointed out in several studies (Katz 2018) increases, an element that also affects the mismatch between vulnerable young people and training in digital skills.

In the TVET centres analysed, several positive initiatives can be highlighted in relation to these difficulties of anticipating demands and inter-institutional articulation. For example, in the case of INTECAP, it is worth noting the strategies for anticipating training demands relative to the needs in the framework of Industry 4.0, but also of the labour market in general in the context of increasing digitisation and automation. INTECAP carries out studies to monitor labour supply characteristics; it has conducted company surveys in the primary, secondary and tertiary sectors, seeking to gauge opinions and knowledge in companies about Industry 4.0; and, in conjunction with sectoral roundtables, it has conducted different studies on technological needs for various sectors, such as agriculture, explicitly including qualified informants from micro- and small enterprises.

SENCE conducts a training needs survey process combining the study of the characteristics of labour supply and demand. In each of the country's regions, public-private meetings are set up to establish labour observatories to gather information on the current demand for jobs in the private sector and, based on this information, to analyse the availability of courses. The labour observatories are fundamental inputs that produce a list of suggested occupations prior to publishing the call for tenders for OTICs. In this way, SENCE has a significant impact on designing the offer, beyond the outsourced provision model it operates under.

INFOTEP's training offer is organised in line with the requirements of the labour market in each region, and the institution's analysis of its potential needs. Especially relevant is how the studies integrate the anticipation of the population's needs through surveys on unsatisfied demand and on the offer with the highest demand from the population. In this case, applications for training are analysed in each regional centre's admissions department that failed to receive an institutional response (due to lack of infrastructure or lack of places/ vacancies, among other possible reasons). In the ICT sector, in particular, three evolving characteristics can be observed: firstly, the Planning Unit carries out prospective studies of market needs and demands; secondly, sectoral and technical roundtables are held with the ICT sector; thirdly, through alliances with technology providers, training programmes and platforms are transferred to implement them, so as to structure the institution's training offer. While the institution determines the occupational profiles, the productive sector provides the basis for their design through sectoral and technical roundtables.

3.2.4. Difficulties in the adoption of reference frameworks for digital skills



The integration of young people in situations of vulnerability in training proposals is hampered by problems in defining reference frameworks of digital skills specific to each TVET centre, as well as their integration into the training offer aimed at these populations. In the research, it was found that:

- a. not all TVET centres have approved digital skills frameworks, although the number of proposals in technology has increased in recent years;

- b. where they do exist, they may have operational characteristics or tend towards more holistic and systemic visions for integrating 21st century skills;
- c. their availability does not necessarily guarantee their mainstreaming into the entire offer; and
- d. even when training provision is mainstreamed, insofar as, for vulnerable sectors in general, this provision is of a targeted nature, neither digital skills nor 21st century skills are included in these curricula.

The research found at least two approaches for integrating digital skills reference frameworks in TVET centres: firstly, institutions that have made significant efforts to adopt them and translate them into national realities; secondly, institutions that have developed processes for adopting international reference frameworks, but which are confined to offering digital skills without necessarily adapting them to national characteristics.

The lack of a reference framework that reflects the digital skills required according to the reality of each country makes it difficult to rationalise the offer. The perceived trend towards integrating packaged solutions does not necessarily contribute to generating a national offer of digital skills based on each country's needs. On the contrary, it further consolidates the offer of complementary training to improve the employability of specific and narrow population and productive sectors, which are typically already skilled and employed in quality jobs (Katz 2015; OECD 2020).

It has also been observed that in the absence of national mediation processes for translating international reference frameworks, the outcome is often the operational integration of digital skills in each curricular proposal. In curricular terms, this provides clarity on the scope of the training and the contributions to possible career trajectories. However, integrating digital skills that are confined to basic and operational aspects fails to promote a systemic approach to the transversal occupational skills needed to face 21st century challenge. Training in labour skills (not only in digital skills), and even more so for people in situations of socio-economic vulnerability, is key to building individual and collective skills in the face of an uncertain future, marked by the rapidly shifting needs of the digital economy. For instance: training vulnerable young people in office automation software (basic digital skills from an operational paradigm) without simultaneously addressing skills related to the actual experience of being in a job, hinders the young person's successful path in the labour market. The integration of operational frameworks or digital skills as individualities can be seen as necessary, but not sufficient, for labour market inclusion in the 21st century.

Another of the research findings reveals certain weaknesses in mainstreaming reference frameworks in skills (digital and transversal) at two levels: firstly, throughout the training offer as whole; and secondly, specifically in the offer targeted at vulnerable sectors.

The increased digital skills offer has contributed to narrowing down the skills covered in each curricular proposal. However, this does not necessarily extend to all the training proposals offered by TVET centres.

A second segmentation is found in the provision targeted at vulnerable young people, which either lacks any content related to digital skills or, when it is incorporated, is limited in scope to digital literacy programmes. These initiatives form the basis for starting trajectories that integrate digital content, although this is rarely the case.

It is interesting to examine the experiences of the Paula Souza Centre in the state of São Paulo in Brazil, INTECAP in Guatemala and SENA in Colombia, where national processes for adopting digital skills frameworks and defining their mainstreaming throughout their training have been implemented. It is also apparent that there is a distinction between specialised ICT provision and general training provision: in the former, the design is modular, based on intermediate and advanced skills; and in general provision, at least one digital skill is defined that will be addressed in each curricular proposal.

In the case of the CPS, digital skills are integrated into all training through the curriculum's pedagogical objectives and based on the occupational profile the training is aimed at; the skills framework establishes that these are: *a)* communicating through different digital channels; *b)* searching for data online and analysing information; *c)* using applications for processing and editing text, sounds and images; *d)* storing and sharing files; *e)* using different applications and computer platforms, both fixed and mobile; *f)* applying Internet security procedures; and *g)* safeguarding personal and corporate privacy.

Although it is not defined as such, it can be seen that the digital skills framework used refers to a more instrumental logic, in line with proposals such as that of the ITU (2018). Furthermore, the digital skills in the curricular designs of the non-ICT training offer tend to be of the “basic” and “intermediate” type.

However, the delimitation of skills in the CPS is broader: its curricular design is framed by the functions and skills defined at national level in the Common National Curricular Base, which establishes the knowledge for each disciplinary area and the corresponding skills, values and attitudes, i.e., the core skills or transversal skills that it seeks to develop in students as citizens and professionals. These are: *a)* shaping their personal and social identity; *b)* enjoying the arts, literature, science and technology; *c)* actively participating as engaged citizens in the communities where they work; *d)* developing students' physical, intellectual, emotional and moral facets; *e)* incorporating humanity's cultural heritage into their personal cultural heritage; and *f)* preparing to choose a profession and acting productively and in solidarity with society.

With regard to INTECAP's experience in Guatemala, the institution has developed two skills frameworks that are transversal to all its training: technical skills and digital skills. It also adds English as a transversal skill to be taught. All training is based on an occupational profile, and each course is modular, with sector-specific skills. In the case of ICT training, occupational profiles are combined with the contents of international certifications offered by the institution in partnership with international software firms. At INTECAP, the regular review processes of its skills frameworks, underpinned by international definition processes, such as the ILO's Skills Innovation Network, or competition processes, such as WorldSkills Americas, is highly valued.

The SENA experience is also interesting, due to the design of the SENA Digital programme, which offers two training pathways: Digital Skills for the Software Sector and Digital Skills for 21st Century Digital Citizenship.

Specifically, through the Digital Skills for 21st Century Digital Citizenship pathway, it generated 2.5 million places in 2021 and targets citizens with Internet access and mobile devices to strengthen their skills in the use of ICT resources and services, digital creativity, teleworking, among other areas. Although there is no entry profile based on education level or an admissions test, trainees must have a good command of computer tools (email, chat, word processors, presentation software, Internet, browsers and technological virtual training tools), and should have basic methodological knowledge to pursue an educational or training process. This pathway includes four virtual courses: *a)* Developing digital skills for information management, *b)* Developing digital skills for digital content creation, *c)* Developing digital skills for online communication and collaboration, and *d)* Developing digital skills for safe online experiences.

3.2.5. Teacher training

The impact of teacher training is key to ensuring a successful match between vulnerable young people and the training offer. To a large extent, the integration of digital skills into the curriculum depends on regularly updating the training offered, enabling the teaching role to develop from a comprehensive and inclusive perspective. In short, teacher training in digital skills and in the

capacities to integrate them into pedagogical processes is a necessary condition for the development of training processes.

Two factors have highlighted the urgent need for TVET centres to be able to rely on trained teachers: on one hand, the growing offer of training in digital skills and the need to integrate them into the general curriculum; and on the other, the COVID-19 pandemic and the exponential growth of e-learning.

The research revealed certain tensions caused by this need to adapt to virtual environments and also by the need to incorporate digital skills into training courses that traditionally did not include them. In some cases, there is a degree of resistance to change, perhaps somewhat logical if its integration is not accompanied by appropriate, regular and relevant teacher training.

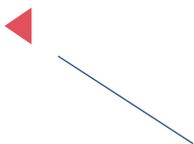
Likewise, the integration of vulnerable young people as a target population of the training offer requires teachers with specific training, due to:

- a. the characteristics of the student body, which are different from those of “typical students”, mainly in terms of skills to belong to and work in educational institutions, i.e., 21st century skills.
- b. the need to develop all-round teaching roles, not only as classroom teachers, but also as support teachers, for socio-educational purposes, and as intra- and inter-institutional liaisons, among others.

In the pandemic context and the urgent need to provide appropriate training responses, it was found TVET centres that had in-house provision models were able to respond well in this area. Faced with the risks of rigidity, being able to rely on their own experience and mechanisms for training, as well as having stable, tenured staff, favoured the rapid implementation of strategies for bringing together the institutions and their students.

The experiences of INFOTEP in the Dominican Republic, INTECAP in Guatemala and the Paula Souza Centre in the state of São Paulo, Brazil, show how the use of institutional capacities for teacher training can be key to developing timely responses to existing needs. The three TVET centres have, on the one hand, tenured teaching staff (in addition to contract teachers) and, on the other hand, teacher education and training centres or schools. Although tensions arose from the uncertainty of the pandemic and the resulting resistance to change, in all three cases it was possible to implement work strategies with the teaching teams to analyse and define the best pedagogical practices to be applied with the students in the context of the pandemic, as well as to train and update the teaching staff in the digital skills required to do so.

Furthermore, in the case of CPS, it also addressed content for developing comprehensive and inclusive pedagogical roles, capable of supporting and accompanying the educational trajectories of students requiring specific support.





Recommendations

One objective of this research is to provide practical inputs for generating vocational training policies in digital skills to improve the connection between young people and the labour market. Given the broad scope of this study, emphasis was placed on TVET centres and the most vulnerable young people. The current regional context, while challenging due to persistent youth employment difficulties, also brings opportunities. Indeed, the underlying hypothesis of this paper is that TVET systems could potentially play a key role in generating policies that allow them to adapt their training offer to provide vulnerable young people with opportunities for social integration.

The theoretical argument is that TVET systems can be understood as one of the institutional structures through which the transition processes of young people are channelled. Indeed, the matching function of their institutions can play an important role in improving young people's employability, as plays a crucial role in their transitions. For the most vulnerable young people, whose transitions are marked by complex and non-linear patterns, this role is even more relevant. In a context where technology is increasingly integrated into work processes —spurred by the COVID-19 pandemic— the digital skills training developed by TVET centres is therefore a key contribution to improving the labour market integration of the region's most vulnerable young people. The perspective of technological appropriation makes it possible to come closer to understanding the real and symbolic representations of these young people's relationships with the world of work, with formal education and with ICTs. Defining the digital skills to be developed in training processes involves the challenge of integrating these perspectives so as to promote meaningful trajectories, geared toward the present and future realities of young people in situations of vulnerability.

The empirical side of the research centred on analysing the experiences of six institutions that make up the ILO/Cinterfor network. Although this is an exploratory study on a subject for which there is little accumulated research, the main finding is that there is a considerable lack of convergence between the provision of training in digital skills and vulnerable young people. In seeking explanations for this situation, two sets of difficulties were tentatively identified:

- a. challenges in reaching the target population of the TVET centres, which include: recruitment, entry and continuation;
- b. challenges of institutional capacities of TVET systems, related to: offer provision model, integration of vulnerable sectors in the institutional mandates of TVET centres, anticipation of demands and inter-institutional articulation, adoption of digital skills and teacher training frameworks .

Despite the difficulties, there were also noteworthy best practices in the institutions analysed. The successful channelling of digital skills training to improve the employability of young people in situations of vulnerability calls for institutions to be more inclusive. The good practices identified are a good starting point for strengthening institutional capacities.

Before listing a brief set of recommendations, it is worth commenting on the characteristics of the population with which these TVET are working.

As noted, training in digital skills is unlikely to find the most vulnerable young people in the region among its students, and the programmes aimed at vulnerable populations are mainly oriented towards short-term training in traditional manual or craft trades, in which digital skills are scarcely integrated or not included at all. This type of targeted provision, taken to its extreme, generates a segmentation or dualisation of vocational training between a general training offer and one for less regarded and/or more vulnerable students. This situation could potentially have the opposite effects to those sought in terms of social inclusion, as pointed out in the conceptual discussion of this document, adding the component of stigmatisation to the problems of labour market integration that generally persist after this type of training process.

In addition, it was found that TVET systems that are too challenging in terms of admission criteria, without strategies for levelling up learning, with weaknesses or absence of close support to ensure the continuity of the training trajectories, among other aspects, generate difficulties in adapting the training proposals to the characteristics of the target population and vice versa and, therefore, are hurdles to achieving successful training processes and subsequent labour market integration.

In this challenging context, there are two good reasons to be hopeful that the problems of targeting the most vulnerable population can be overcome. The first relates to the good practices and numerous positive experiences developed by the TVET centres analysed and described in the chapter on findings. The second is linked to the fact that, in Latin America and the Caribbean, despite the historical weaknesses of their welfare architectures, education systems (at least at the primary and secondary levels) have a long history of targeting based on a universal framework. If the objective is the integration of the most vulnerable sectors, the challenge seems to centre on developing targeted strategies that channel resources towards the most vulnerable, but with the aim of including them in universal-based models, guaranteeing their access to quality education.

Below, a set of recommendations are proposed, with TVET systems in mind, in line with the problems identified in chapter 3, with the aim of serving as inputs for developing strategies towards better recruitment, reducing entry barriers and strengthening training trajectories for the most vulnerable young people.

Expanding recruitment regionally. The following actions are proposed: *a)* prioritising geographical areas where the highest indicators of vulnerability are concentrated, such as rural areas and/or irregular urban settlements in major cities, with access difficulties to basic utilities (electricity, Internet); *b)* generating alliances with local actors from organised civil society or state services that give the institution a foothold in the region.

Promoting the incorporation of vulnerable young people. Some measures that could be adopted include: *a)* waiving registration and tuition fees or course fees, and granting scholarships; *b)* defining inclusive criteria for aspects such as: participation of young people in public education; participation of the household or family nucleus in social programmes (labour inclusion, socio-economic transfers, social housing, among others); adult referent(s) who are unemployed, informally employed or receiving unemployment benefits; *c)* generating regional and inter-institutional agreements to favour, among other issues, for example, social care systems.

Protecting educational trajectories. Among the broad range of measures, special mention can be made of the following:

- a. Material access to devices and connectivity.** TVET centres could integrate, as part of their services, support for students in terms of infrastructure, for example, access to computer devices, as well as facilitating their connectivity.

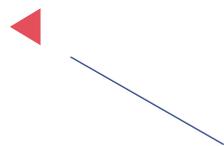
- b. Levelling-up policies for the entire training offer.** The development of levelling-up strategies is suggested for those with the intention and motivation to receive training (e.g., in digital skills), but who do not have these skills. In this sense, proposals for preparation prior to enrolment processes could be generated. Likewise, levelling-up strategies could be implemented at the same time as the courses, within the framework of processes to support continuation.
- c. Socio-educational support strategies.** Broadening the technical profiles for working with vulnerable young people can favour not only pedagogical support, but also socio-educational support, which can act as a comprehensive and integrating reference point for approaching each of the subjects individually.
- d. Diverse, flexible and individualised learning pathways.** Designing and implementing policies that foster the generation of diverse, flexible and individualised trajectories can redefine educational experiences by recognising the skills of each young person, pinpointing those that need to be improved for each subject. Targeted offers in this sense can be understood as “gateways” to more complex and individualised training trajectories.

Vulnerability as a problem requires focusing on institutional capacities for the development of inclusive management in TVET centres. To this end, it is proposed to:

Centralise decision-making processes on training offer and selection criteria. Promoting the inclusion of vulnerable young people in training programmes is favoured when TVET centres, based on social dialogue, have a say in: *a)* designing the offer; *b)* defining selection needs and criteria in the admission processes; and *c)* the choice of the didactic and methodological strategy for developing the courses. Regardless of the management model, the greater the participation of TVET centres and actors from the world of work in designing training offers and defining the characteristics of the selection processes, the more likelihood there is of achieving the objective of inclusion.

Transcend the discussion “social policies versus vocational training policies”.

- a. Incorporate vulnerable young people as a target population in institutional mandates.** Conceiving that the systems, and thus TVET centres, have a role to play, which involves establishing new functions and building new perspectives that accentuate the representation of population groups with limited mobility, but who require training opportunities to improve their present and future employment trajectories. This does not entail reducing admission requirements, but rather generating institutional conditions that allow the entry and continuity of vulnerable young people, i.e., generating “routes” for inclusion. The presence or absence of explicit mandates influences a range of different processes in terms of how they are integrated as a target population.
- b. More and better inter-institutional coordination.** Articulation should take place at least at two levels: first, between TVET systems’ actors, but also with key actors that favour the generation of joint strategies where the two worlds can meet. For example, institutions related to social protection (ministries of development or social protection), but also with business stakeholders, in particular Industry 4.0.
- c. Integrate incentive systems for outsourced organisations to include vulnerable youth.** While strengthening centralised processes for designing the offers and defining selection practices is more likely to favour the inclusion of young people in vulnerable situations, outsourced provision models require the introduction of compensation systems to incentivise agents to focus on certain actions and results. Suggested actions would include incorporating incentives for developing more complex courses of action, involving the generation of



strategies for socio-educational support, levelling up, labour reintegration and the general welfare of these groups.

Strengthen demand anticipation:

- a. **Regular monitoring and evaluation.** In addition to increasing the capacity of TVET centres to influence the design and implementation of training policies, it is advisable to generate or strengthen their monitoring and evaluation capacities. It is important to align the analysis of the mandates with the strategic and operational planning of TVET centres, in line with the socio-demographic characteristics of the population and the student body, to regularly review the access and retention of vulnerable young people in the training proposals. The implementation of new mechanisms likewise implies the need for regular monitoring and evaluation. The involvement of social stakeholders throughout the training policy cycle, including monitoring and evaluation, is widely recognised in the ILO literature consulted (ILO 2021b).
- b. **Generate a training offer adapted to the future development of the labour market.** The technical weighting of the inputs provided by the different feedback survey strategies is key. The participation of employers' and workers' organisations in this process is indispensable. In the case of the inclusion of vulnerable sectors, it is crucial to correlate the training demands of the labour market (both current and future) to the characteristics of the population. This has an impact on the design of integrated, non-exclusive training offers. It is essential to analyse which jobs are most in demand and those most likely to be currently accessible to vulnerable people, and which of them are at risk of future automation, so as to foster the integration of curricular content related to digital and core skills/transversal skills, thus favouring current labour market inclusion with a view to future reconversion.

Promote holistic reference frameworks for digital skills and core skills/transversal skills:

- a. **Develop processes for translating international reference frameworks for digital and core skills/transversal skills into national realities.** The TVET centres studied have made significant commitments to integrate digital and 21st century skills conceptually and operationally into their curricular developments. The adoption of international reference frameworks can provide valuable support at the beginning of the process, although it is not enough, as such frameworks need to be adapted to the characteristics of the labour markets, as well as to the characteristics of the population in each national reality.
- b. **Mainstreaming of digital skills and core skills/transversal skills into the educational offer of TVET centres.** In addition to defining the national framework of digital skills and core skills, there is the analytical process of how to integrate them into the training offer of TVET centres. Their mainstreaming into all curricular proposals is key to promoting inclusive processes so as to bring about changes in the labour market. In this sense, the skills to be addressed are established individually for each training proposal, within the framework of each trainee's exit profile based on the requirements of the labour market. This complexity is compounded when analysing the incomplete learning trajectories of vulnerable young people. In targeted learning pathways, i.e., flexible, diverse and individualised trajectories, the introduction of digital skills could and should be gradual. This targeted integration is based on recognising the inequalities in the technology appropriation processes of vulnerable populations. While it is necessary for general digital literacy modules to form part of all targeted proposals, this alone is not enough. By building "digital learning routes" it becomes possible to individualise educational trajectories based on the participants'

individual interests and previous skills. Focusing on the social meanings that young people give to ICTs in the context of their everyday lives makes it possible to identify potential methodological strategies for a more profound pedagogical understanding of their interconnection with the world of work.

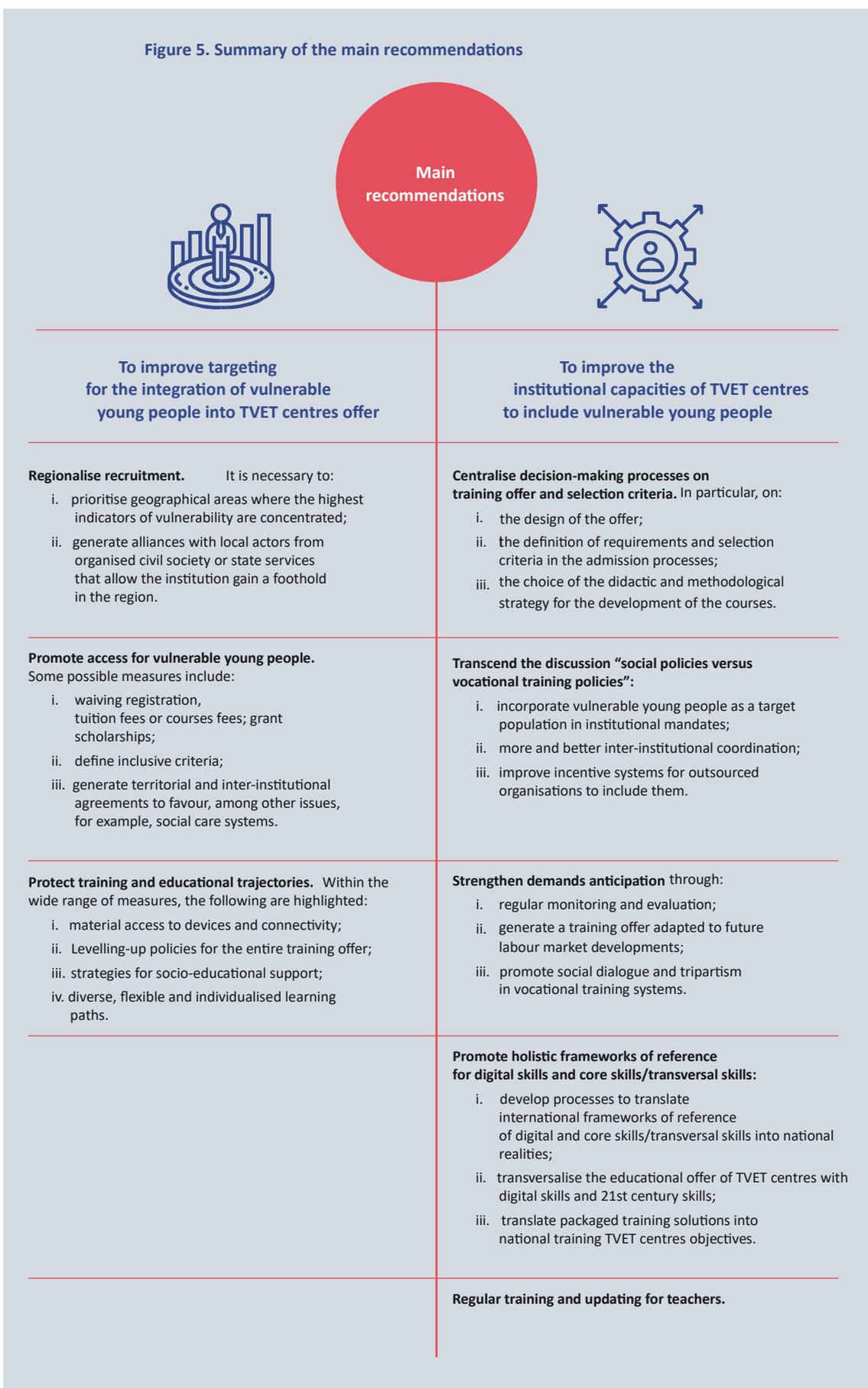
- c. **Translating packaged training solutions into national training and TVET objectives.** Establishing national agreements with technology and e-learning platforms and firms can facilitate the link between their packaged offer and the institutions' strategic planning efforts. Furthermore, in the case of the inclusion of young people in situations of vulnerability, it can generate complementary strategies, developed by each training institution, with a view to comprehensive and inclusive pedagogical work. This can happen through the following: *a)* development of specific modules within the packaged offer according to particular requirements for the integration of levelling-up processes; *b)*



generation of face-to-face tutoring and support spaces for working on the contents of the packaged courses supervised by teachers; and *c)* integration of the packaged offer as credits for the ICT offer and the institution's general offer based on the individualised analysis of each student's skills and, through this, suggesting training trajectories that could potentially enable their accreditation; among others.

Regular training and updating for teachers. At least three challenges have been identified in relation to teacher training and updating: *a)* the integration of vulnerability as an integral facet of their task within the framework of the actions of TVET centres; *b)* didactic development, as a result of new course modalities; and *c)* the incorporation, as learning objectives, of new areas of knowledge in digital and transversal areas. There is an urgent need to plan robust teacher training agendas that will make it possible, on the one hand, to mainstream the entire offer based on national frameworks of skills and abilities, and on the other, to connect this type of content with vulnerable young people. The generation of new pedagogical figures (socio-educational referents, classroom referents, coordinators, among others) becomes relevant so as to favour the development of strategies for levelling up and continuation of the population in general, but fundamentally of the most vulnerable.

Figure 5. Summary of the main recommendations



Bibliography

- Acemoglu, D., and D. Autor. 2011. "Skills, tasks and technologies: Implications for employment and earnings. In *Handbook of Labor Economics*, vol. 4, edited by D. Card and O. Ashenfelter, 1043-1171. Elsevier. [https://doi.org/10.1016/S0169-7218\(11\)02410-5](https://doi.org/10.1016/S0169-7218(11)02410-5)
- Aguerrevere, G., N. Amaral, C. Bentata and G. Rucci. 2020. *Desarrollo de habilidades para el mercado laboral en el contexto de la COVID-19*. Inter-American Development Bank. <https://doi.org/10.18235/0002323>
- Amarante, V., V. Filardo, J. Lasida and R. Operti. 2011. *Jóvenes en tránsito. Oportunidades y obstáculos en las trayectorias hacia la vida adulta*. United Nations Population Fund and Fundación Rumbos.
- Auer, P., Ü Efendioğlu and J. Leschke. 2005. *Active labour market policies around the world: Coping with the consequences of globalization*. International Labour Office.
- Autor, D. 2010. *The polarization of job opportunities in the US labor market: Implications for employment and earnings*. Center for American Progress and The Hamilton Project.
- . 2013. "The 'task approach' to labor markets: An overview". *Journal for Labour Market Research* 46 (3): 185-199. <https://doi.org/10.1007/s12651-013-0128-z>
- Autor, D., and D. Dorn. 2013. "The growth of low-skill service jobs and the polarization of the US labor market". *American Economic Review* 103 (5): 1553-1597.
- Autor, D. H., L. F. Katz and M. S. Kearney. 2006. "The polarization of the US labor market". *American Economic Review* 96 (2): 189-194.
- Bashir, S., and K. Miyamoto. 2020. *Digital skills: Frameworks and programs*. Washington D. C.: World Bank. <https://openknowledge.worldbank.org/handle/10986/35080>
- Bonoli, G. 2013. *The origins of active social policy: Labour market and childcare policies in a comparative perspective*. Oxford University Press.
- Broadband Commission for Sustainable Development. 2017. *Working Group on Education: Digital skills for life and work. What are the educational implications of the "broadband society" for the development of digital skills for life and work?* <https://broadbandcommission.org/wp-content/uploads/2021/09/WG-Education-Report2017.pdf>
- Brunini, A., C. Lara, S. Soto and C. Cristar. 2010. "Un nuevo abordaje sobre el estereotipo de jóvenes que no trabajan ni estudian". Presentation made at the 1st Uruguayan Congress of Sociology.
- Casal, J. 1996. Modos emergentes de transición a la vida adulta en el umbral del siglo XXI: aproximación sucesiva, precariedad y desestructuración. *Reis*: 295-316.
- Coats, J. C. 2002. "Applications of principal-agent models to government contracting and accountability decision making". *International Journal of Public Administration* 25 (4): 441-461. <https://doi.org/10.1081/PAD-120013250>
- Dicke, L. A., and J. S. Ott. 1999. "Public agency accountability in human services contracting". *Public Productivity & Management Review* 22 (4): 502-516. <https://doi.org/10.2307/3380933>

- DiPrete, T. A., C. C. Eller, T. Bol and H. G. Van de Werfhorst. 2017. "School-to-work linkages in the United States, Germany, and France". *American Journal of Sociology* 122 (6): 1869-1938.
- Duckworth, A. L., C. Peterson, M. D. Matthews y D. R. Kelly. 2007. "Grit: Perseverance and passion for long-term goals". *Journal of Personality and Social Psychology* 92 (6): 1087-1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Duckworth, A. L., and M. E. P. Seligman. 2005. "Self-discipline outdoes IQ in predicting academic performance of adolescents". *Psychological Science* 16 (12): 939-944. <https://doi.org/10.1111/j.1467-9280.2005.01641.x>
- ECLAC (Economic Commission for Latin America and the Caribbean). 2016. *La matriz de la desigualdad social en América Latina*. Santiago de Chile: Social Development Division, ECLAC.
- _____. 2021a. *Panorama social de América Latina 2020*. ECLAC.
- _____. 2021b. "La autonomía económica de las mujeres en la recuperación sostenible y con igualdad" COVID-19 Special Report, no. 9. United Nations, ECLAC.
- _____. 2021c. "Datos y hechos sobre la transformación digital". Project Documents (LC/TS.2021/20). Santiago.
- _____. 2021d. *Economic survey of Latin America and the Caribbean*. (LC/PUB.2021/10-P/Rev.1). Santiago. <https://repositorio.cepal.org/bitstream/handle/11362/47193/10/S2100607en.pdf>
- ECLAC (Economic Commission for Latin America and the Caribbean) and OEI (Organization of Ibero-American States). 2020. "Educación, juventud y trabajo: Habilidades y competencias necesarias en un contexto cambiante". Project Documents.
- Elder Jr., G. H. 1995. "The life course paradigm: Social change and individual development". En *Examining lives in context: Perspectives on the ecology of human development*, edited by P. Moen, G. H. Elder Jr. y K. Lüscher, 101-139. American Psychological Association. <https://doi.org/10.1037/10176-003>
- Fernández-Ferrer, M. 2019. "Revisión crítica de los MOOC: pistas para su futuro en el marco de la educación en línea". *REDU. Revista de Docencia Universitaria* 17 (1): 73. doi: 10.4995/redu.2019.11275.
- Filardo, V. 2010. Transiciones a la adultez y educación. *Cuadernos del UNFPA* 4 (5): 1-51.
- Filgueira, F., J. Martínez and C. Rossel. 2016. "Género y generaciones en América Latina: Claves para el desarrollo económico y social en perspectiva comparada". *Tendencias en Foco*, N.º 35. RedEti-IPE-UNESCO.
- Frailon, J., J. Ainley, W. Schulz, D. Duckworth and T. Friedman. 2019. "ICILS instruments". In *IEA International Computer and Information Literacy Study 2018 Assessment Framework*. Cham: Springer. https://doi.org/10.1007/978-3-030-19389-8_5
- Frey, C. B., and M. A. Osborne. 2017. "The future of employment: How susceptible are jobs to computerisation?". *Technological Forecasting and Social Change* 114: 254-280. <https://doi.org/10.1016/j.techfore.2016.08.019>
- Furlong, A., and F. Cartmel. 1997. *Young people and social change: Individualisation and risk in late modernity*. Buckingham: Open University Press.
- Furlong, A., F. Cartmel and A. Biggart. 2006. "Choice biographies and transitional linearity: Reconceptualising modern youth transitions". *Revista de Sociología* (79): 225-239.

- Goos, M., and A. Manning. 2007. "Lousy and lovely jobs: The rising polarization of work in Britain". *The Review of Economics and Statistics* 89 (1): 118-133. <http://www.jstor.org/stable/40043079>
- Goos, M., A. Manning and A. Salomons. 2014. "Explaining job polarization: Routine-biased technological change and offshoring". *American Economic Review* 104 (8): 2509-2526.
- HabLatam. Not published. "Report of focus group results. Regional study 'Jóvenes, habilidades digitales y brechas de contenido en América Latina – HabLatam'", financed by the Fondo Sectorial de Educación de la ANII – Fundación Ceibal de Uruguay. Universidad de la República del Uruguay – Universidad de Chile. (FSED_2_2018_1_150808). <http://www.conectadosalsur.org/hablatam/>
- Hagestad, G. 1991. "Trends and dilemmas in life-course research: An international approach. In *Theoretical advances in life-course research*, edited by W. R. Heinz. Weinheim: DSV.
- Heckman, J., and T. Kautz. 2013. "Fostering and measuring skills: Interventions that improve character and cognition" (N.º w19656; p. w19656). National Bureau of Economic Research. <https://doi.org/10.3386/w19656>
- Heinz, W. R., and J. Allmendinger. 1992. *Institutions and gatekeeping in the life course*. Deutscher Studien Verlag.
- Hogan, D. P., and N. M. Astone. 1986. "The transition to adulthood". *Annual Review of Sociology* 12: 109-130.
- IIEP-UNESCO (International Institute for Educational Planning – United Nations Educational, Scientific and Culture Organization), CLADE (Latin American Campaign for the Right to Education) and OXFAM. 2021. *Desigualdades educativas en América Latina: Tendencias, políticas y desafíos*. CLADE.
- ILO. 2005. *Recomendación sobre el desarrollo de los recursos humanos: Educación, formación y aprendizaje permanente*. Geneva: International Labour Office.
- _____. 2013. *Trabajo decente y juventud en América Latina. Políticas para la acción*. Lima: ILO / Latin America and the Caribbean Regional Office.
- _____. 2016. *What works: Active labour market policies in Latin America and the Caribbean*. International Labour Office.
- _____. 2020a. *Panorama laboral 2020*. Lima: ILO / Latin America and the Caribbean Regional Office.
- _____. 2020b. *Global employment trends for youth 2020: Technology and the future of jobs*. International Labour office.
- _____. 2020c. *Panorama laboral en tiempos de la COVID-19: Impactos en el mercado de trabajo y los ingresos en América Latina y el Caribe*. Technical note. ILO / Latin America and the Caribbean Regional Office.
- _____. 2021a. *World employment and social outlook: Trends 2021*. International Labour Office.
- _____. 2021b. "Resolución sobre competencias y aprendizaje permanente". 2021 International Labour Conference.
- _____. 2022. *Panorama laboral 2021. Latin America and the Caribbean*. ILO / Latin America and the Caribbean Regional Office, Lima.
- ILO-CINTERFOR. 2017. *El futuro de la formación profesional en América Latina y El Caribe: diagnóstico y lineamientos para su fortalecimiento*. Montevideo: ILO / Latin America and the Caribbean Regional Office.

- ITU (International Telecommunication Union). 2018. *Digital skills toolkit*. ITU. <http://handle.itu.int/11.1002/pub/8110cd77-en>
- Katz, R. L. 2015. *El ecosistema y la economía digital en América Latina*. Fundación Telefónica, Editorial Ariel, ECLAC.
- . 2018. *Capital humano para la transformación digital en América Latina*. ECLAC Productive Development.
- Katz, L. F., and D. H. Autor. 1999. “Changes in the wage structure and earnings inequality”. In *Handbook of labor economics*, vol. 3A, edited by O. Ashenfelter and D. Card, 1463-1555.
- Kohli, M. 2007. “The institutionalization of the life course: Looking back to look ahead”. *Research in Human Development* 4 (3-4): 253-271.
- Krull, S. 2016. “El cambio tecnológico y el nuevo contexto del empleo tendencias generales y en América Latina”. Project Documents. ECLAC.
- Maloney, W. F., and C. Molina. 2016. “Are automation and trade polarizing developing country labor markets, too?”. World Bank Policy Research Working Paper N.º 7922. <https://ssrn.com/abstract=2887777>
- Mann, A., V. Denis, A. Schleicher, H. Ekhtiari, T. Forsyth, E. Liu and N. Chambers. 2020. *Dream jobs? Teenagers’ career aspirations and the future of work*. OECD. <https://www.oecd.org/education/dream-jobs-teenagers-career-aspirations-and-the-future-of-work.htm>
- Manyika, J., S. Lund, M. Chui, J. Bughin, J. Woetzel, P. Batra, R. Ko and S. Sanghvi. 2017. *Jobs lost, jobs gained: Workforce transitions in a time of automation*. McKinsey Global Institute.
- Marope, Mmantsetsa, Patrick Griffin and Carmel Gallagher. 2019. *Future competences and the future of curriculum. A global reference for curricula transformation*. UNESCO. http://www.ibe.unesco.org/sites/default/files/resources/future_competences_and_the_future_of_curriculum.pdf?fbclid=IwAR1Y3Ac0dNgpHqle02-OwYQ-b-eAZfwEHJ3PwnbUZa8TXIaPZQpTrMjnhU
- Mateo-Berganza Díaz, M. M. 2021. “Un enfoque basado en habilidades para recuperar la educación y mejorar las oportunidades de la próxima generación”. In *Spotlight: 21st century skills in Latin America and the Caribbean*, edited by C. Petrie, C. García-Millán and M. M. Mateo-Berganza Díaz. Inter-American Development Bank. <https://doi.org/10.18235/0003343>
- Mateo-Berganza Díaz, M. M., and C. Lee. 2020. *What technology can and can’t do for education: A comparison of 5 stories of success*. Inter-American Development Bank. <https://doi.org/10.18235/0002401>
- Mateo-Berganza Díaz, M., and G. Rucci, eds. 2019. *El futuro ya está aquí: Habilidades transversales de América Latina y el Caribe en el siglo XXI*. Inter-American Development Bank. <https://doi.org/10.18235/0001950>
- Maurizio, R. 2022. “Un crecimiento débil y crisis global frenan la recuperación del empleo en América Latina y el Caribe”. Technical note, Serie Panorama Laboral. Lima: OIT. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_854764.pdf
- OECD (Organization for Economic Cooperation and Development). 2019. *Skills matter: Additional results from the Survey of Adult Skills*. París: OECD Publishing.

- _____. 2020. *Making the most of technology for learning and training in Latin America*. OECD. <https://doi.org/10.1787/ce2b1a62-en>
- _____. 2021. *OECD Skills outlook 2021: Learning for life*. OECD. <https://doi.org/10.1787/0ae365b4-en>
- _____. s. f. *Skills studies*. OECD Publishing.
- PISA (Programme for International Student Assessment). 2018. *PISA 2018 results (vol. VI): Are students ready to thrive in an interconnected world?* OECD. <https://doi.org/10.1787/d5f68679-en>
- Reygadas, Luis. 2008. "Tres matrices generadoras de desigualdades". In *Pobreza, desigualdad y exclusión social en la ciudad del siglo XXI*, edited by R. Cordera, P. Ramírez Kuri and A. Ziccardi. UNAM, Seminario de la Cuestión Social / IIS / Siglo XXI Editores.
- Scolari, C. A. 2018. *Adolescentes, medios de comunicación y culturas colaborativas. Aprovechando las competencias transmedia de los jóvenes en el aula*. EC | H2020 | Research and Innovation Actions.
- Scott, C. 2015. *El futuro del aprendizaje 2: ¿Qué tipo de aprendizaje se necesita en el siglo XXI?* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000242996_spa
- Scuro, L., and I. Vaca-Trigo. 2017. "La distribución del tiempo en el análisis de las desigualdades en las ciudades de América Latina". In *¿Quién cuida en la ciudad?: Aportes para políticas urbanas de igualdad*, Economic Commission for Latin America and the Caribbean (ECLAC), 117-148.
- Stauber, B., and A. Walther. 2001. "Avoiding misleading trajectories: Transition dilemmas of young adults in Europe". *Journal of Youth Studies* 4 (1): 101-118.
- _____. 2002. "Introduction: Young adults in Europe – Transitions, policies and social change. En *Misleading trajectories. Integration policies for young adults in Europe*, edited by A. Walther, B. Stauber, A. Biggart, M. du Bois-Reymond, A. Furlong, A. López Blasco and S. Mørch. EGRI, Les ke+ Budrich.
- UNDP (United Nations Development Programme). 2021. *Atrapados: alta desigualdad y bajo crecimiento en América Latina y el Caribe. Informe regional de desarrollo humano 2021*. New York: UNDP.
- UNESCO (United Nations Educational, Scientific and Culture Organization). 2015. *Global citizenship education: Topics and learning objectives*. Francia. <https://unesdoc.unesco.org/ark:/48223/pf0000232993>
- _____. 2018. *A global framework of reference on digital literacy skills for indicator 4.4.2*.
- _____. 2021. *Media and information literate citizens: Think critically, click wisely!* París. ISBN 97892-3-100448-3.
- UNICEF (United Nations Children's Fund). 2019. *Global framework on transferable skills*. New York. <https://www.unicef.org/media/64751/file/Global-framework-ontransferable-skills-2019.pdf>
- Valencia-Molina, T., A. Serna-Collazos, S. Ochoa-Angrino, A. M. Caicedo-Tamayo, J. A. Montes-González and J. D. Chávez-Vescance. 2016. *Competencias y estándares TIC desde la dimensión pedagógica: Una perspectiva desde los niveles de apropiación de las TIC en la práctica educativa docente*. Cali: Pontificia Universidad Javeriana.
- Van Dijk, J. A. 2017. "Digital divide: Impact of access". In *The international encyclopedia of media effects* (1st. ed.), edited by P. Rössler, C. A. Hoffner and L. Zoonen. Wiley. <https://doi.org/10.1002/9781118783764>

- Vargas Zúñiga, F. 2020. *Formación profesional en la respuesta a la crisis y en las estrategias de recuperación y transformación productiva post COVID-19*. Technical note. Labour Overview in COVID-19 Times. ILO/ Cinterfor Latin America and the Caribbean Regional Office.
- Vuorikari, R., S. Kluzer and Y. Punie. 2022. *DigComp 2.2: The Digital Competence Framework for Citizens. With new examples of knowledge, skills and attitudes*. Luxemburg: Publications Office of the European Union.
- Walther, A. 2006. “Regimes of youth transitions: Choice, flexibility and security in young people’s experiences across different European contexts”. *Young* 14 (2): 119-139.
- Walther, A., B. Stauber, A. Biggart, M. du Bois-Reymond, A. Furlong, A. López Blasco and S. Mørch. 2002. *Misleading trajectories. Integration policies for young adults in Europe*. EGRI, Les ke+ Budrich.
- World Bank. 2020. *Digital skills: Frameworks and programs*.
- Wyn, J., and R. White. 1997. *Rethinking Youth*. London: Sage.



ANNEXES

Annex I. Methodological Strategy

General objective

The research aims to contribute to the generation of knowledge and practical inputs for the region's vocational training institutions and public employment services regarding training policy actions and active labour market policies that enable young people (particularly those in a situation of socio-economic vulnerability) to successfully enter the most dynamic sectors of the economy, where digital skills (intermediate and advanced) are key to employability.

Specific objectives

- a. To make available to TVET centres, public employment services and labour market policy makers in the countries of the region, a knowledge-based product containing practical guidelines and recommendations on how to enhance the development of digital skills of young people (particularly vulnerable young people, and with a gender perspective) and that this has a positive effect on their socio-occupational integration and employability.
- b. To contribute to the discussion and problematisation of training solutions linked to the development of digital skills in education and training policies and programmes for young people in the region.
- c. To contribute to the visibility and appropriate consideration of the effects of the growing digital divide (in skills, but also in infrastructure and material access to digital technology) within and between countries, as an element that exacerbates the educational and socio-labour exclusion of large contingents of young people.
- d. To contribute to the exchange of experiences, knowledge and good practices among the above-mentioned actors, within the framework of South-South cooperation between TVET centres among the members of the ILO/Cinterfor network.

Universe of analysis

The present research focuses on case studies of six TVET centres in six countries: Brazil (São Paulo state), Chile, Colombia, Dominican Republic, Guatemala and Uruguay.

Research techniques

The present study sought to incorporate the comparative perspective, but not based on a rigorous application of the comparative method. The research objectives involved the implementation of various techniques that in a complementary manner allow for an understanding of all the components.

A literature review was conducted for all research components: youth, current labour market, vocational training and digital skills. This was accompanied by a descriptive statistical analysis of different data for each component per country, with particular emphasis, where appropriate, on the youth population, young women and those in situations of social vulnerability.

In addition, a documentary survey was carried out for each TVET centre in each of the case studies. Statistical data was collected from each TVET centre and the training offer of each one was systematised, with emphasis on training in digital skills.

Finally, interviews were conducted with qualified informants from each TVET centre. In the Uruguayan case, interviews were conducted with key actors in the tertiary education system, as well as in the Ceibal Plan.

Annex II. Interview guideline: blocks of information

Block 1: Offer and characteristics of digital skills training courses

The first block of information refers to the survey of the offer of digital training courses in each institution. The main objectives of this module refer to the register of:

- ✎ Types of courses offered with digital skills training
- ✎ Types of digital skills for which training is offered
- ✎ The way in which course contents are designed
- ✎ Existence of coordination with the productive sector for the design (ICT sector)
- ✎ Modalities of course delivery
- ✎ Link of the training offer with the formal education system
- ✎ Link of the training offer with packaged online solutions (Coursera / EdX / LinkedIn Learning) and advanced IT training (from Google/Microsoft/Amazon).

Block 2: Characteristics of the population accessing digital skills training courses

The second block of information refers to the survey of the characteristics of the population accessing digital skills training courses. The main objectives of this module refer to the register of:

- ✎ Socio-demographic characteristics of the population accessing the courses
- ✎ Existence of courses aimed at specific groups: (young people, women, unemployed, employed, rural population, among others).
- ✎ Entry requirements, existence of quotas and, if so, how they are distributed
- ✎ Levelling-up strategies prior to the start of the courses
- ✎ Form of dissemination of the courses.

Block 3: Course evaluation and labour market integration

The third block of information refers to the enquiry on the existence of studies (or, if applicable, the perceptions of the interviewees) on the evaluation of the courses and their contribution to the integration of the participants in the labour market. The main objectives of this module refer to the register of:

- ☞ Existence of evaluation of digital skills training courses
- ☞ Evaluation of participants' training trajectories (access, trajectory, learning, graduation)
- ☞ Main difficulties detected in relation to access and completion of the course
- ☞ Information on labour market integration after the training.

Block 4: Digital skills training and job demand

The fourth block of information seeks to know the opinion of the people interviewed regarding the characteristics of the demand for digital skills in the labour market and regarding the potential of training in digital skills to face the challenges of youth employment. The main objectives of this module refer to the register of:

- ☞ Characteristics of the demand for digital skills in the labour market
- ☞ Sectors of the economy that demand digital skills
- ☞ Specific demands of the ICT sector and its dimension in the demand for employment
- ☞ Traditional occupations that increasingly demand digital skills
- ☞ Potential of training in digital skills to:
 - ☞ improve the employability of young people in situations of socio-economic vulnerability
 - ☞ strengthen the continuity in the labour market of young people who are in sectors of low productivity and/or in occupations at risk of being eliminated by automation processes
 - ☞ to enable young people to enter dynamic sectors of the economy (e.g., ICT).
- ☞ Challenges and opportunities for TVET centres in this context.

Annex III. Itinerary of interviews and qualified informants

Country	VTI	Interviewed
Brazil	Centro Paula Souza	Sabrina Rodero – diretora do Grupo de Supervisão Educacional (Educational Supervision Group director)
Chile	SENCE	Felipe Zapata – in charge of the Online Courses Programme of the Department of People Training Pedro Abarca – national person in charge of the Reinvéntate Programme
Colombia	SENA	Olga Bermúdez – contractor of the Vocational Training Directorate
Guatemala	INTECAP	Byron Garrido – Head of the Planning Division Carlos De León – Head of the Research and Technological Innovation Department Ricardo Méndez – Head of Training Department B - ICT Centre / FAD Unit
Dominican Republic	INFOTEP	Ondina Marte – Director of Planning and Development Alexis De La Rosa – in charge of the National Virtual Training Centre Maura Corporán – Director of Innovation and Development
Uruguay	INEFOP	Valeria Píriz – coordinator of the Educational-Labour Guidance Unit Sofía Doccetti – reference of the Digital Transformation of TVET project
		Jhonny Hernández – Head of Course Management Unit - Vocational Training Management
		Silvia García – Employment Area Manager
	UTEC	Patxi Olavarría – responsible for the Evaluation and Statistics Programme
	Ceibal	Cecilia Hughes – Head of Evaluation and Monitoring Irene González – Manager of Data Analysis and Behavioural Science



Organización
Internacional
del Trabajo

