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Skilled Transitions: Digital Training Programmes as Active Labour Market Strategies in Rural Portugal

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Abstract

The transition from school to work in rural areas presents distinct challenges compared to urban environments, shaped by constraints on spatial mobility, limited employment opportunities, insufficient training provision, and cultural expectations, particularly concerning gender roles. The Covid-19 pandemic and the expansion of remote work initially appeared to mitigate some of these barriers for digitally literate individuals with access to adequate infrastructure. However, many young people in rural areas lack the necessary digital skills and reliable internet connectivity to engage in remote employment, rendering digitalisation a potential obstacle rather than a facilitator of labour market integration. As a broader socio-economic process, digitalisation has the potential to expand employment and training opportunities for young people. The pandemic accelerated the adoption of digital tools by public employment services, requiring significant adaptation by both service providers and users. In response, the Portuguese government has implemented a strategic framework encompassing training programmes and internships aimed at unemployed individuals with at least the minimum level of mandatory education. Despite the benefits of digitalised services, rural NEETs (persons not in employment, education, or training) frequently require more personalised, in-person support to navigate labour market barriers effectively. This study adopts a comparative approach to examine two active employment programmes targeting unemployed young adults in rural Portugal: one centred on remote digital training and the other on digital upskilling through internships. Through document analysis and semi-structured interviews with public employment services technicians, mentors, and NEETs aged 25–30, the findings underscore the relevance of these interventions, particularly for highly educated NEETs experiencing skills mismatches.

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Keywords
digital transition; labour market; NEETs; rural Portugal; skills programmes

1. Introduction

The digital transition has significantly altered the job market, necessitating increasingly specialised technological competencies. This phenomenon (which is amplified by automation and digitalisation) has generated new opportunities, but it presents considerable challenges also, particularly regarding social and economic inequalities. These transformations render it essential to implement public policies that foster digital empowerment and ensure the inclusion of vulnerable groups—namely women, young NEETs (not in employment, education, or training), and workers in rural areas. Portugal faces a particularly daunting scenario concerning the digital skills shortage, which impacts not just the competitiveness of the ICT sector, but also the employability of a substantial portion of the population. To address these gaps, the Portuguese government has initiated innovative strategies under the Digital Transition Action Plan and INCoDe.2030, with the Young + Digital and UPSKILL—Digital Skills & Jobs programmes being particularly noteworthy.

The Young + Digital programme is specifically aimed at young adults between the ages of 18 and 35 who are at risk of exclusion from the job market and the education system, promoting essential digital skills. The UPSKILL programme is aimed mainly at unemployed or underemployed adults, often between the ages of 25 and 40, offering advanced technical training in areas such as programming, cybersecurity, and systems management. Although both programmes are aligned with European priorities in terms of digital transition and inclusion in employment, it is important to stress that both Young + Digital and UPSKILL go beyond the traditional framework of the Youth Guarantee in that they cover a wider age range than that of the original target group (15–29-year-olds). This distinction is relevant in order to avoid conceptual confusion regarding the target audience and the policies underlying each initiative. Nevertheless, and given the context of late adulthood transitions that is typical in Southern European countries (Parada, 2021), we consider these programmes to be perfectly aligned with the aims of the Youth Guarantee. Both stand out due to their public–private collaboration model, which ensures a close link between the training provided and the concrete needs of companies. However, despite the progress made, the results from both initiatives reveal persistent challenges. For instance, certification rates remain relatively low, pointing to significant barriers throughout the training path, including financial difficulties and gaps in pedagogical support. In addition, gender inequalities endure, with women being under-represented in technical fields like programming and cybersecurity, although they have a stronger presence in areas related to digital communication and design. This situation highlights the need for ongoing efforts to address these disparities.

The Young + Digital and UPSKILL initiatives gain increased significance amid a noticeable disconnect between the competencies acquired through training programmes and the actual requirements of the job market. This incongruity underscores the need to integrate lifelong learning policies with broader economic strategies that, simultaneously, enhance employability and foster the creation of skilled positions. Given that digitalisation can either provide tools for the empowerment of young people or be a source of exclusion for those lacking digital skills (Eurofound, 2024b), there is a need to better understand how digital training programmes work on the ground. This article therefore explores the ramifications of these programmes as tools for digital inclusion and professional retraining in Portugal, attempting to clarify how they reconcile supranational policy pressures with

local contingencies. Drawing on both quantitative and qualitative data (including secondary data and policy examination, as well as interviews and focus groups with coordinators and participants) in 2023, the analysis delineates effective practices, identifies limitations, and highlights areas in need of improvement. The objective is to ascertain the extent to which these public policies have proven effective in advancing digital inclusion and employability, thus yielding valuable insights for the formulation of future training programmes and contributing to the international discourse on this topic. The article begins with a literature review section looking at lifelong learning, followed by a review of European policies in the field of youth employment. After a methodological section, we analyse the two case studies of Young + Digital and Upskill. Finally, we provide some insights informed by the previous comparison.

2. Lifelong Learning, Employment, and Digitalisation: The New Knowledge Triad

The transition towards knowledge-based economies necessitates a consistent effort to provide ongoing skills development. This is essential to maintain economic growth, competitiveness, social cohesion, and equitable opportunities (Holford et al., 2023). Boeren (2016) emphasises that lifelong learning has become a "guiding principle" for wider engagement in diverse aspects of life, namely through its association with human capital and the development of a skilled workforce able to meet the performance demands of the knowledge economy. Hence, lifelong learning participation is seen as supporting people in adapting to new technologies and societal shifts (James et al., 2022), and most of all, enhancing their employment opportunities. This emphasis on economic productivity has led to a shift in the policy discourse from employment to employability (Clancy & Holford, 2023, p. 42).

Lifelong learning policies often prioritise addressing perceived deficiencies within the school system, as evidenced by high dropout rates, subpar learning outcomes, and skill mismatches (Holford, 2023), in a discourse that underscores the significance of continuously updating skills to meet the requirements of the evolving global economy. This deficit approach, however, tends to place the responsibility for adapting on the individual, aligning with the post-Fordist work ethic, which demands that individuals cultivate themselves as productive subjects to meet the demands of the labour market (Farrugia, 2022). For the same author, this process highlights the subjectification function of work. This concept emphasises how work shapes individuals' identities and aspirations, potentially contributing to their acceptance of precarious working conditions and exploitation, particularly for those in vulnerable positions, such as vulnerable youth. On the other hand, to consider individual agency as the sole factor determining lifelong learning participation overlooks the significant role of other dynamics at play. From a sociological perspective, structural factors impact participation in second-chance programmes and lifelong training. Educational attainment, gender, income, location, and occupation significantly influence participation patterns. This is especially relevant in the case of rural NEET youth, who often face several barriers to education and labour market participation related to mobility, limited training options, and few employment vacancies (Simões & Erdogan, 2024). Institutional and delivery aspects, such as course modes and lack of flexibility, may also hinder training participation, as well as the absence of financial or workplace incentives. Finally, the lack of accessible and relevant information on learning opportunities may be also a significant barrier, particularly for those who are not engaged in relevant social networks (Roosmaa & Saar, 2017).

Despite its potential benefits, framing lifelong learning as an activation policy presents several challenges. Policies frequently prioritise the supply of skills while neglecting the demand side of the labour market

(Albert et al., 2021). This can lead to an overemphasis on training for specific jobs that may become obsolete as technology evolves. Finally, some authors point out that lifelong learning may function as a disciplinary technology, compelling individuals to conform to the demands of flexible capitalism, at the expense of their own aspirations and agency (Biesta, 2006; Boyadjieva & Ilieva-Trichkova, 2021). This view suggests that lifelong learning may reinforce existing power structures and limit opportunities for personal and social transformation. Contrary to this trend, Boeren (2016) highlights a shift from a "compensation" model of adult education, aimed at addressing educational deficits, to an "accumulation" model, where learning is seen as a means to enhance existing skills and knowledge. This shift has implications for understanding the motivations and participation patterns of different social groups.

The case of digital skills is paradigmatic of both instrumental and intrinsic learning rationales. In an era of rapid technological advance, digital literacy has become a crucial skill for young adults, not only for entering the workforce, but also for participating in society at large (Eynon, 2021; Richardson & Milovidov, 2019). The World Economic Forum predicts significant job displacement and creation due to technology, highlighting the need for professionals to adapt and learn new digital skills (Littlejohn, 2022). The Covid-19 pandemic has further accelerated the shift to online working, emphasizing the urgency of digital skill development (Vieira & Ribeiro, 2022). Research shows that individuals with higher literacy levels are more likely to engage in LLL activities, showcasing the interconnectedness between foundational skills and lifelong learning participation (Desjardins, 2015; OECD, 2015). Despite the growing emphasis on digital skills, there are challenges in effectively integrating them into lifelong learning programmes (Ribeiro et al., 2024). For example, massive open online courses (commonly known as MOOCs) often replicate traditional pedagogical approaches instead of leveraging the unique possibilities of digital platforms (De Freitas et al., 2015). The "emergency remote learning" experience of the Covid-19 pandemic stressed even further the lack of digital competencies faced both by teachers and students regarding distance learning and the use of technology (Bartolic et al., 2022). More recently, the advent of large language models is impacting education in all sectors, with little awareness of its dangers and workings (Gupta et al., 2024; Markauskaite et al., 2022). In Portugal, according to the most recent OCED survey of adult skills (OECD, 2024), around 14% of workers consider themselves to be overqualified (OECD average: 23%), but also underqualified (OECD average: 9%), that is, they consider their academic qualification to be above or below the level typically required by their current job. Around 7% of workers mention that some of their skills fall short of what is required by their jobs (OECD average: 10%) because they need to improve their computer or software skills (35%), followed by their organisational or project management skills (32%). Finally, 41% of workers mentioned they are mismatched in terms of their field of study, because the highest academic qualification they hold was not relevant to their job. While companies and markets increasingly demand these skills, the speed of digitalisation requirements may hinder learner engagement and limit opportunities for developing effective digital skills. Despite this, measures to meet the demand for them have never been as strong, particularly at the European policy level.

3. Digitalisation in European Union Employment Policies

Digitalisation has brought several challenges to the labour market, affecting the volume of jobs, how people perform them, and, ultimately, how employment is conceptualised (Charles et al., 2022). By 2025, it is expected that 85 million jobs may be displaced due to shifts in the balance of labour between humans and machines, as projected by the World Economic Forum. At the same time, 97 million new jobs are expected to emerge,

better suited to the evolving interplay between humans, machines, and algorithms (World Economic Forum, 2020). The impact of digitalisation will be experienced through changes in the nature and content of jobs in an increasingly transformed work environment. Such challenges, allied to the demographic demands of ageing, require public and political responses able to provide both high-quality education for young generations and effective measures targeting lifelong learning for older ones (Dimian et al., 2018)

European countries have implemented various public policies and programmes to promote digitalisation and its integration into the labour market, to cope with its rapid pace (Charles et al., 2022). Through these initiatives, the EU aims to enhance digital literacy, foster innovation, and create a labour market that is resilient and adaptive to the demands of the digital age (European Commission, 2020). The EU has set a target to ensure that 80% of adults acquire basic or higher digital skills by 2030. In 2023, the Netherlands (83%) and Finland (82%) were the leading countries in digital proficiency. Romania (27.7%) and Bulgaria (35.5%) had the lowest shares, and Portugal (56%) was in mid-table (Eurostat, 2024).

To support EU goals, the concept of digitalisation in European employment policies has been operationalised by means of a strategic and multifaceted approach that integrates digital tools, technologies, and skills into labour market frameworks. It is to be enabled by addressing workforce needs, digital skills development, youth and workforce reskilling and lifelong learning programmes, the promotion of ICT professions, business digital transformations, and public service modernisation, ensuring alignment with the aims of the European Union's Digital Decade 2030 (Eurofound, 2024a; Eurostat, 2024). The EU goal is to employ at least 20 million ICT specialists by 2030 (Eurostat, 2024), through initiatives like the Digital Europe Programme, coding and STEM education in school curriculums to prepare younger generations for ICT careers, and the Digital4Her programme, which seeks to close the gender gap in ICT professions.

One of the EU's key initiatives is the European Skills Agenda for Sustainable Competitiveness, Social Fairness, and Resilience, launched in 2020 (European Commission, 2020). This agenda aims to support the acquisition of digital and green skills, essential for the future labour market. It focuses on promoting lifelong learning opportunities for all EU citizens, with specific attention to those who are at risk of being left behind due to rapid technological changes. The agenda includes initiatives to improve the quality and relevance of skills training, digital education, and the recognition of skills acquired through informal or non-formal learning. A significant component of this agenda is the promotion of digital literacy across all age groups, particularly for adults and disadvantaged groups, ensuring that all workers are equipped to thrive in a digital economy (European Commission, 2020).

In parallel, the Digital Education Action Plan (2021–2027) is another important EU programme that directly addresses the integration of digitalisation in education and employment (European Commission, 2021). It outlines the EU's strategy to improve digital education and training systems to meet the needs of the digital transformation, focusing on enhancing digital literacy, the development of digital competencies, and fostering the use of digital tools in education to improve teaching and learning in schools, higher education institutions, vocational training centres, and adult learning programmes (Krisztina, 2023). It also encourages the development of digital skills training for workers, particularly in areas such as artificial intelligence, data analysis, coding, and cybersecurity (European Commission, 2021; Krisztina, 2023).

Additionally, the European Social Fund Plus (ESF+) plays a vital role in supporting lifelong learning and digital skills development (European Commission, 2021), providing financial resources to EU member states to implement programmes that foster education, employment, and social inclusion (European Commission, 2021; Hoffmann, 2021). Many of the projects funded by the ESF+ focus on reskilling and upskilling workers, particularly in response to digital transformation. This includes support for digital training programmes aimed at enhancing the employability of workers in sectors that are increasingly dependent on digital technologies. The ESF+ funds initiatives to support training in digital skills for workers in industries affected by automation and digitalisation, as well as vocational education and training programmes that emphasise digital competencies (European Commission, 2021; Hoffmann, 2021). Emprego+ Digital is an example of a Portuguese upskilling programme, included in the National Initiative for Digital Skills e.2030 (Portugal INCoDe.2030; INCoDe2030, 2024), targeting more than 25,000 workers in traditional industries with a focus on adopting digital tools, since 2020 (Portuguese Public Services Portal, 2020; IEFP, 2025a).

The Youth Guarantee is another EU initiative which aims to ensure that all young people under 30 receive a quality offer of employment, education, or training within four months of becoming unemployed or leaving formal education (European Commission, 2013). It is financially supported by the Youth Employment Initiative and targets regions with high youth unemployment rates (that is above 25%; European Commission, 2022). Digital skills are an integral part of this programme, which provides young people with opportunities to develop their digital competencies through internships, apprenticeships, and training programmes. The Youth Guarantee supports the upskilling of young workers and addresses the challenges that NEETs face, particularly those from disadvantaged backgrounds (European Parliament, 2010; Tosun et al., 2019).

The Erasmus+ programme, traditionally known for supporting student mobility, has increasingly focused on digital skills, vocational training, and lifelong learning by enabling adults, including workers across Europe (European Commission, 2024a). It helps individuals gain the necessary skills to adapt to the digital economy through mobility opportunities and learning exchanges in areas such as technology, entrepreneurship, and digital innovation (European Commission, 2024a; Nogueiro et al., 2022)

The EU's New Pact on Migration and Asylum also contains provisions to support the integration of immigrants into the workforce, with a particular focus on enhancing their digital skills to improve their employability (European Commission, 2024b) through training and reskilling programmes.

It is also important to highlight the EU's continuous work on the digitalisation of public services, through the E-Government Action Plan 2016-2020 to improve their accessibility and efficiency (European Commission, 2016). By 2030, all key public services for businesses and citizens are expected to be fully online (Eurostat, 2024, p. 202).

Overall, the EU's public employment policies and programmes presented in this article emphasise lifelong learning and digitalisation as key pillars of a competitive, inclusive, and resilient workforce, contributing to the development of digital skills, reskilling, and upskilling initiatives that ensure workers remain adaptable in an increasingly digital labour market. While challenges like the digital divide and skill obsolescence remain, the opportunities for innovation and inclusion far outweigh the barriers. By leveraging digital tools effectively, Europe and other regions can foster a resilient workforce prepared for the future of work.

4. Methodology

The data presented in this article were collected as part of the research project Track-In: Public Employment Services Tracking Effectiveness to Support Rural NEETs (ID No. 2020–1–0011), funded by EEA and the Norway Grants Fund for Youth Employment. Between 2012 and 2024, the project established a multimethod approach to develop case studies, comprising documental analysis, focus groups, secondary statistical data analysis, and interviews with relevant stakeholders in employment and youth mediation services.

In this article, we used some of the data collected as part of the Portuguese case study, focusing on two national digital training programmes geared towards employability. The analysis was based on semi-structured interviews with five public policy experts and programme coordinators, complemented by documentary and statistical analysis, whose sources we indicate in each case study. Given the uneven and diverse nature of data collected for both case studies, where internal data was crossed with publicly available statistics, and clarified with interviews, we consider that it is best to present the data in narrative form. We recognise that the presentation of these case studies could benefit from a more robust methodological systematisation, as proposed by Yin (2009), namely through the explicit definition of the units of analysis, the description of the sources of evidence used, and the application of triangulation and cross-validation techniques. Adopting a more structured approach—including cross-analysis matrices—construction of chronologies and thematic categorisation would not only make the research process more transparent but would also strengthen the internal validity of the results. This will be a line of development to consider in an extended version of the study or in future work based on the whole empirical base.

The aim of our study is to ascertain the extent to which these public programmes have proven effective in advancing digital inclusion and employability, thus yielding valuable insights for the formulation of future training programmes and contributing to the international discourse on the topic. For this purpose, we focused on two Portuguese programmes aimed at enhancing employment through digital skills, as our case studies: the Young + Digital programme: Capacitation in Digital Skills; and Upskill, a digital retraining programme tailored to market needs.

Data were collected and analysed through: (a) public websites research and internal documental analysis and (b) semi-structured interviews and exploratory analysis. Although some interviews were conducted in a specific regional division of the employment centre, the data were analysed at the national level. In the following sections, we will present both case studies, introducing each programme and the corresponding data analysis. Regarding the latter, we combine documentary analysis with the exploratory analysis of the interviews, as both inform each other reciprocally.

5. Case Study 1: The Young + Digital Programme—Capacitation in Digital Skills

The Young + Digital programme was created by Government Order 250-A/2020, October 23. Its aim is to place Portugal at the forefront of those countries best prepared to address the challenges and changes inherent in a global transition, ensuring that it results in greater equity and inclusion of citizens, in an increase in competitiveness of the economy and in the creation of value by the business fabric, in a scenario that is intended to assist recovery in economic activity. Because of the pandemic, it became necessary to ensure adequate and rapid public policy responses for professional training, as instruments for promoting

employability and training assets in strategic areas, such as the digital area, aimed at specific audiences, such as young adults, who were the most adversely affected in the labour market. Young + Digital is a programme that operates in mainland Portugal (the islands have their own autonomous governments and employment strategies) and is aimed at young people who are unemployed and have completed or almost completed at least upper secondary education. The courses have a maximum duration of 300 hours, and each participant is entitled to a training grant, food subsidy and personal accident insurance. The programme was designed to meet current and prospective needs of the labour market, as part of public vocational training policy, aiming to develop skills in digital technologies and applications (such as programming languages like Java, .NET, Python, and Web, cybersecurity, social media management, digital commerce, and data analysis), providing better job qualifications, and strengthening the professional skills of young adults with a view to improving their employability (IEFP, 2025b). It is part of the Youth Guarantee framework in Portugal.

5.1. Data Analysis

For the document analysis, data were collected from the IEFP services and the Observatório das Competências Digitais. The interviews ($N = 4$) were conducted between October 2022 and March 2023. Table 1 offers the details on the interviewees.

Table 1. Interviewees from case study 1.

Interviewees	Date
I1. Executive Director of the National Plan for the Implementation of the Youth Guarantee Programme	21 October 2022
I2. Specialised civil servant employed in the Employment Centre of Faro	03 March 2023
I3. Specialised civil servant employed in the Employment Centre of Faro	03 March 2023
I4. Deputy Director of the Centre for Employment and Vocational Training in Faro	03 March 2023

In her interview, Ana Neves, former Executive Director of the National Plan for the Implementation of the Youth Guarantee Programme (I1), mentioned that the Youth Guarantee does not have policies exclusively in the area of labour, but also in economy and higher education. She also said that the Youth + Digital programme has been successfully implemented and has been growing:

> The Youth + Digital programme this year will see a huge increase [in enrolled students]. For example, just to [give you] an idea, in 2021, we had 843 [people enrolled], so around 850 young people enrolled and, this year in September 2022, we have almost 1000. (I1)

In fact, and according to data published by the Directorate of Education and Science in 2024 (Observatório das Competências Digitais, 2024), there has been a considerable increase in the number of registrations in the programme. The profile of trainees is mostly female, and these seek training in customer relations and social network management as top preferences. Statistical data was provided by the Directorate of Science and Education, and classified as applications on the one hand and concluded certified training on the other.

Between 2021 and 2023, the Young + Digital programme registered 18,801 applications, with the gender ratio remaining constant at 64% women and 36% men. This female predominance is remarkable, considering that women have always been underrepresented in technological fields. However, when analysed by training area,

significant differences emerge, indicating that the choice of training pathways continues to be influenced by gender roles. The total number of enrolments fluctuated during this period: 6,540 participants in 2021, 5,686 in 2022, and 6,575 in 2023, which represents a recovery after a decline. This evolution may be due to changes in the courses offered, demand from candidates, or external factors related to the job market.

Courses such as Digital Commerce–Business Strategy and Social Network Management (henceforth Digital Commerce) are characterised by a strong presence of women. The former recorded 4,852 registrations, of which 69% were women, while the latter attracted 5,678 participants, of which 72% were women. These areas reflect interests often associated with communication and management, jobs traditionally attributed to women. In contrast, technical areas such as cybersecurity and programming continue to be dominated by men. In cybersecurity, the proportion of men was 59.4% in 2021, 68.8% in 2022, and 60.3% in 2023. In programming languages, the proportion of men was 60%, which highlights the challenges of including women.

Despite the progress made in areas such as UX/UI design, where the proportion of women has reached 65%, women are still under-represented in technical fields. Specific strategies, such as awareness-raising campaigns, are needed to promote the presence of women in technical professions. In summary, although the programme has promoted the inclusion of women in the digital sector, it faces challenges in technical areas that require greater efforts to achieve equality and a shift in digital skills.

Concerning those who finish the Youth + Digital training courses, a descriptive analysis is presented focusing on gender-specific trends between 2021 and 2023 and the ratio between the number of registrations and certificates per training area. In total, 4,631 certificates were issued over this period, which corresponds to an average certification rate of 24.6% compared to the total number of registrations—18,801. The certification rate for women, who represent 64% of registrants, was slightly lower (24%) than for men (26%). These figures reflect a discrepancy that can be attributed to various factors, including the specificities of the training programmes and possible barriers to completion for women.

Analysis of the data provided by the Observatório das Competências Digitais by training areas reveals significant trends. Training programmes with the highest number of overall registrations, such as the Digital Commerce course, also saw a significant number of certificates issued, albeit with moderate completion rates. In the Digital Commerce course, the certification rate was 25% of the 4,852 students enrolled, while in social media management courses it was 27% of the 5,678 students enrolled. In both areas, women continue to predominate among graduates, although to a lesser extent than their weight in total enrolments. On the other hand, technical courses such as cybersecurity have seen higher certification rates among men. In 2023, for example, 16.2% of those enrolled were certified, with 17% of men completing the course, compared to 15.5% of women. In the case of programming courses such as Python and Java, completion rates were even lower, with significant differences between the genders, indicating the difficulty women have in completing them. In summary, while the programme shows success in engaging women in digital domains, the data suggests that strategies to support completion may be the key to equalizing certification rates between genders and improving the overall impact of the programme.

On March 3, 2023, interviews were conducted with two specialised civil servants employed in the Faro Employment Centre, working in the areas of labour market management and professional training and guidance, and with an interlocutor for the Youth Guarantee initiative. They mentioned that the profile of

most candidates who come to the Employment Centre are less well qualified young people who are completely discouraged, maladjusted, unmotivated, uninformed, and not looking for work. These technicians mentioned the existing difference between unemployed young people holding a degree, who are better informed, with a greater degree of openness and perspective, and people with the 9th grade: The latter are seasonal unemployed who sometimes find jobs in the informal economy, through undeclared work. The Youth Guarantee initiative was created to lower the youth unemployment rate and incorporated some Employment Centre measures such as Young + Digital.

According to the interviewees, one of the major flaws of this programme was that there is no follow-up after its conclusion and no integration in the labour market, which can lead to demotivation:

> A person finishes a dual certification training, for example, and then ends up having no professional experience in that area. And they come back again, almost to the initial trajectory....I think that what is missing for them is to have practical experience and have some employability....It's just one more training programme for the person to add to their curriculum. (I2)

On March 3, 2023, an interview was conducted with Dra. Ana Sofia Delgado, Deputy Director of the Centre for Employment and Vocational Training in Faro, who heads two qualification training centres in Faro and in Albufeira. Regarding the Youth + Digital programme, she suggested that the training areas which are defined by ANQEP are those best suited in terms of trainee demand in the region and in the whole country, since the programme is administered online. According to her:

> Because we are talking about an audience that already has a degree or a secondary level. Therefore, what they are looking for is always something more. And, lately, we started trying to cover the area of cybersecurity, data analysis, which are areas that seem to us that, at the moment, are in much greater demand in the job market. Someone who has such a tool in hand will find it easier to get a job. (I4)

This programme is promoted on the internet and social media by each Employment Centre, and the selection is made through a list of people who subscribe to its services. According to her, the early take-up was very good, even though there was a reduction at the end of 2021, as noted in our quantitative analysis. However, a systematic appraisal of the programme is still lacking. Apart from the evaluation of each module by means of a form which trainees complete at the end of each module, there is no procedure for carrying out a statistical analysis of the data:

> We do, effectively, in all training actions, at the end there is a form filled out in which the trainee evaluates the training and the trainer. No processing is carried out on this data...there is no analysis that compiles all this information and makes a general assessment of the actions as a whole. Nor for this, not for any other programme. (I4)

6. Case Study 2: Upskill—A Digital Retraining Programme Tailored to Market Needs

The UPSKILL programme is the Portuguese government's strategic response to the challenge of training professionals to respond to the growing demand for digital skills in the labour market. Launched in 2020, the programme is part of the Digital Transition Action Plan and INCoDe.2030, and stands out for its promotion

of digital training, social inclusion and employability. With a model that incorporates professional retraining and public–private collaboration, UPSKILL has played a central role in strengthening the information and technology sector, and is seen as a "flagship" (or pilot) programme by the IEFP. Although the programme is part of digital reskilling policies aligned with European youth employment strategies, it is important to stress that most participants fall outside the typical age range associated with the definition of "young" (15–29-year-olds). With an average age of 32 and a range between 25 and 40, the applicability of this programme under the Youth Guarantee should be interpreted with caution, and this is a limitation that must be taken into account in the analysis. Quantitative data from this case study was ceded by the National Programme Coordinator, Manuel Garcia, and our only interview concerning UPSKILL was with him.

UPSKILL is designed to meet the needs of a changing labour market and a social fabric in search of new opportunities. On the one hand, it aims to fill specific skills gaps in the IT sector, one of the most dynamic and most difficult to recruit for in Portugal. On the other hand, it promotes the integration of unemployed or underemployed individuals, offering them an opportunity to retrain in areas of high demand. The scope of the programme is reflected in the diversity of participants, including graduates from areas such as the social sciences and humanities. In our interview in 2023, Manuel Garcia, pointed out that:

> We have success stories of participants from non-technological areas, showing that motivation and the programme model are more decisive than academic training. (I5)

The programme is organised into two phases. The first consists of theoretical and practical training, lasting between six and nine months, given at higher education institutions. The content covers specific technological areas such as Java and .NET programming, ERP systems management and cloud computing. The training areas are selected by the participating companies, ensuring that the content is tailored to their needs, also including introductory modules designed to reinforce basic skills such as algorithmics, logical reasoning and mathematical concepts, ensuring that all participants have the necessary foundations to progress. The second phase consists of a 3-month practical work-based training course (FPCT), carried out in companies, allowing trainees to apply the knowledge they have acquired in a professional environment. This phase reinforces integration into the labour market and gives participants the opportunity to gain practical experience in real-life situations. The importance of the face-to-face component was emphasised by the coordinator:

> Face-to-face work not only fosters concentration, but also develops essential skills for collaborative work, which are indispensable in business dynamics. (I5)

The programme also stands out for its rigorous selection process, which guarantees the quality of the training and alignment with market needs. This process includes psychometric tests, language skills assessments (with a minimum level of English B2) and interviews carried out by IEFP technicians in partnership with the participating companies. The companies not only identify the most critical training areas, but they also have an active role in choosing the trainees and commit to hiring at least 80% of the participants who successfully complete the programme. This approach not only reduces the misalignment between the skills on offer and the demands of the market but also encourages ongoing collaboration between companies and higher education institutions. Another relevant element is the offer of a training grant, equivalent to the national minimum wage, allowing candidates in precarious financial circumstances to participate without jeopardizing

their family income. This benefit has been crucial in attracting candidates who might otherwise face insurmountable economic barriers, especially those who are already in precarious employment.

Over the course of three editions, UPSKILL has filled a total of 1,717 vacancies, with more than 15,000 applicants. The programme covered 20 technological areas and was implemented in 11 regions of the country, promoting an inclusive territorial distribution. The first edition (2020–2021) had 430 places, spread over 26 training actions, involving 38 companies. The second edition (2021–2022) saw a significant expansion, with 802 places in 50 training actions, with the participation of 64 companies. The third edition, which began in 2022 and is still under way, has 485 places in 30 actions, involving 31 companies. The data reflects a clear attempt at decentralisation, with actions taken in Bragança, Castelo Branco, and Faro, among others. This strategy is to eradicate inequality, by offering training to people in regions that have been neglected in terms of training. The network of polytechnic institutes plays a key role here, given their wide geographical dispersion and vocation for more practical teaching.

UPSKILL participants' profiles are quite diverse, with most participants being between 25 and 40 years old: The average age is 32. In the third edition, 71% of the participants were Portuguese, 24% were Brazilian and 5% came from other countries such as EU citisens and the PALOP (African countries with Portuguese as official language). As for employment status, 67% were unemployed, which shows the programme's goal of assisting people to gain employment. Gender balance is a central dimension in UPSKILL, with women representing 44% of those enrolled in the third edition. However, important disparities persist. Despite the relatively balanced proportion of enrolments, the transition to the next stages reveals inequalities. Among those approved for interviews in the third edition, 61% were men and only 39% women. These differences point to additional barriers faced by women in technological fields. Between 2021 and 2023, the average certification rate was 24.6%, highlighting significant challenges for many participants in completing the training. In terms of gender, men had a slightly higher certification rate (26%) compared to women (24%).

Analysis by training area reveals even more pronounced disparities. In technical paths, such as Cybersecurity, men accounted for most certificates issued. In 2023, 17% of men successfully completed this course, compared to 15.5% of women. In programming languages such as Python and Java, certification rates were even lower for women, suggesting specific technical or structural challenges. On the other hand, areas such as UX/UI Design stood out for their greater female participation, with 63.6% of women enrolled in 2023. This path, which combines technology and creativity, seems to attract a more gender-balanced audience. The more general areas, such as Productivity Tools and Collaboration, also showed a more equitable distribution, with an average certification rate of 26% in 2023.

The involvement of companies is, in fact, one of the central pillars of the UPSKILL model. Not only do they define the training areas, but they also take part in the selection process and commit to hiring at least 80% of the trainees who successfully complete the programme. However, despite the solidity of this structure, the impact analysis reveals significant weaknesses. Furthermore, despite the companies' commitment to employability, there is no systematic data on the actual number of people hired or on the sustainability of these jobs in the medium term. This lack of longitudinal evaluation makes it difficult to make a rigorous assessment of the programme's effects on participants' career paths. If UPSKILL is to be truly considered a good practice in public digital empowerment policies, it will be essential to invest in monitoring and evaluation mechanisms that follow the beneficiaries' path, before and after the training, in order to capture

its effective impact in terms of employability and social inclusion. According to Manuel Garcia, this commitment is essential to the programme's success:

> Companies see UPSKILL as a practical solution for bridging skills gaps, which creates a virtuous cycle between training and employability. (I5)

However, the financial sustainability of the programme remains a challenge. Implementation depends on a balance between public and private funding, and a long-term strategy is needed to ensure the continuity and expansion of the model.

Despite progress, UPSKILL faces challenges in including under-represented groups. Women in technical fields and older participants continue to face significant barriers. Awareness campaigns and mentoring programmes can be effective tools for greater equity in access to and completion of training. Manuel Garcia emphasised the importance of targeted strategies:

> We need not only to attract more women into technical fields, but to ensure that they have adequate support to progress and successfully complete training. (I5)

Another point to consider is improving certification rates. In addition to reinforcing follow-up during training, it is essential to adjust content and methodologies to better meet the needs of participants. The interview with Manuel Garcia provided an important qualitative perspective on the programme behind the scenes, highlighting the central role of companies in all phases of UPSKILL, from the identification of training areas to the integration of trainees. He also stressed that:

> The programme not only empowers participants technically, but also develops fundamental transversal and social skills, creating a transformative experience for many. (I5)

UPSKILL demonstrates how public policy can transform structural challenges into opportunities, while responding to the needs of the labour market and individual aspirations. The public–private collaboration model, combined with the focus on inclusion and territorial cohesion, positions the programme as a relevant example both in Portugal and internationally. However, the results also highlight areas for improvement. The inclusion of under-represented groups, financial sustainability and increasing certification rates are challenges that require ongoing attention. With a more tailored approach to the specific needs of the participants, UPSKILL has the potential to further expand its impact, consolidating itself as an essential tool for the digital transition in Portugal.

7. Discussion

The Young + Digital initiative aims to equip young unemployed individuals with essential digital skills to improve their employability. It combines online and in-person training, offering financial support mechanisms, including grants and subsidies. However, the programme faces significant challenges, such as the lack of follow-up mechanisms after training, low certification rates averaging 24.6%, and gender imbalances in technical areas. Women dominate fields like social network management and digital commerce, while men are more present in technical domains such as cybersecurity and programming.

Another key issue is the limited connection between training outcomes and practical job market integration, leading to demotivation among participants who cannot transition smoothly into employment.

In contrast, the UPSKILL initiative addresses the labour market's evolving needs through a two-phase approach: an initial theoretical training period, followed by a practical internship phase within companies. This structure ensures alignment with market needs, as companies actively participate in selecting training areas and candidates. The programme also emphasizes financial support, territorial inclusion, and alignment with industry standards. Despite its strengths, UPSKILL also faces challenges, including gender disparities in technical fields, relatively low certification rates, and concerns about financial sustainability. Women, while participating in UX/UI design and productivity tools courses, remain underrepresented in programming and cybersecurity. The programme, however, benefits from strong collaboration between public institutions and private sector companies, which ensures better integration into the labour market for its participants.

Both initiatives align with EU employment public policies and reflect the goals set under frameworks such as the European Skills Agenda, the Digital Education Action Plan (2021–2027), and the Youth Guarantee. These policies emphasise digital literacy, lifelong learning, and employability as central pillars of a competitive workforce. Additionally, both initiatives benefit from financial support mechanisms like the ESF+, which promotes reskilling and upskilling across the EU. However, financial sustainability remains a challenge, particularly for UPSKILL, which relies heavily on a mix of public and private funding.

The EU's focus on addressing gender imbalances in ICT fields and reducing the digital divide is also mirrored in both programmes. While there has been some success in increasing women's participation in digital training, significant barriers persist, especially in technical fields such as programming and cybersecurity.

Structurally, both initiatives face systemic challenges, including low certification rates, limited follow-up mechanisms, and the absence of robust evaluation frameworks to measure long-term impact. For Young + Digital, the lack of systematic labour market integration pathways limits its overall effectiveness. In contrast, UPSKILL shows stronger integration outcomes due to direct company involvement, but scalability and sustainability remain areas of concern. In a broader context, these two initiatives illustrate how European lifelong learning and employment policies translate into national strategies for digital upskilling and reskilling. From a lifelong learning perspective, both programmes align with the shift towards an "accumulation" model of adult education, aiming to enhance existing skills and knowledge. However, due to their emphasis on digitalisation, although the training programmes aim to empower, they can also be seen as mechanisms to help individuals adapt to the evolving digitalised labour market, hence functioning as a "disciplinary technology."

8. Conclusion

The results of this study highlight the critical role of digital upskilling initiatives in enhancing youth employability within the context of evolving labour market demands, filling the role of lifelong learning in practice. However, as demonstrated by the Young + Digital and UPSKILL initiatives, structural challenges persist, requiring targeted policy interventions to improve programme efficacy and long-term impact.

First, the establishment of comprehensive monitoring and evaluation frameworks is essential to systematically assess training outcomes, track employment transitions, and measure the long-term career trajectories of participants. Without robust data collection and impact assessment mechanisms, it remains difficult to determine why there are reduced completion and certification rates in both programmes and to implement necessary improvements. Future policies should mandate the integration of longitudinal tracking systems to provide insight into employment retention, skill utilisation, and career progression.

With regard to inclusion and diversity, targeted mentoring and awareness initiatives should be developed to address gender disparities in digital and technical fields. As both initiatives show, women remain underrepresented in cybersecurity, programming, and other STEM-related domains, despite their active participation in digital commerce and UX/UI design. Policies should promote gender-inclusive pedagogical approaches, mentorship networks, and awareness campaigns aimed at dismantling stereotypes and encouraging female participation in high-demand technical sectors. Likewise, the inclusion of rural and NEET populations must be prioritised by adjusting training formats to accommodate the mobility, economic, and scheduling constraints that were pointed out by some programme directors. Digitalisation alone is insufficient if access barriers persist for individuals in remote areas who lack the necessary infrastructure or support to engage in such programmes. Hybrid learning models, mobile training units, and regionally adapted curricula may enhance accessibility and inclusivity, as some Track-In project good practices initiatives have shown.

Moreover, post-training follow-up mechanisms are essential not only to facilitate the transition from training to employment but also to monitor the evolution of the jobs created. Career coaching, job placement services, and employer-matching platforms should be systematically integrated into training initiatives to support participants in securing sustainable employment. The lack of structured post-training support currently limits the effectiveness of these programmes, leading to demotivation and underutilisation of acquired skills.

Both initiatives require clear financial sustainability strategies to ensure long-term viability and scalability. While European funding mechanisms such as the ESF+ provide crucial support, over-reliance on external funding sources poses a risk to programme continuity. Governments should explore diversified funding models, including employer co-financing schemes, social impact investment, and performance-based funding structures to enhance financial resilience. As much as the strengthening of public–private partnerships is crucial to ensuring that training programmes are successful and lead to paid employment, these partnerships should also aim for training cost sharing. Employers should be involved not only in curriculum design and the selection of candidates but also subsidise the tailored training they seek. This investment may also release more public employment services resources to create other lifelong learning programmes that are less market driven but may also satisfy individual and societal needs.

By addressing these challenges, digital capacitation initiatives such as Young + Digital and UPSKILL can serve as effective instruments for labour market integration, lifelong learning, and economic resilience, aligning with broader European employment and digital transformation strategies.

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