PILLARS – Pathways to Inclusive Labour Markets: The case study of the Lisbon region

Part of Deliverable 7.4

June 2023

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This project receives funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101004703.

1 Introduction

The Metropolitan Area of Lisbon (here after, MA of Lisbon or the region of Lisbon) is a NUTS 2 region located in the centre of Portugal, and it includes the country capital, Lisbon, and several municipalities around it. In 2022, the total population of the region summed 2,869,627 people, and it is predominantly an urban area. Its 1,022.6 inhabitants by km2 turns the MA Lisbon into one of the top 20 regions with higher population density across the European Union, and the region has become denser over time. The MA of Lisbon registered negative net migration in 2021 after almost a decade of positive net migration (i.e., more emigrants than immigrants), due to a decrease in the number of migrants from Latin America and other European countries.[1]

The MA of Lisbon is younger than the country's average, as only about one-quarter of the population is over 65 years old, representing 34% of the population between 15 to 64 years old (old-age dependency ratio). Women represent 53% of the overall population living in the region.

The MA of Lisbon scores better than the country average in terms of education attainment, as 29% of the working-age population (15-64) has up to a lower secondary degree (ISCED 0-2), and 41% has a tertiary degree, against 40% and 31.5% in the rest of Portugal, respectively. The share of population with low education (ISCED 0-2) is still higher than the EU27 average, although the region is outperforming the European average in the number early leavers from education and training (4.8% in the MA of Lisbon against 9.6% in the EU27), higher rates of tertiary education among 30-34-year-old adults (46.95% against 42.8%, respectively), and higher rates of participation rates in education and training (16.2% against 11.9%, respectively).[2] These figures indicate that the region is converging towards the best European education standards.

Portugal has three levels of subnational governance – two autonomous regions (Azores and Madeira), municipalities and parishes. Although there is some degree of political decentralisation (2.0 on a scale of 3), the country scores low in fiscal decentralisation (especially when deciding on expenditures) and administrative decentralisation, placing it at the middle of the European decentralisation index table[3]. Most employment policies are overseen by the Central Government, and Municipalities have a role in promoting local development and SMEs support. In addition, inter-municipal entities (such as the MA of Lisbon) have coordination and planning roles regarding the local offer of education and

[1] These numbers may still reflect the impact of the pandemic.

[2] https://ec.europa.eu/eurostat/databrowser/view/EDAT_LFSE_04/default/table?lang=en

[3] https://portal.cor.europa.eu/divisionpowers/Pages/Decentralization-Index.aspx

vocational training, subject to municipalities' agreement (among other responsibilities regarding school infrastructures, hiring staff and supporting complementary educational activities).

The MA of Lisbon, as the capital region, registers higher GDP per capita than the rest of Portugal, but lags behind the EU27 average: GDP per capita was 96% of the European average in 2021, and the 2015-2019 convergence was refrained by the pandemic (Eurostat). Nevertheless, it is considered a more developed region within the EU. The region concentrates a large share of businesses in accommodation and food services (11.5 establishments by 1,000 inhabitants, against 1.2 country average), and high-skilled services such as professional and scientific activities (17.8 and 13.1, respectively), administrative and support services (24.6 and 17.6, respectively), and information and communication services. The ICT sector accounts for half of all enterprises in Lisbon, which, together with its level of attractiveness of entrepreneurs and remote workers, has turned the region in a hub of entrepreneurial innovation and technology.

Total population in 2021	Population density (persons per square km)[1], 2021	Average crude rate of net migration plus statistical adjustment (2013-2020)	GDP per inhabitant in PPS (% of EU-27 avg. from 2020 average) in 2021	Tertiary education attainment (ages of 30-34), 2021[2]
2 863 272	1,022.6	-0.5	96%	46.9

2 Overview of the labour market in Lisbon

Labour market trends and key skills in demand

The MA of Lisbon is the second region of the country with highest number of employed workers, after the North region[3], and the region with the highest employment growth between 2013 and 2022. Between 2021 and 2022, 46,000 new jobs have been created in Lisbon, especially in the ICT, construction, accommodation, and food sectors. According to the Regional Competitive Index 2013-2019, labour productivity in MA of Lisbon has progressed

[1] The EU average population density in 2021 was 109

[2] The EU average of tertiary education attainment in 2021 was 41.5%

[3] The Portuguese industrial sector (exc. construction) is mostly located in the North region (NUTS 2 *Norte*), therefore employing more people than MA of Lisbon.

considerably, which is associated with increasing touristic flows, and the growing share of high-value professional services, as described in detail below.

The region of Lisbon registered an unemployment rate of 6.8% in 2022 (higher than the country average), 47% of which is long-term unemployment. Unsurprisingly, lower-educated people are more likely to be unemployed: they account for 38% of the unemployed in the region, while tertiary-educated individuals represent only a quarter of the unemployed.

In Portugal, female participation rate is exceptionally high. While at the EU level, the activity rate among women is 76%, in Portugal, this number goes up to 87%. In Lisbon, 85% of women are active in the labour market. Employed women work mostly full time, and the difference between average weekly working hours among men and women is below 3 hours. Male labour shortages during 1960s, the process of political transformation in the 1970s that promoted participation in public life, and low household income levels are the main historical, cultural and economic reasons behind such high female participation rates, respectively.[1] Moreover, both women and men work more hours a week than the European average, due to the low disposable income (which prevents part-time schedules) and a long-working hours culture is still prevailing.

Remote working was widely adopted in the MA of Lisbon (comparing to the rest of the country) at the beginning of the COVID-19 pandemic, due to the high prevalence of professional, scientific, and technical activities in the region. By the end of 2022, one-third of the employed in the region still have been working, fully or partially, remotely.[2]

Major job sectors/industries

In 2022, the economic sectors that have been employing a larger number of people in the region were public administration, defence, education, health, and social work activities (26% of all regional employment), and wholesale and retail trade, transport, accommodation, and food service activities (25%). Many high-skilled services are provided in the capital, as it hosts all ministries, most public administration bodies, the headquarters of key business organisations, financial institutions and large firms, and many ICT, consultancy, accounting, and other services employing highly qualified workers. Moreover, some significant manufacturing industries (such as an automotive industry cluster) are also based in MA Lisbon. Lastly, the growing number of tourists - who have doubled between 2012 and 2019 - have turned accommodation and food services into crucial activities in the city of Lisbon.

[1] https://www.cairn.info/revue-de-l-ofce-2014-2-page-241.htm

[2] https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUEStipo=ea&DESTAQUEScoleccao=346719807&selTab=tab0

Based on the data from EURES (European cooperation network of employment services), the following industries have a high demand of labour in Lisbon: (1) metalworking, electromechanics, mechanics (low to middle-skilled jobs), (2) civil construction, personal services, contact centres, transport (low-skill jobs), (3) sales representatives, health, and ICT sector (high-skill jobs). The increasing demand for occupations that are at the bottom and at the top of the wage distribution shows that the labour market in the region is polarized, as in many European countries, which is commonly attributed to the substitution of routine, middle-skilled tasks by growing computerization and automation technologies' deployment.[1]

Key challenges on the labour market and vulnerable groups

Despite the overall progress in labour market indicators in the past ten years, reflected in lower unemployment and high employment rates compared to 2013, challenges remain. Key labour market challenges in the MA of Lisbon are:

- High unemployment rates, in particular, long-term unemployment;
- High involuntary part-time employment;
- High youth unemployment;
- Relatively low labour productivity.

Portugal has historically presented low rates of upper secondary and tertiary educational attainment.[2] Despite impressive progress in educational attainment over the past twenty years – which doubled the share of the population with upper secondary among the age group 25 to 34 and doubled the share of the population with tertiary education – Portugal is still behind its European partners.[3]

In Lisbon, 30% of the population aged 25-64 has qualifications below the upper secondary level (25% among EU regions). Although CEDEFOP has optimistic forecasts, estimating the decrease of the low-skilled weight on regional employment from 61% to 42%, these figures are still far from the 15% low-skilled rate among the EU27.[4]

[1] https://www.jstor.org/stable/25592375.

[2] Up to 1974 Portugal was under a dictatorship which delayed the expansion of the educational system and educational infrastructures; moreover, poverty affected most households, child labour was widely diffused, and higher-education was only accessible to wealthy households. All in all, the mass expansion of tertiary education only took off in the late 70s.

[3] https://www.oecd.org/publications/strengthening-the-governance-of-skills-systems-3a4bb6ea-en.htm

[4] https://www.cedefop.europa.eu/files/skills_forecast_2020_portugal.pdf

Skill shortages are mentioned as one of the main reasons the country faces persistent high rates of unemployment.[1] Furthermore, skill mismatches are expected to become worst as the demand for highly qualified workers (mainly in the ICT sector) increases, and regional qualification do not keep up. In 2020, CEDEFOP estimated that the average growth rate in employment in business and other service sector would be 1.9% per year between 2022 and 2030, and above 2% per year in the computer programming & information subsector.[2] Almost half of the expected job openings will require high-level qualifications, pushing further the need to increase the overall level of educational attainment and skills among the Portuguese labour force.

There are strong signs that high-technology and high-knowledge sectors are in rapid growth, especially in the aftermath of the COVID-19 pandemic. In the region of Lisbon, where many business services are located, the employment share in these sectors increased 1.3% in only one year (2020-2021), after a decade on relative stability. The interviewed experts confirm that the need for more professionals in the ICT sector is one of the main challenges of the Portuguese labour market, namely in cybersecurity and web development. Although labour shortages in advanced digital skills exist all over the country, they are particularly strong in the region of Lisbon, as it has a growing ICT sector.

The second challenge of the Portuguese labour market is the high unemployment rate, which remains above 6%. However, not all demographic groups are equally affected by unemployment and face the same barriers while (re)entering the labour market. For example, young people in the region of Lisbon (and, generally, in Portugal) encounter significant difficulties in finding quality jobs (non-precarious and paying decent wages), and unemployment affects one in every three persons aged 25 - 29 years old (the EU average is 19%). Unemployed workers over 55 also face exceptionally high long-term unemployment rates, as 65% of them seek a job for more than 12 months.[3] Finally, low-skilled individuals with less than upper secondary education also face higher odds of unemployment: in 2022, 10.2% of the regional labour market force with lower qualifications were unemployed, against 4.5% of those with tertiary education.

According to the OECD, low-skilled youth is the most vulnerable group, as Portugal has the highest unemployment rate among this demographic group within the EU.[4] In 2022, 31.4% of low-qualified people under 30 living in the MA of Lisbon was unemployed, 12 p.p more than in

[1] https://www.oecd.org/els/soc/Faces-of-Joblessness-in-Portugal.pdf

[2] https://www.cedefop.europa.eu/files/skills_forecast_2020_portugal.pdf

[3] Data at country level, as long-term unemployment rates by age bracket and region are not available.

[4] https://www.oecd.org/publications/skills-strategy-implementation-guidance-for-portugal-9789264298705-en.htm

the rest of the EU. Although these figures have improved between 2013 and 2018, unemployment rates went up after 2018, and skyrocketed after the pandemic (with a variation of 10 p.p. between 2019 and 2022).

Indicator	**Data**
Employment rate, 2021[1]	71.0%
Employment in high-tech sectors, 2021[2]	7.2%
Unemployment rate, 2021[3]	6.8%
Youth unemployment rate, 2021[4]	16.1%
Unemployment rate of males (15 years or over), 2021[5]	7.2%
Unemployment rate of females (15 years or over), 2021[6]	6.4%
Unemployment rate among individuals with less than primary, primary and lower secondary education (levels 0-2), 15 years or over, 2021[7]	6.8%
Unemployment rate among individuals with upper secondary and post-secondary non-tertiary education (levels 3-4), 15 years or over, 2021[8]	8.4%
Unemployment rate among individuals with tertiary education (levels 5-8), 15 years or over, 2021[9]	4.6%
Labour market slack, 2021[10]	12.9%

[1] The EU average rate of employment in 2021 is 73.2%

[2] The EU average of employment in high-tech sectors in 2021 was 4%

[3] The EU average unemployment rate in 2021 was 7.2%

[4] The EU average youth unemployment rate in 2021 is 14.5%

[5] The EU average unemployment rate among males (15 years or over) in 2021 was 7%

[6] The EU average unemployment rate among females (15 years or over) in 2021 was 8.1%

[7] The EU average unemployment rate among individuals with less than primary, primary and lower secondary education (levels 0-2), 15 years or over, in 2021 was 13.9%

[8] The EU average unemployment rate among individuals with less than primary, primary and lower secondary education (levels 3-4), 15 years or over, in 2021 was 7.6%

[9] The EU average unemployment rate among individuals with tertiary education (levels 5-8), 15 years or over, in 2021 was 5.4%

[10] The EU average labour market slack in 2021 was 14%

3 Technological transformation and policies/instruments to stimulate innovative and inclusive job creation

As mentioned earlier, the region of Lisbon performs well in terms of innovation and ICT, even at the EU level. A large share of the population has tertiary education and important high-education hubs have not only attracted 40% of the country's researchers, but also contributed to steadily increase of the share of STEM graduates over the past two decades (DGEEC-MCTES data).[1] University graduates are attracted to the MA of Lisbon, due to greater availability of high-skilled and high-pay jobs. This stimulates the STI sector, resulting in significant improvements in the following indicators – international scientific co-publications, IT specialists, trademark applications.[2] Moreover, employment in knowledge-intensive activities has improved considerably, and the region has a higher share of total expenditure invested in R&D than any other region in Portugal (although still behind the EU28 average).

The US International Trade Administration points to the "bustling" tech scene in Lisbon, as the city emerges as a "hub of entrepreneurial innovation and technology, with tech companies of all sizes and innovative start-ups setting up offices all over as the tech talent swarms the tech city".[3] A high-level of English proficiency, recognition of quality of higher-education programmes, favourable weather conditions and the city's own characteristics have put the region under the radar of international companies, entrepreneurs and digital nomads. [4]

Moreover, the Portuguese Government is providing a range of start-up support mechanisms to stimulate further development of the start-up ecosystem. The Entrepreneurial National Strategy – StartUP Portugal –, launched in 2016, aimed to strengthen the start-up ecosystem, increase tech-companies' funding capacity, and to attract foreign investment to the ICT sector. The creation of a National Network of Start-up Incubators, a €30-million investment fund applied in strategic start-ups, and a €200-million public fund to co-invest with private partners are considered the most successful policies under this strategy.[5]

The Government has been committed to promote the start-up ecosystem abroad advertising the country's availability of advanced ICT skills at lower cost (compared to other EU

[1] At a national level, 27% of all graduates in 2021 were in STEM programmes, Includes science, math, programming, engineering and transformative industries

[2] https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/regional-innovation-scoreboard_en

[3] https://www.trade.gov/country-commercial-guides/portugal-information-and-communications-technology

[4] https://www.eu-startups.com/2020/08/lisbons-startup-ecosystem-at-a-glance/

[5] https://www.portugal.gov.pt/pt/gc21/comunicacao/documento?i=estrategia-nacional-para-o-empreendedorismo-2-anos-de-startup-portugal

countries), aiming to increase firms' internationalization and to attract foreign venture capital. Along the same line, Lisbon has been hosting large events related to technology development (e.g., Web-Summit), and it is part of the Scale Cities Alliance, a collaborative ecosystem of thirteen European cities aiming to connect technological hubs better.

All factors together, the Portuguese start-up ecosystem has been growing quickly and steadily. In 2020, Lisbon was considered one of the most promising emerging start-up ecosystems and in 2022 Portugal ranked 8th in the list of the most attractive European countries to invest, especially in high-tech sectors such as software and IT services. [1, 2]

Public authorities have been trying to address the shortages in digital skills, already mentioned above, to increase the availability of human resources for technological transformation. Therefore, a number of projects have been launched, aiming to (i) provide basic training in digital skills, especially to people who are active in the labour force (such as the programs Rampa Digital, EUSOUDIGITAL), but also to children and teens, and (ii) to provide advanced training in ICT and prepare workers for a job in the sector (such as the programs UPskill, JOVEM + DIGITAL, 42 Lisboa – Programming School, and Academia de Código). Many of these programmes are sponsored and/or supported by public funding.

To better coordinate all public policies aiming to support the digital transition of workers and firms, the Portuguese Government created the agency "Portugal Digital". These public policies can be divided into measures to increase digital capacity and promote digital inclusion (Pillar 1), to transform businesses, (Pillar 2) and to boost digital public services' availability (Pillar 3).

For Pillar 1, dedicated to promoting digital inclusion and innovative jobs, the agency "Portugal Digital" has important allies: InCoDE2030, the public body devoted to promoting digital skills and all private and public programmes that provide digital training; IEFP, the public employment agency, which provides VET courses, and the Ministry of Education, which is responsible for school curriculums. Each ally has its own role, with no overlaps in their attributions, and there is a high degree of coordination among them. Furthermore, regular meetings of Portugal Digital with the promoters of Pillar 1's policies, and the promoters of Pillar 2's policies – which aim to foster businesses digital capabilities – allow a better coordination between skills demand and supply.

Overall, successful projects implemented as part of the digital agenda in Lisbon are characterised by involvement of multiple partners from different institutional settings that pursue complementary goals in a coordinated manner. Thus, the existence of public bodies –

[1] https://startupgenome.com/fr/article/rankings-top-100-emerging

[2] https://www.ey.com/pt_pt/attractiveness/22/ey-attractiveness-survey-portugal-2022

such as the agency Portugal Digital and InCoDE2030 – to coordinate efforts is considered beneficial.

The Action Plan for Digital Transition was presented in 2020 by *Portugal Digital*, a recently created public agency to coordinate the policies implemented to support workers' and firms' digital transition. The. Action Plan establishes capacity building and digital inclusion as its first pillar and sets strategies to address different challenges of citizens. The Action Plan includes initiatives that…

(i) improve digital education (e.g., ICT in the primary school curricula, promotion of STEM careers among schoolgirls),
(ii) foster professional training and reskilling, both to train more ICT professionals and to increase employees' digital capabilities in different sectors,
(iii) ensure digital inclusion and literacy, such as providing adults with basic digital competences or tackle gender inequalities in digital technologies.[1]

The key public stakeholders in charge of coordinating the initiatives under each sub-pillar are the Ministry of Education and Ministry of Science and Higher Education (focus on the digital education sub-pillar); the Ministry of Labour and Social Security and, in particular, IEFP (PES) (focus on reskilling and upskilling); and InCoDE2030, a governmental body aiming to support, sponsor and promote different private, public and non-profit organizations (or projects) that contribute to foster digital skills.

The strength of the Action Plan is its focus on stakeholder collaboration and coordination activities, and a comprehensive approach to digital transition.

Many of the capacity building projects carried out by both public and private stakeholders target specific demographic groups to facilitate their transition to new and better jobs. In particular, populations that may be in a more vulnerable position in an increasingly digital labour market: young workers, low-skilled workers, and women. The following projects are some of the most relevant ones, carried by organizations promoted by InCoDE2030, and represent the effort made by higher-education institutions, public employment services, private-public partnerships, and private stakeholders to support job transition.

ENGENHEIRAS POR UM DIA ("(Female) Engineers for one day") is a project, implemented by a leading higher-education institution in Lisbon (*Instituto Superior Técnico*).[2] The project

[1] https://portugaldigital.gov.pt/wp-content/uploads/2022/01/Portugal_Action_Plan_for_Digital_Transition.pdf

[2] https://engenheirasporumdia.pt/

aims to reduce the gender employment gap in STEM occupations by providing female middle and high school students one-day experiences in STEM jobs and creating a network of female role-models and mentors.

The project is coordinated by the Commission for Citizenship and Gender Equality (CIG) and by INCoDe.2030 , in conjunction with the Portuguese Association for Diversity and Inclusion (APPDI), Instituto Superior Técnico , 86 partner entities (11 of which are municipalities), 52 primary and secondary schools and 19 higher education institutions.

To strengthen the project and its network of partners, the Alliance for Equality in ICT was created, in December 2021, with a focus on training, capacity building, hiring and retaining more girls/women for the area of technologies and engineering.

The project has reached more than 12.500 young people from primary and secondary education, through various activities, including laboratory practices, role model sessions and mentoring. Although the number of young women in STEM bachelor programmes has been growing, the project lacks resources to expand its mission.

The project highlights that awareness raising and education activities that involve school-aged children are effective in attracting individuals to pursue career in STEM.

The project *EUSOUDIGITAL*[1] was established as a partnership between the Portuguese Government, the country's largest bank (publicly owned) and a non-profit organization, *MUDA*, to promote digital literacy (such as using browsers, creating, and using an email account, protecting personal data) among adults over 45 years old, through a network of volunteers and local partners (e.g., local authorities, libraries, ONGs).

With the help of mentors/volunteers that received training on what and how to teach, free digital trainings are provided in hundreds of local education centres across Portugal. The project has attracted significant attention and has been considered effective, due to delivery of training in a simple/user-friendly manner, availability of personal mentors and accessibility of training in local communities.

ENGENHEIRAS POR UM DIA ("(Female) Engineers for one day") is one of the projects that has gained traction over the past years. Implemented by a leading higher-education institution in Lisbon (*Instituto Superior Técnico*), the project aims to reduce the gender employment gap in STEM occupations. The project consists in providing young girls (middle- and high-school)

[1] https://www.eusoudigital.pt/

with one-day experiences in STEM jobs, and creating a network of female role-models and mentors. Although the number of young women in STEM bachelor programmes in growing, the project lacks resources to expand its mission.

The project GARANTIA DIGITAL, carried the public employment services, IEFP, is directed to low-skilled people who have recently lost their job. It provides people basic digital skills they may need to transition to a better job, and it aims to cover 304 thousand participants in by 2024.

4 Policies/instruments to prevent and mitigate job displacement

Based on interviews, automation-induced job displacement does not seem to be of primary concern to Portuguese policymakers, as the number of workers employed is now higher than ten years ago in all types of occupations – even those at higher risk of automation, such as plant and machine operators, assemblers, and clerical support workers. Thus, the job creation effect is higher than job displacement in the MA of Lisbon.

However, employment in routine manual occupations has been less resilient to shocks and is not increasing as much as in highly skilled or low-skilled occupations.[1] And, as in other developed countries, many jobs with high routine content may be at risk. A study commissioned by the Portuguese Industry Confederation (CIP) in 2019 estimates that around 50% of all jobs in Portugal will be partially automated in the future. Although the region of Lisbon is expected to be less exposed to the effects of automation on the labour market, due to a lower share of employment in the manufacturing sector, still thousands of job may be lost, according to the study's estimates. Such risk highlights the need to reskill and upskill workers in highly routine occupations.[2]

In light of technological transformation, the main strategy of the policymakers in Portugal is to increase digital skills of the labour force at both basic or more advanced levels. To improve the employability prospects of workers, the Portuguese Public Employment Services, IEFP, recently launched a large-scale programme called "EMPREGO + DIGITAL".

The first pilot of the programme "EMPREGO + DIGITAL" was a public-private partnership between the PES (IEFP) and the industry's association (CIP), and aimed to provide training to employed workers, adjusting the training to the needs identified by each employer (e.g.,

[1] Employment in routine manual occupations such as machine operators and assemblers decreased by 10%, and crafts and related occupations declined by 6%, more than any other occupations.

[2] https://cip.org.pt/wp-content/uploads/2019/10/Relatório-FoW_NSBE-CIP.pdf

digital collaborative tools, e-commerce, cybersecurity).[1] The pilot, which lasted until 2022, covered 28 thousand workers, and is now targeting to reach 200 thousand workers until 2025.

The main value-added of the architecture of this training relies on the absence of one-size-fits-all curriculum. Instead, firms are invited to identify their needs in digital skills (which can be basic or advanced ICT skills), and once there is a minimum number of firms requiring a particular training to their workers, IEFP offers it. This programme constitutes the main public response in the prevention of technological-driven job displacement and, simultaneously, job transformation and job creation, as it allows in-job upskilling while contributing to technological/digital transition in organisations.[2] The customized trainings, adapted to groups of firms that report certain needs, have proved to be successful.

Similar to the "EMPREGO + DIGITAL" strategy, the PES has launched another training programme, called UPSKILL.

UPSKILL is the training programme in Portugal that targets young people who want to follow an IT career. The PES gathers companies with specific skills needs and launches the training according to them. In exchange, these companies commit to employ 80% of the trainees, at a minimum net wage of €1,200.

UPSKILL has already certified 2,000 young people in advanced ICT. The adoption of this strategy has turned Portugal the best performer within the group of countries implementing the programme R4E – Reskilling 4 Employment (Portugal, Spain and Sweden), a European Round Table for Industry's initiative to best address reskilling and upskilling need in the EU.[3]

The success of programme is highlighted by its ability to address two challenges at once – support employers, thereby stimulating innovative job creation, and mitigate (long-term) unemployment, especially among young people.

[1] https://cip.org.pt/empregomaisdigital/programa/

[2] IEFP will also launch two complementary programmes: „LÍDER + DIGITAL", aiming to give training to managers and company founders in taylor-made digital solutions to their firms, and „FORMADOR + DIGITAL", aiming to enlarge the pool of trainers in digital skills (both people with pedagogical skills but without expertise in digital tools and people with expertise in digital tools but without pedagogical skills).

[3] https://reskilling4employment.eu/en/

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Customized trainings, adapted to groups of firms that report certain needs, have proved to be successful also in other training programs. The same strategy has been followed in a parallel programme, targeting young people who want to follow an IT career: IEFP gathers companies demanding specific skills and opens the training according to them. In exchange, these companies commit to employ 80% of the trainees, at a minimum net wage of €1,200. UPSKILL, the name of this programme, has already certified 2,000 young people in advanced ICT. The adoption of this strategy has turned Portugal the best performer within the group of countries implementing the programme R4E – Reskilling 4 Employment (Portugal, Spain and Sweden), a European Round Table for Industry's initiative to best address reskilling and upskilling needs in the EU.[3]

The project GARANTIA DIGITAL, carried the public employment services IEFP, is directed to low-skilled people who have recently lost their job. It provides people basic digital skills they may need to transition to a better job, and it aims to cover 304 thousand participants in by 2024.

Finally, it's worth to mention one last training programme also carried by IEFP: JOVEM + DIGITAL. This VET targets young people registered in the Employment Services databases who wish to pursue a career in ICT. This type of vocational training aims to increase young people's prospects of being (re)employed and to fulfil labour market shortages. Since the training

[1] https://cip.org.pt/empregomaisdigital/programa/

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[3] https://reskilling4employment.eu/en/

programme was implemented (2021), almost 3 thousand young people have been certified as, e.g., data analysts, cybersecurity experts, programmers, social media managers, etc.[1]

To conclude, IEFP trainings in digital skills have been flexible in order to adjust the training offer to the needs of firms and workers. Customized trainings have been successful because they…

- Allow for upskilling while workers are employed, involving them in the process of digital transformation of their firms, reducing the risk of job displacement;
- Mitigate labour shortages of firms in specific digital skills, and alleviates firms from carrying the full burden of training new workers;
- Is cost-efficient, as IEFP ensures there are a minimum number of registrations in a training course – usually very expensive – before initiating the course.

5 Policies/instruments to support employers and employees during job transformation

To foresee the labour market by 2030, INCoDe2030 has recently conducted a study to identify which occupations would require a significant improvement in digital skills and which digital competencies would be necessary to (better) perform tasks for these occupations. The description of the competencies that are expected to be required by occupation title ("*3.2. Mapeamento de Competências"*) can be accessed by workers, companies, and other policymakers.[2]

Until recently, Portugal faced challenges in ensuring that vocational education and training (VET) followed similar quality standards across the territory, regardless of the entity providing the training (public, private or an educational institution). Fifteen years ago, the government implemented a significant reform in the VET system, which significantly improved the quality of VET education and currently supports technological transformation in organisations. The reform relied on two main measures. The first measure was to create a comprehensive National Qualifications System (SNQ), setting common standards for VET courses and homogenising its quality across regions and providers. Moreover, SNQ includes a catalogue of

[1] The high drop-out rates, above 80% (difference between people registered to these trainings and people who conclude the training) should be assessed carefully.

[2] https://www.incode2030.gov.pt/2022/12/20/incode-2030-divulga-resultados-do-estudo-para-a-empregabilidade-nao-tic-no-futuro/

skills, a system to anticipate skill needs, a national credit system for VET and an online tool to guide self-learners .[1]

The second measure of the reform was the creation of a public agency, ANQEP, to coordinate and monitor the SNQ system and regularly update it. ANQEP results from the collaboration of the Ministry of Education, Ministry of Labour and Social Security and Ministry of Economy making sure that the public stakeholders work together, and social partners are closely involved. The institutional architecture of ANQEP (which includes sectorial councils to discuss skill gaps at the industry level), and the activities it has developed to engage social partners have been recognised internationally, for example, by the OECD.

The role of coordination played by the ANQEP, its capacity to forecast skills gaps of the labour force at national, regional, and sectorial levels, and to translate those gaps into the VET system may be seen as crucial policy to support both employees and employers in the labour market transition. In May 2023, ANQEP announced the creation of over 365 specialized training centres in digital, renewable energy, industry, and ICT skills, to be financially supported by the European Commission's "Recovery and Resilience Facility instrument". These centres aim to increase the provision of VET in high-demand occupations paying better wages, to contribute to reduction of social inequalities and to improve job quality among young, lower-qualified workers.[2]

Although the results of the VET system reform have been relevant to the whole Portuguese territory, the region of Lisbon has a lot to benefit from a coordinated and high-quality VET system. Moreover, as the region becomes a larger nest for innovative businesses (namely, innovative start-ups), and the demand for qualified labour increases, the establishment of new training facilities gets even more critical, especially if the trainings aim to fill the current and future gap in advanced ICT and digital competences.

Success factors of VET reform, ANQEP and SNQ include:

- Collaboration of the Ministry of Education and Ministry of Labour and Social Security allows to bring different perspectives to the VET system;
- ANQEP has put a lot of effort at engaging social partners, not only at a national level but also at a regional and sectorial level;
- The reform allowed to standardise VET programmes across different providers, and set the bar up to increase its quality.

Among the successful projects that support job mobility, Rampa Digital should be highlighted.

[1] https://www.oecd.org/publications/strengthening-the-governance-of-skills-systems-3a4bb6ea-en.htm

[2] https://www.anqep.gov.pt/np4/859.html

The project Rampa Digital aims to expand peoples' digital skills in Portugal, regardless of their current job situation. The project offers a self-assessment tool to evaluate the baseline digital skills level and to tailor each participant's training. Following that, it provides free in-person training sessions to firms that want to integrate digital tools in their business, and to other NGOs (such as charities) so that they can then provide training to their communities.

Rampa Digital has been promoted by .PT (a non-profit entity responsible for managing and registering the webdomain *.pt*) and privately sponsored (together with Google.org). In view of experts, it has been an important support for businesses, given its comprehensive support and in-person trainings.

6 Lessons learned

Stimulation of innovative and inclusive job creation, powered by automation technologies:

- Lisbon MA benefits from being a capital/core region of Portugal, as it has a concentration of high-skilled services, developed industrial base and a larger number of highly skilled people, which is partially related to its attraction of researchers and other highly skilled from other regions of Portugal and from abroad. As a hub of entrepreneurial innovation and technology, the region experiences a rapid growth of high-technology and high-knowledge sectors, that leads to higher employment in knowledge-intensive activities.
- To attract venture capital, innovative entrepreneurs and to stimulate internationalisation of local companies, the government has launched a communication campaign that emphasized the advantages of doing business and living in Lisbon, and in Portugal generally. These include a high-level of English proficiency, advanced ICT skills at a lower cost, high quality of higher-education programmes, favourable weather conditions and the city's own characteristics.
- The development of start-up ecosystem is essential for stimulating innovation and the expansion of the high-tech sectors, as smaller companies are more likely to develop disruptive technologies. In addition, they complement the activities of existing industries and larger firms by aiming to integrate into their value chains.
- To support technological transformation and job creation it is essential to ensure availability of needed skills and of human resources, generally.
- Having a public agency able to coordinate, support, sponsor and recognize projects carried by different stakeholders aiming to improve digital skills at both basic and advanced level, ensures the capability to address different sources of inequalities in

accessing high-paying and high-quality jobs (e.g., gender inequalities in STEM occupations).

Prevention and mitigation of job displacement, following adoption of automation technologies:

- Training programmes that focus on providing advanced digital skills to specific demographic groups such as workers in industries exposed to automation (*Emprego + Digital)* or younger workers with lower education (*Jovem + Digital*) contribute to upskilling of workers and upgrading the "in-house" stock of skills as companies increasingly adopt digital tools. That upgrade may mitigate job losses caused by technology adoption.
- Straight collaboration between training providers – in which PES plays a major role – and companies allows for VET courses to be tailored to businesses' needs, while ensuring higher rates of post-training employment.

Supporting employers and employees during job transformation, following adoption of automation technologies:

- Cooperation between different ministries, social partners' engagement, and an institutional architecture that is stable across policy cycles, ensures more robust, better quality and higher adherence to VET systems. VET is considered essential for supporting both employers and employees during job transformation.
- The labour market forecasting tools that highlight what skills and competencies would be necessary to (better) perform tasks for these occupations are considered useful to uniform policymakers and the public about the labour market trends. However, it is important to ensure that information is up to date, therefore periodical revisions are necessary.