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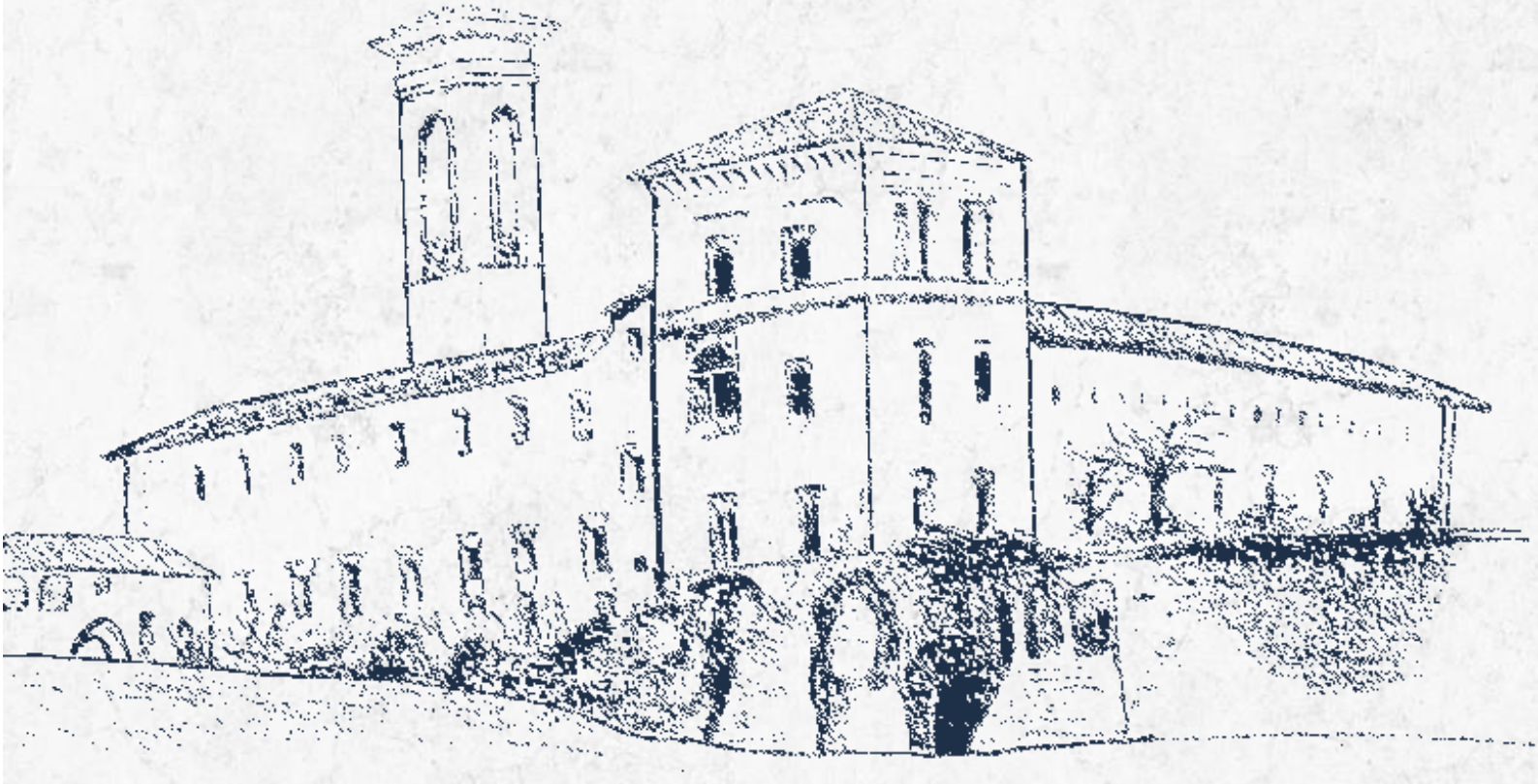

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Employment in the New Era: Bridging Technology, Education, and Skills for the Next Generation

Carmela Garofalo and Claudia Carchio [*]

Abstract: This paper explores how technological and digital transformation can influence both the content of training (across all levels), broadening the range of skills that young people must acquire to enter and remain in the labour market, and the methods of delivery of training. It examines how these transformations can become a powerful tool—and, consequently, an opportunity—to support and uphold the rights and interests of the most vulnerable individuals within the employment relationship and the labour market.

Keywords: *New technology, new generation, training, education, skills, employment.*

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1. Introduction

This contribution seeks to disseminate the preliminary findings derived from two PRIN PNRR 2022 research projects, namely the "Youth Employment Strategy" (YES) and "Sustainable Solutions for Social and Professional Integration in the Case of Chronic Illness and Transplantation" (SUNRISE).

The YES project is part of a broad research agenda focused on the employment conditions of young people in the Italian labour market. Its primary aim is to scrutinise the legislative instruments established by both national and regional authorities, with particular emphasis on the regional legislations of Sicily and Apulia, which serve as focal points for the project's four local research units. These legal measures are critically evaluated within the framework of European Union employment policies, which aim to promote the retraining of young people and ensure their seamless integration into the workforce.

Conversely, the SUNRISE project aims to analyse and propose strategies and measures to strengthen the current regulatory frameworks for the social inclusion of individuals who have undergone transplants or are coping with chronic illnesses. Its goal is to create pathways that facilitate the transition back to work for these individuals.

Drawing a common thread linking the two research strands, this paper explores the cross-cutting theme of the impact of technological and digital transformation on emerging professions and the professional profiles required by today's labour market. Particular emphasis is placed on the pivotal role that education and training play in ensuring the alignment of skills with labour market demands, thereby enabling young people to secure and retain employment. The paper also critically examines the content and delivery of education at all levels, highlighting how the integration of technology can ease the transition from school to work and enhance the competitiveness of future workers.

Additionally, the study explores the employment conditions of individuals with disabilities, emphasising how inadequate quality education from early stages is a significant factor contributing to their disadvantages in the labour market. In this context, the potential of digital transformation to expand educational and training content, methodologies, and participation in social life (both in educational and work settings) is highlighted, thus offering significant opportunities for the empowerment of young individuals with disabilities and those living with chronic conditions.

Overall, this paper underscores the critical importance of creating inclusive and adaptive educational and working environments that meet

the dynamic demands of the modern labour market, thereby promoting the comprehensive development and inclusion of vulnerable groups. It concludes by affirming that the integration of technology into educational and professional training programmes can serve as a powerful tool for making the rights and interests of the most vulnerable workers tangible and enforceable in labour relations and the labour market.

2. The 'Youth Question'

Starting with the first profile, young people represent a vulnerable segment of the population due to the challenges that characterise the transition from education and vocational training to the world of work[1].
This critical situation is evidenced by the high rates of youth unemployment and inactivity, particularly with reference to NEETs (Not in Education, Employment, or Training), with significant territorial disparities, especially in the southern regions. In these areas, age-related disadvantage intersects with issues such as the gender gap.
Although there has been some improvement since the pandemic, the overall state of youth employment in Italy remains less than encouraging in absolute terms when compared with other EU countries. The gradual ageing of the population, caused by increased life expectancy and a declining fertility rate, alongside the challenges faced by younger generations in securing stable and well-paid jobs, the low rate of access to university education, and the difficulties in establishing new family units, have all contributed to the emergence of a genuine 'youth issue'[2]. This issue requires an integrated strategy of actions capable of supporting (rather than merely assisting) young people in the transition from the education and training system to the labour market.
The younger generation finds itself in a particularly challenging 'middle of the road', where education and training offer advantages throughout their careers, ensuring better employment opportunities and partially protecting against unemployment. However, upon entering the labour market, even well-educated young people often find themselves lacking practical work

[1] According to the UN definition, 'youth' refers to the 15-24 age group for statistical purposes. However, the 15-29 age group also warrants attention, as it was considered in the European Year of Youth (2022). For this reason, this paper considers young people aged 15-29 but also provides data on those aged 15-34 to encompass the transition from formal education to the labour market.
[2] See XXIII INPS Annual Report published on 23 September 2024 available at https://www.inps.it/it/it/dati-e-bilanci/rapporti-annuali/xxiii-rapporto-annuale.html

experience, leading to a gap between the skills they have acquired through education and those required in the workplace. Once they enter the workforce, they are often unable to bridge this gap, resulting in precarious and discontinuous forms of employment, lower classification levels (and thus lower wages), and further de-skilling, with potential long-term negative effects on their careers[3].

The analysis provided by the Eurostat Report[4] "Participation of young people in education and the labour market"[5], published on 29 September 2023, which examines the participation of young people in education and the labour market across European countries, supports the above observations and raises important reflections about the direct relationship between adequate alternation between study and work and the ability to integrate into the labour market[6].

The Report, which uses the 15-29 and 15-34 age groups as reference, reaffirms that in Italy, the extremely low level of alternation between training and work for young people (partly due to the limited diffusion of dual apprenticeships) corresponds with a high youth unemployment rate. This is evidenced by the upward trend in the youth inactivity rate as age increases, reaching a peak of 20% at age 33.

In contrast, countries such as Ireland, Germany, and Austria present a more promising labour market, offering abundant job opportunities for students. This is consistent with the widespread participation of young people in training programmes and the establishment of a robust apprenticeship system in secondary education, particularly in Germany.

These findings are further corroborated by the latest Inapp-Inps monitoring report from October 2024, titled 'Signs of Enhancement of Dual Apprenticeship,' which shows that, in Italy, the predominant form of apprenticeship is the professional apprenticeship, which accounts for 97.7% of contracts, often with limited training content. In contrast, dual apprenticeships (i.e., first and third-level apprenticeships) are still struggling to establish themselves, except in certain regions[7].

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[3] See C. Garofalo, *Età e incentivi: il rimedio allo svantaggio*, Variazioni su Temi di Diritto del Lavoro, 2023, n. 2, 365-387.

[4] The Report analyses the European Union Labour Force Survey 2022 data.

[5] The text is available at https://www.bollettinoadapt.it/participation-of-young-people-in-education-and-the-labour-market/

[6] See C. Innamorati, *Tra studio e lavoro: l'occupazione giovanile in Europa*, Bollettino Adapt, 30 ottobre 2023, n. 37.

[7] See G. Impellizzieri, *Apprendistato duale: ancora la lezione di Bolzano*, Bollettino Adapt 21 febbraio 2022, n. 7.

These research findings provide a starting point for investigating potential tools to address the issue of youth unemployment and underscore, particularly in the context of the ongoing technological revolution, the strategic role of education and training in supporting young people during the development and design phase of their professional profiles. This would also foster practical work experience and skills enhancement, ensuring a smoother transition to the labour market.

3. New technologies, Training and Skills

Defending and enhancing human capital has become an increasingly urgent imperative, particularly for the new generations, within an ever-evolving context where modern production processes, the advent of new technologies, artificial intelligence, and robotics demand a continuous expansion of knowledge and constant updating of previously acquired skills (commonly referred to as re-skilling/up-skilling) to remain competitive in the labour market[8].

The speed of these transformative processes is outpacing the capacity for both quantitative and qualitative adjustment of the necessary skills, resulting in significant skill gaps and labour shortages that are creating serious deficits in the labour market, not only in Italy but in other regions as well[9].

A digital divide is gradually emerging within the world of work, particularly with regard to the accessibility of digital skills and, more broadly, the skills driving technological change[10]. This gap, which already exists and is likely to expand exponentially without adequate countermeasures, threatens to marginalise workers who are unable to equip themselves with the necessary skills and professionalism to keep pace with technological advancements and meet the innovation needs of businesses[11].

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[8] During the pandemic emergency, the Presidency of the Council of Ministers promoted the National Digital Competence Strategy, the 'Italy 2025 Strategy', based on the recognition that digital competencies are a fundamental strategic axis for the social and economic growth of the country.

[9] See T. Treu T. (2024), *Intelligenza Artificiale (IA): integrazione o sostituzione del lavoro umano?*, WP C.S.D.L.E. "Massimo D'Antona". IT - 487/2024, 1-19.

[10] See S. Ciucciovino, P*rofessionalità, occupazione e tecnologia nella transizione digitale,* federalismi.it, 2022, n. 9, 129-148.

[11] See R. Cirillo, D. Evangelista., D. Guarascio, M. Sostero, *Digitalization, routineness and employment: an exploration on Italian task-based data*, INAPP Public Policy Innovation, Working Paper, 2020, 1-37.

Such disparities give rise to new forms of polarisation[12], particularly in relation to professional skills and the training required to make them accessible. This results in the creation of restricted and privileged markets for in-demand and hard-to-find professions[13], particularly those linked to STEM (Science, Technology, Engineering, and Mathematics) skills, with all the direct and indirect discriminatory implications that follow. These include the gender gap, owing to the well-documented underrepresentation of women in these fields, and the generational divide, as older workers[14] face greater difficulty in adapting their skillsets to keep up with these changes.

The new generations, navigating an increasingly polarised and continuously shifting labour market, must be supported in positioning themselves effectively within it. This support should enable them to secure quality employment or, at the very least, remain in less advantageous positions for a transitional period rather than indefinitely.

The ability to harness the opportunities presented by the technological and digital revolution for both workers and enterprises hinges largely on the viability of several enabling factors, among which training plays a central role. Training serves as a key vehicle for 'regulatory subjectivisation', facilitating workers' acquisition of greater substantive freedom in their employment relationships and professional trajectories[15].

4. Italian Measures to Strengthen Young People's (New) Skills

The right to training and, more generally, investment in individuals and their skills, have become priority issues on the EU political agenda. These initiatives are informed by the European Pillar of Social Rights (and earlier by Article 14 of the European Social Charter), responding to the

[12] See A. Maresca, *Il nuovo mercato del lavoro e il superamento delle diseguaglianze: l'impatto della digitalizzazione e del remote working*, federalismi.it, 2022, n. 9, 176-179.

[13] See M. Barbera M. (2018), *Impresa, lavoro e non lavoro nell'economia digitale, fra differenziazione e universalismo delle tutele*, Giornale di Diritto del Lavoro e delle Relazioni Industriali, 2018, n. 158, 403-422; L. Pennacchi, *Innovazione e lavoro: la cerniera umanistica tra macroeconomia e microeconomia*, A. Cipriani, A. Gramolati, G. Mari (ed. by), Il lavoro 4.0: la Quarta Rivoluzione Industriale e le trasformazioni delle attività lavorative, Firenze University Press, 2018, 389-404.

[14] XXVI Almalaurea Report on the Profile and Employment Status of Graduates, 13 June 2024 available at https://www.almalaurea.it/i-dati/le-nostre-indagini/condizione-occupazionale-laureati.

[15] See A. Perulli, *La "soggettivazione regolativa" nel diritto del lavoro*, WP CSDLE "Massimo D'Antona". IT–365/2018, 406-136.

challenges posed by the dual green and digital transitions. These transitions require companies to create new job profiles to meet evolving production needs, while workers must retrain or refine their skills to adapt to changes in the labour market[16].

Lifelong learning is a strategic aspect for the development of individual competencies, social cohesion, and the economy at large. It has become such a significant focus that it was incorporated as one of the commitments made by EU states at the Porto (Social) Summit on 7 May 2021[17], aiming to achieve the UN 2030 Agenda target of an employment rate of at least 78% by 2030[18].

If we contextualise these objectives within Italy, the challenges faced by the country in addressing the structural deficiencies of its training system and bridging the skills gap are immediately apparent. These challenges stem from various factors, chief among them the inability to build an effective system of active policies. Additionally, there is a misalignment between the business and labour systems and the education and training sectors, particularly in the context of technological changes that necessitate the integration of new skills into production processes[19].

This explains why training—aimed at broadening the skills of employed workers (continuous training) and those excluded from the workforce, i.e., the unemployed and first-time job seekers—has become a strategic focus

[16] The year 2023 was declared the 'European Year of Skills' (European Year of Skills, https://year-of-skills.europa.eu/index_en) to raise awareness among European institutions, Member States, social partners, companies, and EU workers (stakeholders) about the need to invest in training and skills development. This initiative aims to address labour shortages and empower individuals to actively participate in ongoing transitions through lifelong learning.

[17] At the *Porto Social Summit*, 7-8 May 2021 in https://www.2021portugal.eu/en/porto-social-summit/porto-social-commitment the EU states committed to ensuring that at least 60 per cent of adults participate in training activities each year.

[18] At the same time, in July 2021, the EU Commission approved a new 'European Skills Agenda', a five-year programme comprising twelve actions across five action areas. Member States are called upon to implement these actions, primarily through their Recovery and Resilience Plans, and funded not only indirectly by Next Generation EU, but also through other structural channels of the EU budget, such as the European Social Fund Plus, the Erasmus programme, and the European investment programme InvestEU (see *European Skills Agenda* in https://ec.europa.eu/social/main.jsp?catId=1223&langId=en.)

[19] See P.A. Varesi, *Il sistema nazionale di servizi per l'impiego e politiche attive del lavoro: aspetti strutturali*, Variazioni su Temi di Diritto del Lavoro, 2022, n. 4, 607 ff.

of the National Recovery and Resilience Plan (NRP) for Italy's economic and social recovery in the wake of the pandemic crisis[20].

Thanks to the momentum generated by the reforms and investment programmes under the National Recovery and Resilience Plan (PNRR), particularly in the areas of active labour and vocational training policies (M5C1) and secondary and tertiary education (M4C1), Italy has initiated several interventions to innovate its education and training system. These efforts are increasingly aligned with the European model, with the stated goal of enhancing the appeal of vocational pathways and improving the alignment of young people's skills with the needs of businesses and local economies[21].

The areas of legislative and regulatory intervention cover various segments of the vocational education and training (VET) chain. These range from state-run technical and vocational education and training to regional VET (including dual-mode options), and extend to the tertiary sector. The goal is to establish a technological-vocational education and training chain, creating an integrated approach to education and training at all levels.

In 2022, the reform of Higher Technical Institutes (ITS Academies)[22] under Law no. 99 strengthened the link between tertiary professional training and the labour market. The reform aimed to resolve, or at least alleviate, the long-standing mismatch between skills and market needs, and to ensure the supply of technicians with high technological and

[20] The Council's Recommendations on Italy's 2020 National Reform Programme (appropriately considered in the drafting of the NRP) already highlighted training as a key priority. Among the recommended interventions, it emphasised the need to improve educational levels and the qualification of skills as a primary driver of development. Simultaneously, it advocated for the increased training of the labour force, ensuring system coherence. Indeed, "the low participation rate of low-skilled adults in training is concerning, particularly given the decline in jobs requiring low qualifications. Skills upgrading and retraining have become more crucial than ever to equip workers with labour-market-relevant skills and promote an equitable transition to a more digital and sustainable economy" (Chapter 19). See G. Mammone, *Ripresa e resilienza dopo il Covid-19. Gli ammortizzatori sociali tra cooperazione europea e progettualità nazionale*, Rivista del Diritto della Sicurezza Sociale, 2021, n. 2, 261-262.

[21] See L.V. Casano, *Formazione continua e transizioni occupazionali*, Variazione su Temi di Diritto del Lavoro, 2022, n.4, 659-686.

[22] The PNRR (Reform 1.2, M4C1) has allocated EUR 1.5 billion in funding for ITS to enhance the educational offerings of these institutes. The stated objective is to double the number of enrolled students, invest in high-tech laboratories, ITS campuses and facilities, and strengthen relationships with companies.

technical professional skills in areas considered strategic for economic development and the revitalisation of the production system[23].

ITS Academies are tasked with promoting technological and scientific culture, providing lifelong guidance for young people, and training highly specialised technicians. Furthermore, their actions are transversal, targeting the professional development and in-service training of teachers in scientific, technological, and technical-professional disciplines within schools and vocational training. ITS Academies also contribute to active employment policies, with a specific focus on young people's transition into the world of work, the continuous training of highly specialised technical workers within the framework of lifelong learning, and technology transfer, particularly to small and medium-sized enterprises (SMEs).

The concept of scientific culture is broad, and it is primarily focused on "technological areas considered strategic in the context of industrial and technological development and ecological reconversion policies." These areas were definitively identified by Ministerial Decree No. 203 of 23 October 2023[24].

Interwoven with the ITS Academy reform is Law No. 121 of 8 August 2024 (the so-called Valditara Reform), which reforms the current technological-professional training chain model to promote youth employability and innovation in the production system.

Pending the approval of Law No. 121/2024, an experiment is planned to begin in the 2024-2025 academic year[25] involving voluntary participation in a four-year second-cycle state vocational education and training (IeFP) pathway, followed by an additional two years at ITS Academies under the

[23] See A. Zuccaro (ed. by), *Istituti Tecnologici Superiori – Monitoraggio nazionale 2023*, INDIRE, Firenze, 1-314.

[24] MIM Decree No. 230 of 20 October 2023 (one of the 18 implementing decrees required by the reform), which contains provisions regarding the technological areas, national reference professional figures of the ITS Academy, and the minimum standards for technological and technical-professional competencies, introduces new technological areas, increasing the total from 6 to 10.

[25] To accelerate the implementation of the reform from the 2024/2025 school and training year onwards, the Ministry of Education and Merit (MIM) has launched, through Decree No. 240 of 7 December 2023 and the associated Notice (MIM Decree No. 2608 of 7 December 2023), a National Experimentation Plan for the establishment of the integrated training supply chain. This plan will assess the capacity to activate an integrated training system, organised and delivered by specialised networks of purpose, known as 'campuses'. These campuses will be established under agreements between the Region and the Regional School Office, following the model previously trialled with the Technical and Professional Poles.

'4+2' model (four years of technical or vocational secondary education and training, followed by two years of vocational tertiary education and training at ITS Academies).
Technological-professional training chains may span sectors such as information technology, electronics, mechanics, energy, and construction, or other ITS technological areas as per the DPCM 25 January 2008, updated by the implementing decrees of Law 99/2022. These may also be linked to other economically and professionally crucial sectors for specific regions or territories.
However, it should be noted that the current professionalising chain—linking regional Vocational Education and Training (IeFP) pathways to the ITS system—currently exists only on paper. The professional nature of these pathways and the complex transitions between segments (IeFP, IFTS, ITS), which depend on annual regional calls for applications, means that an actual chain supporting students through non-academic pathways to the ITS diploma is not yet operational. Consequently, the outcomes and impact of the experimentation proposed by the Valditara reform—aimed at developing synergies and facilitating transitions from the upper secondary system (schools and IeFP) to the non-academic tertiary system (ITS)—will need to be assessed[26].
In addition to shortening the length of the supply chain, the reform has provided an overview of both state and regional vocational-technological education. The Valditara reform proposes a 'single' supply chain model that integrates regional (IeFP, IFTS, ITS) and state (IT and IP) programmes within supply chains related to the same economic-professional/technological areas. Educational institutions must cooperate with training agencies and ITS Academies to set up these integrated training chains.
The integrated training offer must implement measures to enhance the quality of courses, including strengthening STEM disciplines, offering on-the-job experiences (with increased use of apprenticeships), expanding the number of hours[27] for transversal skills and orientation courses (PCTO),

[26] See M. Colombo, *Le prospettive del sistema ITS Academy. Dati e spunti dall'ultimo rapporto di monitoraggio INDIRE*, Bollettino ADAPT 9 ottobre 2023, n. 34.
[27] See Law No. 145 of 30 December 2018 (Budget Law 2019, Art. 1, Paragraph 784), which renamed the school-work alternance pathways (Legislative Decree No. 77 of 15 April 2005) to 'pathways for transversal skills and guidance' (PCTO). As of the 2018/2019 school year, it established the overall duration of these pathways over the final three years, depending on the type of institution (lycées, technical institutes, and vocational institutes): no fewer than 210 hours in the final three years of the vocational institute pathway; no fewer than 150 hours in the second two-year period and the final

and introducing teaching and laboratory activities led by experts from the professional world. The reform also aims to boost internationalisation and student mobility, with a focus on obtaining language certifications and adopting CLIL (Content and Language Integrated Learning) methodology to improve micro-language skills in technical education.

Another key aspect of the reform is the involvement of local stakeholders, such as enterprises, trade union representatives, and vocational needs assessment experts, in both defining training curricula and providing training. This collaboration is essential for aligning training programmes with labour market needs and facilitating practical vocational orientation for students in preparation for job placement.

These measures are supported by actions to incentivise the dual transition, particularly through dual apprenticeships[28], which the NRP has prioritised[29]. In line with EU Council Recommendations[30], these measures aim to develop skills that meet the needs of a rapidly changing economic system[31]. They focus on strengthening vocational education and training (VET) and higher technical education and training (HTET) provision, with direct involvement from enterprises in the planning and implementation of training interventions. This approach also seeks to expand learning models based on practical work experience[32].

To achieve these goals, the 'Guidelines for Planning and Implementing Vocational Education and Training and Higher Technical Education and

year of the technical institute pathway; and no fewer than 90 hours in the second two-year period and the fifth year of *licei*.

[28] The MLPS circular of 6 June 2022 provided a vademecum on apprenticeships for professional qualification and diploma, upper secondary education diploma and certificate of higher technical specialisation (so-called first level) to identify the critical aspects of the apprenticeship contract of both a legal and practical nature, which have hindered its wider use, to facilitate its uniform application throughout the country, while respecting the right of Regions and PAs to set additional requirements on the matter.

[29] The investment programme for the enhancement of dual regional pathways and the apprenticeship institution (Investment 1.4, M5C1), intends to incentivise the increase in the number of participants in the dual IeFP and IFTS pathways (at least 135,000 'additional people', of which 90,000 exclusively with PNRR resources) and to favour the achievement and dependability in the labour market of a qualification - 'relevant certification' - in the five years 2021-2025.

[30] See EU Recommendations of 15 March 2018 and 24 November 2020.

[31] See G. Impellizzieri, *Contributo allo studio giuridico del "sistema" dell'apprendistato*, Adapt University Press, 2024.

[32] See XXI INAPP Report on the Monitoring of the Vocational Education and Training System and of the Dual Pathways in Vocational Education and Training (a.f. 2021-22), December 2023 available at https://oa.inapp.gov.it/items/96d4c1e7-7381-4292-aa4a-f977ecbeaf2e.

Training Pathways in Dual Mode' were adopted under Ministry of Labour Decree No. 139 of 2 August 2022. A dedicated 'Dual System Observatory' was established to oversee the implementation of these pathways and address any issues that arise, including proposing necessary adjustments to the guidelines.

The 'Guidelines' outline the framework for these activities, specifying their general characteristics, the recipients and providers of measures, and the criteria for determining simplified cost options.

Several aspects deserve mention, including the range of pathways eligible for funding through the NRP's resources. These include new dual pathways, the conversion of traditional VET pathways into dual ones, and programmes outside the compulsory education system, aimed at acquiring either a VET or HTET qualification, or the certification of specific competences.

The desire to capitalise on the experience gained from previous experiments is clear, as this experience forms the basis for ensuring continuity and further development of the dual system in Italy.

The 'Guidelines' also revise and diversify the minimum standards for the use of teaching methods within dual pathways. This expansion also includes new pathways focused on "Entrepreneurship and Digital Transition," aligning with the PNRR guidelines and the National Green and Digital Agenda (NGUE).

Finally, measures adopted under the PNRR (M5C1) include reforms to active labour policies and vocational training[33]. These include the Workers' Employability Guarantee Programme (GOL)[34] and the National New Skills Plan (PNC). The most recent update to the PNC[35], the New Skills-Transition Plan (PNC-Transition)[36], was published by inter-ministerial decree on 29 March 2024[37].

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[33] See D. Garofalo, Gli interventi sul mercato del lavoro nel prisma del PNRR, in Diritto della Relazioni Industriali, 2022, n. 1, 114-160; A. Sartori A.(2021), Il diritto del mercato del lavoro tra pressioni economiche, trasformazioni sociali e nuove istanze di tutela, in Diritto della Relazioni Industriali, 2021, n. 4, 967-996; L. V. Casano, *Transizione ecologica e riqualificazione dei lavoratori: vincoli del quadro giuridico- istituzionale e prospettive evolutive nell'ottica dei mercati transizionali del lavoro*, S. Ciucciovino, D. Garofalo, A. Sartori, M. Tiraboschi, A. Trojsi, L. Zoppoli (ed. by) Flexicurity e mercati transizionali del lavoro. Una nuova stagione per il diritto del mercato del lavoro?, Adapt University Press, 2021, 14-47.

[34] See Art. 1, para. 324, Law No. 178/2020, so-called Budget Law 2021 and Interministerial Decree of 5 November 2021.

[35] The PNNC was adopted by decree on 14 December 2021.

[36] For employed workers, moreover, the strengthening of the New Skills Fund (FNC), introduced initially during the Covid-19 pandemic emergency, by Art. 88, co. 1, d. l. n.

The GOL Programme and the PNC are interrelated, aiming to address the training and retraining needs of unemployed youth and workers affected by labour market shifts[38]. The GOL Programme focuses on providing essential services and fostering employability, especially for vulnerable groups, and facilitating social inclusion for individuals in fragile conditions[39]. This is achieved through customised active policy paths[40], implemented through public-private partnerships and territorial networks that involve support services for the most vulnerable[41].

The National New Skills Plan (PNC) is a strategic coordination framework for upskilling and qualification/requalification interventions aimed at responding to the demand for new skills resulting from digital and ecological transitions, as well as the effects of the COVID-19 pandemic.

In comparison to the GOL Programme, the PNC orients the measures regarding the professional training of the programme beneficiaries in a synergistic and integrated manner. This functional connection is crystallised by the objectives to be pursued in the five-year period 2021-2025: at least 800,000 workers—out of the total 3 million hired by the GOL Programme—will need to be involved in training activities, 300,000 of whom will strengthen digital skills.

Following the inclusion of the new REPowerEU - Mission 7 chapter in the PNR, the New Skills Transition Plan was adopted, updating the 'New Skills Plan'. Adopting the new Plan responds to the need to provide the country with a practical and stable mechanism to combat skills mismatches, with "new skills" now playing a key role in an increasingly digital and green job market. The instrumentation is expanded by bringing training policies closer to active labour policies, integrating what is

34/2020, conv. in l. n. 77/2020, to allow companies to reshape working hours and favour training activities based on specific collective agreements with trade unions.

37 With the MLPS decree of 30 March 2024, following an agreement in the State-Regions Conference, the PNC-Transitions, adopted on 14 December 2021, and the related Roadmap were introduced. The Roadmap outlines the procedural steps for the activities to be implemented and defines several general principles that are to be developed and specified in regional regulations.

38 See L. Valente, *Gli attori del mercato del lavoro in rapporto diretto con imprese e lavoratori*, Variazioni su Temi di Diritto del Lavoro, 2022, n. 4, 633-657.

39 See P. Bozzao, *L'intermediazione del lavoro nel Programma GOL: potenzialità e criticità*, Lavoro e Diritto 2023, n. 2, 259-278.

40 See P.A. Varesi, *Una nuova stagione per le politiche attive del lavoro*, Diritto della Relazioni Industriali, 2022, n. 1, 75-113.

41 See N. Deleonardis, *L'organizzazione sindacale e il mercato del lavoro*, ADAPT Labour Studies e-Book Series, E-Book, 2024, n. 106, 240-256.

foreseen by the GOL Programme in terms of minimum standards of content, accessibility, customisation, and usability, with regard to the retraining and professional reintegration paths of unemployed workers or those undergoing collective redeployment.

To summarise, the key innovations of the New Skills-Transition Plan[42] are twofold: the first is a shift towards vocational training pathways that increasingly focus on work-based learning, which enables participants to acquire relevant, transferable skills in real-world work environments; the second is the promotion of enhanced collaboration between stakeholders (public institutions, employment centres, private-sector actors, and companies) to improve the provision of services and training, ensuring it is more closely aligned with the needs of both the production system and individual workers. A central aim is to actively involve enterprises in identifying sectors with the greatest demand for qualifications and in designing training programmes that support the 'dual transition' and encourage the use of high-quality extracurricular apprenticeships.

5. News and Perspectives on Recent Reforms

Compared to the period at the onset of the pandemic crisis, some clear elements of discontinuity emerge in the latest legislative interventions outlined above.

The first discontinuity is evident in the shift from rigid distinctions of roles in learning processes to a multiplication of experiences that foster dialogue between the worlds of education—tertiary education included—and vocational training and work. This reflects a progressive move from a learning model primarily based on the transfer of theoretical knowledge towards the adoption of experiential teaching methodologies, which require the involvement of new actors and the development of new skills.

The second discontinuity lies in overcoming the fragmentation of responsibilities for implementation, as well as the planning of separate, sector-specific interventions that have historically led to overlapping,

[42] Following recent international developments and with the aim of accelerating the transition of the energy system, the European Commission presented the REPowerEU Plan on 18 May 2022. With Regulation (EU) 2023/435 of 27 February 2023, which came into force on 1 March 2023, Member States are now able to include REPowerEU chapters in their National Recovery and Resilience Plans and adapt already planned measures to meet the macro-objectives of the REPowerEU Plan. On 8 December 2023, the ECOFIN Council approved the REPowerEU chapter of the Italian National Recovery and Resilience Plan and the reformed Council Implementing Decision (CID), in line with the additions and changes agreed at the European level.

displacement, or redundancy effects. This approach, which has characterised policy design and the drafting of strategic programmes in our country for decades, is now being restructured.

By analysing documents of political relevance such as the National Plan for Recovery and Resilience (PNRR), the National Plan for New Skills (PNC), the Guarantee Program for the Employability of Workers (GOL), the Fund for New Skills (FNC), the National Implementation Plan (NAP) of the Recommendation on Vocational Education and Training (VET), and the series of National Plans (NAP) and Regional Plans (RP) that define actions for the period 2021-2027, supported by the European Social Fund Plus (ESF+), one can easily identify the elements of internal coherence. These documents reflect the continuity and mutual reinforcement of interventions, an attention to clearly defined and quantifiable challenges and objectives, and the use of data and evidence to support strategic decision-making.

A third significant discontinuity is the increasing reliance on network strategies, whose effective implementation is crucial in determining the success of the reform initiatives mentioned earlier.

Finally, the fourth discontinuity is seen in the adoption of the centrality of the learner as a guiding principle for navigating the digital and green transitions. This responds to the need to make the individual right to training enforceable.

What is changing most markedly, compared to the past, is the orientation of educational planning. Moving away from rigid planning—where there was limited flexibility to adapt curricular content, learning times, and methodologies—there is now a trend towards adaptive, flexible, and sustainably customised educational planning and programming.

Notable examples of this shift include the variety of refresher courses planned under the GOL programme. These courses are differentiated according to factors such as age, skill level, complexity of need, reconciliation requirements, the relevant labour market context, company needs, and specific employment opportunities (e.g., re-employment, refresher training, and retraining).

However, one must ask whether this complex, adaptive, and flexible educational and training offer is sufficient to bridge the mismatch between the skills demanded by the labour market and those offered by workers, particularly young people. More importantly, one must ask whether it is sufficient to increase the participation rates of the population in training courses. The low attractiveness and visibility of training opportunities, the continued lack of guaranteed accessibility, their uneven territorial distribution, and the insufficient perceived return on investment

for potential users are some of the factors contributing to the low levels of engagement observed to date.

Accompanying the digital and technological transitions involves not only regulatory adjustments to support the sectors and production chains affected but also a reorientation of the content of upskilling and reskilling pathways for workers. This process necessitates rethinking and restructuring the educational offer—from basic to advanced and specialised levels—and equipping and adapting the logistics, contexts, and places where learning occurs.

This requires not just better and more efficient distribution of these services throughout the territory, including those designed to enhance the value of skills acquired through short learning options[43], but also ensuring that competent operators (not merely formally qualified or appointed individuals) are available to manage complex relationships. Additionally, functional and up-to-date information infrastructures are essential, as are territorial networks that can effectively support users.

In conclusion, the key challenge lies in the issue of resources. All the reforms discussed so far require substantial human and financial investment. Their success will depend on the capacity to secure the resources necessary for implementation, in terms of qualified teaching and technical staff, innovative technologies, and, most critically, the engagement and participation of individuals and institutions in the project. This, in turn, will depend on the effectiveness of promotion efforts and the ability of the stakeholders involved to foster effective relationships with local communities.

6. The 'Occupational' Question for People with Disabilities

Having outlined the primary challenges that young individuals may encounter while transitioning from education and vocational training to the professional sphere, and highlighted the significant opportunities that modern technologies offer to ease these transitions—particularly in training and skills acquisition—this paper now seeks to reexamine the

[43] It should be noted that the recent update of the Italian Qualifications Referencing Report to the European EQF Framework 2022, adopted by a Ministerial Decree of the Ministry of Labour, in agreement with the MIM and the MUR on 15 June 2023, marks a significant step forward for Italy in aligning the mechanisms for the certification of skills and the portability of knowledge with European standards, in implementation of the European Council Recommendation on the EQF of 22 May 2017.

same topic from a different perspective: that of individuals with disabilities.

A preliminary step towards this objective involves analysing the occupational situation of these individuals to discern the critical aspects and, above all, the factors that determine them. It must be stated unequivocally from the outset that individuals with disabilities face compounded challenges from their early school years, extending into their professional lives and throughout their entire careers. Consequently, they are subjected to a heightened risk of poverty and social exclusion compared to their peers without disabilities.

Illustrative of this issue are data concerning the employment and working conditions of individuals with disabilities. According to the Seventh Edition of the European Disability Forum's *Human Rights Report*, published in 2023[44], employment remains a particularly challenging frontier for most European citizens with disabilities. Not only do they experience significantly lower employment rates, but they also earn lower wages compared to their non-disabled counterparts.

The employment situation of citizens with disabilities in the EU is starkly highlighted by overall employment statistics, which reveal a substantial disparity known as the disability employment gap. In 2020 (the most recent data available)[45], only 51.3% of working-age individuals with disabilities in the EU were employed, compared to 75.6% of those without disabilities, resulting in an average employment gap of 24.4 percentage points. This figure varies considerably across member states, ranging from 18.2 percentage points in Portugal to nearly 40 percentage points in Ireland. However, it is crucial to note that even in countries with high overall employment rates, the situation for individuals with disabilities does not necessarily improve. For instance, in Sweden, where the general employment rate stands at 80.8%, the disability employment gap remains at 28.9%. This underscores the persistent challenges that individuals with disabilities face in securing and maintaining employment, despite broader economic success[46].

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[44] European Disability Forum, *7th Human Rights Report – The Right to Work: The employment situation of persons with disabilities in Europe*, 2023, Issue 7.

[45] S. Grammenos, *European comparative data on Europe 2020 and persons with disabilities: Labour market, education, poverty, and health analysis trend* (developed under Contract VC/2020/0273 with the European Commission), Luxembourg: Publications Office of the European Union, 2022.

[46] European Disability Forum, *7th Human Rights Report – The Right to Work: The employment situation of persons with disabilities in Europe*, cit., 8.

Moreover, the intersection of disability with other identity factors, such as gender and age, further exacerbates these inequities. In the pursuit of employment, women with disabilities confront multiple layers of discrimination. A comparative analysis of employment data for individuals with disabilities reveals that only 49% of women aged 20 to 64 with disabilities were employed in 2019, in contrast to 53.9% of men with disabilities. The disparity is even more pronounced when considering individuals without disabilities: the employment rate for women without disabilities stood at 69.3%, while it was highest among men without disabilities, reaching 82%[47].

Young people with disabilities are similarly disadvantaged. In 2019, just 47.4% of individuals with disabilities aged 20 to 29 were employed, compared to 57.8% of their non-disabled counterparts in the same age group[48].

It is also important to note that the likelihood of unemployment for people with disabilities is a global phenomenon, not confined to the European context. According to recent research conducted by the International Labour Organization (ILO)[49], however, the unemployment gap between individuals with and without disabilities appears to be less pronounced in developing countries. Notably, this disparity is not statistically significant for women in lower-middle-income countries and for men in low-income countries. In fact, for women in low-income countries, the gap is even negative (-1.5 percentage points), suggesting that women with disabilities are less likely to be unemployed than their non-disabled counterparts.

This finding may reflect the relative scarcity of resources in developing economies compared to high-income countries, which could incentivise individuals with disabilities to reduce their periods of unemployment and accept any available job opportunities, regardless of working conditions or compatibility with their health conditions.

Furthermore, in analysing the current employment situation of individuals with disabilities, it is crucial to consider another additional factor[50]: the

[47] *Idem*, 35.

[48] *Idem*, 38.

[49] S. Ananian, G. Dellaferrera, *A study on the employment and wage outcomes of people with disabilities*, ILO Working Paper 124, 2024, Geneva, ILO.

[50] ILO & Fundación ONCE, *An inclusive digital economy for people with disabilities,* Joint publication by Fundación ONCE and the ILO Global Business and Disability Network, developed within the framework of Disability Hub Europe, a project led by Fundación ONCE and co-funded by the ESF, 2021.

real extent of employment challenges for individuals with disabilities is often underrepresented, as many may not register as unemployed due to the formidable barriers they face in entering the labour market[51].

Additionally, people with disabilities are not only less likely to be part of the labour market, but when they are, they also earn, on average, less than those without disabilities. In this regard, the ILO estimates that employees with disabilities earn a wage that is below the wages earned by 80% of employees[52]. This disparity is further exacerbated for women with disabilities, owing to the confluence of the disability pay gap and the gender pay gap[53].

Moreover, in many countries, employed individuals with disabilities are disproportionately represented in precarious employment situations. These roles are typified by inadequate earnings, low productivity, and poor working conditions, all of which fundamentally compromise the essential rights of workers[54].

In this context, it is noteworthy that individuals with disabilities are disproportionately inclined towards self-employment. Empirical evidence indicates that, upon securing employment, these individuals are less frequently found in employee positions compared to their non-disabled peers. This pattern persists even after adjusting for variables such as age, educational attainment, and occupational category.

The limited literature[55] highlights that disabled individuals are overrepresented in self-employment due to the greater flexibility and better alignment between disability status and working life that self-employment affords, as well as for non-monetary reasons. However, it

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[51] See S. Ananian, G. Dellaferrera, *A study on the employment and wage outcomes of people with disabilities*, 14, according to which, on average, across countries, having disabilities decreases the likelihood of labour market participation by 29% for men, and by 20% for women; World Health Organization, & The World Bank, *World report on disability. World Health Organization*, Publications of the World Health Organization, 2011.

[52] See S. Ananian, G. Dellaferrera, *A study on the employment and wage outcomes of people with disabilities*, 19.

[53] European Disability Forum, *Disability and Gender Gaps: Addressing unequal employment of women with disabilities*, EDF Position paper and Recommendations on employment of women with disabilities in the European Union, September 2022.

[54] United Nations, *Disability and Development Report: realizing the Sustainable Goals by, for and with persons with disabilities*, Department of Economic and Social Affairs, United Nations, New York, 2018.

[55] E. Gouskova, *Why Self-Employment Rates Are Higher among People with Work Limitations,* in Journal of Disability Policy Studies, 2020, 31 (1), 15–25; R. Pagán, *Self-Employment among People with Disabilities: Evidence for Europe*, in Disability & Society, 2009, 24 (2), 217–229.

also hints at possible employer discrimination that might drive some individuals into self-employment[56].
Despite the reasons behind the higher propensity for self-employment among disabled individuals, this trend implies an increased risk of engaging in informal work, particularly in developing countries. Indeed, global estimates indicate that the majority of self-employed workers manage and operate informal economic units, with a significant proportion (eight out of ten) in developing countries working informally[57]. In contrast, only 40% of employees worldwide engage in informal work, a figure that drops to merely 10% in high-income countries.
Moreover, in most countries with accessible data, individuals with disabilities are more frequently found in informal employment compared to their non-disabled counterparts[58].
Furthermore, aside from variations in the likelihood of being employed or self-employed, people with disabilities also display distinct working-time patterns. A detailed examination reveals that, in comparison to non-disabled individuals, they often work fewer hours. Additionally, in developing countries, they are more likely to be employed under temporary contractual arrangements.
In conclusion, the employment landscape for individuals with disabilities is characterised by a distinctive set of challenges that necessitate meticulous consideration and strategic intervention. These challenges encompass significant barriers to entering the labour market, a tendency towards self-employment, and the prevalence of precarious employment situations. Such circumstances are frequently marked by inadequate earnings and substandard working conditions, which collectively contribute to lower wages and exacerbate economic instability.

7. Bridging the Disability Employment Gap: Education and Training as Pathways to Employment for Young People with Disabilities

After elucidating the distinctive characteristics of the occupational situation and working conditions of individuals with disabilities, it is

[56] S. Ananian, G. Dellaferrera, *A study on the employment and wage outcomes of people with disabilities*, cit., 15.
[57] ILO, *Women and Men in the Informal Economy: A Statistical Update*, 2023.
[58] V. Stoevska, *New ILO Database Highlights Labour Market Challenges of Persons with Disabilities,* ILOSTAT Blog, 13 June 2022, in https://ilostat.ilo.org/new-ilo-database-highlights labour-market-challenges-of-persons-with-disabilities/.

crucial to delve deeper into the underlying causes that exacerbate the challenges faced by these individuals in the labour market.

Major studies conducted in this domain have highlighted various factors that intensify the employment gap and the substandard working conditions encountered by people with disabilities. Among these primary factors, which often operate in combination, are systemic barriers such as inaccessible work environments, a lack of reasonable accommodations, insufficient inclusive policies, entrenched structural discrimination and prejudice, and inadequate access to inclusive and high-quality education[59].

It is precisely this latter aspect that warrants focused attention, as it significantly affects young individuals on the verge of entering the labour market, hindering their ability not only to secure employment but also to obtain stable and better-paid job opportunities. Indeed, it should be noted that young people with disabilities often achieve markedly lower levels of education compared to their non-disabled peers. In particular, the provision of mainstream education continues to pose significant challenges, especially for individuals who require substantial support.

Data from 2019 (the most recent available) reveals that more than double the number of students with disabilities in the EU leave school prematurely compared to their non-disabled peers, with figures standing at 21.8% versus 9.6%[60]. A more nuanced analysis of these disparities, conducted among OECD countries, reveals significant variation based on the severity of disability: on average, 15% of individuals with moderate disabilities and over 35% of those with severe disabilities discontinue their education prematurely[61]. The particular disadvantage experienced by young people with severe disabilities is prevalent in most nations, with countries such as Lithuania, Portugal, and Spain reporting figures as high as 60%. Conversely, in a few countries, including the United Kingdom and the United States, early school leaving is uncommon across all groups.

This premature exit from the educational system results in a substantial deficiency in the formal qualifications requisite for numerous occupations,

[59] See among the others European Disability Forum, *7th Human Rights Report – The Right to Work: The employment situation of persons with disabilities in Europe*, cit.; OECD, *Disability, Work and Inclusion: Mainstreaming in All Policies and Practices*, OECD Publishing, Paris, 2022; Eurofound, *Disability and labour market integration: Policy trends and support in EU Member States*, Publications Office of the European Union, Luxembourg, 2021.

[60] S. Grammenos, *European comparative data on Europe 2020 and persons with disabilities: Labour market, education, poverty, and health analysis trend*, cit., 10.

[61] OECD, *Disability, Work and Inclusion: Mainstreaming in All Policies and Practices*, cit., 35.

thereby severely restricting the employment prospects for individuals with disabilities.

Regarding educational attainment, it is noteworthy that, in general, across OECD countries, there has been an improvement between 2005 and 2019, for both people with and without disabilities. Nonetheless, individuals with disabilities continue to experience a significant relative disadvantage in education and skills development[62]. Specifically, the proportion of people with disabilities possessing a low level of education has declined from approximately 48% to about 30% between 2005 and 2019. In contrast, the share of people without disabilities with a low level of education decreased from about one-third to one-fifth over the same period. Thus, while the educational gap has slightly narrowed, the percentage of individuals with disabilities who have a low level of education remains higher by approximately 10% compared to their non-disabled peers.

Simultaneously, data reveals a substantial disparity between people with and without disabilities in the increase of those achieving higher levels of education at the tertiary level[63]. The growth rate for those attaining higher education was markedly slower for individuals with disabilities. Although there is a substantial demand for workers with vocational education, this trend suggests that individuals with disabilities may be more adversely affected in labour markets characterised by a high degree of job polarisation, i.e., a reduction in middle-skilled jobs.

Furthermore, the elevated proportion of young people with disabilities educated in isolated settings exacerbates this predicament, as it further impedes their acquisition of the qualifications required for many jobs[64].

In summary, while higher levels of educational attainment significantly enhance the prospects of employment and the ability to maintain and advance skills necessary for career progression[65], data indicates that the education and vocational training currently available for individuals with

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[62] OECD, *Disability, Work and Inclusion: Mainstreaming in All Policies and Practices*, cit., p. 35.

[63] Accordingly, in the EU in 2019, as reported by S. Grammenos, *European Comparative Data on Europe 2020 and Persons with Disabilities: Labour Market, Education, Poverty, and Health Analysis Trend*, cit., p. 10, only 32.5% of individuals with disabilities attained tertiary education, in contrast to 43.6% of those without disabilities.

[64] See for more details on this topic UNESCO, Global Education Monitoring Report Team, *Inclusive education: Children with disabilities*. Background paper prepared for the 2020 Global education monitoring report: Inclusion and education, 2020.

[65] OECD, *Adult Learning and COVID-19: How much informal and non-formal learning are workers missing?*, OECD Policy Responses to Coronavirus (COVID-19), OECD Publishing, Paris, 2021, 11.

disabilities frequently fall short of addressing their specific needs. Moreover, these provisions are often neither pertinent nor aligned with the demands of the labour market[66].

Overall, the transition from school to work is challenging for most young people, but it is particularly arduous for youth with disabilities, who often struggle to continue their education beyond compulsory schooling or to reach the high levels of education required in the labour market. This results in a pronounced educational attainment gap.

The persistent disability employment gap is closely linked to the enduring disability gap in education and skills. Despite notable improvements in educational attainment for individuals with disabilities, they continue to lag behind their non-disabled peers. This disparity begins early in life, as children and youth with disabilities face multiple disadvantages that hinder their success in school and transition to the labour market. Consequently, young individuals with disabilities are disproportionately represented among those who leave the education system prematurely and struggle with labour market integration. A significant number of these young individuals are NEETs (Not in Employment, Education, or Training), highlighting the need for targeted support during their transition to the workforce.

Moreover, higher education is pivotal in easing entry into the labour market and fostering career advancement. It is essential to support youth with disabilities in continuing their education and reaching their full potential. However, the existing educational and skills gap among people with disabilities poses a significant challenge to their success in the labour market. They can only secure and retain employment if they possess the necessary skills and consistently update them to keep pace with the dynamic and ever-evolving labour market.

8. Enhancing Education and Employment for Individuals with Disabilities through Digital Innovation

The data presented underscores the urgent need to enhance educational and training systems for individuals with disabilities, ensuring not only access to quality education but also fostering robust employment prospects.

[66] UNESCO, Global Education Monitoring Report Team, *Inclusive education: Children with disabilities*. Background paper prepared for the 2020 Global education monitoring report: Inclusion and education, 2020.

In this regard, new technologies can play a transformative role. The digital revolution, driven by advancements in artificial intelligence (AI) and globalisation, is dramatically reshaping the labour market, and this trend is not expected to slow down[67]. Tasks amenable to automation (commonly referred to as routine tasks) are being rendered obsolete, while non-routine tasks ascend in importance. New vocations are emerging, certain other occupations are facing obsolescence, and recruitment processes are undergoing significant alterations.

Additionally, the rise of new organisational business models has led to an increase in non-standard forms of work, which, while offering greater autonomy and flexibility, also bring heightened labour market insecurity and reduced access to health, social protection, and employment support.

The COVID-19 pandemic has intensified these trends, precipitating a rapid acceleration of the digital economy and highlighting the imperative for a digital response, whereby remote working, digital learning, and the acquisition of digital skills swiftly became the prevailing norms in record time. According to McKinsey, "we have vaulted five years forward in consumer and business digital adoption in a matter of around eight weeks".[68]

Digitalisation, pivotal in the immediate response to the COVID-19 pandemic, remained essential in the recovery policies of companies and institutions, firmly establishing itself as an enduring facet of modern economies[69].

In this context, digital transformation exerts varied influences across societal groups, affecting not only the workforce but also access to both physical and virtual environments, as well as new products and services. When harnessed effectively, these technological advancements present significant opportunities to enhance the daily and professional lives of individuals with disabilities. Nevertheless, they also introduce challenges, potentially impacting these individuals.

It is imperative that digital transformation addresses the needs of people with disabilities to prevent their marginalisation from technological progress and to harness new technologies to broaden their skills. Employing these technologies wisely and centring development and innovation around people will expand the capabilities of individuals with disabilities, thereby fostering a more inclusive society.

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[67] OECD, *Vectors of digital transformation*, OECD Digital Economy Papers, n. 273, 2019.
[68] McKinsey Digital, *The COVID-19 recovery will be digital: a plan for the first 90 days*, 2020.
[69] OECD, *OECD Employment Outlook 2021: Navigating the COVID-19 Crisis and Recovery*, OECD Publishing, Paris, 2021.

To this end, the European Commission has launched multiple initiatives—such as the European Digital Strategy[70], the Digital Europe Programme (2021-2027)[71], and the European Digital Education Action Plan (2021-2027)[72]—designed to shape Europe's digital future while promoting equality to ensure a prosperous future for all.

Despite the emphasis on equality within these initiatives, explicit references to individuals with disabilities remain regrettably sparse. This omission persists, notwithstanding the fact that these digital initiatives, in accordance with Principle 17 of the European Pillar of Social Rights[73], ought to guarantee equal opportunities for people with disabilities. Even the Disability Employment Package, introduced by the EU Commission as part of the Strategy for the Rights of Persons with Disabilities 2021-2030[74], which aims to assist Member States in promoting social inclusion and economic autonomy for individuals with disabilities through employment, dedicates only minimal attention to their digital empowerment.

Nonetheless, given the role that digitisation plays in the future of work, engaging people with disabilities in the digital sphere has become a non-negotiable issue. Understanding and addressing the economic and social dimensions of digital transformation is essential to ensure inclusivity and that no one is marginalised.

In this regard, the guidelines outlined by the ILO are of paramount importance in enabling the inclusion of people with disabilities. They identify several essential measures to be adopted: firstly, ensuring accessibility to technology for people with disabilities; secondly, promoting digital skills among people with disabilities; and thirdly, encouraging the digital employment of people with disabilities[75].

Accessibility, as defined in Article 9 of the UN Convention on the Rights of Persons with Disabilities (CRPD), entails "ensuring that persons with

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[70] Communication to the Commission - C(2022) 4388 final - *European Commission digital strategy Next generation digital Commission*, Brussels, 30.6.2022.

[71] Regulation (EU) 2021/694 establishing the digital Europe programme.

[72] European Commission: Directorate-General for Education, Youth, Sport and Culture, *Digital education action plan 2021-2027 – Improving the provision of digital skills in education and training*, Publications Office of the European Union, 2023.

[73] European Commission: Secretariat-General, *European pillar of social rights*, Publications Office of the European Union, 2017.

[74] European Commission: Directorate-General for Employment, Social Affairs and Inclusion, U*nion of equality – Strategy for the rights of persons with disabilities 2021-2030*, Publications Office, 2021.

[75] ILO & Fundación ONCE, *An inclusive digital economy for people with disabilities,* cit.

disabilities can access and use, on an equal basis with others, the physical environment, transportation, information and communications, including information and communications technologies and systems, and other facilities and services open or provided to the public, both in urban and rural areas."

More specifically, digital accessibility fundamentally involves making digital products accessible to everyone, ensuring usability for all individuals. For example, digital content may require specific formatting or assistive software to accommodate individuals with visual impairments. Similarly, those with physical disabilities might encounter difficulties using standard devices to navigate the internet, necessitating alternative solutions to ensure inclusivity.

Despite the pressing need for digital accessibility to include everyone in the ongoing transformation of society, the economy, and the labour market, technology remains largely inaccessible to persons with disabilities. They frequently experience digital exclusion due to various barriers, including affordability and access to Information and Communications Technologies (ICTs) and the internet. For instance, the EU Strategy on the Rights of Persons with Disabilities 2021-2030[76] notes that only 64.3% of persons with disabilities over the age of 16 have internet access at home, compared to 87.9% of those without disabilities.

Assistive technologies (AT), such as screen readers, braille writing equipment, and speech recognition software, are crucial for enabling equal access to the digital world. However, many digital tools are not designed with the needs, rights, and abilities of individuals with disabilities in mind, rendering them unusable without specialised AT. Furthermore, digital tools must be inherently accessible and compatible with AT, yet the affordability of these technologies often remains prohibitive for low-income individuals with disabilities[77]. Additionally, organisations frequently lack the necessary knowledge to ensure accessibility, and governmental regulations on digital accessibility are often insufficient.

This has a significant impact on the employment opportunities and conditions for individuals with disabilities, in a context where digital accessibility is not particular to a specific industry, as all industries use technology. The inaccessibility of many websites, software, and applications used by employers in recruitment and daily operations

[76] European Commission, *Union of Equality: Strategy for the Rights of Persons with Disabilities 2021-2030*, Employment, Social Affairs & Inclusion, Joint Commission Services, 2021.

[77] P. Tsatsou, *Digital Inclusion of People with Disabilities: A Qualitative Study of Intra-disability Diversity in the Digital Realm*, in Behaviour and Information Technology, 39(5), 2019, 1-16.

remains a significant concern. Thus, ensuring digital accessibility and promoting digital skills among people with disabilities are crucial steps toward enhancing their employment prospects in the evolving job market. Specifically, digital accessibility involves making digital products accessible to everyone. For example, digital content may need accessible formatting or assistive software for individuals with visual impairments, while those with physical disabilities might face challenges in using standard devices for navigating the internet.

The second critical aspect necessitating focus for the inclusion of individuals with disabilities in the labour market is the enhancement of digital competencies. In the midst of a technological revolution that continually reshapes and generates employment opportunities, the requisite skill sets are also evolving. The demand for digital skills, both within traditional roles and in emerging digital vocations, is escalating. Consequently, there exists a widening disparity between the skills currently available within the workforce and those sought by employers.

Significantly, 71% of employees within the EU require basic or moderate digital skills for their job roles[78]. Projections further indicate that more advanced digital skills will be increasingly necessary to meet market demands. However, as of 2019, only 58% of EU citizens possessed basic or above-basic digital competencies[79]. Specific data regarding the digital skills of individuals with disabilities is limited; nonetheless, it is evident that they generally experience lower levels of education and training. Moreover, their ability to acquire digital skills is often impeded by barriers in accessing Information and Communications Technologies (ICTs) and assistive technologies (AT).

The acceleration of digital transformation, catalysed by the COVID-19 pandemic, has significantly heightened the need for digital skills. Digital upskilling has emerged as a universally effective solution across countries and sectors during the pandemic. Furthermore, the ongoing climate crisis necessitates augmented efforts in digital reskilling and upskilling to adapt to the rapid pace of societal evolution[80].

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[78] Cedefop, *Insights into skill shortages and skill mismatch: learning from Cedefop's European skills and jobs survey*, Luxembourg: Publications Office, Cedefop reference series, 106, 2018.

[79] Eurostat 2019 data for the Community survey on ICT usage in European households and enterprises; the full data set from the survey is available at https://ec.europa.eu/eurostat/web/digital-economy-and-society/database.

[80] International Labour Organization, *Navigating the future: Skills and jobs in the green and digital transitions*, Research Brief November 2024, https://www.ilo.org/publications/navigating-future-skills-and-jobs-green-and-digital-transitions.

This imperative underscore the necessity of addressing the unique challenges faced by individuals with disabilities in acquiring digital skills, ensuring their full participation and inclusion in the labour market.

The third crucial aspect to be addressed to ensure that individuals with disabilities are not left behind in the evolving digital labour market is the enhancement and promotion of digital employment opportunities specifically tailored to their needs. Responses to the COVID-19 pandemic, such as the Recovery Plan for Europe, have already highlighted the importance of including people with disabilities in initiatives aimed at promoting digital employment with decent working conditions.

In this regard, it is imperative to develop digital employment initiatives specifically targeting people with disabilities. While ensuring accessibility and fostering digital skills are crucial to their inclusion, initiatives that go a step further and address the labour inclusion of people with disabilities will have a more profound impact. Programmes that assist individuals with disabilities throughout the hiring process, connect them with digital opportunities, or promote their experiences in the labour market are examples of initiatives that can directly enhance their employment prospects[81].

Digital tools and platforms serve as powerful enablers, dismantling disability-related obstacles. Hence, initiatives aimed at fostering digital employment must prioritise the inclusion of individuals with disabilities, with particular emphasis on young people and women with disabilities, who, as observed, occupy a more disadvantaged position in the labour market.

A notable example is the use of digital tools to enhance reasonable accommodations in education, training, and employment. Assistive technologies powered by AI cater to individuals with visual, hearing, mobility, and learning disabilities[82]. Recent advancements in predictive text, visual recognition, speech-to-text transcription, and captioning have significantly increased the accessibility of digital tools. Video conferencing software, often equipped with captioning, has made meetings more accessible, especially for participants in different locations.

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[81] For same examples see ILO & Fundación ONCE, *An inclusive digital economy for people with disabilities*, cit., 35.

[82] European Disability Forum, *Assistive Technologies and AI for People with Disabilities*, Position Paper on the European Commission Proposal for Regulating Artificial Intelligence (AI), 2021; OECD, *Disability, Work and Inclusion: Mainstreaming in All Policies and Practices*, cit., 179.

Additionally, remote training, learning, and teleworking hold immense potential. Technological advances and AI can make education and adult learning more accessible, independent of place and time, and adaptable to individual learning speeds and difficulty levels[83].

When equipped with the proper technology, remote education and employment can significantly broaden access to learning and job opportunities for individuals with disabilities, overcoming obstacles related to infrastructure, workplace settings, and transportation. However, the complexities of remote learning can exacerbate existing disparities for students and learners with disabilities, including technical and organisational challenges, the necessity for adequate online support, and difficulties in interacting through a monitor.

The impact of emergency online teaching and learning during the COVID-19 crisis on equality and inclusion highlights these challenges[84].

8. Toward a Multidimensional Approach to the Labour Inclusion of Disabled Persons in the Digital Age

The utilisation of technology and the development of digital skills are crucial factors for enhancing employability and improving the working conditions of individuals with disabilities. Despite improvements over time, these levels remain lower than those of individuals without disabilities.

Despite the existence of numerous policies aimed at including people with disabilities in the labour market throughout the EU, available data show that we are still far from significantly bridging the disability employment gap. In a labour market shaped by digital transformation, there are increasing opportunities not only to raise the percentage of people with disabilities who are employed but also to optimise the quality of employment and career development prospects.

Quality improvement can stem from the increase and diversification of employment opportunities, which largely depend on, but are not limited to, the new potential that technology offers in providing reasonable accommodations and greater flexibility, allowing people with disabilities to manage their own time and workspace. Moreover, access to employment and its quality also depend on education and training, specifically the

[83] McKinsey & Company, *How COVID-19 Has Pushed Companies over the Technology Tipping Point- and Transformed Business Forever*, McKinsey & Company, 2021.

[84] OECD, *The State of School Education: One Year into the COVID Pandemic*, OECD Publishing, Paris, 2021.

preparation of people with disabilities for the needs of the digitised labour market.

However, to maximise the impact of the potential benefits of technological progress on employment and, more generally, on the improvement of the social and economic conditions of people with disabilities, a holistic and cross-sectoral approach is necessary. This means they must be considered and exploited in a comprehensive and integrated manner, encompassing educational pathways, assessments of developmental disabilities for school inclusion, school-to-work transition programmes, vocational training, and even recruitment processes, working conditions, and career evolution.

Firstly, educational pathways must be designed to integrate technology from the early stages, ensuring that students with disabilities have access to digital tools that facilitate learning and interaction. School-to-work transition programmes should be developed to provide a seamless shift from education to employment, leveraging technology to bridge gaps and create opportunities.

Secondly, vocational training programmes must be tailored to equip individuals with disabilities with the necessary digital skills, which are increasingly in demand in the labour market. This includes not only basic digital literacy but also advanced skills in areas such as artificial intelligence, data analysis, and digital marketing.

Furthermore, the assessment of developmental disabilities for school inclusion should be enhanced with technological tools that allow for more accurate and individualised evaluations. This will ensure that the specific needs of each student are met, fostering an inclusive educational environment that supports their growth and development.

Policies should also focus on creating inclusive digital employment opportunities. This involves promoting remote work, ensuring workplace accessibility, and providing continuous development of digital skills. Employers should be encouraged to adopt inclusive practices and utilise assistive technologies that enable individuals with disabilities to perform their roles effectively.

Within the scope of this integrated approach to the work inclusion of individuals with disabilities, it is noteworthy to mention a specific legal institution recently introduced into the Italian legal framework: the so-called personalised and participatory individual life project. This

institution was established by Legislative Decree No. 62/2024[85], which, in turn, forms part of the broader reform initiated by Law No. 227/2021[86]. This law empowered the government to reform the disability sector as envisioned in the National Recovery and Resilience Plan (NRRP) agreed upon by Italy and the European Union.

Introduced in 2024 and now in its pilot phase for 2025, the life project epitomises an innovative approach to evaluating and promoting the social inclusion of individuals with disabilities. Its primary objective is to ensure their full participation in all areas of life[87].

This novel approach highlights that it is not only the responsibility of institutions (such as lawmakers, regional authorities, educational institutions, and training centres) to identify suitable training paths. Instead, from the inception stage of the personalised and participatory life project, a clear path for labour and professional inclusion should be established, involving various stakeholders.

Legislative Decree No. 62/2024 mandates a comprehensive assessment, leading to the development of a personalised and participatory individual life project. This document encompasses detailed information about the individual with disabilities and must be consistently aligned with educational projects, rehabilitation programmes, school inclusion initiatives, and social and labour insertion efforts to ensure equal opportunities in every aspect of life.

The foremost aim of this regulation is to integrate various health and social care profiles within the life project, thereby avoiding the

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[85] See M. P. Monaco, V. Falabella, *Prima analisi del decreto legislativo 3 maggio 2024, n. 62 in materia di disabilità: una "rivoluzione copernicana"*, in Bollettino ADAPT, May 20th 2024, n. 20; C. Carchio, *Rischi e tutele nel reinserimento lavorativo delle persone con malattie croniche e trapiantate: prime riflessioni alla luce del d.lgs. n. 62/2024*, in *DSL*, 2024, n. 2, 162 ff.; E. Dagnino, G. Impellizzieri, E. Massagli (eds.), *L'inclusione sociale e lavorativa delle persone con disabilità nel d.lgs. n. 62/2024*, in Bollettino ADAPT Speciale, July 3rd 2024; M. A. Leonardi, *Reasonable Accomodation for Workers with Disabilities: Analysis of the New Italian Definitions within the Multi-level Legal System*, in MGL *International*, 2024, n. 1, 93 ff.; A. M. Battisti, *Il legislatore accoglie (con qualche riserva) la nozione euro-unitaria di disabilità*, in *Ambientediritto*, 2024, n. 3, 1 ff.

[86] O. Bonardi, *Luci e ombre della nuova legge delega sulla disabilità*, 8 febbraio 2022, in https://www.italianequalitynetwork.it/luci-e-ombre-della-nuova-legge-delega-sulla-disabilita/; M. Cingolani, P. Fedeli, F. Cembrani, *Disabilità: quel silenzio assordante sulla legge delega che cela diversi aspetti da rivedere*, in *Quotidiano Sanità*, 12 gennaio 2022; M. De Falco, *Ragionando attorno alla legge delega in materia di disabilità: una prospettiva giuslavoristica*, in RCP, 2022, n. 5, 1744 ff.

[87] Art. 18 and ff., Legislative Decree No. 62/2024.

implementation of multiple, potentially conflicting interventions, which can lead to overlapping efforts and diminished service efficacy.

A notable feature of the life project regulation is the establishment of a participatory process and a comprehensive network that brings together various professional entities, including territorial authorities, guardians (for minors), social workers, educators, health professionals, representatives of educational institutions, and, when necessary, representatives of public employment services for individuals with disabilities[88].

Furthermore, the life project must maintain its sustainability over the long term by ensuring the continuity of tools, resources, interventions, benefits, services, and reasonable accommodations to protect the beneficiary. To achieve this, a designated professional is tasked with overseeing the implementation of the project and coordinating the involved professionals[89].

Finally, Legislative Decree No. 62/2024 establishes a fund dedicated to the implementation of life projects, allocating 25 million euros annually to support the initiation of additional interventions, services, and supports that are not currently part of the standard territorial offerings[90].

To summarise, the individualised and participatory life project, when meticulously crafted to reflect the actual potential of the environment and the unique characteristics of the individual with a disability, can serve as a pivotal instrument for effectuating comprehensive inclusion across all areas of life. Fundamentally, it can address the obstacles that individuals with disabilities encounter when entering the labour market, securing appropriate employment, and performing dignified and well-compensated work, thereby mitigating the risk of social and occupational exclusion.

[88] Art. 24, Legislative Decree No. 62/2024
[89] Art. 29, Legislative Decree No. 62/2024
[90] Art. 31, Legislative Decree No. 62/2024

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