**Digitalization and ALMPs: a new paradigm for the labor market**

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**1. Introduction.**

The phenomenon of “digitalization” – understood as «the use of digital technologies and data as well as interconnection that results in new activities or changes in existing activities»[[1]](#footnote-1) – can be associated with the field of labor law in three different ways: i) it can constitute a new way of doing business, ii) it can represent a new way of working, and iii) it can be a new way of managing the labor market[[2]](#footnote-2)*,* highlighting its organizational structures, the obsolescence of certain skills, and possible new professions[[3]](#footnote-3). It is precisely from this latter segment that we intend to conduct the present reflection: a commitment derived, among other things, from considerations of logical-systematic nature, from the assumption that, as argued by authoritative doctrine, «the digital revolution in theworkplace has first and foremost concerned active and passive labor market policies, before any employment relationship, thus being able to be a model for the latter»[[4]](#footnote-4).

Due to the advancement of modern technologies in the digital and IT areas, their widespread diffusion in different spheres of activity, and with the emergence of new needs, the labour market is becoming more fluid and dynamic than ever, with new tasks and jobs urging for workforce. As a result, transitions between work and non-work (likely caused by unemployment, training programs and professional retraining) have become much more frequent than before. On the one hand, this situation led to an increment in the number of people using public employment services (PES). On the other hand, this situation must force these services to adopt methodologies, infrastructures and approaches that can understand the new demand for labor and better protect occupational transitions[[5]](#footnote-5).

The aim of this paper is to draw a theoretical framework that can identify the link between two streams of research, whose comparison may mistakenly seem oxymoronic: the digitalization of the public sector, and the active labor market policies (ALMPs)[[6]](#footnote-6), whose main providers are the employment services.

The role of ALMPs proves to be crucial in taking advantage of the opportunities offered by the digital transition, in ensuring interventions aimed at fostering the employability of those affected by the ongoing transformations and enhancing the human-machine interaction. Moreover, ALMPs are key to bring to light the digital divide, the job polarization and, more generally, the skill mismatch. Indeed, technological innovation can affect the demand for new skills and, to an equal extent, be the cause of change or replacement of traditional occupations. Such metamorphoses may therefore raise growing concerns about the risk of technological unemployment, yet they may provide opportunities within new occupations, if the skills supply keeps up to date with the labor market demands[[7]](#footnote-7).

Consequently, the challenges triggered by the digital revolution involve first and foremost employment services. Although employment services partly absorbed the inevitable and unexpected stimulus to technological innovation caused by the pandemic and the NRRP (National Recovery and Resilience Plan), they are still far from reaching the most challenging digitalization goals, especially if viewed in comparison. However, the «late mover»position of our legal system allows us to assume the implementation of a digital strategy for active policies, oriented to the foreign best practices[[8]](#footnote-8).

Since many years, public employment services in European countries[[9]](#footnote-9) have been selecting different strategies to adapt to the digitalization of services, from expanding and diversifying delivery channels to strengthening online services. These strategies respond to the EU legislator's indication, as already announced in the Digital Agenda for Europe, which is one of the seven flagship initiatives under the Europe 2020 Strategy. The latter mentioned suggested maximizing the exploitation of information and communication technologies (ICT) to the State Members, in order to promote innovation, economic growth and progress[[10]](#footnote-10).

Currently, at the EU level, there is a pervasive spread of “digital first” approaches, for which the digital active policies’ delivery is increasingly adopted, to facilitate the employment of a ready-to-work segment of the population, thus allowing resources to be better expended for those in need of more intensive assistance, e.g. for people lacking digital literacy[[11]](#footnote-11).

The employment services’ and active policies’ digitalization is an opportunity not to be missed, as it offers numerous benefits: i) greater accessibility to services (as the provision of PES through digital channels is not subjugated to the limitations of *vis-à-vis* services such as office opening hours); ii) reduced waiting times and costs; iii) better matching of candidates' skills and business needs; iv) a more effective interaction with citizens; v) a more accurate monitoring and analysis of labor market’s trends for policy decisions.

However, to grant the PES' delivery of digital services’ success, it is imperative to give special attention to the initial stage of technological investments. This is needed to establish efficient, user-friendly online platforms, to provide ICT skills training to the PES staff, and to offer adequate support for the users that lack the required IT skills[[12]](#footnote-12).

Implementing such innovations would also allow some decision-making processes to be more efficient than before: this is why the present paper will also discuss the topic of Artificial Intelligence, capable of reproducing human decision-making in multiple application spheres, sometimes with better outcomes in terms of accuracy, swiftness, completeness, and adaptability[[13]](#footnote-13). One of AI’s best potentials emerges in reference to the profiling procedure, by being a valuable support in the measurement and analysis of the user's attitudinal characteristics, facilitating the decision-making procedure, as well as ensuring a proper response to a person’s employment status. This is why the second part of the discussion will be devoted extensively to this phenomenon[[14]](#footnote-14)*.* Profiling enriches data coming from administrative sources, by including behavioral variables in the database, used for predictive analysis. As it is already happening in the Belgian Flanders, the abundance of administrative data leads to the assumption of profiling models that are not only statistical, but also AI-based, using advanced machine learning techniques, as well as click data[[15]](#footnote-15) from job searches.

Overall, the implementation of artificial intelligence in PES operations has numerous benefits, including optimal information exploitation, superior executive readiness, and lower economic impact[[16]](#footnote-16). However, it is also essential to consider inherent limitations, such as the dangers arising from poor data quality[[17]](#footnote-17), the presence of data-intensive induced discrimination, issues concerning confidentiality, and algorithms transparency[[18]](#footnote-18).

Analyzing the perspective of operators and users, the former may have concerns about the downsizing of their responsibilities in an area – such as the assessment of clients’ level of need – where their expertise traditionally plays a major role. From the perspective of the latter, however, concerns arise about their privacy and possible discrimination. In particular, data-intensive profiling’s approaches are the ones most often criticized in the public debate, as they require a conspicuous amount of personal information, to ensure an adequate level of accuracy, «with the risk of fostering a climate of 'surveillance' on the assisted individual»[[19]](#footnote-19). Many criticisms, for example, concern the alleged concentration of negative scores on the employment prospects of socially disadvantaged groups, such as ethnic minorities. With such considerations, critics highlight how algorithmic technologies may cause undesired effects, as the original goals of fairness and standardization give way to new forms of unequal treatment of users. In contrast, proponents of data-intensive approaches use the same arguments to highlight how such tools may detect the discriminations rooted in the labor market, often overlooked in public debate[[20]](#footnote-20).

Also in the light of comparative analysis, these introductory indications show «the framework of what would be a Copernican revolution»[[21]](#footnote-21) in employment services and labor policies. Such a revolution should not necessarily start at a central level, but nonetheless it should be welcomed at the level of local and territorial public administration[[22]](#footnote-22).

In conclusion, the aim of this paper is to argue, looking at the cues offered by the international scene, about some possible innovations that could influence the Italian context of active labor market policies, with a particular focus on profiling*,* as it isparticularly sensitive to technological advancements[[23]](#footnote-23).

**2. Digitalization of employment services under the pressure of the pandemic.**

The global Covid-19 pandemic is one of the events that has profoundly marked human history. However, every trace left by that event has not necessarily had negative connotations. Despite the social and economic catastrophes, the health crisis gave a significant lash to the country's digitalization processes, serving as a catalyst for the events that led to a radical rethinking of our approach to life in general and to the world of work[[24]](#footnote-24).

Here specifically, the pandemic has accelerated the digital leap of employment services, considered as the public organization in charge of the delivery of labor policies[[25]](#footnote-25). On the one hand, the urgent need to adapt to the restrictions imposed by the emergency has in fact accelerated the process of digital transformation, leading to widespread adoption of technological tools to ensure business continuity and the provision of essential personal services, even despite restrictions. On the other hand, in a tumultuous context in which the labor market has faced a prolonged sequence of changes, stemming from the processes of automation, robotization, and digitalization, the pandemic demonstrated that a digitally skilled workforce is able to readily adapt to new circumstances[[26]](#footnote-26).

Over the past three years, innovations that have accompanied employment services in providing job seekers with support, counseling and guidance have followed a twofold direction.

Firstly, PES experimented with strengthening remote channels for the provision of services that were traditionally offered in person[[27]](#footnote-27), entirely or partially, sometimes even developing completely new initiatives in this area. This is the case, for example, of New Zealand, which introduced the so-called “Rapid Return to Work Service”, a telephone job placement service lasting up to six weeks, which provide information on offers of employment, on CV and cover letter writing, interview preparation, and skills identification[[28]](#footnote-28).

Secondly, there was an increase in the automation’s rates of certain processes for service users and certain back-office activities[[29]](#footnote-29). In this regard, online assistance resulted in an increased accessibility to information and resources, ensuring a “guided self-service”. In addition, various ordinances have improved PES web portals and provided guidelines and videos to support job seekers in their path to a labour market integration. For example, the Austrian employment service developed a new job-searching portal called “alle jobs”, free of charge, with no need of registration, and integrated into the existing PES mobile application (AMS Job App)[[30]](#footnote-30).

In the Italian system, the institutional actors, who (not without difficulties) play a crucial role in the context of the digitalization of employment services, are the employment centers (henceforth also just “CPIs”, Italian acronym for “centri per l’impiego”). Subject to regional jurisdiction, they carry out functions such as providing career guidance services, offering information on employment opportunities, promoting the matching of labor supply and demand, verifying conditionality criteria for access to services, entering personalized service pacts, user profiling, etc.

The health emergency, followed by the adoption of the Recovery Plan[[31]](#footnote-31), led to a significant change in the management of the employment centers, already plagued by an endemic shortage of adequate human resources and/or qualified personnel, thus triggering a process of digitalization and computerization of services, accompanied by the simultaneous acquisition of appropriate technological equipment.

The main transformation was the adoption of remote forms of connection and/or communication, which, through the available technological tools, replaced the traditional modes of interaction between operators and users. This choice was determined both by wanting to reduce the risk of contagion among operators, and by the need of ensuring administrative continuity of services to users[[32]](#footnote-32). Initially, this was achieved by enhancing the use of tools already in use of daily practices, such as e-mails, institutional portals, messaging and telephone interviews. Subsequently, online platforms such as Teams, Meet, Chime and WhatsApp were implemented, which quickly replaced in-person interactions to become temporary channels of contact with users[[33]](#footnote-33).

It is clear that technology will play an increasingly prominent role in the activities carried out by job centers, which will face increasing pressures, both external and internal, and user’s demand for services will change significantly. In particular, a major focus will be on supporting “fragile” categories of workers, which include, for example, those with limited digital skills, the long-term unemployed, people over 50, and people with disabilities. However, this will lead to a change in measures taken from economic incentives for hiring, and to interventions focused on training[[34]](#footnote-34).

**2.1. Some data on Italian employment centers: a fragmented digital transition.**

Labor offices’ technological changes, in the delivery models of training, job search support and counseling, were relatively common across countries during the pandemic times[[35]](#footnote-35). Focusing on the Italian context, some differences, however, occurred at the regional level. In fact, although employment centers are located throughout the national territory, an analysis of the state of digital modernization shows a situation of digital divide, with forms of local inequality[[36]](#footnote-36).

Data from the National Agency for Active Labor Market Policies (ANPAL), related to the 2022 monitoring, highlight that over the past year 73,6% of employment centers have benefited from the investments planned by the Regions and Autonomous Provinces for new IT infrastructure, increasing their technological equipment. Nevertheless, the pandemic also revealed meaningful disparities between different regions in the digitalization of employment services.

In details, the upgrading process was very different among regions. Above the general average, there are regions such as Apulia, Umbria and Aosta Valley, which all witnessed their CPIs upgrading their technological infrastructure (100%). They are closely followed by Lombardy (98,2%), Campania (97,8%), Friuli-Venezia Giulia (94,1%) and Piedmont (93,3%). Below the overall figure, however, are the Molise Region and the Autonomous Province of Bolzano (no CPI purchased new IT equipment), Calabria (7,7%) and Veneto (15,8%)[[37]](#footnote-37).

Overall, the percentage of job centers that managed to mitigate the impact of complete or partial center closures, during the health emergency, using online platforms to deliver services to users is 60,3 %. This figure mainly concerns the CPIs located in the North-Central regions: out of 310 CPIs that used online platforms, only 69 (or 22,3%) are from the southern regions.

The ANPAL note, here briefly reviewed, delves into the reasons why 39,7 % of employment centers did not adopt technological solutions to ensure greater service coverage during the period considered. The ones applying were 204 CPIs out of 514. Of which, 140 (68,9% of the 204 considered) are located in the Southern and Island regions. The remaining slice is distributed mainly between the Northwest and Central Italy, with a smaller presence in the Northeast areas. According to CPIs managers, among the most common obstacles (71,6% of cases) they indicated the users' unwillingness to adopt new technologies, as they often do not have the necessary tools to use these services (this critical issue is highlighted by 86,4% of CPIs in the Central regions). In addition, users still prefer to maintain direct contact with operators (national average of 65,2%, with variations between 48,6% - 71,4% depending on the geographical area). It is also important to note that only in the 28,4% of the cases the lack of online service delivery is due to the absence of adequate equipment, with percentages ranging from 13,6 – 17,1 in the North-Center regions and rising to 34,3% in the South. One out of three cases, it is the CPI operators themselves who prefer in-person service delivery[[38]](#footnote-38).

As for the CPIs that implemented online activities, in general, these activities did not involve the full range of services offered by the centers, instead they focused mainly on lesser specialized activities, such as basic orientation (77,4%), group meetings such as job orientation workshops (71,3%), information and counseling services for businesses (63,5%), verification of the path as defined in the service pact (62,9%)[[39]](#footnote-39).

In conclusion, as considered in the data above, the factors that influence the effectiveness and efficiency of the PES (such as financial resources, IT equipment and Internet access) go along with the region’s or municipality’s overall health, as well as the resistance to change and innovation, traditionally found in some territorial areas of the Public Administration. Although significant progress has been made in recent years toward a digital restructuring of PES (as evidenced by the presence of good practices at the local level) the mapping of CPI’s upgrading is still «patchwork mode», with the Center-North leading in a more advanced position than the rest of Italy[[40]](#footnote-40).

**3. The possible effects of digitalization.**

For most employment services’ users, it can be assumed that the transition to digital and the so-called dematerialization[[41]](#footnote-41) have been happening with ease, as they may ensure a more efficient delivery, in terms of timeliness in accessing services and greater transparency in the range of support available. However, as it has been effectively pointed out: «The success of any technological innovation is determined by the degree to which people are able to interact with it»[[42]](#footnote-42).

Thus, there will be then specific subgroups of vulnerable users who may find difficult to adapt to changes in the delivery methods’ services, such as those with limited digital skills, limited access to Internet services caused either by lack of personal electronic devices or by infrastructural problems – such as poor broadband in rural areas –, or individuals with particular disabilities who require improved accessibility or, finally, foreign people with language barriers[[43]](#footnote-43). These critical issues could generate undesired effects. Consequently, instead of improving the usability of services, technology could end up limiting access to them[[44]](#footnote-44).

For these reasons, PES must ensure that nobody is left behind in the digitalization shifting[[45]](#footnote-45). This involves awareness and understanding of the jobseekers’ needs and specific circumstances, to ensure that alternatives are considered and implemented for the most fragile individuals, whose digital approaches may not be appropriate for technological interactions and service delivery[[46]](#footnote-46).

The Spanish and Swedish experiences are particularly relevant to such sensitive profiles.

In Spain, the coordination of e-skills’ development activities is entrusted by the government through the Institute for Employment Training (FUNDAE), which works in close collaboration with local PES and social partners. In addition, public partnerships are established with private industries, such as Cisco, Google, and Microsoft, to offer free online e-skills training to the unemployed and SME (Small and Medium-sized Enterprises).

A similar case is Sweden, where partnership with the public sector is considered of paramount importance. The Agency for Digitalized Government (DIGG) coordinates and supports the digitalization of public services. In addition, PES collaborate with the Google Academy, and other private industries, on digital skills training. A major initiative called “Democratic Digitalization” was launched in the fall of 2020 in cooperation with the Swedish Association of Local Authorities (SALAR)[[47]](#footnote-47), along with the local counties.

**4. Active labor market policies and the digitalization’s different degrees of responsiveness.**

As is well-known, active labor market policies (ALMPs) are a set of actions and instruments implemented by the state, or other public institutions, in order to foster employment, improve the adaptability of workers to the needs of the labor market, promote social inclusion and intervene, for preventive or curative purposes, on the various causes of unemployment. Their aim is to simplify the matching of labor’s supply and demand not only through job creation, but also through the promotion of employability, vocational training, support for entrepreneurship, encouragement of labor mobility, and other measures to stimulate the workers’ job placement and career progression.

ALMPs include a wide range of interventions, such as professional training programs, guidance and counseling services, financial support for business start-ups, retraining measures, policies to support youth employment and inclusion of disadvantaged workers.

From a classificatory point of view, there are several methods to categorize active policies. One of them[[48]](#footnote-48) is based on splitting them into four macro-groups, namely: (a) incentive reinforcement; (b) employment assistance; (c) occupation; (d) human capital investment. Each of these categories has a different degree of «sensitivity» to digitalization[[49]](#footnote-49).

At the bottom of an imaginary ranking there are the active policies belonging to the first group (a), which include measures that aim to incentivize the creation of new employment (usually through tax relief or income subsidies), or to deliver passive policies more efficiently through the introduction of conditionality criteria that make the benefits dependent on the person' willingness to actively search for work. Such situations usually occur due to the person's failure to meet the deadlines agreed with PES operators as part of the unemployed person's individual activation plan. Therefore, such interventions are more common at the procedural level rather than integrated within the core processes of PES operational models[[50]](#footnote-50).

At the second lowest place of the ranking, ideally created according to the degree of adaptability to digitalization of ALMPs, there are the policies of the (c) group (occupation), whose aim is not so much to promote reintegration into the labor market, but rather to keep unemployed people busy, to prevent the depletion of human capital associated with unemployment. They consist essentially of job creation and work experience programs in the public or non-profit sector, «but also training in some cases, such as shorter courses, which do not fundamentally change the type of job a person can do»[[51]](#footnote-51). Digitalization will unlikely affect this group, since in that case the intervention is ultimately the signing of a regular employment contract.

Second highest in the ranking theorized here, it is the (d) group of active policies (human capital investment). Its main purpose is to provide vocational training to people who are unemployed or who may have insufficient basic training, by offering a second chance to those who have been unable to take advantage of the educational system or whose skills have become obsolete.

In terms of openness to technological innovations, employment services can offer training via digital resources, like videos, reading materials, and practice tests. These resources can be accessed directly through the PES websites. In addition, webinars and online meetings can be organized, sessions can be recorded and made available on users’ demand. It is evident that the adoption of online solutions enables PES to expand their training offerings and to support more job seekers in acquiring new skills. However, it is important to note that this method is objectively limited to a selected set of skills that can be effectively delivered online[[52]](#footnote-52).

Therefore, the most significant impact of digitalization on active policies is found mainly in the (b) group, the employment assistance, which includes tools aimed at overcoming barriers to labor market participation, like job search programs, guidance counseling and supply-demand matching[[53]](#footnote-53). These are the actual employment services and job search programs that increase the likelihood that an unemployed person will be in touch with a potential employer. In this context, digitalization is manifested through the implementation of tools that provide operators with more information to support service users. Therefore, it is in this direction that we need to identify the tools most likely to be affected by digitalization, such as career guidance, candidate profiling and job-matching. These tools are exploiting the potential offered by technology, to provide more effective support in guiding individuals' career choices, to identify the characteristics of candidates, and to facilitate the matching of job vacancies and job applications.

As “career guidance” is the set of activities and services aimed at providing support and advice to the people in the process of choosing and developing their work careers, “job-matching” is the process of identifying and linking the skills, qualifications, and characteristics of the available workers with the needs of the job positions offered in the labor market. Next, we will focus on “profiling”, the processes by which PES classify and categorize job seekers into groups with similar risk profiles and needs[[54]](#footnote-54).

**5. Profiling: notion and types.**

As previously stated, it was decided to pay particular attention to the user-profiling tool, as it represents the process that carries the most considerable implications in relation to the intensive use of data and algorithmic technologies in employment services. Profiling is, first and foremost, an efficient identification tool to detect the most appropriate actions needed for each and every user[[55]](#footnote-55).

The concept of profiling refers to the set of activities and techniques adopted to define the personal and professional profile of people, to obtain an in-depth knowledge of the employment services’ beneficiaries. The main goal is to offer targeted and personalized interventions for accompaniment, insertion and/or reintegration into the labor market, including the enhancement of skills already acquired, or the development of new skills considered crucial from an employment point of view. An appropriate profiling process also ensures an effective and efficient usage of financial resources for the planning and implementation of employment policies[[56]](#footnote-56).

To provide efficient employment services, it is necessary to divide users into different groups, and profiling is an important support for PES workers in identifying the most appropriate measures and interventions, based on the characteristics and needs of jobseekers[[57]](#footnote-57). In fact, profiling tools make it possible to differentiate those who are at risk of becoming long-term unemployed from those who are more likely to find a job more quickly[[58]](#footnote-58).

Three different profiling groups can be distinguished.

First*, rule-based profiling* refers to a process in which decisions regarding access to employment services and interventions are made according to administratively defined rules and criteria. Legislative provisions governing the delivery of employment services generally establish these rules. Profiling based on administrative rules involves the analysis and evaluation of information and data provided by users, to determine whether they meet the requirements for accessing certain employment measures or pathways. This process may involve the assessment of various factors, such as age, educational level, occupational skills, and length of the unemployment period. There are two advantages associated with this first type of profiling: on the one hand, it is not costly, and it is easy to apply, as it does not require an in-depth interview with the employment center’s operator to identify the user's needs; on the other hand, it ensures a fair and transparent distribution of the resources and interventions available to promote employment and labor inclusion. A “negative” aspect, on the other hand, is that this approach identifies overly broad categories and groups of individuals, who may present a wide range of very different needs. To address this issue, most employment services combine administrative rules with the analysis carried out by operators, along with the use of tools designed to identify specific user needs.

Second, *statistical profiling* is a predictive model process to assess an individual's degree of disadvantage and employability, to facilitate the labor market’s integration. Differently from the first group, statistical profiling has the advantage of considering each user as an unique individual, rather than part of a predefined group: in this way, services can be tailored to the person's specific needs. Statistical profiling tools enable objective and standardized assessments, which make it possible to predict how likely job seekers are to remain unemployed. Assigning a score about the level of employability, it is possible to identify individuals who require an in-person appointment with an operator and those who, having a lower score because they are more likely to be employable, can manage their situation on their own. Some of the best-known statistical profiling models include the Worker Profiling and Reemployment Services (WPRS) in the US, the Job Seeker Classification Instrument (JSCI) adopted in Australia, and the Work Profiler (Werkverkenner) in the Netherlands, which will be analyzed below.

At last, *caseworker-based profiling* relies on the judgment of caseworkers to profile jobseekers. It is used, for example, by Estonia, Germany, Greece, Luxembourg, Slovenia and Switzerland. Under this approach, caseworkers enjoy full discretion in analyzing the skills and needs of jobseekers. However, they frequently use quantitative or qualitative tools to assess jobseekers' skills and needs. In Germany, for example, operators classify jobseekers as “easily” or “difficult” to integrate into the labor market after a one-hour interview at the beginning of the unemployment period. Greece has introduced a data-supported system to make it easier for operators to profile workers as high, medium, or low risk. Estonia's employment service grants total discretion to operators but in return invests in training to improve the quality of their assessments.

Currently, several countries, including Italy, adopt an integrated approach that combines the benefits of statistical profiling with those of individual case analysis through caseworker assessment. In fact, the subjectivity of the latter can be mitigated when used in combination with statistical profiling. It is important to note that in the application of all the types of profiling mentioned above, the work of CPIs operators remains a key factor for success, in the diagnostic phase as well as in the intervention plan’s design.

Countries adopting data-assisted profiling, like Italy, Sweden, Ireland, Greece, and Germany, implement a model in which job centers operators play an essential role at all stages of the process[[59]](#footnote-59).

In conclusion, to identify the needs of job seekers, many countries are enhancing digital means of profiling assisted by artificial intelligence. For example, in Wallonia (Belgium), a new profiling service was launched in early 2022 that uses a machine learning approach to create a predictive model of proximity to work. Similarly, Luxembourg is working on a project that employs AI to assess job seekers' likelihood of success based on their profiles, and to identify the most suitable services to offer to them accordingly. The award-winning AI-based profiling tool, adopted by the Estonian PES in late 2020, and further improved in 2022, sorts job seekers into different categories of services based on their likelihood of timely (re)integration into the labor market, with a 95% of reliability[[60]](#footnote-60).

**6. Profiling in Italy, considering the most recent legislative updates.**

In the Italian legal system, the user's first access to employment services is through the electronic supplying (via “SIUPL”, the unified information system of labor market policies) of the declaration of «immediate availability to carry out work activities and to participate in active labor policy measures agreed with the employment center»[[61]](#footnote-61) (“DID”), or through the application for an income support[[62]](#footnote-62).

According to Article 19, Paragraph 5, Legislative Decree No. 150/2015, «based on the information provided during registration, users of employment services are assigned to a profiling class, in order to assess their level of employability, according to an automated data processing procedure». The profiling class is automatically updated every 90 days, taking into account the duration of unemployment and other information received through service activities[[63]](#footnote-63).

The registered person is therefore required to contact the employment center in order to confirm the unemployment status (with different timeframes depending on the type of access to the PES: within 30 days of the declaration of availability; 15 days if a beneficiary of an income support benefit). In case of inaction on the part of the unemployed person, he or she will be summoned by the employment center within 90 days of the onset of unemployment status[[64]](#footnote-64).

The current discipline also considers a very specific hypothesis of inertia of the employment center, but, according to part of the doctrine, «with a boomerang effect for the unemployed person», who is burdened with a burden that should only affect the public service[[65]](#footnote-65). In fact, the fourth Paragraph of Article 20 stipulates that, after 60 days from the date of registration, the unemployed person, who has not been contacted by the employment centers, has the right – but also the obligation – to request from ANPAL, via e-mail, the personalized credentials for direct access to the telematic profiling procedure to obtain the outplacement allowance.

During the meeting with the CPI operator, profiling is carried out, aimed at the stipulation of the service pact[[66]](#footnote-66). The procedure has been extensively revised in the context of the implementation of the Guaranteed Worker Employability (GOL) program, funded under Mission 5 of the National Recovery and Resilience Plan (NRRP)[[67]](#footnote-67) and aimed at ensuring that the national system of employment services and active labor market policies takes charge of all individuals in an unemployed condition, workers who benefit from wage guarantee fund (CIGO/CIGS/CIGD), of fragile or vulnerable workers (such as young people, women with particular situations of disadvantage, people with disabilities, over 55, working poors, etc.) and beneficiaries of the citizenship income, in order to promote the development of their skills or facilitate their occupational integration[[68]](#footnote-68), through the provision of specific intensive assistance services, within the framework of the service/work pact signed with the job centers[[69]](#footnote-69).

The profiling system previously adopted by ANPAL was insufficient to ensure the homogeneity of procedures now required by the GOL program, due to its lack of selectivity and its excessive discretion. Qualitative profiling was also disjointed due to the different approaches used by the regions, which employed tools that were poorly standardized and disconnected from the national system.

Therefore, access to the GOL program is currently provided through the so-called “assessment”. This is a new methodological approach for quantitative and qualitative profiling, which differs from the past, as it reduces the level of the operator’s discretion by using algorithm-based tools and techniques. Quantitative profiling, which is done automatically, indicates whether a person is ready for work (work ready/weaker), while qualitative profiling requires an interview with the user[[70]](#footnote-70).

Regarding quantitative profiling, the aim is to facilitate the job center’s operators in accessing the numerous (not always properly interconnected) administrative files (“SAP”) – which collect workers' data and are updated by them at the time of the DID, or communicated by the company at the time of the establishment or termination of the employment relationship through the Mandatory Communications – in order to obtain a more accurate assessment to ensure proper intake[[71]](#footnote-71).

The information to be fed to the system include biographical data, gender, education level, the previous year’s employment status, family information, citizenship, any income support measures, vocational training and qualifications, place of residence and possession of driving license. The quantitative profiling class is automatically assigned (class 1: low risk - work ready; class 2: medium risk - indeterminacy; class 3: high risk - weakness) to indicate the risk of unemployment. It provides an initial indication of the user's level of employability. By using this method, it is possible to estimate the probability of finding employment by a given date more accurately, and to define the specific unemployment situation, to tailor interventions more effectively[[72]](#footnote-72).

The information provided by quantitative profiling is supplemented and scrutinized by employment center operators through an orientation interview with users, in the qualitative assessment stage (initial assessment)[[73]](#footnote-73). The aim is to bring forth the qualities of the worker, considering his or her inclinations, experiences, skills and specific needs. This approach gives job centers’ operators some leeway in providing assistance to the worker during the job search, offering educational and vocational guidance to overcome any obstacles to re-entering the labor market[[74]](#footnote-74).

During the meeting, the operator conducts an interview using a questionnaire to assess three different areas:

1. employment status (education; how long since last work experience; career path; work experience; mobility and travel; job sought).
2. skills (Italian communicational skills; language skills; digital skills; extracurricular training; technical-professional skills).
3. personal conditions (conditions hindering work/job search; family network; dependents; housing condition; personal care)[[75]](#footnote-75).

For each question, the employment center operator assigns a score between 0 and 3. Upon completion of the questionnaire, a maximum score of 15 points can be obtained for each area investigated, for an overall total of 45 points[[76]](#footnote-76).

During the initial assessment stage, the operator conducts the “vocational assessment” using a specific checklist to analyze the user's features in relation to employability (such as consistency between expectations and past experience, consistency between expectations and competence really possessed, readiness toward training and professional growth, readiness for territorial mobility, activation in job search, and effectiveness of job search). This assessment does not automatically generate a score based on the information collected, but it allows the outcome of quantitative profiling to be confirmed or not. In fact, the operator can intervene on the results of the assessment, adding or subtracting an “additional plafond of points”, which increase or decrease by 3 points the total score obtained in the initial assessment (A or B or C) or in the in-depth assessment that will be discussed shortly (C + D). The eventual change (since it may result in a change in the path of the person taken into consideration) must be justified by the operator[[77]](#footnote-77).

The in-depth assessment of personal condition rewards up to 15 points (C + D). Based on the final score computed by an algorithm, the worker is directed to one of four GOL pathways, which will form the central part of the personalized service pact or employment pact for citizenship income beneficiaries, drawn up at the end of the interview[[78]](#footnote-78).

In detail, the four GOL pathways are:

1. Employment reintegration: for the people closest to the labor market, guidance and intermediation services for job accompaniment.
2. Upskilling: for workers further from the labor market, but still with expendable skills, training interventions mainly of short duration and with professionalizing content.
3. Reskilling: for workers far from the labor market and with inadequate skills for the needs required, more in-depth professional training.
4. Employment and inclusion: in cases of complex needs, i.e. in the presence of obstacles and barriers that go beyond the labor dimension, in addition to the previous services, the activation of the network of territorial services (depending on the case, educational, social, social-health, reconciliation) is envisaged[[79]](#footnote-79).

Actually, there are five pathways provided by GOL. However, the fifth, which concerns the collective outplacement of workers involved in complex processes of corporate crisis and transition, is not preceded by an individual assessment, but rather presupposes a collective assessment, or for groups of subjects, which considers the corporate situation, the territorial context of reference and the professional skills of the workers considered[[80]](#footnote-80). As pointed out by the doctrine, the fifth path, while being the most interesting, is at the same time the least feasible, inasmuch as the GOL regime is poorly coordinated with the wage supplement regulations, reformed in the Budget Law for 2022[[81]](#footnote-81).

**7. Some examples of digitalization in profiling models: European best practices.**

The final part of this paper analyses the most virtuous European examples of digitalization, that allows us to appreciate an increasingly incisive commitment to the adoption of artificial intelligence and other advanced computing and statistical methodologies, with the aim of optimizing the activities inherent in employment services. In particular, we highlight the central role that the use of such tools plays in profiling job seekers, identifying skills gaps, and matching potential candidates with vacancies[[82]](#footnote-82).

**7.1. Belgium (Flanders).**

Undoubtedly, among the most cutting-edge European employment services there is the Belgian region of Flanders, which implemented an artificial intelligence-based profiling model that estimates the likelihood of becoming long-term unemployed[[83]](#footnote-83). The primary purpose is to help job center operators in choosing which job seekers to prioritize[[84]](#footnote-84).

The main initiative toward the digitalization of employment services is the VDAB (Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding) portal, which equals to the Flanders' public employment agency. The platform provides a wide range of online services for citizens searching for a job. It includes registering as unemployed, searching for job vacancies, creating a personal profile, participating in training programs, as well as career guidance tools and remote counseling to help people choose a career that suits their skills and interests.

In detail, in 2014 the Flemish employment service founded an innovation lab that focuses on developing new applications and analyzing big data[[85]](#footnote-85). Specifically, the profiling carried out by the VDAB uses a random forest model, “trained” on large administrative data sets and data collected at the time of user self-registration. The model is flexibly constructed so that it can be easily and regularly updated, both by job seekers and by the caseworker assisting them in their return to the labor market, when more recent data or new explanatory variables become available[[86]](#footnote-86).

The underlying data are collected and stored in a data warehouse and contain detailed information on the socioeconomic characteristics of job seekers (such as age, place of residence, level of education, nationality, and previous work experience), as well as some information on their labor market history (such as self-reported work preferences – such as in terms of occupation, sector, or location – and participation in training programs). Information collected by caseworkers during previous and current periods of unemployment is also used in the model. Another interesting and innovative aspect is the use of behavioral indicators, using job seekers' activity on the VDAB website as a detector of job search behavior. For example, so-called click data is collected, which monitors the activity of job seekers on the PES website (such as logging in, adding or changing information on the “My Career” user interface, clicking on job vacancies, etc.)[[87]](#footnote-87).

As of now, the model is based solely on administrative data and data entered by job seekers for other purposes, with no new information on soft skills, attitudes and job search strategies being collected, to further improve the accuracy of the instrument. In a more recent version, the number of explanatory variables was reduced, for reasons related to simplification and compliance with privacy and anti-discrimination regulations. Variables with low explanatory power were removed from the model as well as sensitive information such as origin and disability status. However, the omission of sensitive variables does not mean that any form of discrimination is eliminated, because the model incorporates this information through other variables, such as language skills.

In detail, job seekers register with the VDAB and then rely solely on digital services for the first six weeks. After 35 days of registration, the system assigns the user a profiling score that indicates their likelihood of obtaining employment within the next six months. Based on their profiling score, individuals are divided into four groups, from “very unlikely” to “very likely” to resume work quickly (with profiling score thresholds below 35%, between 35% and 50%, between 50% and 65%, and above 65%). Users most at risk of becoming long-term unemployed are contacted first by job centers. Based on a telephone interview, the operator decides whether the jobseeker is self-sufficient (and does not need close follow-up) or should be referred for more intensive support. However, operators do not have access to the profile score, having only the automatically generated lists of unemployed individuals to be contacted by telephone. The list prioritizes job seekers with low profiling scores. Therefore, the model only ensures that vulnerable job seekers are contacted first, it has no effect on the referral decisions of operators.

Once all individuals in the first group have been contacted, the operators can begin to address the other four groups of job seekers. The current approach thus combines statistical and operator-based profiling[[88]](#footnote-88).

**7.2. Netherlands.**

Another European experience worth mentioning is the Netherlands, where the use of data and technology in employment services has been highly advanced since the early 2000s.

Two important components of the digitalization of the Dutch PES are the “Work Folder” and the “Work Profiler”, the combination of which allows for centralized data management as well as more targeted and effective services to candidates and companies.

The “Work Folder” (Werkmap), introduced in 2015, is a digital platform that provides a central point of access to all employment-related services and information. It is designed to simplify the interaction between citizens and the various actors involved in the PES (primarily, the work coach). More precisely, it is a personal online portal where citizens can store and manage documents and data related to their employment situation. The Work Folder allows users to register as unemployed, search for job vacancies, access information on social benefits, register their resumes, and communicate with employment service providers, the UWV (Uitvoeringsinstituut Werknemersverzekeringen, the Employee Insurance Agency), or other service providers[[89]](#footnote-89).

Turning to the second institute, the “Work Profiler” (Werkverkenner) is a selection and diagnostic tool that helps the UWV to provide tailored services to unemployment benefit recipients. For this purpose, the user fills out a short online questionnaire containing 20 questions during the first three months of unemployment, to provide information about his or her skills, experience, interests, and work preferences. The questions cover 11 hard and soft factors that are predictive of return to work. These factors are then statistically processed to produce two outcomes, based on the responses given by the job seeker: the first indicates the likelihood of returning to work within one year; the second outcome provides a quick diagnosis by illustrating which of the 11 factors may positively influence, increasing the unemployed person's chances of returning to the labor market.

Both outcomes are used by the UWV for two main purposes, namely “selection” and “rapid diagnosis”.

Regarding the former (selection), the user's chance of returning to work within one year is used to determine whether the user should be offered remote or in-person services. Due to cost-cutting imposed by the government, the UWV is no longer able to offer in-person services to all those receiving unemployment benefits. Thus, the Work Profiler provides an objective method for identifying individuals who need face-to-face services; the rest of the users will mainly rely on computer services, which remain available to anyone.

For “rapid diagnosis”, regardless of whether the individual makes use of IT services or face-to-face assistance, it is important to offer services that increase his or her chances of reemployment. To this end, the UWV uses the second outcome of the Work Profiler, a rapid diagnosis based on the 11 predictive factors for re-employment. The individual factor scores indicate the strengths of the unemployed person and those that may need improvement to increase the chances of finding work[[90]](#footnote-90).

It is worth noting that the WP takes into account behavioral variables that combine quantitative and qualitative aspects. That is, in the software's algorithmic calculation, variables representing “qualitative aspects” are included, so that the returned result is unique and able to provide appropriate and unambiguous measures for the subject. Finally, the profiling results are collected in the Work Folder and uploaded to the online service platform (Werkl.nl).

**7.3. Denmark.**

Like the Flemish Employment Service, the Danish Agency for Labor Market and Recruitment (STAR) has developed a profiling model (profilafklaringsværktøjet, literally “profile clarification tool”) using machine learning techniques, and in particular the decision tree classification.

The decision tree identifies nine paths that predict the probability of becoming long-term unemployed (>26 weeks). The current model, which has an overall accuracy of 67%, combines data from administrative records and an online survey that collects behavioral information[[91]](#footnote-91). The tool thus facilitates the work of caseworkers when assessing an individual citizen's prospects in obtaining employment. However, the choice of employment support programs or activities is always based on the operator's overall professional and individual evaluation[[92]](#footnote-92).

In detail, the Danish profiling model, which unemployment benefit recipients access through the platform “Jobnet.dk”, at which they must register and upload their CVs (shared with operators and companies), consists of two parts: (a) a questionnaire (or otherwise called a “preparation form”) in which the unemployed person must answer 10 questions about themselves, their job search, their educational background, etc.; (b) a statistical assessment of the user's risk of remaining unemployed for more than 6 months (long-term unemployment).

The answers to the questionnaire are collected and processed by means of machine learning techniques, that analyze previous unemployment histories and are intended to provide feedback on job search strategies as well as, as we said, to serve as the basis for the first interviews that the jobseeker will have with the caseworker[[93]](#footnote-93). In fact, after completing registration on Jobnet.dk, users can “book” an appointment with an operator, with whom a personalized activation plan called “My Plan” will be defined, which will then be viewable in the individual's personal account, once the meeting is over.

The founding principle of the *profilafklaringsværktøjet* is that by examining past episodes of unemployment through statistical evaluation, it is possible to get an idea of who in a group of newly unemployed people is likely to become long-term unemployed. This is done by comparing the citizen with other unemployment benefit recipients who have historically become long-term unemployed. In this way, the decision tree algorithm, being trained on data to identify the most important factors in predicting “chronic” nonemployment, classifies individuals into two groups: risk and non-risk of unemployment greater than 6 months[[94]](#footnote-94).

**8. Concluding remarks.**

Depending on the angle from which one chooses to view the subject matter explored so far, both critical and optimistic lines of thought emerge, although they all converge toward openness to the new challenges facing the labor market as well as the modernization of public entities that deliver employment services[[95]](#footnote-95).

Looking more broadly at the labor market, one of the biggest challenges will concern the automation and replacement of occupations: in fact, with the advance of digital technologies – first and foremost AI –, some traditional tasks will be performed by machines and algorithms, requiring a retraining of workers and, consequently, urging serious investment in training policies. It will become increasingly important to acquire skills in the digital domain, to develop skills in the use of IT tools, data analysis and understanding of key concepts of emerging technologies.

Related to that, it is the issue of the digital divide. In fact, the digital revolution could exacerbate existing inequalities in the labor market, and people with limited access to information technology or with skill gaps could find themselves disadvantaged. It will therefore be necessary to address these inequalities through training programs and digital inclusion policies.

The digital transition is then affecting the modes of performance themselves: freelance work, remote work, and digital platforms are becoming increasingly common. This will require the implementation of appropriate regulations to protect workers' rights and ensure adequate social protection.

To address these unknowns, a collaborative approach among governments, businesses, educational institutions and workers will be crucial. It will require targeted public policies, appropriate training programs and an adaptability mindset, both on workers and on businesses. Thus, only through joint efforts it will be possible to successfully address the transition to an increasingly digital labor market.

From a “micro” perspective (related to the perspective of employment services) future challenges will focus mainly on structural changes in the labor market: the management of a foreign labor force, whether consequent to a natural mobility or brought by political-economic events, and shortages of skilled labor, especially in specific productive sectors, thus stimulating the ability to analyze, anticipate and mitigate possible crises; the development of new services to meet the changing needs of PES users, forcing them to a process of continuous improvement, extending from the analysis of demand by the client (worker or entrepreneur) to the design and delivery of the service, whether it is of a consulting, guiding, or training nature. Moreover, in order to demonstrate their added value in the labor market, CPIs will need to make changes in internal organizational management, paying special attention to issues such as efficiency, quality, privacy, and sensitive data protection, as well as opening up to collaborations with external parties, both institutional and private in nature. The future is intrinsically linked to the development of new key staff competencies, not only of a digital nature, but also transversal and managerial. Therefore, there is expected to be a redefinition of organizational roles, with an internal reallocation of staff and an increasing need for training, which includes the renewal of staff skills, given the new positions related to digitalization, as well as the introduction of services or strategic changes, which must be integrated into current organizational structures[[96]](#footnote-96).

In conclusion, it is finally possible to isolate three main areas where action is deemed necessary: (a) to alleviate the technological gap between services operating in different geographical realities; (b) to make digitalization an opportunity for interoperability between systems in order to harmonize them, facilitating, for example, the interaction between databases that are not currently communicating, but that they would together constitute a source of inestimable information value; (c) to promote efforts so that technological progress in employment services does not exacerbate territorial disparities, while strengthening communication strategies aimed at users, and actively involving them in increasing the quality of services[[97]](#footnote-97).

1. OECD (2019), *Going Digital: Shaping Policies, Improving Lives*, OECD Publishing, Paris, available at https://doi.org/10.1787/9789264312012-en, p. 18. [↑](#footnote-ref-1)
2. Garofalo, D. (2019), *Rivoluzione digitale e occupazione: politiche attive e passive*, in *Lavoro nella giurisprudenza*, 4, p. 329. [↑](#footnote-ref-2)
3. Scarcello, D. (2021), *Digitalizzazione e politiche attive del lavoro: il ruolo della profilazione algoritmica nella trasformazione organizzativa dei servizi per l’impiego*, Master’s Thesis, Bachelor of Science in Management Engineering, supervisor Prof. S. Sacchi, available at https://webthesis.biblio.polito.it/21659/, p. 3. [↑](#footnote-ref-3)
4. Garofalo, D. (2019), cited, p. 329. [↑](#footnote-ref-4)
5. Montanari, A. (2020), *Tecnologie digitali e servizi pubblici per il lavoro: l’esperienza Italiana*, in da Silva, F. *et. al.*, *Estudos de direito, desenvolvimento e novas tecnologias*, Instituto Iberoamericano de Estudos Jurídicos, Porto, p. 38. [↑](#footnote-ref-5)
6. Scarano, G., Colfer, B. (2022), *Linking active labour market policies to digitalisation–a review between remote and automated possibilities*, in *International Journal of Sociology and Social Policy*, Vol. 42, 13-14, p. 99. [↑](#footnote-ref-6)
7. Scarano, G. (2021), *Politiche attive del lavoro e servizi per l’impiego. Tra miti e riforme*, Egea, Milano, p. 278. [↑](#footnote-ref-7)
8. Sacchi, S. (2022), *Spunti per una strategia di digitalizzazione delle politiche del lavoro in Italia*, in A. Di Maio e A. R. Marmo (a cura di), *Il cloud del lavoro*, Rubbettino Editore, Soveria Mannelli, pp. 365-366. [↑](#footnote-ref-8)
9. On employment services in Europe, though dated, see Sartori, A. (2013), *Servizi per l’impiego e politiche dell’occupazione in Europa*, Maggioli Editore, Rimini. [↑](#footnote-ref-9)
10. Montanari, A. (2020), cited, p. 42. [↑](#footnote-ref-10)
11. Scarano, G. (2021), cited, p. 280. [↑](#footnote-ref-11)
12. https://ec.europa.eu/social/main.jsp?catId=1163&intPageId=3451&langId=en. [↑](#footnote-ref-12)
13. Costantini, F. (2019), *Profilazione e “automated decision making” in ambito lavorativo nella giurisprudenza italiana*, in *Lavoro nella giurisprudenza*, 11, p. 986. [↑](#footnote-ref-13)
14. Scarcello, D. (2021), cited, p. 4. [↑](#footnote-ref-14)
15. Sacchi, S. (2022), cited, p. 367. [↑](#footnote-ref-15)
16. Scarano, G. (2021), cited, p. 279. [↑](#footnote-ref-16)
17. OECD (2022), *Harnessing digitalisation in Public Employment Services to connect people with jobs*, p. 1. [↑](#footnote-ref-17)
18. Scarano, G. (2021), cited, p. 280. [↑](#footnote-ref-18)
19. *Ibid.*, p. 284. [↑](#footnote-ref-19)
20. *Ibid*. [↑](#footnote-ref-20)
21. Sacchi, S. (2022), cited, p. 368. [↑](#footnote-ref-21)
22. *Ibid*. [↑](#footnote-ref-22)
23. Scarcello, D. (2021), cited, p. 3. [↑](#footnote-ref-23)
24. Maruccia, G., *Dalla pandemia la spinta all’innovazione e digitalizzazione dei processi aziendali*, available at https://www.treccani.it/magazine/diritto/approfondimenti/diritto\_del\_lavoro/Dalla\_pandemia\_la\_spinta\_all\_innovazione\_e\_digitalizzazione\_dei\_processi\_aziendali.html. [↑](#footnote-ref-24)
25. Scarano, G. (2021), cited, p. 49. [↑](#footnote-ref-25)
26. Piroșcă, G.I. *et. al.* (2021), *Digitalization and Labor Market—A Perspective within the Framework of Pandemic Crisis*, in *Journal of Theoretical and Applied Electronic Commerce Research*, 16, available at https://doi.org/10.3390/jtaer16070156, p. 2843. [↑](#footnote-ref-26)
27. Scarano, G., Colfer, B. (2022), cited, p. 99. [↑](#footnote-ref-27)
28. OECD (2022), cited, p. 3; https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/corporate/annual-report/2019-2020/our-story/workforce.html. [↑](#footnote-ref-28)
29. Scarano, G., Colfer, B. (2022), cited, p. 99. [↑](#footnote-ref-29)
30. OECD (2022), cited, p. 3. [↑](#footnote-ref-30)
31. Anpal (2023), *La digitalizzazione post Covid*, note 1/2023, Collana Focus Anpal no. 149, p. 5. [↑](#footnote-ref-31)
32. OECD (2022), cited, p. 2. [↑](#footnote-ref-32)
33. Anpal (2023), cited., p. 3. [↑](#footnote-ref-33)
34. Marchetti, S., Scarpetti, G. (2023), *L’impatto delle tecnologie digitali sull’erogazione dei servizi dei Centri per l’impiego in Europa*, INAPP WP no. 107, p. 1. [↑](#footnote-ref-34)
35. OECD (2022), cited, p. 1. [↑](#footnote-ref-35)
36. Fasano, A., Rossotti, L. (2018), *Luci e ombre delle disuguaglianze digitali nei Centri per l’impiego in Italia*, in *Scientific Journal on Digital Cultures*, Vol. 3, 1, p. 112. [↑](#footnote-ref-36)
37. Anpal (2023), cited., p. 5. [↑](#footnote-ref-37)
38. *Ibid.*, p. 9. [↑](#footnote-ref-38)
39. *Ibid.*, p. 10. [↑](#footnote-ref-39)
40. Fasano, A., Rossotti, L. (2018), cited, p. 119. [↑](#footnote-ref-40)
41. See, on this point, European Commission (2020), *European Network of Public Employment Services. Dematerialisation of services in EU PES. Assuring full access to the PES services for people with limited opportunities*, available at https://ec.europa.eu/social/BlobServlet?docId=22954&langId=en. [↑](#footnote-ref-41)
42. Pietersen, W. (2019), *Digital technologies and advanced analytics in PES*, Thematic Paper, EC, Brussels, available at https://ec.europa.eu/social/BlobServlet?docId=20787&langId=en, p. 21. [↑](#footnote-ref-42)
43. European Commission (2020), cited*,* p. 7; Marchetti, S., Scarpetti, G. (2023), cited, p. 11. [↑](#footnote-ref-43)
44. Scarano, G. (2021), cited, p. 280. [↑](#footnote-ref-44)
45. OECD (2022), cited, p. 1. [↑](#footnote-ref-45)
46. *Ibid.*, p. 9. [↑](#footnote-ref-46)
47. Marchetti, S., Scarpetti, G. (2023), cited, p. 11. [↑](#footnote-ref-47)
48. Bonoli, G. (2010), *The political economy of active labour market policy*, Working Papers on the Reconciliation of Work and Welfare in Europe No.1, Edinburgh, p. 10 e ss. [↑](#footnote-ref-48)
49. Scarano, G., Colfer, B. (2022), cited, p. 101. [↑](#footnote-ref-49)
50. Scarano, G. (2021), cited*,* p. 11. [↑](#footnote-ref-50)
51. Bonoli, G. (2010), cited, p. 12. [↑](#footnote-ref-51)
52. Scarano, G., Colfer, B. (2022), cited, p. 102; Bonoli, G. (2010), cited, pp. 11-12. [↑](#footnote-ref-52)
53. Scarano, G. (2021), cited*,* p. 15. [↑](#footnote-ref-53)
54. Scarano, G., Colfer, B. (2022), cited, p. 102; Bonoli, G. (2010), cited, pp. 11-12. [↑](#footnote-ref-54)
55. Scarano, G. (2021), cited*,* p. 283. [↑](#footnote-ref-55)
56. Anpal (2020), *L’orientamento di base e la profilazione qualitativa*, Report, Collana Biblioteca Anpal no. 15, p. 3. [↑](#footnote-ref-56)
57. See, on this point, OECD (2018), *Profiling tools for early identification of jobseekers who need extra support*, Policy Brief on Activation Policies, available at https://www.oecd.org/els/emp/OECD-Profiling-policy-brief-DEC-18.pdf. [↑](#footnote-ref-57)
58. Anpal (2020), cited, p. 6. [↑](#footnote-ref-58)
59. Anpal (2020), cited, p. 7-8. [↑](#footnote-ref-59)
60. OECD (2022), cited, p. 5. [↑](#footnote-ref-60)
61. Article 19, paragraph 1, legislative decree no. 150/2015. [↑](#footnote-ref-61)
62. Sartori, A. (2022), *La condizionalità tra coercizione ed empowerment del disoccupato*, in *Variazioni su Temi di Diritto del Lavoro*, 4, p. 748. [↑](#footnote-ref-62)
63. Article 19, paragraph 6, legislative decree no. 150/2015. [↑](#footnote-ref-63)
64. Article 20, paragraph 1, legislative decree no. 150/2015 e article 4, ministerial decree no. 4/2018. [↑](#footnote-ref-64)
65. Filì, V. (2016), *Il patto di servizio personalizzato,* in Ghera, E., Garofalo, D. (a cura di), *Organizzazione e disciplina del mercato del lavoro nel Jobs Act 2*, Cacucci, Bari, p. 180. To the contrary, see Sartori, A. (2022), cited, where she states at page 748 that: «On the contrary, one could prospect that in this way the right to use the service is made effective if the public entity remains inactive.». [↑](#footnote-ref-65)
66. Article 20, paragraph 1, legislative decree no. 150/2015. [↑](#footnote-ref-66)
67. Sartori, A. (2022), cited, p. 749. More specifically, the GOL program was provided for in article 1, paragraph 324 of the Budget Law for 2021 (law no. 178/2020) and adopted by ministerial decree on November 5, 2021. [↑](#footnote-ref-67)
68. Varesi, A. (2022), *Le politiche attive alla sfida delle grandi transizioni - Una nuova stagione per le politiche attive del lavoro. Le prospettive tra azioni dell'Unione europea e riforme nazionali*, in *Diritto delle Relazioni Industriali*, 1, p. 97. [↑](#footnote-ref-68)
69. Bozzao, P. (2023), *L’intermediazione del lavoro nel Programma GOL: potenzialità e criticità*, in *Lavoro e Diritto*, 2, p. 259. [↑](#footnote-ref-69)
70. Valente, L. (2023), *Il diritto del mercato del lavoro*, CEDAM, Padova, p. 104. [↑](#footnote-ref-70)
71. Faioli, M. *et. al.* (2023), *Tecnofobie nella Missione 5 del PNRR, condizionalità e dovere di lavorare*, in *Federalismi.it.*, 9, p. 180; Valente, L. (2023), cited, p. 105. [↑](#footnote-ref-71)
72. Valente, L. (2023), cited, pp. 105-106. [↑](#footnote-ref-72)
73. *Ibid.*, p. 106. [↑](#footnote-ref-73)
74. Faioli, M. *et. al.* (2023), cited, p. 180. [↑](#footnote-ref-74)
75. See Piano Nazionale di Ripresa e Resilienza – PNRR Missione 5 Componente 1 Riforma 1.1 Programma Nazionale per la Garanzia di Occupabilità dei Lavoratori - GOL Strumenti per l’attuazione dell’assessment profilazione qualitativa (Allegato B), p. 3 e ss. [↑](#footnote-ref-75)
76. Valente, L. (2023), cited, p. 106. [↑](#footnote-ref-76)
77. *Ibid.*, p. 107. [↑](#footnote-ref-77)
78. *Ibid.*, pp. 107-108. [↑](#footnote-ref-78)
79. https://www.anpal.gov.it/gol-percorsi. [↑](#footnote-ref-79)
80. Sartori, A. (2022), cited, p. 749, footnote no. 44. [↑](#footnote-ref-80)
81. On this point, please refer to Faioli, M. *et. al.* (2023), cited, pp. 180-181, and in particular to footnotes no. 28-29. [↑](#footnote-ref-81)
82. OECD (2022), cited, p. 3. [↑](#footnote-ref-82)
83. Desiere, S., Struyven, L. (2021), *Using Artificial Intelligence to classify Jobseekers: The Accuracy-Equity Trade-off*, in *Journal of Social Policy*, Vol. 50, 2, p. 371. [↑](#footnote-ref-83)
84. Anpal (2020), cited, p. 11. [↑](#footnote-ref-84)
85. Desiere, S., Langenbucher, K., Struyven, L. (2019), *Statistical profiling in public employment services: An international comparison*, OECD Social, Employment and Migration Working Papers no. 224, p. 18. [↑](#footnote-ref-85)
86. Anpal (2020), cited, p. 11. [↑](#footnote-ref-86)
87. Desiere, S., Langenbucher, K., Struyven, L. (2019), cited, p. 17; OECD (2023), *Artificial intelligence and labour market matching*, OECD Social, Employment and Migration Working Papers no. 284, p. 24. [↑](#footnote-ref-87)
88. Desiere, S., Struyven, L. (2021), cited, p. 372. [↑](#footnote-ref-88)
89. Wijnhoven, M.A., Havinga, H. (2014), *The Work Profiler: A digital instrument for selection and diagnosis of the unemployed*, in *Local Economy*, Vol. 29, 6-7, p. 742. [↑](#footnote-ref-89)
90. *Ibid.*, p. 741. See also Scarano, G. (2021) cited, p. 285, Box 5.3. [↑](#footnote-ref-90)
91. Desiere, S., Langenbucher, K., Struyven, L. (2019), cited, pp. 17-18. [↑](#footnote-ref-91)
92. Styrelsen for Arbejdsmarked og Rekruttering (2020), *Beskrivelse af profilafklaringsværktøjet til dagpengemodtagere*, available at https://star.dk/media/12514/2020\_01\_31\_beskrivelse\_-\_profilafklaringsvaerktoej\_til\_dagpengemodtagere.pdf, p. 1. [↑](#footnote-ref-92)
93. Scarcello, D. (2021), cited, p. 106. [↑](#footnote-ref-93)
94. Styrelsen for Arbejdsmarked og Rekruttering (2020), cited*,* pp. 1-4. [↑](#footnote-ref-94)
95. Fasano, A., Rossotti, L. (2018), cited, p. 112. [↑](#footnote-ref-95)
96. Marchetti, S., Scarpetti, G. (2023), cited, p. 18. [↑](#footnote-ref-96)
97. Fasano, A., Rossotti, L. (2018), cited, p. 119. [↑](#footnote-ref-97)