
PROFILING SYSTEMS

Good practice overview in OECD countries

Gael Fostier de Moraes



WORLD BANK GROUP

OBJECTIVES



- ❑ OVERVIEW OF DIFFERENT PROFILING SYSTEMS
- ❑ WHAT ARE THEIR BENEFITS AND LIMITATIONS
- ❑ LESSONS LEARNED ON PROFILING
- ❑ OVERVIEW OF PROFILING PRACTICES IN OECD COUNTRIES

INTRODUCTION – Profiling tools



A diagnostic method to assess the prospects of unemployed people to resume work and refer them to the most appropriate services



Profiling tools may enable more personalized delivery mechanisms as well as customized active labor market policies based on client characteristics



Assist Public Employment Services (PES) to focus their resources for activation where they are most needed

- tailoring case management intensity and frequency
- tailor job-finding approaches for the broader unemployed population



A critical tool to better differentiate clients: manage a large pool of heterogeneous jobseekers



Thus, profiling tools aim to help delivering employment services more efficiently and more effectively through diagnosing, targeting, and tailoring

The background features a 3D bar chart with various colored bars (purple, blue, green) of different heights. In the foreground, there is a 3D pie chart with several segments in shades of purple, blue, and green. The entire scene is set against a dark blue gradient background.

1. ASPECTS OF PROFILING

OBJECTIVES OF PROFILING

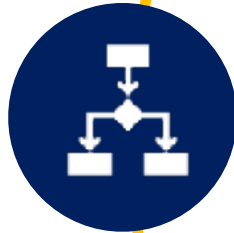
Differentiate jobseekers likely to become long-term unemployed from jobseekers likely to find work



Ensure that more costly, intensive services are targeted at those in most need of them



Refer jobseekers to different service streams



Determine the timing, frequency and intensity of contacts with caseworkers



Facilitate job matching



Prioritizing groups (e.g. youth)



USES OF PROFILING

DIAGNOSTICS

- CLIENT SEGMENTATION

TARGETING

- ACTION PLANS

RESOURCE ALLOCATION

- ALLOCATION TO EMPLOYMENT PROGRAMS

- BUDGET PLANNING

OTHER APPLICATIONS

- POLICY CONTROLS

- ALMP CONTRACTS

- ENHANCEMENT OF JOB MATCHING

- ENRICHMENT OF LABOR MARKET STATISTICS AND AGGREGATE SKILLS PROFILING

**CHALLENGES
ADDRESSED**

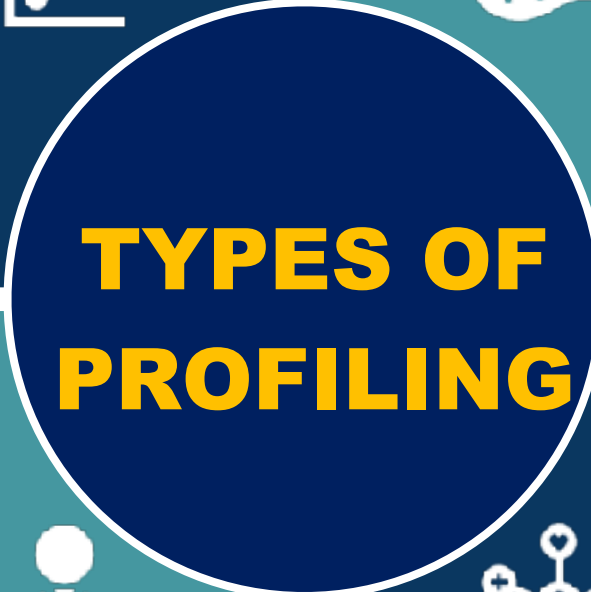
Fiscal constraints and budgetary pressures

The rapid surge in jobseekers during times of crises

Changes in the composition of jobseekers and a greater diversity of client groups

A greater diversity of employment forms and shorter job tenures

Lack of human capacity while broader demand for activation



Statistical profiling

statistical model that uses hard administrative data and a number of predictor variables



TYPES OF PROFILING

Caseworker based profiling

Assessment based on caseworker's discretion and experience, often with the assistance of administrative data or a range of assessment tools

Soft-profiling

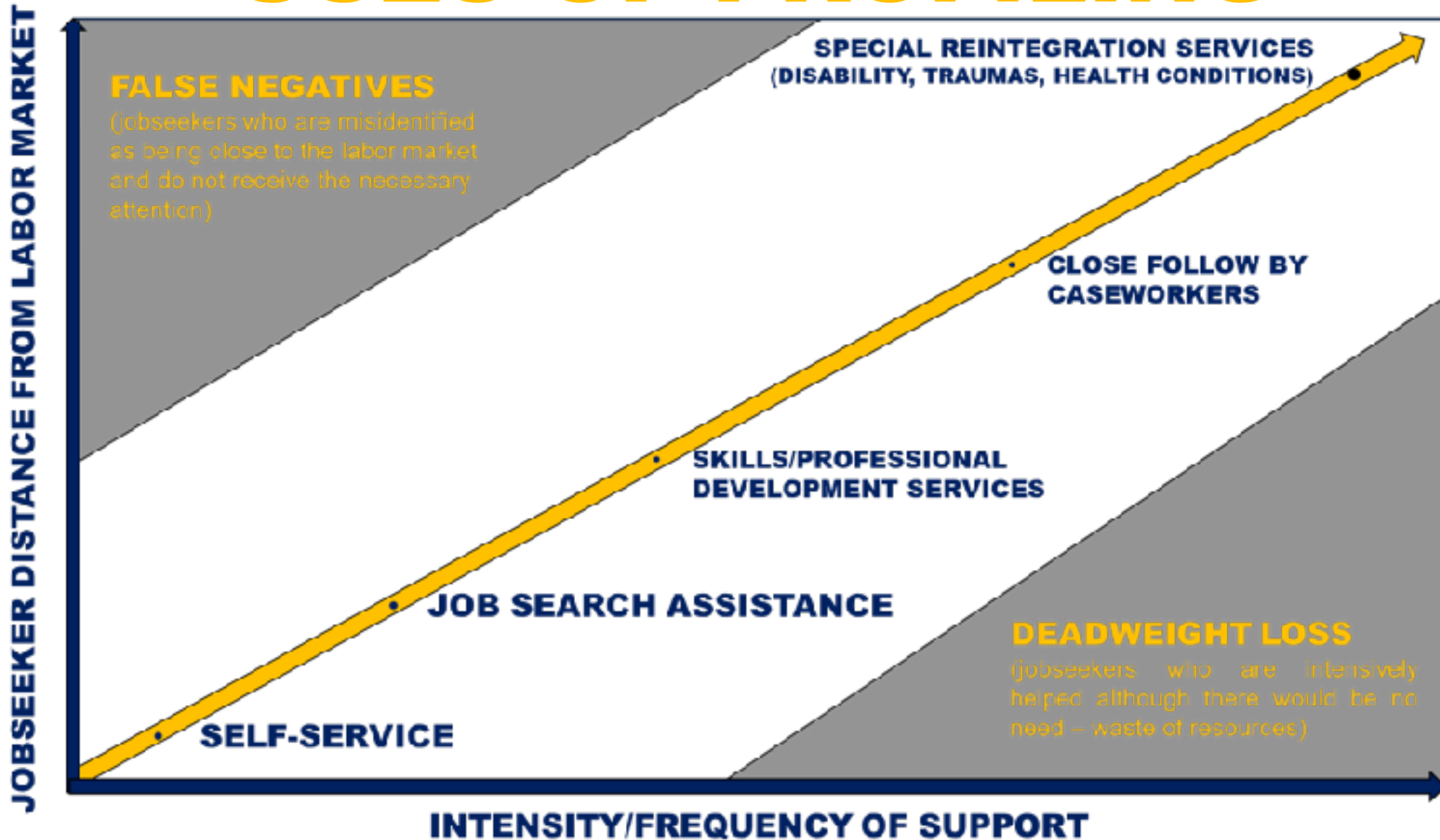
Use of a combination of eligibility rules, caseworker discretion, administrative data and more subjective, qualitative assessments and psychological screening tools

According to Barnes et Al., 2015.

HOW DO PROFILING SYSTEMS COMPARE CONSIDERING THEIR LEVEL OF CASEWORKERS DISCRETION AND THE COMPLEXITY OF INFORMATION / DATA REQUIRED



USES OF PROFILING



The background features a dark blue gradient with several semi-transparent data visualization elements. At the top, there is a 3D bar chart with vertical bars of varying heights in shades of purple, blue, and teal. Below this, a 3D pie chart is visible on the left side. In the center and right, there are 2D bar charts and a line graph with a jagged line. At the bottom, a 2D bar chart with blue bars is visible. Two horizontal white lines are positioned above and below the main text.

2. BENEFITS AND LIMITATIONS

STATISTICAL PROFILING

- This model is based on the econometric analysis of variables based on historical data from the jobseeker. Those variables are commonly based on the education, socioeconomic situation, skills and employment history from the applicant.
- It is also adjusted according to the country's (or region) socioeconomic situation
- Data is commonly obtained through administrative records, a questionnaire, or both
- **Advantages:**
 - Provides a standardized and objective analysis
 - Based on pre-tested factors that may lead to long-term unemployment
 - Generates an easily manageable database for policy-makers and budget allocation
 - Generates person-specific scores and a straightforward streaming of applicants
- **Disadvantages:**
 - Highly dependent on data quality and model adjustments
 - Implementation of nation-wide system can be costly
 - May face caseworker's resistance
 - May result in statistical discrimination to some degree (where group characteristics are automatically allocated to individuals reinforcing stereotypes)



RULES-BASED PROFILING

- This model is based on hard factors such as age, time unemployed, time on jobseeker benefits, being part of a minority group, etc.
- **For example:** a jobseeker applicant will have access to personal interviews with caseworkers if they are aged from 25 to 60 years old and have been unemployed for the past 6 months.
- **Advantages:**
 - Based on clearly defined rules
 - Provides an easily-manageable streaming of applicants
 - Cheapest system to implement
- **Disadvantages:**
 - Does not take into account the specific barriers faced by individuals to access the job market
 - Does not differentiate between individuals inside of a same group
 - Does not consider early interventions or individuals capable of self-help, thus generating dead-weight loss





CASEWORKER-BASED PROFILING

- This model is based on individual caseworkers' discretion and assessments, relying on their experience and knowledge
- Most OECD countries PES rely on caseworker-based models
- **Advantages:**
 - Individualized assessments, attention and planning for career paths for jobseekers
 - Emphasis on specific barriers faced by each jobseeker – greater capacity to tailor services
- **Disadvantages:**
 - High human resources management and spending required
 - Uneven treatment of jobseekers (not standardized)
 - Subjective assessments (not clear or straightforward)



SOFT PROFILING

- This model can combine statistical, rules-based and case-workers profiling
- For example: jobseekers will be able to apply to PES if between 18 and 65 years old; will then be assessed by an online questionnaire and only the ones most distant from the job market will meet with a caseworker; caseworkers will then build a tailored activation plan to those jobseekers. The remaining will be allocated to online or self-help services
- The advantages and disadvantages of this model highly depend on the combination of profiling techniques used
- It may require more initial planning. However, it may also make possible to benefit from the different advantages of each profiling model

3. LESSONS LEARNED

**Literature review based on
OECD countries' experiences**

BENEFITS OF USING PROFILING TOOLS

Overall, in literature, the benefits of using profiling tools are wide and well documented



- Clear profiling and streaming supports the coordination between the PES and external service providers (better results are found for the statistical profiling in that sense)



- Profiling can guide the resource allocation process within PESs
 - In Australia, for example, profiling tools have proven critical for resource allocation for contracts with employment-program service providers



- Accurate profiling tools generally help to improve the cost-efficiency of the PES through reducing deadweight costs

BENEFITS OF USING PROFILING TOOLS



- Accurate results of profiling can inform on the appropriate treatment of conditionalities to jobseekers in return of receiving benefits and improve activation policies



- Profiling tools are very useful on the planning and sequencing of caseworker's interventions



- Statistical profiling systems generally face a lack of transparency in their models, data lags and a high dependency on the quality of data



- Statistical profiling can complement caseworker's assessment or support them in their decision

ASPECTS TO CONSIDER WITH CAUTION



- Models that exclude contact with caseworkers tend to not capture private information that can be very relevant for the profiling process



- Caseworkers, especially those with higher tenures, may reject system innovations (such as data assistance)



- If the profiling system is not regularly reviewed and updated, systematic biases may continue to happen unnoticed and amplify over time

ASPECTS TO CONSIDER WITH CAUTION



- Profiling tools may be very advanced and highly accurate. However, their impact may be null if activation programs and streams are not well designed and evaluated



- In any profiling system, jobseekers who seek to maximize benefits may withhold key information during the profiling process



- Private service providers may cherry-pick clients by focusing on those who are easier to place or on which the government pays more money per placement

SUCCESS FACTORS



- Engaging all actors involved is key in the process of designing an effective profiling tool (PES workers, caseworkers, jobseekers, employers, policy-makers, etc.)



- Frontline staff of employment services should be involved in the development, testing and roll-out of a new profiling system to achieve full transparency and effectiveness



- When choosing a profiling tool, initial costs x savings over time should be taken into account.
 - E.g. statistical profiling tools may be more expensive at first but generate higher savings across the years
 - Inversely, if implementing it results into capex of implementing a new administrative data system, the cost may not be worth it

SUCCESS FACTORS



- Statistical profiling models are developed using historical data, the models need to be updated regularly to remain accurate



- Statistical profiling also has its limitations, as noted before - some countries (e.g. Austria and Netherlands) try to mitigate the drawbacks from statistical profiling by making it only one of the components of the profiling process. It is a tactic that is worth considering



- “The key lessons from OECD countries’ experiences in designing statistical profiling models are (a) ensure integrity of data collection, (b) use survey data (if available) for validating predictors, and (c) focus the sample of individuals being profiled on actual beneficiaries” (Loxha and Morgandi, 2014)

SUCCESS FACTORS



- While profiling is typically used to focus on jobseekers most at-risk of becoming long-term unemployed, the tool can be used to fulfil other country priorities, for ex: some countries are shifting towards identifying jobseekers with a medium risk, a group that is greater in number in times of crisis and that can be placed with less resource allocation.



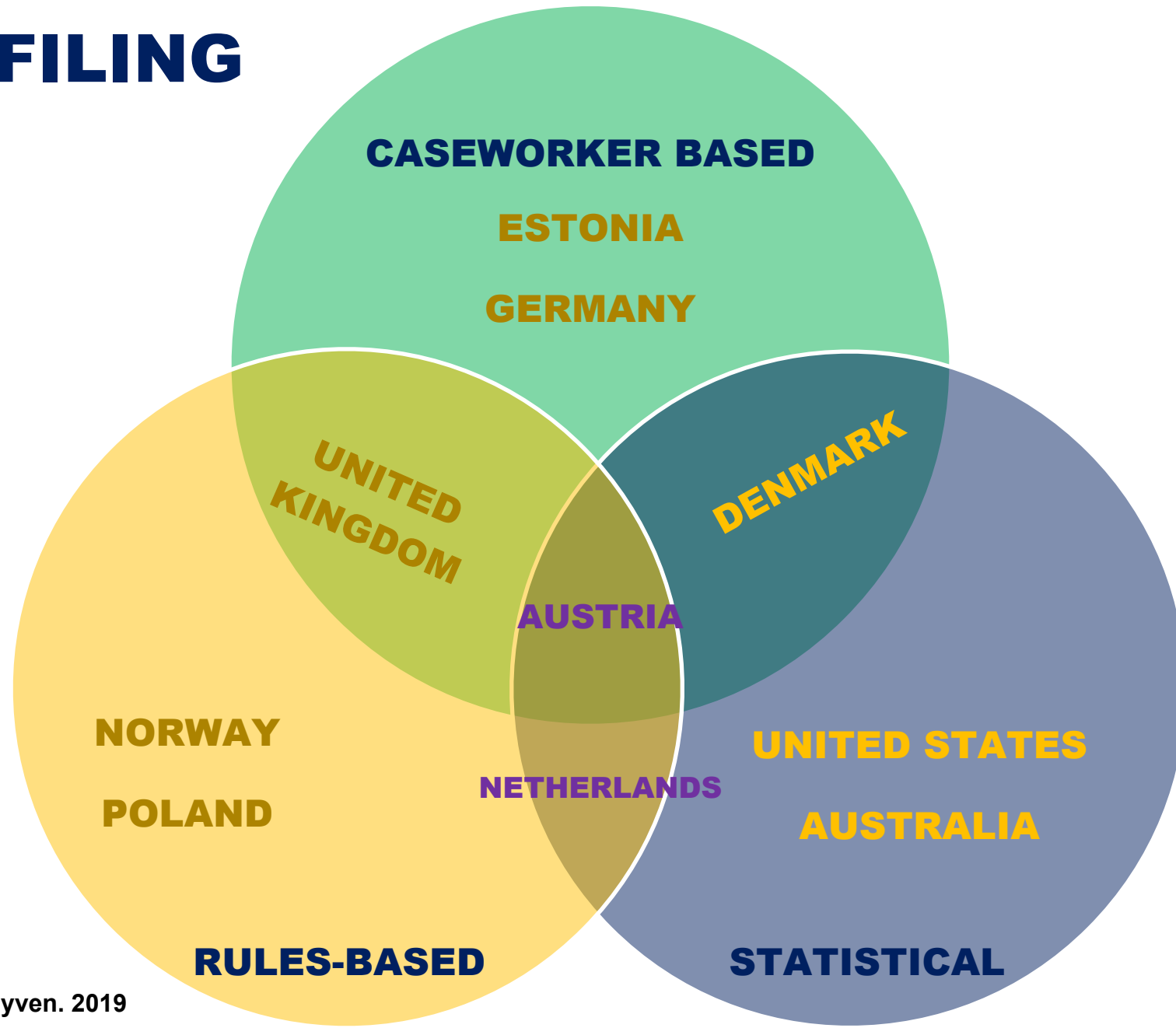
- The greater the diversity of applicants being served by the PES, the greater the necessity of a more complex profiling tool to capture the specificities of each group while saving public resources

ANNEX. OVERVIEW OF PROFILING PRACTICES IN OECD COUNTRIES

CASE STUDIES



OVERVIEW OF SOME OECD PROFILING SYSTEMS



NAMES, USES AND TYPES OF PROFILING PER COUNTRY

Country	Name/ description of profiling tool	Uses					
		Diagnostics	Targeting	Process steering	Matching	Labor statistics	
S. Korea	Qualitative profiling	✘	✘		✘		CASEWORKER-BASED
Germany	4-Phase Model	✘	✘	✘	✘		
Slovenia	Qualitative profiling	✘	✘				
Denmark	New Matching System	✘	✘		✘		
Ireland	Probability of Exit	✘					DATA-ASSISTED*
Sweden	Assess. Support Tool	✘					
Netherlands	Work Profiler	✘				✘	
Denmark	Job Barometer	✘	✘		✘		
Finland	Statistical profiling	✘					
United States	Worker Profiling and Reemployment Service	✘	✘	✘	✘		STATISTICAL
Australia	Job Seeker Classification Instrument	✘	✘	✘	✘		
Canada	Service and Outcome Measurement System	✘	✘	✘	✘		
Switzerland	Statistically Assisted Program Selection	✘	✘				

WHAT IS MEASURED, WHERE DOES THE DATA COME FROM? WHAT IS THE ACCURACY AND HOW DO CASEWORKERS USE THE STATISTICAL TOOL

Country	Profiling system	Name of profiling system/ model	Outcome (probability of)	Data derived from	Accuracy	Use by caseworker
Austria	Statistical profiling	PAMAS: Personalisiertes Arbeitsmarktchancen-Assistenzsystem ("Personal labour market opportunities - assistance system")	Labour market integration probability (high: 3 months of unsubsidised employment within 7 months; low: 6 months of unsubsidised employment within 24 months; middle: all other outcomes)	Administrative data	80%-85%	Voluntary
Belgium (Flanders)	Statistical and caseworker based profiling	Next steps	Long-term (>6 months) unemployed	Administrative data; "click" data	Accuracy: 67% (AUC about 76%)	Compulsory
Denmark	Statistical profiling	Profilafklaringsværktøjet ("the profiling tool")	Long-term (>26 weeks) unemployed	Online questionnaire; Administrative data	>60%	Voluntary
Ireland	Statistical profiling	Probability of Exit (PEX) model	Probability of exit to employment within 12 months	Questionnaire as part of benefit claim process, administrative data	70% - 86%	Compulsory
Netherlands	Statistical profiling	Work Profiler	Long-term unemployed (12 months)	Online questionnaire	70%	Compulsory

AUSTRIA PROFILING SYSTEM

(Type of profiling)	Statistical profiling
Approach	Logistic regression
Introduction	Introduced in 2018 and evaluated in 2019
Data source	Use of existing administrative data sources only, including socio-economic variables, information on job readiness, and opportunities, and labor market history (if available)
What is measured (probability of)	Labour market integration probability (high: 3 months of unsubsidized employment within 7 months; low: 6 months of unsubsidised employment within 24 months; middle: all other outcomes)
Outcome	Criteria that were used for the segmentation: 1. for those with a high labor market probability: at least 66% of probability to be employed in the short-term (80 days of employment within the following 7 months) 2. those with low probability: less than 25% of probability of being employed for 180 days over the next 2 years
Questionnaire	No questionnaire is used
Use	The tool shall help to promote early intervention, improve diagnostic, counselling and matching and to make a more efficient use of budget through better targeting. However, case workers are allowed to overrule the classification of the statistical tool
Monitoring and upgrading / Governance	AMS is not a subject of ministerial directives but the Federal Ministry for Employment, Social Security and Consumer Protection lays down the main guidelines and objectives for LMP. Government representatives are part of the administrative board. Employers and workers are integrated into the decision-making process as well, they hold the majority

UK PROFILING SYSTEM

(Type of profiling)	Soft profiling: a mixture of rules-based (time and eligibility) and caseworker-based profiling where jobseekers are segmented by caseworkers, but no systematic approach is adopted.
Approach	Caseworker's assessment
Introduction	Jobcentre Plus was first introduced in October 2001
Data source	Interviews from caseworkers and a few features from administrative data, such as time claiming JSA
What is measured (probability of)	Long-term unemployment (12 months) for Work Programme and less than 12 for JCP
Outcome	Caseworker's assessment
Questionnaire	Interview with caseworker, which will assess during which time they will have to agree, and commit to, a work plan that will detail what steps will be taken to find work (such as improving skills) and improve their chances of gaining employment (such as getting help with writing a CV, preparing for interviews and looking for work)
Use	Through a process of rules-based and caseworker-based profiling with high caseworker discretion, jobseekers are offered individualized support to return to the labor market. Vulnerable groups include the long-term unemployed, people on sickness benefit, those aged over 50 years and young people not in education, employment and training
Monitoring and upgrading / Governance	JCP performance used to be measured through a system of targets, including job outcomes, interventions completed on time, claimant and employer service satisfaction, reduction of fraud and error, and clearance time targets for processing of benefit claims. JCP now operates with only two targets: i) off-flows from benefit and ii) reducing the monetary value of fraud and error. Even though providers enjoy relative freedom, DWP's scrutinizes providers' financial position and caps revenues as providers are expected to spend on services up to a point where they neither suffer losses nor achieve excessive profits.

AUSTRALIA PROFILING SYSTEM

(Type of profiling)	Statistical profiling
Approach	Logistic regression
Introduction	Introduced in 1998
Data source	Interview / questionnaire (most of it) / administrative data
What is measured (probability of)	Long-term unemployed (12 months)
Outcome	JSCI issues an individual score to applicants, who are then directed to different segments of employment services according to their predicted difficulty to re-enter the job market. The JSCI is used to determine the best level of employment servicing for the job seeker. For example, under jobactive, the JSCI is mainly used to determine a job seeker's eligibility for Streams A and B and to identify job seekers who have complex or multiple barriers to employment that may require further assessment through an Employment Services Assessment (ESAt).
Questionnaire	Upon registration, a questionnaire is applied to each jobseeker. The questionnaire consists of 49 questions overall, of which the individual must fill at least 18. The questions were previously only asked and answered through the phone or personally. Recently, the Australian government started switching to an online-based questionnaire
Use	It is compulsory for caseworkers in Australia, from all employment services awarded by the government, to use the profiling system. The JSCI is also used to identify job seekers: a) who may benefit from a referral to a DHS social worker (e.g. with disclosed domestic violence, family grief or trauma) b) with lower English language, literacy and numeracy skills who may benefit from the Skills for Education and Employment or Adult Migrant English Programs c) with unrecognized overseas qualifications who may require further information on Assessment Subsidy for Overseas Trained Professionals.
Monitoring and upgrading /	The evaluation will be undertaken by the Evaluation, Research and Evidence Branch (EREB) within Department of Employment and will deliver three reports: an Interim Evaluation Report; a Meeting Employer Needs Report; and a Final Evaluation Report.

NETHERLANDS PROFILING SYSTEM

(Type of profiling)	Statistical profiling
Approach	Logistic regression
Introduction	Introduced in 2013
Data source	Online questionnaire. Includes Hard Skills, Soft skills, Jobseekers' behaviour questions
What is measured (probability of)	Long-term unemployment (12 months)
Outcome	There are two outcomes from this profiling: the first is a percentage, which assesses the probability to resume work within 12 months of unemployment. 0% being the lowest and 100% being the highest probability for return to work. The second is a quick diagnosis, indicating strong points and weaknesses from the user's profile. This is used by the UWV (NL PES) to offer tailored services to the job-seeker
Questionnaire	Jobseekers need to respond to twenty statements ranging from their vision on return to work to their job search intentions
Use	<p>1) Selection: The client's chance of work resumption within a year will be employed to determine whether the job-seeker will be offered computerized or face-to-face services. 2) Quick diagnosis: UWV utilizes the outcome of the Work Profiler to offer tailored services which will increase a client's chances of reemployment.</p> <p>It is at the discretion of the caseworker to discuss this outcome during the face-to-face discussion and on a case-by-case basis. However, this profiling is of compulsory use to caseworkers. The caseworker no longer leads the jobseeker's re-integration process into the labour market. Moreover, their role has been transformed and requires that they need to be able to understand and act upon the results of the Work Profiler</p>
Monitoring and upgrading / Governance	UWV Centre for Knowledge (KennisCentrum). UWV auto-assesses and improves its mechanisms. They also rely part of their studies on external academic studies by partner universities. Wider reforms go through the Ministry of Social Affairs and Employment.