

Data and AI solutions for Public Employment Services

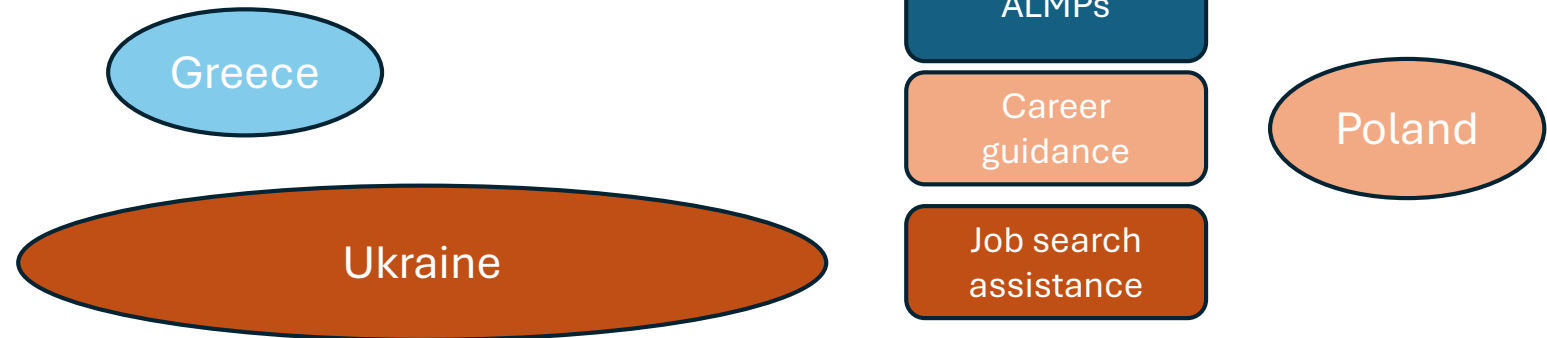
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Introduction

- Public Employment Services (PES) are rapidly turning to AI to develop a range of sophisticated digital tools
- Half of the public employment agencies in OECD countries have implemented AI solutions
 - Range of different tools such as chatbots that assist with service inquiries, profiling models to assess jobseeker needs, tools that guide job-search strategies, and job matching systems
- AI can help these agencies optimize resources and improve service delivery but unlocking the potential of AI tools often requires addressing key implementation factors
- Scant and mixed evidence

PES delivery chain

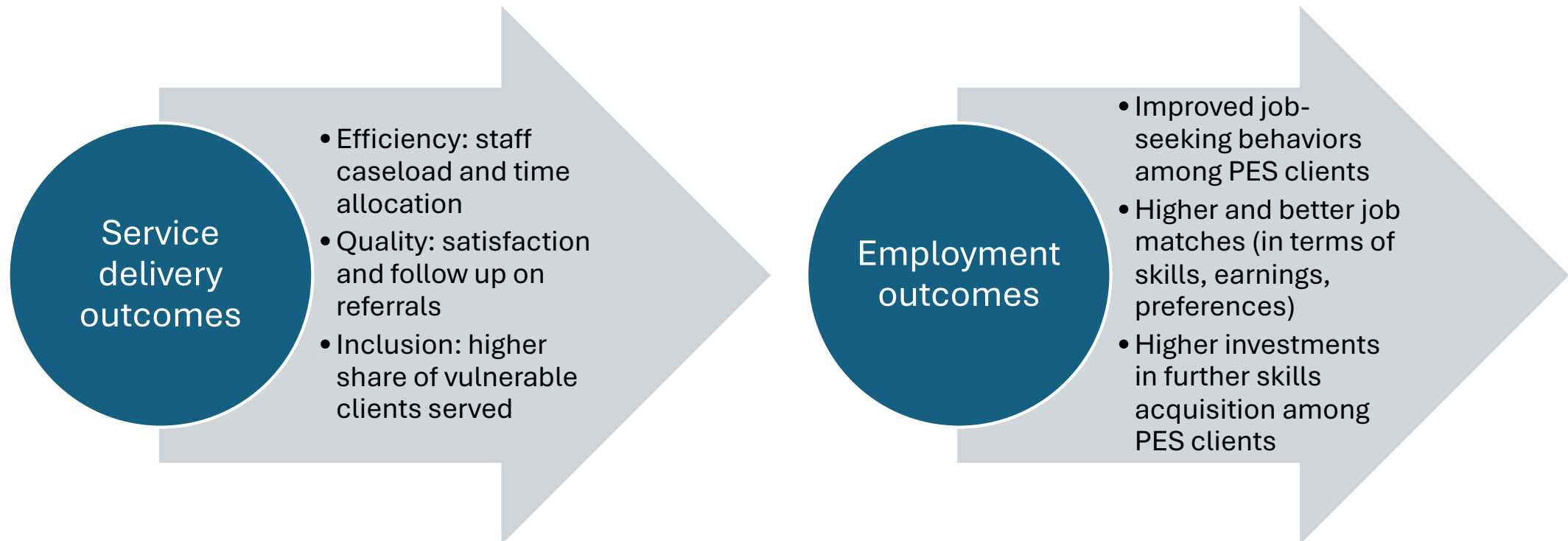


WB support to leverage AI in ECA Public Employment Services

Questions we try to answer

Examples from Poland, Ukraine and Greece

Can AI solutions improve the quality, inclusion and efficiency of PES services compared to rule-based and knowledge-driven approaches adopted by PES job counselors ? And ultimately improve final beneficiaries' outcomes?



Poland: ML-based tool to aid career advise services

Objective: improve career advisory services by job counselors

Intervention: ML-based tool ranking viable job pathways based on (i) similarity with tasks performed in the past 3 jobs; (ii) occupational barometer; (iii) reservation wage; (iv) preferences on geographical distance.

Results (qualitative) of a small pilot with the Pomerania Regional Labor Office:

- *Better quality:* both counselors and jobseekers satisfied with the career advise service supported by the tool as it expanded the list of viable job options to some they had not considered/thought of
- The lack of information on jobseekers' education, skills, and preferences limited the adequacy of proposed occupations relative to the skills and education attainment profile, therefore *the efficiency* of the tool
- Lower educated jobseekers more willing to enroll in training courses recommended by the career advisors

Key lessons:

- Prioritize data governance and quality: the ML-based tool outputs reflect the quality of the data processed ("Garbage In, Garbage Out")
- AI-tool cannot replace key business processes (i.e. skills assessment)

Ukraine : Pilot of a private AI-based platform (SkillLab) to improve profiling and job search assistance services

Objective: pilot and evaluate the effectiveness of an established AI platform to provide different services in conflict-affected contexts (budget constraints, limited human resources, remote delivery of services)

Intervention: Licenses to the SkillLab platform administer by PES offices in Donetsk (remote) and Lviv regions to: (i) profile skills and preferences; (ii) generate comprehensive CVs. In progress: (iii) recommend training courses; and (iv) skills-based job matches.

Results: Increase knowledge in career pathways and skills requirement. Increased awareness and confidence in skills communication among users so far. RTC designed, IE based on administrative data from PES and Pension Fund of Ukraine (formal employment and income).

Key lessons:

- Integration of SkillLab platform with the PES MIS, with the online job portal
- Incomplete data on training provision
- Standard (ESCO) versus national skills taxonomies

Greece: ML jobseeker profiling tool to predict distance to labor market

- **Objective:** help with a chronic problem that almost all agencies face - how to allocate scarce resources across a large pool of jobseekers
 - Greece no exception: very high caseload, make it difficult to provide the support that unemployed workers often need. Jobseekers wait a long time and meetings have a very short duration
- **Intervention:** introduce an ML-based profiling model to estimate the intensity of services that each jobseeker is likely to need
 - Done by predicting a jobseeker's "distance from the labor market", based on personal characteristics, employment history, and the labor market situation
 - Profiling tools are used by virtually all public employment agencies – based on traditional statistical approaches but now increasingly based on ML
- **Results:** ML model was effective in predicting distance from the labor market, capturing complex patterns that traditional models miss
- **Key lessons and considerations:** Need to change business processes, information systems, build capacity; Need for coordination in tool development; Human element in using the tool; Data integration; AI's legal and ethical aspects

Data as a key building block for AI and beyond

AI tools are only as effective as the quality of the data they rely on

- Governments generate vast amounts of data every day through their administrative processes that can support the development of effective AI tools, but making data usable for machine learning is no simple task. This was certainly a challenge in our engagements.
- In Greece, extracting, interpreting, and connecting multiple rich yet poorly documented databases required intensive collaboration between operational and technical teams.
 - Integrated PES databases (jobseekers) with ERGANI (formal employment)
- But benefits large – in Greece, this not only enhanced AI tools but it informed PES service improvements and wider labor market policies:
 - Basic questions such as how long it takes for a jobseeker to have an action plan?
 - What happens to jobseekers after receiving different programs?
 - Understanding the structure and drivers of unemployment (data incorporation into LM diagnostic tool)

Legal and ethical considerations

- AI is still uncharted territory for many governments, with legal and ethical challenges that are tough to navigate – including around bias and discrimination, data privacy, accountability, and the protection of individual rights.
- Even in countries with sophisticated public employment services, missteps have occurred - for example, [Austria's](#) service faced backlash when a chatbot was accused of discriminating against women in providing information on training and career orientation to jobseekers.
- In addressing these challenges, [France](#) stands out for its strong legal and ethical framework, with clear guidelines that govern the use of AI, dedicated oversight teams, and capacity-building initiatives to ensure expertise.

Take-aways

- While our work focused on three applications of AI, it offered some general lessons on how public employment agencies can realize the potential of AI
- AI can be a powerful tool to enhance employment services, but agencies need to carefully consider various factors: data integration; legal and ethical; capacity building; updated business processes and information systems
- Data not only valuable to support AI tools but to inform PES service improvements and wider labor market policies
- It not only about building smarter models, but ensuring they are tailored to solve business needs and that they work in practice through human oversight



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