

1 Assessment and recommendations

Latvia's State Employment Agency (SEA) plays a crucial role in connecting people with jobs. However, the SEA faces tight resource constraints, with Latvia spending little on active labour market policies compared to other countries. Modernising the digital infrastructure of the SEA could help it to better meet the needs of jobseekers, people at risk of unemployment and employers. The SEA should develop a clear digitalisation strategy to guide its modernisation pathway, fine-tune its operational IT system especially with respect to cyber security, and develop a modern data analytics system. Learning from other countries, the SEA could additionally increase the effectiveness and efficiency of its specific digital tools, such as those to profile jobseekers and their skills to generate a better understanding of their needs for support, as well as the algorithm to match jobseekers and vacancies to better meet the needs of a changing labour market.

1.1. The State Employment Agency has a crucial role to support the Latvian economy and it needs sufficient resources to do so

The labour market in Latvia has improved in recent years with a growing economy translating into wage increases and lower levels of unemployment. Latvia's economy slowed after Russia's war of aggression against Ukraine began, but growth has since resumed, and the inflation rate has fallen considerably since a peak of 22.2% in September 2022 year-on-year to 1.0% in November 2023. The employment rate in the third quarter of 2023 at 71.4% among 15-64 year-olds was still below its level before the COVID-19 pandemic but remains higher than the EU average of 70.4%. Over the medium to longer term an ageing and declining population underscores the importance of supporting the available workforce to sustain growth in the Latvian economy. This challenge requires ensuring that skills supply meets changing skill demands in the context of the digital and green transitions, and enabling an access to good jobs for groups that currently fare worse on the labour market, such as people with disabilities, youth, older workers, women and people living in remote areas.

The State Employment Agency (SEA), Latvia's public employment service, has a crucial role to play in connecting unemployed persons and persons at risk of unemployment with good jobs. However, spending on active labour market policies (ALMPs) in Latvia remains low at 0.14% of GDP in 2021 (compared to 0.45% and 0.53% in the OECD and EU, respectively). Such low spending translates into less capacity at the SEA, with low wages for the SEA staff, a high number of jobseekers per counsellor, and less funds available for measures that can support jobseekers into employment such as training and wage subsidies. Partly due to Latvia relying mostly on project-based funding sources for its ALMPs from the European Union, ALMP participation has fallen in both absolute numbers and relative to the number of unemployed from around 16 700 participants (23% of the registered unemployed) between January 2017 and June 2018, to 7 900 (11.6% of registered unemployed) between July 2020 and December 2022.

With low levels of ALMP spending, it is crucial that the SEA uses its resources as effectively as possible. Digital tools and processes can enable the SEA to be more efficient and effective. In this regard, the SEA could make several improvements, including upgrading its existing IT infrastructure, improving and automating operational processes, modernising existing PES specific tools, such as its jobseeker profiling tool and vacancy matching platform, and introducing new tools such as for skills profiling.

Regardless of improvements in the digital infrastructure of the SEA, Latvia should consider increasing ALMP funding and wage levels in the SEA using its national budget to ensure a sustainable and sufficient reach of ALMPs and improve labour market outcomes for more jobseekers as well as people at risk of job loss. Investments in ALMPs need to be informed by systematic evaluations of effectiveness and cost-effectiveness of ALMPs and the SEA tools and processes.

1.2. Digitalisation in the State Employment Agency requires a clear strategy

Different elements of digitalisation are discussed in the SEA's general strategy for 2021-23, listing some of the development needs and recognising IT infrastructure as a key prerequisite to achieve the SEA's objectives and increase the effectiveness, efficiency, accessibility and user-friendliness of its services.

To address the aspirations for modernisation and the related challenges more systematically and comprehensively, the SEA should consider developing a dedicated digitalisation strategy. The digitalisation strategy should lay out the overall objectives and principles for the SEA's digital transformation, helping to prioritise any related investments. It should also provide a key framework for the modernisation process, particularly regarding ensuring sustainable financial and human resources for IT developments, maximising the value-added of new and updated digital solutions, and managing the risks associated with digital tools.

To maximise the resources available for the digital transformation, the SEA and the Ministry of Welfare (MoW) need to continue applying for additional project-based resources (e.g. EU funding) and co-operate with other Latvian and international organisations. To maximise the value-added and user experience of digital solutions, the SEA needs to introduce a monitoring and evaluation framework of digital tools, as well as systematic approaches to involve end-users and receive their feedback throughout the development process and after deployment. Lastly, the SEA's digitalisation strategy should establish a framework on how to manage risks concerning ethics, trustworthiness, accountability, transparency, fairness, data protection and system security. It should aim to adopt modern development methodologies and ensure that competitive proposals are received for choosing the development partners for the IT projects.

1.3. The operational IT system of the State Employment Agency needs fine-tuning to make it secure, efficient and future-proof

Overall, the IT backbone of the SEA performs adequately its main tasks, such as registering jobseekers, managing services and measures, registering vacancies, and matching jobseekers and vacancies. Also, the high-level architecture of the system generally meets the operative needs of the SEA. Although the SEA does not have an urgent need to fundamentally change or replace its main operational IT system in the near future, some fine-tuning should be carried out, as the system is not fully efficient, modern, and entirely future-proof regarding the potential needs to develop new functionalities. The more concerning challenges of the SEA IT system are related to system and data security and data quality management.

To future-proof the IT system, facilitate development processes, increase system security and enable working with several development partners, the SEA should move to a more modular architecture of the main IT system, above all regarding any new digital solutions. The current “monolithic” set-up of the main operational IT system in the SEA is more likely to break down during upgrading and deploying new features than a more modular system with well-defined interactions among its modules.

The SEA should deploy a modern Application Programming Interface (API) management tool to create an abstraction layer between internal and external systems and thus manage data security risks in data exchange processes. Currently, some of the interfaces for data exchange in the SEA IT system enable direct access to the main operational database, which reveals the database structure to the external parties and creates direct coupling, thus making the maintenance of the SEA operational system harder than necessary and creating system security risks.

To further increase system security (and system performance), the SEA should also introduce network-level segmentation (divide its computer network into smaller parts), update its technology stack regularly, implement a dedicated tool to monitor system performance and security in real-time, limit the access to the SEA production environment and implement comprehensive and frequent testing of vulnerabilities. Additionally, the SEA could consider implementing automatic code scanning to detect known security problems and vulnerabilities, and automatic software deployment to better avoid errors in system updates. Overall, the SEA needs to aim at more continuous systematic processes throughout system security management to enhance monitoring, logging, testing and auditing.

The main operational IT system of the SEA has only limited data quality checks, and data quality issues are mostly managed manually, leading to inefficiencies, possible errors and data security concerns. Yet, data quality affects all aspects of the SEA operations, and therefore the SEA should manage more systematically data quality issues. The SEA needs to adopt an official process to manage data quality issues and a data quality standard to define quality target levels. In addition the SEA should assign clear ownerships of all sets of data in its databases. To increase efficiency in data quality management, the SEA needs to implement system-wide controls over input data and an automated system to analyse data quality, enabling to monitor the data in the system and report any issues detected, as well as potentially automatically fix some types of issues.

1.4. Adopting a modern data analytics solution would help the State Employment Agency better meet the needs for evidence-based policy design and implementation

The SEA, in co-operation with the Ministry of Economics, has set up an interactive digital tool to disseminate labour market forecasts – the Labour Market Forecasting Portal. The platform is publicly available and a good source of information covering various indicators for the short-, medium- and long-term. Other than the forecasting platform, the SEA does not use modern data analytics solutions to generate and disseminate statistics and analysis. The statistics team in the SEA is making the best out of the current solution to support evidence-generation, given that it is only able to use limited and inflexible tools to query and process data from a copy of the operational database. In addition, the production of statistics and analysis is mostly a manual process, which is inefficient and error-prone, and does not fully meet the need for data and analytics, and exhibits various data protection concerns.

The SEA needs to adopt a modern solution to meet the needs for statistics, analysis and data internally and of external stakeholders, where key components are a data warehouse and a Business Intelligence (BI) tool. A data warehouse is a central repository containing structured and semi-structured data from one or more data sources, designed to support the needs of data analytics. BI tools facilitate querying, presenting and disseminating data from databases (such as data warehouses) efficiently, flexibly, interactively and tailored to the user needs. As of early 2023, PES systems in 74% of OECD and EU countries had set up a data warehouse to facilitate data analytics, and 76% were using a BI tool to produce statistics and analysis, and support data analytics more generally.

Using a data warehouse for data analytics rather than a copy of the SEA's operational database meets the needs of data analytics better, as the data structure and content in the data warehouse does not need to follow the same administrative logic as in the operational database. Furthermore, the data warehouse would enable the use of additional data sources for analytical purposes, providing the technical possibility to use for example employment and wage data of jobseekers to analyse their labour market pathways after leaving the SEA register. In addition, a data warehouse could potentially contain only anonymised or pseudonymised data, and thus help the SEA better comply with data protection regulation when processing data. Furthermore, adopting a data warehouse would decouple the operational and analytical systems, and thus would not affect each other's performance in case of heavy workloads, and would also provide a secure channel to share data with external partners.

BI tools would enable the SEA statistics department to automate the production and visualisation of all regular statistics, and implement ad hoc queries flexibly. This would also allow other units in the SEA like the management and regional offices to have key information automatically available in an easily comprehensible format that enables visualisations and tailoring to their needs. In addition, a BI tool could be used to disseminate data and statistics in a user-friendly and flexible way externally.

1.5. The jobseeker profiling tool needs to be refined to strengthen its reliance on data and evidence

The SEA uses a simple and transparent rules-based jobseeker profiling tool to support counsellors in choosing appropriate services for jobseekers, aiming to provide more intensive service for those further from the labour market. The profiling tool divides jobseekers into three groups based on their proximity to the labour market by counting the number of risk factors each jobseeker has, relying on the information provided by the jobseekers during their first counselling session. The profiling tool's categorisation of jobseekers into three "employability" risk groups is mostly aligned with the intended risk groups as the profiling scores very broadly correspond to different probabilities for long-term unemployment. The

implementation of the jobseeker profiling tool is not fully aligned with service provision, as ALMPs designated for those with medium or low employment prospects are more frequently undertaken by those with high employment prospects. Furthermore, the use of the jobseeker profiling tool has decreased among counsellors in past years.

The SEA should analyse the objective of its jobseeker profiling tool and its implementation to understand its potential use-cases and value-added, and thus increase take-up among counsellors. Investments in the profiling methodology and design would be useful only if the value-added of the profiling results are clear and useful for service provision. For example, a possible approach for the SEA would be to use the results of the profiling tool to push back the initial counsellor meeting for carefully selected groups of clients to better manage the scarce counselling resources of the SEA.

Moreover, the SEA should integrate the jobseeker profiling tool into its digital infrastructure to increase its efficiency and usefulness, and thus encourage its take-up among counsellors. For example, information available on jobseekers from other registers could be feed into the jobseeker profiling tool automatically in addition to subjective, survey-based sources. The SEA should also aim to retain the detailed information on the individual-level risk factors from the profiling tool by administering the profiling questionnaire via a secure online survey (ideally a jobseeker interface integrated into the SEA's online tools), with the individual responses shared with the SEA counsellors (ideally via the counsellor interface).

The SEA should also aim to further increase the accuracy of the jobseeker profiling tool. In the short term, the SEA could revise the profiling questionnaire to incorporate questions that have been scientifically cross-validated via rigorous empirical analyses and assign weights to each of the questions to calculate a profiling score following evaluations or using results from other countries. In the longer term, the SEA should adopt a more sophisticated profiling tool that would provide detailed insights into factors influencing a jobseeker's score and suggest specific actions to enhance a jobseeker's employability through, for example, participation in training. Considering the capacity and budget constraints in the SEA, a profiling tool based on an established statistical technique rather than Artificial Intelligence (AI) technology may be the more feasible approach.

1.6. A modular knowledge-based skills profiling tool could better inform support needed by jobseekers

A better understanding of jobseeker skills would better inform service provision to jobseekers to help them in their job search strategy, match them with suitable vacancies, refer to upskilling and reskilling measures, and support them in their career management. The SEA is looking into implementing skills profiling tools to support counsellors to better and more quickly understand their clients, and to help jobseekers gain self-knowledge of their skills and interests, as well as explore ideas for occupations they should seek.

As the accuracy of skills profiling is highly relevant for the SEA to inform training decisions, knowledge-based tests could be part of skills profiling, rather than subjective self-assessments. Also, as it is relevant for the SEA to profile different types of skills, a more modular approach rather than a single test may be more suitable. In this case, jobseekers would take only those tests that are more relevant for them. Furthermore, the SEA can then develop the skills profiling tool gradually and add new modules assessing different skill areas when the skills profiling tool is updated.

As one feasible possibility, the SEA could consider adopting the OECD's Education and Skills Online to profile the skills of jobseekers, people at risk of job loss and the adult population more generally. The future design of this tool could be integrated into the SEA's processes to understand their clients' needs for support. This could include new modules to cover the key skills needed on the Latvian labour market. For example, the future design of the OECD's Education and Skills Online may include modules on skill use at work, digital skills, and financial literacy amongst others.

1.7. Moving towards a more competency-based vacancy matching tool would better meet the changing needs of the Latvian labour market

As one of the key tasks of the SEA is to both support jobseekers find suitable jobs and help employers find the staff they need, the SEA has developed a digital solution to match jobseekers and vacancies that can be used by counsellors in-house, as well as by jobseekers and employers independently on the public platform (Curriculum Vitae and Vacancy Portal, CVVP). The matching algorithm used by the SEA is transparent and straightforward for the different user groups and thus generally caters to their needs, enabling the SEA to mediate around 80% of vacancies available in Latvia.

To further strengthen the performance of the vacancy matching tool and better cater to the changing needs of the labour market, the SEA should aim to increase the competency-based component in its matching algorithm. As the first priority, the SEA could introduce those competencies in the job matching tool that are considered to be of key importance on the Latvian labour market and tested in the new skills profiling tool. It is important to aim at covering the key competencies and skills systematically in the vacancy matching tool to avoid biased and thus unusable matching results. As such, the SEA should link the skills and competencies to be introduced in its vacancy matching algorithm to a skills taxonomy, ideally the ESCO taxonomy (European Union's employment, skills, competences, qualifications and occupations taxonomy).

Enhancing the SEA's job matching tool additionally with AI technology would bring several potential benefits. This would include: strengthening competency-based matching and fully integrating the ESCO taxonomy; performing higher quality and more personalised matches; providing a better overview of possible career choices for jobseekers; and making the tool more intuitive and user-friendly. It would, however, require additional resources and learning from other countries. Therefore, the SEA could aim at this more advanced solution in the long run, aiming to adopt an AI-based job matching tool that uses competencies, jobseeker interests and labour market information to match jobseekers and vacancies. Nevertheless, smaller adaptations to increase the tool performance could be made already in the near term, such as allocating more server capacity to increase the speed of providing matching results, adding key competencies in the matching algorithm, displaying full matches and near matches for the users in a comprehensible way, as well as enhancing user experience within the tool design more generally.

Although not a key priority in the short term, the SEA could consider additional digital solutions in the future to further strengthen its services to jobseekers, people at risk of job loss and employers, particularly in terms of better matching labour demand and supply. Learning from other countries, these solutions could help the SEA to increase the pool of vacancies mediated in its platform (e.g. web scraping technologies), help employers to fill vacancies for bottleneck occupations (e.g. predict hiring needs, assistance in designing job vacancies) and better deliver career management services (e.g. recommender tools for comprehensive career pathways).

Key policy recommendations

Develop a digitalisation strategy for the SEA and support it with key frameworks for a sustainable modernisation pathway

- Develop a dedicated digitalisation strategy that clearly and comprehensively sets out the objectives, principles and frameworks for the SEA's digital transformation.
- Continue to seek additional project-based resources (e.g. EU funding) and mutual learning processes with other Latvian and international organisations to maximise the resources available for the digital transformation.
- Establish mechanism to maximise the value-added and user experience of the SEA's new and updated digital solutions, such as a monitoring and evaluation framework for digital tools and systematic approaches to involve end-users and their feedback throughout the development processes and after deployment.
- Introduce a modern IT development methodology (e.g. DevSecOps) for new development projects to achieve more agile development processes that address system security already in the initial stages.
- Consider possibilities to adjust procurement processes to receive competitive proposals for IT projects and ensure sufficient and flexible external development capacity.

Fine-tune the operational IT system of the SEA

- Move to a more modular architecture of the main IT system to facilitate development processes, increase system security and enable working with several development partners.
- Introduce network-level segmentation (divide a computer network into smaller parts) to improve system security and network performance.
- Upgrade outdated software in the technology stack for up-to-date versions before their support (e.g. for security fixes) ends.
- Consider automatic software deployment to avoid errors in system updates, facilitate rolling back in case necessary, and remove the need for developers to access the SEA production environment and thus increase system and data security.
- Deploy a modern Application Programming Interface (API) management tool to create a buffer between internal and external systems and thus manage data security risks in data exchange processes.

Improve data management practices

- Define an official process to manage data quality issues. Agree on a data quality standard, including target levels and acceptable variation in data quality, and clearly define ownerships of all sets of data in the SEA's databases.
- Implement system-wide controls over input data that enable a singular point of validation of each data element.
- Implement an automated system to analyse data quality, enabling the monitoring of the data in the system and the reporting of any issues detected, as well as potentially automatically fixing some types of issues.

Strengthen system security

- Limit the access to the SEA production environment to only very few administrators in the SEA and log their actions rigorously.
- Test the SEA's systems against the new discovered vulnerabilities more frequently, potentially using automated testing services available on the market.
- Consider implementing automatic code scanning to detect known security problems and vulnerabilities in codes used in the systems, as well as already before these are deployed.
- Implement continuous systematic processes throughout system security management, such as in monitoring vulnerabilities, monitoring system access, auditing access rights and risk management.

Introduce a data warehouse solution to benefit data analytics

- Adopt a separate data warehouse for analytical purposes to better fit the data models and content for analytical purposes, bring in additional data sources, comply with data protection regulation and decouple the operational and analytical systems.
- Consider using the data warehouse solution to make some data securely available to specific user groups, partners or other external stakeholders, without a possibility of leaking data not meant to be shared.

Automate data analytics using Business Intelligence tools

- Adopt a Business Intelligence (BI) tool to enable the SEA statistics department to automate the production and visualisation of all regular statistics and implement ad hoc queries flexibly. Make key information available for the SEA management and regional offices in an easily understandable and flexible format, i.e. dashboards.
- Connect the BI tool to the data warehouse solution to access data that are suitable for analytics purposes, not to affect the performance of the operational system, as well as avoid having to make adjustments in the BI tool when changes are implemented in the operational database.

Refine the design and implementation of the jobseeker profiling tool

- Use the jobseeker profiling tool to identify jobseekers who are likely to become employed quickly and may not require an immediate meeting with counsellors within the first 30 days of becoming unemployed.
- Feed information from administrative sources automatically into the jobseeker profiling tool in addition to subjective, survey-based sources.
- Retain the detailed information on the individual-level risk factors from the profiling tool by integrating the tool into the SEA digital infrastructure.
- Revise the profiling questionnaire to incorporate questions that have been scientifically cross-validated via rigorous empirical analyses and assign weights to each of the questions to calculate a profiling score following evaluations or using results from other countries.
- In the longer term, aim at adopting a data-driven profiling tool that would provide detailed insights into factors influencing a client's score and suggest specific actions to enhance a client's employability.

Introduce a skills profiling tool to test key skills relevant on the Latvian labour market

- Consider implementing skills testing (rather than subjective self-assessment) for those skills for which the accuracy of skills profiling is highly relevant.
- Adopt a modular approach rather than a single test to cover different types of skills in the profiling tool.
- Consider adopting the future version of the OECD's Education and Skills Online to profile the skills of jobseekers, people at risk of job loss and the adult population more generally.

Enhance the performance of the job matching tool

- Move gradually towards a more competency-based matching algorithm to better identify good matches between jobseekers and vacancies, starting from key competencies and those tested in the new skills profiling tool and relying on ESCO taxonomy to ensure a systematic approach.
- Consider smaller adaptations to increase the tool performance in the near future, such as allocating more server capacity to increase the speed of providing matching results, adding key competencies in the matching algorithm, displaying full matches and near matches for the users in a comprehensible way, as well as enhancing user experience within the tool design more generally.
- In the long-run, aim at adopting an AI-based job matching tool that uses competencies, jobseeker interests and labour market information to match jobseekers and vacancies.
- Consider supporting the job matching tool with other (advanced) digital solutions in the future to increase the pool of vacancies available for jobseekers, help employers to fill vacancies for bottleneck occupations and better deliver career management services.

Increase the capacity of the ALMP system

- Invest in the SEA's digital tools and staff capacity. In particular, invest in the IT department of the SEA to ensure sufficient capacity to steer the digital transition and manage the projects with the external contractors.
- Increase ALMP funding from the national budget to expand the reach of ALMPs and improve labour market outcomes for more jobseekers and people at risk of job loss, and ensure sustainable resources for ALMPs.
- Continue conducting ALMP impact evaluations systematically to ensure effective and efficient ALMP provision and strengthen the business case for increasing ALMP funding and resources for the SEA.



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