Piloting a new digital profiling system

CLOSE COOPERATION BETWEEN THE PES AND A SCIENTIFIC ORGANISATION TO DEVELOP, IMPLEMENT AND ROLL OUT A NEW DIGITAL PROFILING SYSTEM.

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Following the second Benchlearning cycle in 2017, the Portuguese PES (IFEP) looked for a way to implement a holistic and dynamic profiling system integrating data analytics with jobseekers' qualifications and counsellors' assessments.
After a period of consultation, IFEP started a partnership with a research team at NOVA School of Business and Economics to develop an intelligent unemployment management system. They developed a new profiling system based on big data approaches using machine learning algorithms. The finalisation of the project has been delayed due to the COVID-19 pandemic.

Name of the PES	Instituto do Emprego e Formação Profissional (IEFP)
Scope of measure (a pilot project or a national reform)	Pilot project
When was the practice implemented?	The cooperation with NOVA School of Business and Economics started in 2019 and was finalised after the successful roll-out of the new profiling system in March 2021.
What was the driver for introducing the practice? Was it internal or external?	One important driver has been the recommendations of the external assessment team in the second Benchlearning cycle in 2017 to revise the profiling system and implement a Big Data approach. As a result of the collaboration with the summer fellowship of Data Science for Social Good (DSSG) Europe in 2018 and 2019, IEFP started the partnership with NOVA School of Business and Economics in 2019 to develop an intelligent unemployment management system with the new profiling system as a core.
Which organisation was involved in its implementation?	Besides the employment unit of the IEFP, the NOVA School of Business and Economics has been deeply involved in developing, piloting, and rolling out statistical profiling.
Which groups were targeted by the practice?	All unemployed jobseekers should profit from a profiling system, which has been thoroughly tested concerning its accuracy and usability. Furthermore, counsellors should benefit from a tool supporting their work with jobseekers and channel their resources more efficiently.
What were the practice's main objectives?	The partnership between IEFP and NOVA School of Business and Economics aims to develop a roadmap for intelligent unemployment management at the IEFP, with a prediction system that identifies individuals at a higher risk of becoming long-term unemployed (LTU) in its core. The objective of the project has been to develop a system that allows: i. IEFP and its local offices to better identify individuals at a high risk of long-term unemployment, using machine learning algorithms; ii. effectively distribute resources to help as many individuals who need the most support, and iii. track the impact of the support and use this information for future interventions.

What activities were carried out?	Firstly, the researchers from NOVA developed a statistical analytical model based on research and data analytics. Secondly, the analytical model was piloted in twelve regions using both the old profiling system as well as the new analytical model. Four different approaches concerning provided information have been tested to identify the most efficient way of implementation. Besides observing the analytical results, counsellors' feedback and satisfaction within the twelve pilot regions have been assessed using surveys and focus groups. The final decision has been based on the results from the pilot. Roll-out of the new digital profiling tool nationwide to PES has been accompanied by training actions and workshops communicating the benefits of the new system to counsellors.
What resources and other relevant organisational aspects were involved?	Twelve employment services worked throughout the testing phase with two different pilot systems. Furthermore, the counsellors took part in meetings and focus groups as well as responded to a survey to give their feedback on the new system. A research team accompanied the whole process from programming the algorithms, developing the concept for piloting, implementing the pilots, assessing the results and, finally, planning and implementing the roll-out. The cost of developing the computer interfaces was €10,200.
What were the source(s) of funding?	The IEFP budget supported the development of interfaces that are made available as tools for technicians. NOVA School of Business and Economics funded the development of work related to the creation of the mathematical model through its application to the Science and Technology Foundation.
What were the outputs of the practice: people reached and products?	Through the pilot a new profiling system has been successfully tried and rolled-out nationwide to PES until March 2021 despite some delays due to the COVID-19 pandemic. The elaborated approach integrating researchers in the whole process from developing the algorithms, conducting the pilot, adjusting the algorithms according to the results and feedback given by involved counsellors to rolling-out the new system can be a blueprint for testing major changes in the approach.
What outcomes have been identified?	The efficiency and effectiveness of the new system has been thoroughly assessed by a rigorous scientific approach. The participative approach integrates counsellors' feedback to improve statistical analytics and machine learning algorithms.
What are the lessons learnt and success factors?	The close partnership with NOVA School of Business and Economics involving the research team throughout the whole process of developing, testing and rolling-out a new system secures evidence-based decision-taking. Staff involvement during the pilot and the roll-out supported acceptance of the new profiling system. The algorithm has been calibrated using pre-pandemic data. This could impair the effectiveness of the model's prediction at least in the first months of usage.

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