JobTech Development

AN OPEN, FUNCTIONAL, AND DIGITAL INFRASTRUCTURE FOR THE SWEDISH EMPLOYMENT AND EDUCATIONAL ECOSYSTEMS.

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JobTech was implemented as a response to the lack of a unified, open, and functional digital infrastructure for both the Swedish labour market and the educational system. Additionally, the practice addresses the challenges of improving skills development and expanding lifelong learning opportunities, while reducing skill mismatches. The infrastructure also aims to create a functioning person-centred data ecosystem whereby the individual can reuse verified data across platforms and services. This helps to increase labour market transparency and to strengthen the connection between employment and educational systems.

Name of the PES	Arbetsförmedlingen (Swedish Public Employment Service)
Scope of measure (a pilot project or a national reform)	National
When was the practice implemented?	The JobTech unit was established in April 2018. JobTech Development has been implemented through a lean start-up method and is now an established part of the Swedish Public Employment Service. The idea began in 2016 as an initiative to improve cooperation around open data. The initiative, now run and driven by Arbetsförmedlingen's JobTech Unit, is still evolving today.
What was the driver for introducing the practice? Was it internal or external?	The (Swedish) labour market is changing faster than ever and offers hundreds of digital guidance and matching services. To help people navigate and find each other, the services need to communicate and adapt to new needs. This requires a new form of digital infrastructure. JobTech Development is Arbetsförmedlingen's investment in a sustainable and common infrastructure for digital matching services in Sweden. It is based on the idea of bridging the various data silos through the adaptation of common technical structures, solutions, and standards. It is a transformation "from ego to eco"! At JobTech Development, we gather matching actors in an open network to collaborate and share data. Here you will find and develop open data, standards, and open-source code that is freely available for everyone to use. Through our community there is the opportunity to discuss, ask questions, show cases, exchange ideas, and contribute to and partake in learnings. The idea to introduce an open and dynamic digital infrastructure for the Swedish employment and educational ecosystems was developed by Arbetsförmedlingen to better support transitions into the labour market.
Which organisation was involved in its implementation?	Today, around 500 organisations are involved in the implementation of JobTech, ranging from large IT companies, small start-ups and single individuals, to municipalities, other governmental organisations, major banks and insurance companies, universities, and schools, amongst others. JobTech has recently received two new governmental assignments: the first focusing on skill supply and lifelong learning; the second on building a national infrastructural building block for personal data portability, reuse, and control.
Which groups were targeted by the practice?	JobTech Development is primarily aimed at two main groups of actors: those within the labour and educational ecosystems. We also collaborate with researchers and other actors who require in-depth insight into the labour market through the utilisation of data or technical innovation.
What were the practice's main objectives?	JobTech's objective lies in the development of a dynamic and highly functional digital infrastructure that supports the bridge between the Swedish labour market and the world of education and training. The newly established digital infrastructure is meant to grow and develop in collaboration with the stakeholders that build their services on the infrastructure. Improving skills development and expanding lifelong learning opportunities, whilst reducing skill mismatches, constitute some of the goals pursued by the practice. Ultimately, the practice aims to support the Swedish labour market. The development of a person-centred data infrastructure has implications outside of the labour and education ecosystems. The application of the technology has the potential to create a new data market across all sectors.

What activities were carried out?	Various pilot projects and governmental assignments both deployed and ongoing within the areas of labour market information, life-long learning, job ads, control and portability of individual data were carried out so far.
What resources and other relevant organisational aspects were involved?	JobTech Development is managed and developed by an X-Unit within Arbetsförmedlingen. The division consists of around 40 employees.
What were the source(s) of funding?	Funding comes primarily from Arbetsförmedlingen's budget, though in the future funding will also be provided through the Swedish Government Innovation Partnership Programme.
What were the outputs of the practice: people reached and products?	Our products are mostly Application Programming Interfaces (APIs) as well as the underlying data these APIs give access to. Most outputs can be accessed through our landing site, along with testimonials from some of our users. Other specific pilots, especially those around the individual's control and management of data, are tested in a Proof of Concept (POC) and followed by pilot initiatives. Currently, there are three deployments in production aiming to scale and standardise the underlying standards and protocols. This work is ongoing in a more recent governmental assignment to develop a common data infrastructure for skill supply and lifelong learning.
What outcomes have been identified?	As of today, we are unable to provide a full cost/benefit analysis. We have extensive collaboration with the Swedish Agency for Digital Government (DIGG) especially concerning API management and data about individuals. We also collaborate with Lund University and the Stockholm School of Economics with regard to analysis. The work is ongoing. DIGG has been doing some estimates about how much the Swedish government can save working with a common digital infrastructure, as well as the increase of GDP as a result of new markets being created. Our practical examples consist of the different APIs that give the market access to the following functions and/or data: ▶ APIs for searching/matching motors; ▶ APIs for enriched Job-ads, collected from public and private actors; ▶ Taxonomy database and API with relevant labour market information, for example job titles, competence concepts, or the connection between professions and skills. Structured according to the Standard for Swedish Occupational Classification (SSYK) mapped with the standard European Skills/Competences, Qualifications, and Occupations (ESCO); ▶ APIs that combine various data sources for employer forecasting and career guidance services.
What are the lessons learnt and success factors?	The importance of a lean-agile and open approach to work, where the goal is to facilitate, not to colonise. The underlying unit exists solely for the benefit of the ecosystem and its actors, and must not become a self-serving organisation. Transparency and openness are essential, both in culture and operations. Focus on understanding problems at first. Solving these problems is secondary after understanding, and should always occur as a mutual and collaborative initiative. The culture within the unit aims to continually challenge our assumptions and provide proof of value for the ecosystem. This needs to be done as efficiently as possible in line with lean start-up principles, thereby ensuring a cost-effective investment practice as well as the ability for the underlying systems to maintain a dynamic in line with the development of the various ecosystems involved.

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