NOTES

Seminars of the Big Data Knowledge Hub

Connecting Big skills-data and Personal skill-data

Notes of the online seminar promoted by the Big Data Knowledge Hub of the European Network on Regional Labour Market Monitoring (ENRLMM). March 21, 2024

The sixth of the Seminars of the Big Data Knowledge Hub took place on March 21, 2024. The aim of these series of seminars is to offer an opportunity to deepen the Network's knowledge on how to use Big Data for labour market research and consulting by presenting practical cases and demonstrations.

The Seminar included a presentation by **Ludger Weller** (partner at SkillLab) who presented the project "Connecting Big skills-data and Personal skill-data".

The open discussion counted with the participation of: **Aleksandra Webb** (University of the West of Scotland, UK), **Claudia Plaimauer** (3s Unternehmensberatung GmbH) and **Aleksandar Kostadinov** (Researcher at IDEI- Skopje).

Introduction

Eugenia Atin (Speaker of the Big Data Working Group of the ENRLMM) after the initial greetings and thanks to the participants, contextualised the session in the work being done by the Big Data Working Group of the ENRLMM (European Network on Regional Labour Market Monitoring).

Aleksandra Webb (Member of the Scientific Committe of the ENRLMM), then welcomed the participants in the name of the European Network on Regional Labour Market Monitoring (ENRLMM) http://regionallabourmarketmonitoring.net/. Our network comprises over 400 members from 20 countries and has been active since 2011. Our primary focus is on monitoring regional and local labour markets to identify trends and address labour market issues collabouratively. We're particularly interested in exploring different data sources and methodologies for monitoring shifts in labour supply and demand. Since around 2015, we've been increasingly intrigued by the potential of big data for labour market monitoring purposes. Our working group was established in 2016 to collect examples and explore how big data techniques can be applied in this context. We have resources available through the Big Data Knowledge Hub for our members to access and utilize. These seminars are a crucial part of our effort to expand knowledge in this area. Each year, the network produces an anthology of papers and hosts an annual meeting. This year, our focus is on skills shortages and mismatches, with the conference scheduled for early September in Lugano, jointly

organized by the State Secretariat for Economic Affairs and the University of Italian Switzerland.

Presentation by Ludger Weller

Ludger Weller is a partner at SkillLab. He holds degrees in Organisational Psychology and Digital Marketing. In his career, he has held management positions at large enterprises like Philips and Randstad Holding and start-ups like Callflex, Hedson, and Byce. With over 25 years in the employment and IT sector, Ludger joined SkillLab in 2021. Ludger came to admire SkillLab's technology-driven, skill-based approach from his experience in labour market matching and, coaching career counselors.

Ludger Weller explains that during his career, he worked in companies developing matching algorithms for labour market systems. However, the key challenge he has encountered over the years revolves around complete datasets of a person to be able to match to jobs. You can have the most sophisticated matching algorithms, but without accurate data, they're ineffective. SkillLab, which he encountered in 2018, addressed this challenge head-on with its technology-driven approach to capture skill-data. Today, he will provide an overview of SkillLab's solutions and share real-life projects where their tools have made a difference.

SkillLab empowers employment and career services with technology that creates equitable labour markets through a universal language of skills. They leverage expert taxonomies and AI to understand individuals' unique skills and how they align with the labour market. Over the past six years, SkillLab has grown to about 55 employees, representing nearly 30 nationalities. Their focus is on consolidating fragmented data to provide actionable insights for both job seekers and employers. They collaborate with municipalities, public and private employment services, and other stakeholders to ensure effective implementation.

Their approach begins with expert taxonomies, such as ESCO or O*NET, which provide a standardized framework for skill assessments across different languages. They have partnered with organizations like the Dutch Ministry of Social Affairs and Labour to localize taxonomies and ensure accuracy. By mapping individuals' skills to job opportunities, they facilitate informed career decisions. Their platform also assists employers in identifying skill gaps and refining job descriptions for better matches.

They've developed AI models to personalize the user experience, shaping interviews based on individuals' responses. For example, ESCO has about 3,000 job descriptions and over 14,000 skills knowledge competences attached to these jobs and basically SkillLab (with AI) shapes an interview per person so that depending on the answers, the algorithm takes the person through different paths. This approach earned them recognition, including the Google AI for Social Good award in 2020. Their platform,

accessible as a progressive web app, prioritizes mobile accessibility to reach diverse user groups effectively. They've integrated career interest assessments to enhance user engagement and provide comprehensive career guidance. It's basically rebuilding their CV (their resume) by answering all those questions about skills and those skills come from jobs from education but also from life experiences. As soon as they have 60 to 70 skills per person then they can start doing matching.

SkillLab is more than just an AI company; it's a user-centric platform driving positive outcomes in labour markets worldwide. They remain committed to leveraging technology for social good and empowering individuals to realize their full potential.

As soon as you have your skill profile you can already do the first things in career guidance based on the taxonomy: which jobs are closer to me which are further away and if I have a preferred occupation then I can see which skill-gaps to overcome. The back end is seen by the counsellor, he/she can see which skills sets those people have and basically they are not looking for the best match, they are looking for a lot of matches to give people opportunities so that the counselor can speak with their beneficiaries and better advise them.

They have various platforms: one for job seekers, another for career advisors, and two additional portals for education providers and employers. Currently, if employers don't utilize the skill portal, they resort to vacancy-aggregators like Indeed or Adzuna for vacancy connections, although this isn't ideal.

The aim is to leverage data from growing job sectors, such as the green economy, to enhance the app's functionality. Job seekers can kickstart their journey with a skill assessment, explore pathways based on taxonomy, access tagged courses and vacancies, and have a ready-to-send resume. Meanwhile, counselors have access to a comprehensive backend for informed guidance.

It's no secret that skill development has been a major theme lately, driven by labour market shortages, inclusivity, and evolving job demands. Taxonomies, AI, and computing power are key enablers. The emphasis on skills has been ongoing for years, underscored by reports like the ILO's 2016 findings. A common challenge is crafting resumes that adequately represent one's skills. People often overlook their life experiences, as highlighted in a recent pilot project where participants added an average of 22 job-related skills, 17 from education, and 18 from other experiences.

Moving on to best practices, over their six years of operation, they have undertaken projects in approximately 35 countries. For instance, in the Philippines, they collaborated with the Education Development Centre to assist young people in finding employment. The initiative not only led to job placements but also boosted participants' confidence in their capabilities. In Mexico, they worked with young mothers facing job

market challenges. While their struggles were evident, their platform provided valuable support in their job search efforts. Transitioning to the Netherlands, they observed a high labour participation rate among Ukrainian refugees. However, cultural differences, such as modesty in self-promotion, posed challenges. Their platform helped individuals identify alternative career paths based on their skill sets.

Lastly, Ludger Weller explains that he envisions a future where individuals have digital wallets containing validated diplomas and certificates, streamlining the skills assessment process. Many people are unaware of their complete skill set, often underestimating their capabilities, a gap their platform aims to bridge. In essence, their platform serves as a tool for self-assessment, providing insights into one's skills while empowering individuals to navigate the job market effectively.

OPEN DISCUSSION

Eugenia Atin (Big Data Working Group) thanks Ludger Weller for his presentation and opens the floor for questions and comments. She starts with a question about the process of the self-assessment. When someone conducts a self-assessment, do you also believe it's valuable to have a coach or someone with that person, a counselor, or even just someone who knows them? Ludger Weller answers yes, that's also the main reason why you can't download the app from the app store. We only work through counselors, job coaches, or NGOs in projects where people are invited. What I try to emphasize is that the front end has a back end, which serves as the front end for the job coach. They can use a much more qualitative dataset of their end users and craft their advice in a better, more fundamental way. We believe the counselor has a huge impact.

Aleksandra Webb (University of the West of Scotland, UK) also thanks Ludger Weller and thinks it's crucial to understand both sides. She’s also under the impression that maybe this tool was meant for individual use, but it makes much more sense when we see it as an ecosystem, a tool for humanity, balancing this relationship for the best outcome for candidates. It's really user-friendly for both professionals and individuals, which is important. She wonders, based on Ludger Weller’s work and learnings, what are the biggest lessons for the educational sector and other actors? Clearly, people have trouble articulating their skills. What are we doing wrong, and what else needs to change for your business to thrive or for this dynamic to change? Ludger Weller answers that one thing they’ve learned is that working in groups makes a difference. Some municipalities in the Netherlands are doing this, bringing together unemployed people, and you see a kind of group dynamics and pressure. In Mexico, we saw that more digitally savvy individuals help those who are not as fast with the app. The same happened in Amsterdam with a group of Ukrainians; there was a language barrier, and

those who spoke English well were reluctant to participate until they realized they could help others.

Aleksandra Webb (University of the West of Scotland, UK) also asks if Ludger Weller thinks this lack of awareness stems from our approach to employability? Are we not engaging with it enough? Ludger Weller answers that we are not doing enough. In the Netherlands, there's a big discussion, and we try to stop speaking about higher education but rather differentiate between theoretical and practical education. The problem is the lack of resources for practical education on platforms like ESCO. There's a need for simpler terms and vocabulary, which we're trying to address in our localization efforts in the Netherlands. There's still much to improve, but even with its imperfections, people are already helped by having a different way of looking at themselves and drafting a skills resume. As we gather more data, we can provide feedback and improve the system.

Claudia Plaimauer (3s Unternehmensberatung GmbH) has a particular interest in how taxonomies are embedded in the system. She suspects there's a discrepancy between how skills are conceptualized in ESCO and how they appear in online job advertisements or people's CVs. How do you deal with this inconsistency? Ludger Weller agrees that the ESCO taxonomy uses a more formal language, while it is more desirable to have simpler language. They provide feedback on their learnings to ESCO regularly. While there's room for improvement, our recommender engine helps match individuals with suitable jobs based on their self-assessment, empowering them and their counselors to make informed decisions.

Aleksandar Kostadinov (Researcher at IDEI- Skopje) asks a question regarding data privacy, social rights, and human rights concerning hiring processes. When AI or algorithms are involved in decision-making, it might not offer the same opportunities to everyone. If there's no human oversight, certain rights of individuals could be compromised. What are your thoughts on this? Ludger Weller answers that he could not agree more. They collaborate with several State Employment Services and they have invested heavily in addressing this concern. SkillLab obtained ISO 27001 certification about two and a half years ago, emphasizing our commitment to data security and privacy. Essentially, end-users manage their profiles, and if they wish to opt out, they have that option. When setting up projects in different countries, we ensure compliance with local regulations, including data residency requirements. Aleksandar Kostadinov (Researcher at IDEI- Skopje) stresses that his concern is more about data retention and privacy. While respecting GDPR is crucial, I'm also referring to new EU laws and regulations, particularly for platform workers or those working remotely. How does the use of robotic or algorithmic hiring impact individuals' rights, especially if there's no human involvement in the process? Ludger Weller answers that that's precisely why he joined SkillLab. Having worked in this field for over 18 to 20 years, he understands these challenges. Most matching algorithms lack transparency,

making it difficult for end-users to understand the decision-making process. However, with a robust dataset, matching becomes more straightforward. Our AI-created interview system occasionally overlooks certain skills, but individuals can rectify this by reclaiming them or identifying areas for improvement. It's all about empowering individuals in the job search process.

Claudia Plaimauer (3s Unternehmensberatung GmbH) asks if Ludger Weller could elaborate on how the recommender system works in relation to ESCO occupational skills profiles? The recommender system leverages ESCO occupational skills profiles to enhance the matching process. They start by gathering information either through education or life experiences. Then, based on user responses, the system filters through ESCO's vast skills taxonomy to suggest relevant job opportunities. We aim to streamline the process, starting with general questions and gradually narrowing down the focus.
When the system has between 60 and 100 skills, we consider that we strike a balance between gathering essential information and keeping the process manageable for users. They can start the assessment on the go and continue at their convenience, ensuring a user-friendly experience.

Aleksandra Webb (University of the West of Scotland, UK) asks if they somehow track the long-term impact of individuals who use your tool, such as their employment stability or skill development over time? Ludger Weller answers that yes, together with the World Bank, they've initiated a large-scale study to assess the impact of our tool on employment outcomes. They will be tracking participants over the coming years to understand how using our platform influences their career trajectories. It's not just about finding a job; it's also about continuous skill development and empowerment.

Claudia Plaimauer (3s Unternehmensberatung GmbH) comments that we're all convinced by the presentation that it's a fantastic tool for job seekers or those looking to pivot their careers. She wants to highlight that it's also an intriguing tool for data collection, particularly for graduate tracking. We've discussed this before, and since this event is organized by the ENRLMM, I think it's essential to emphasize this potential application for data collection. For instance, you could invite graduates to track them immediately after completing their studies and then follow up after a few years to compare their experiences. Do you know if it's already being used for this purpose? Ludger Weller answers that they are currently in another call for tender and have submitted a proposal intending to use it for this purpose, but it has not yet been implemented yet.

Aleksandar Kostadinov (Researcher at IDEI- Skopje) asks if the tool consider regional aspects, such as locations and regions? For instance, I recently conducted a special analysis in North Macedonia, revealing significant differences in energy-efficient

building construction across municipalities. Have you explored this capability for matchmaking across countries or regions?

Ludger Weller answers yes, that everything is geotagged, allowing us to compare data from countries and/or regions within a country. We have extensive data on this aspect, and our past experiences, such as winning a Google award in 2019-2020, have enabled us to enhance our capabilities significantly.

More information will be circulated as always through the Network's newsletter. Also, if you are interested in sharing your experiences with the Network, please do so through the Knowledge Hub https://bigdatahub.uvt.ro/ and contact Eugenia Atin if you wish to present your project through a Seminar.

Bilbao, April 2024

References

Speaker: Ludger Weller
Partner at SkillLab
Email: l.weller@skilllab.io
EUROPEAN NETWORK ENRLMM
Email: jenny@jennykipper.de
Email: c.larsen@em.uni-frankfurt.de
Website: www.regionallabourmarketmonitoring.net
BIG DATA WORKING GROUP
Eugenia Atin
Email: e.atin@prospektiker.es
Website: https://bigdatahub.uvt.ro/