Research Collaboration Proposal

NordiqFlow invites IFAU to co-design and co-publish the first randomised controlled trial of competency-based career matching in the Swedish labour market — using only Arbetsförmedlingen's own open data.

SEK 80B	+46–70%	70,000	51K+	~SEK 300
Annual state spend on labour market policy	**RoM cost premium vs. AF baseline**	**Open vacancies alongside 8.3% unemployment**	**Pre-computed career transitions in AF's API**	**Estimated per-participant cost of TalentFlow**
Swedish state, 2023	*IFAU Rapport 2024:17*	*SCB Q3 2024*	*JobTech Dev, open access*	*vs SEK 15–25K for RoM*

Executive Summary

Sweden's labour market matching system has a specific, measurable, and fixable failure: it matches job titles to job titles. An 85% competency overlap between a store manager and a healthcare operations manager — fully documented in Arbetsförmedlingen's own JobTech Dev data — is invisible to every job-seeker using Platsbanken. The result is structural unemployment alongside mass vacancy: 70,000 open positions and 8.3% unemployment coexisting, quarter after quarter.

NordiqFlow has built TalentFlow, a skills-first career intelligence platform that runs entirely on AF's free, public API. It requires no new government data, no IT procurement, and no modification to any AF system. It surfaces career transitions based on competency overlap, skill gap analysis, regional demand, and salary differentials.

The central question — does competency-based matching information reduce unemployment duration? — is a question IFAU is uniquely positioned to answer. It requires a randomised controlled trial, longitudinal register linkage, and the institutional credibility to produce findings that Swedish policymakers will act on. NordiqFlow provides the intervention. IFAU provides the science.

This document proposes a formal research partnership: three interconnected studies, a joint Vinnova funding application, and a publication programme targeting top labour economics journals. We are not seeking to own the research. We are seeking a research partner with the tools to answer a question Sweden urgently needs answered.

1. Background & Theoretical Framework

1.1 The Beveridge Curve Problem

The Beveridge curve — which plots unemployment against vacancy rates — should slope downward: as vacancies rise, unemployment falls. Sweden's curve has shifted outward twice in the past two decades: first after the 2008 financial crisis, and again after 2020. An outward shift indicates deteriorating matching efficiency — the economy is generating both vacancies and unemployment simultaneously, and the two sides are failing to find each other. Riksbank analysis (January 2025) confirms this structural deterioration is not cyclical and will not self-correct.

Standard explanations — skills mismatch, geographic mismatch, compositional shifts — are incomplete. A third explanation, largely untested empirically in Sweden, is *information asymmetry in job search*: job-seekers

do not know which roles are within reach given their existing competencies, and the search interface they use does not tell them. If information asymmetry is a primary driver of the Beveridge curve's outward shift, then information interventions — not expensive retraining programmes — are the highest-leverage policy tool available.

1.2 The Failure of Rusta och Matcha

The Januariavtalet (2019) mandated the restructuring of AF and the outsourcing of matching services to private providers through the Rusta och Matcha (RoM) programme. IFAU's Rapport 2024:17 evaluated RoM using a randomised controlled trial — the gold standard of causal inference. The findings were unambiguous: private providers cost 46–70% more per participant than AF's public baseline, and produced zero statistically significant improvement in employment outcomes. Provider performance varied from 2% to 56% employment rates, with no systematic quality signal.

This result raises a critical follow-on question that IFAU's 2024:17 report does not address: if expensive human coaching by private providers adds nothing, does *better information* — delivered digitally, at near-zero marginal cost — add something? The RoM evaluation established the failure of the status quo. The logical scientific next step is to test the alternative.

1.3 The JobTech Dev Anomaly

Arbetsförmedlingen has built and maintains one of the most sophisticated open labour market data platforms in the world. JobTech Dev provides free, public API access to 51,000+ pre-computed occupational substitutability scores, 8,000+ competencies mapped across 430 SSYK-4 occupational codes, five-year regional demand forecasts (Yrkesbarometer), NLP APIs for skill extraction from free-text CVs, and real-time salary data by occupation and region.

None of this data reaches job-seekers through AF's own Platsbanken interface. The platform matches job advertisements to job-seeker profiles using job title keywords. The world-class competency infrastructure AF has built for developers sits unused in the product that 800,000+ unemployed Swedes interact with daily. TalentFlow is the first consumer-facing application to surface this data for job-seekers directly.

The research question this collaboration will answer:

Does providing competency-based career path information — rather than title-based job listings — reduce unemployment duration and improve job match quality for Swedish job-seekers? And if so, which specific information component drives the effect?

2. Why This Is an IFAU Question

IFAU's mandate is to evaluate the effects of labour market policy on individuals, firms, and the economy. This collaboration sits at the intersection of four areas where IFAU has deep and directly relevant institutional expertise:

› **Matching efficiency research.** IFAU has produced foundational work on Beveridge curve shifts and the structural sources of unemployment duration in Sweden. TalentFlow provides a natural experiment to test whether information asymmetry — not worker quality or vacancy composition — is the primary driver of matching failure.

› **Active labour market programme evaluation.** IFAU's 2024 RCT of Rusta och Matcha established that private matching providers add cost but not outcomes. TalentFlow is the natural next intervention to evaluate in the same framework — a direct scientific continuation of IFAU's own published work.

› **Information and search frictions.** A growing IFAU and Nordic literature examines how information interventions — salary transparency, vacancy visibility, skills signalling — affect labour market outcomes. Competency-based matching is the most direct possible test of whether better search information moves people faster and into better-matched roles.

› **Register data linkage.** IFAU's access to longitudinal Swedish register data — LISA employment records, FEK earnings, AF administrative data — enables causal identification and 24-month outcome tracking that no private research team could replicate independently. NordiqFlow provides the intervention; IFAU provides the identification strategy.

3. The TalentFlow Platform & Data Infrastructure

3.1 Platform Architecture

TalentFlow is a production-ready, GDPR-compliant web platform built on AF's open JobTech Dev API suite. It requires no data-sharing agreement with AF, no government procurement process, and no modification to any existing AF system. The entire platform runs on public APIs — the same infrastructure any Swedish developer can access today.

Skills matching. Compares a job-seeker's inferred competency profile against all Swedish occupations using AF's 51,000+ pre-computed substitutability scores. Returns ranked career pathways with exact competency match percentages, not keyword matching.

Gap analysis. Identifies the specific competencies a job-seeker is missing for target roles and cross-references these against available YH (vocational) courses by region and start date — converting abstract 'you need more skills' into 'here is the 6-month course that closes this gap, starting in April in Göteborg'.

Demand forecasting. Surfaces AF's Yrkesbarometer five-year regional demand forecasts alongside current vacancy counts, enabling job-seekers to distinguish between transitioning into a growing sector and one that is contracting — information that does not exist in Platsbanken at all.

Salary intelligence. Provides median salary by occupation and region, allowing job-seekers to evaluate the financial implications of career transitions before applying — reducing wasted applications and improving search efficiency.

BankID authentication. Users authenticate via BankID, enabling persistent profiles and identity-linked outcome tracking for research purposes under GDPR-compliant data processing agreements with participating municipalities.

3.2 The JobTech Dev Data Asset

The scientific value of this collaboration rests on the quality of AF's open data. The JobTech Dev platform provides:

51,000+ occupational substitutability scores	Pre-computed competency overlap scores between all SSYK-4 occupation pairs. Based on AF's own analysis of competency co-occurrence across millions of job advertisements. Publicly available via REST API.
8,000+ mapped competencies	Structured competency taxonomy covering technical skills, soft skills, tools, certifications, and domain knowledge — mapped to 430 SSYK-4 occupation codes. Updated continuously from live job advertisement analysis.
Yrkesbarometer forecasts	Five-year regional employment demand forecasts by occupation, updated annually. Covers all Swedish regions (NUTS-3) and all major occupational groups. Free, publicly accessible.
NLP skill extraction APIs	APIs that extract structured competency profiles from free-text CVs and job descriptions. Enables automatic matching of job-seeker profiles to occupational competency maps without manual tagging.
Real-time vacancy data	Live job advertisement feed with structured metadata: occupation code, required competencies, salary range, geographic location, employer size. Updated continuously.

4. Proposed Research Programme

We propose a phased research programme across three interconnected studies. Each builds on the last, and together they answer the full policy question: does competency-based matching work, what drives its effect, and is it cost-effective compared to existing interventions? NordiqFlow provides the platform, participant recruitment, and operational data. IFAU designs the evaluation methodology, maintains randomisation integrity, and owns the academic publications.

Study 1 RCT: Competency-Matching vs. Title-Matching — Year 1–2

› **Design:** Parallel-arm RCT. Participants randomised 1:1 to TalentFlow (competency-based matching) or standard Platsbanken (title-based search). Stratified by municipality, age group, education level, and unemployment duration.

› **Primary outcomes:** Time to employment (days from enrolment to first registered employment spell ≥ 30 days); job match quality (wage at placement, employment tenure at 6 and 12 months, sector alignment score).

› **Secondary outcomes:** Number of applications submitted; interview conversion rate; subjective job fit (survey); re-unemployment within 12 months.

› **Sample:** Target N = 2,000 job-seekers across 3 Swedish municipalities. Power calculation: 80% power to detect a 14-day reduction in median unemployment duration (Cohen's $d \approx 0.15$) at $\alpha = 0.05$.

› **Register linkage:** Via IFAU to LISA (employment), FEK (earnings), and AF administrative data. 24-month follow-up post-randomisation.

› **Pre-registration:** AEA RCT Registry prior to recruitment commencement.

Study 2 **Mechanism Study: Which Information Component Drives Effect?** Year 2

› **Design:** 4-arm factorial RCT nested within Study 1 infrastructure. Arm A: Competency match % only. Arm B: Skill gap + YH course recommendations. Arm C: Regional demand + salary differential. Arm D: Full TalentFlow suite.

› **Rationale:** If Study 1 finds a positive effect, Study 2 isolates the mechanism — enabling AF to surface the most effective data component in Platsbanken at minimal cost, without requiring a full platform integration.

› **Primary outcome:** Hazard ratio for employment transition in each arm vs. control. Secondary: application behaviour, search breadth, sector switching.

› **Policy value:** Directly answers which specific JobTech Dev data component AF should prioritise. Results are actionable regardless of whether the full TalentFlow platform is adopted.

Study 3 **Cost-Effectiveness Analysis vs. Rusta och Matcha** Year 2–3

› **Design:** Cost-effectiveness analysis using Study 1 outcomes and RoM cost data from IFAU Rapport 2024:17. Computes cost per employment outcome, cost per quality-adjusted job match, and fiscal return per krona invested.

› **TalentFlow cost basis:** Estimated SEK 200–400 per active participant (platform infrastructure, recruitment, support). Compared against RoM's documented per-participant premium of SEK 15,000–25,000 above AF baseline.

› **Fiscal impact model:** A job-seeker on benefits costs ~SEK 15,000–20,000 per month. Each month of reduced unemployment duration generates direct fiscal savings. Study 3 will produce a formal fiscal impact estimate for Vinnova, Tillväxtverket, and the Swedish parliament.

› **Comparability:** Uses identical outcome definitions and cost accounting methodology as IFAU 2024:17, enabling direct head-to-head comparison with the RoM programme.

5. Statistical Power & Sample Size

5.1 Study 1 Power Calculation

The primary outcome for Study 1 is time to employment, measured in days from randomisation to first qualifying employment spell (≥ 30 days registered employment). We use median unemployment duration in Sweden as the baseline reference. For job-seekers using standard AF services, median time to employment is approximately 90–120 days (AF administrative data, 2023). We power Study 1 to detect a clinically and economically meaningful reduction of 14 days (approximately 12–15% of median duration) as the minimum detectable effect.

Parameter	Value	Rationale
Baseline median duration	105 days	AF administrative data 2023
Minimum detectable effect	14 days	~13% reduction; fiscal value ~SEK 8,400/participant
Effect size (Cohen's d)	≈ 0.15	Conservative; comparable to information interventions in NL, DK literature
Statistical power	80%	Standard threshold; $\alpha = 0.05$, two-tailed
Required N per arm	~900	Survival analysis with 10% attrition allowance
Total sample size	2,000	1,000 treatment + 1,000 control; 667 per municipality

Recruitment period	6–12 months	~55–80 enrolments per municipality per month
Follow-up period	24 months	Register linkage via IFAU; no active contact required

5.2 Secondary Outcomes & Study 2 Power

For secondary outcomes (job match quality, re-unemployment), Study 1 is powered for exploratory analysis. These outcomes will be pre-registered with explicit corrections for multiple comparisons (Benjamini-Hochberg procedure). Study 2 requires a larger total sample — approximately 500 per arm (N = 2,000 total) — to detect differences between treatment arms at 80% power. This may be achieved through an extension of the Study 1 recruitment period or a separate recruitment round in Year 2 municipalities.

6. Data, GDPR & Ethical Framework

6.1 Data Flows & GDPR Compliance

NordiqFlow is built GDPR-compliant by design. All personal data is processed under explicit informed consent, with clear purpose limitation, data minimisation, and the right to withdraw. The data architecture distinguishes three layers:

Platform data	Anonymised usage logs, search behaviour, and application tracking collected by NordiqFlow. No personal identifiers stored after BankID authentication. Processed under NordiqFlow's data processing agreement with participants. Retained for a maximum of 36 months.
Research identifiers	Pseudonymised research IDs generated at enrolment and shared with IFAU for register linkage. NordiqFlow holds no register data and cannot re-identify participants from the pseudonymised dataset. Linkage performed by IFAU under existing register data agreements.
Register data	LISA, FEK, and AF administrative data accessed exclusively by IFAU under existing legal framework for register-based research (Lag om etikprövning, SFS 2003:460). NordiqFlow has no access to register data at any stage.

6.2 Ethical Approval

The research programme will require ethical review (etikprövning) under Swedish law. We propose that IFAU leads the ethical approval application as the research institution of record, with NordiqFlow named as the platform operator and data processor. The RCT design — where control participants use standard AF services rather than being denied any service — is consistent with ethical research practice in labour market interventions. Participants in the control arm retain full access to all standard AF support.

Pre-registration on the AEA RCT Registry prior to participant recruitment will ensure full methodological transparency and prevent outcome-switching. The pre-registration will specify all primary and secondary outcomes, the analysis plan, and the power calculation documented in Section 5.

7. Budget & Funding Structure

The research programme is designed to be jointly funded through a Vinnova Advanced Digitalisation grant application, with NordiqFlow and IFAU as co-applicants. A signed Letter of Intent from IFAU is required for the Vinnova application and materially strengthens the application's prospects. The indicative budget below covers a 30-month programme (Year 1–2.5):

Budget Line	NordiqFlow	IFAU	Vinnova grant	Total
Platform dev & infrastructure	1,200,000	—	1,200,000	2,400,000
Participant recruitment & ops	800,000	—	400,000	1,200,000
IFAU research team (3 years)	—	2,500,000	2,500,000	5,000,000
Economist & RCT design	500,000	—	500,000	1,000,000
Register data & linkage costs	—	300,000	300,000	600,000
GDPR & legal compliance	200,000	—	—	200,000
Publication & dissemination	100,000	400,000	500,000	1,000,000
Contingency (10%)	280,000	320,000	540,000	1,140,000
Total	**3,080,000**	**3,520,000**	**5,940,000**	**12,540,000**

All amounts in SEK. Vinnova Advanced Digitalisation grants cover up to 50% of total eligible costs for small companies and up to 70% for qualifying research institutions. NordiqFlow and IFAU contributions constitute the required co-financing. Additional funding sources include Tillväxtverket regional innovation grants (est. SEK 500,000–1,000,000) and municipal pilot contributions (in-kind recruitment support estimated at SEK 300,000 per municipality).

8. Expected Policy Impact & Dissemination

8.1 Academic Publications

The research programme is designed to produce three peer-reviewed publications, targeting top labour economics and public policy journals:

Paper 1 (Year 2–3)	Does competency-based job search information reduce unemployment duration? RCT evidence from Sweden. Target: *Journal of Labor Economics*, *American Economic Journal: Applied Economics*, or *Review of Economics and Statistics*.
Paper 2 (Year 3)	Information, search frictions, and matching efficiency: mechanism evidence from a factorial RCT. Target: *Quarterly Journal of Economics* or *Journal of Political Economy*.
Paper 3 (Year 3)	Cost-effectiveness of digital matching information vs. privatised coaching: evidence from the Swedish Rusta och Matcha reform. Target: *Labour Economics* or *Journal of Public Economics*.

8.2 Policy Dissemination

Beyond academic publication, the research programme will produce policy-facing outputs specifically designed for Swedish and European audiences:

› **IFAU policy brief** (Swedish and English) summarising Study 1 and Study 3 findings for Riksdag, Arbetsmarknadsdepartementet, and Arbetsförmedlingen. Target: within 3 months of final results.

› **Vinnova and Tillväxtverket report** documenting fiscal impact and ROI calculations for the grant funders — required under grant terms and useful for future funding applications.

› **Riksdag referral response** — if AF or the government conducts a public consultation on Platsbanken or digital matching, IFAU's published results provide direct evidence for the referral process.

› **European Labour Authority and OECD briefing** — Sweden's combination of excellent register data and a well-powered RCT would make this the most rigorous evidence on digital career matching in Europe. Directly relevant to EU Employment Guidelines discussions.

› **Open data publication** — anonymised study datasets and analysis code published on IFAU's open data platform (IFAU Dataservice) under Creative Commons licence, maximising research reuse.

› **AF integration recommendation** — Study 2 mechanism findings will be packaged as a specific, actionable recommendation to AF on which JobTech Dev data to surface in Platsbanken.

9. About NordiqFlow

NordiqFlow is a Swedish labour market technology company building AI-powered tools that make AF's world-class open data accessible to the people who need it most: job-seekers, career counsellors, and municipal employment services. The company was founded on the observation that Arbetsförmedlingen has built extraordinary infrastructure — and then failed to connect it to the 800,000+ people using its consumer products daily.

Founder

Linnea Moritz, BSc Economics & Business (Minerva University, 2021). Professional experience at Google, YouTube, TikTok, and Clubhouse. Western Europe Alumni Ambassador, Minerva University (30+ country outreach). Contemporary artist with international exhibition practice. Based in Sweden.

Track record

First Prize, Global Startup Weekend Stockholm (2019). Multiple production platforms serving Swedish public sector and business clients, including NordiqFlow (labour market intelligence), Bidragsguiden (grant discovery), and regional business intelligence tools for Swedish municipalities.

Technical foundation

Full-stack development in React, Next.js, TypeScript, and Supabase. Production applications built on JobTech Dev API suite. GDPR-compliant architecture with BankID authentication integration. 10+ live SaaS platforms in the Swedish market.

Research orientation

NordiqFlow's development approach is explicitly evidence-driven. The platform is designed from the ground up to support rigorous evaluation — with BankID authentication for identity linkage, randomisation infrastructure, and outcome tracking built into the core architecture.

10. Proposed Timeline & Next Steps

March 2026	Exploratory meeting between NordiqFlow and IFAU research team. Agenda: research question refinement, feasibility, preliminary power calculation review, IFAU internal approval process.
April 2026	Joint pre-registration of Study 1 RCT design on AEA RCT Registry. Ethics application submission (etikprövning) led by IFAU.

May 2026	Letter of Intent signed by NordiqFlow and IFAU. Letter triggers eligibility for Vinnova Advanced Digitalisation application.
June 2026	Municipal partnership agreements signed with 3 pilot municipalities. Participant recruitment infrastructure live. TalentFlow production deployment complete.
Q3 2026	Vinnova Advanced Digitalisation application submitted (NordiqFlow + IFAU as co-applicants). Tillväxtverket application submitted in parallel.
Q4 2026	Ethics approval received. Participant recruitment begins. Randomisation activated. Study 1 enrolment open.
2027	Ongoing data collection and register linkage. Study 2 arm activated once Study 1 reaches target N. Interim analysis at 12 months post-enrolment.
2028	Final register linkage for 24-month follow-up. Study 3 cost-effectiveness analysis. Publication submission — all three papers.
2028–2029	Policy dissemination: IFAU brief, Riksdag submission, OECD/ELA briefing, open data publication.

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This proposal is an open invitation. NordiqFlow is not seeking to own the research — we are seeking a research partner with the tools, the data access, and the institutional credibility to answer a question Sweden urgently needs answered. We welcome any form of initial engagement, including an exploratory conversation before any commitment is made.