



samen sterk voor werk

Next Steps @ VDAB

Erik Klewais - CEDEFOP - 2018/06/26



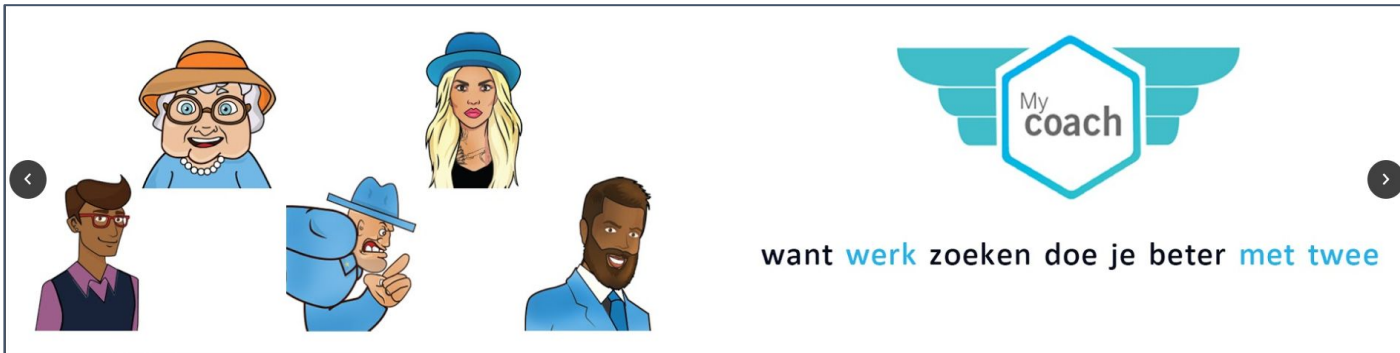
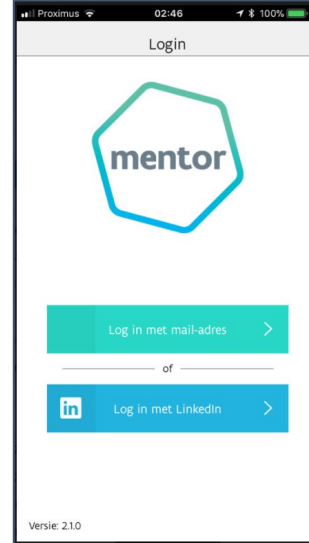
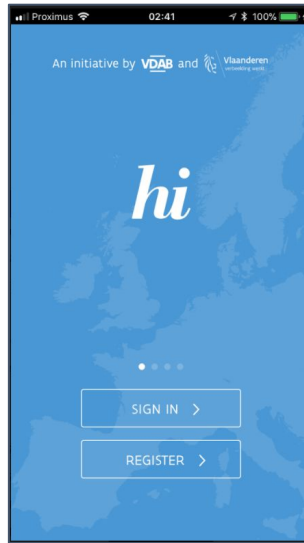
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VDAB

Samen sterk voor wat

InnovatieLab



“Data is the new Oil” – Clive Humby



ARTIFICIAL INTELLIGENCE

Early artificial intelligence stirs excitement.



MACHINE LEARNING

Machine learning begins to flourish.



DEEP LEARNING

Deep learning breakthroughs drive AI boom.



Predictive Modelling

Neural Network

Next Steps

Jobnet

Proactive Profiling



How Long Will I Be Unemployed ?

VDAB

comen, eterk, voor, wat

Data ?

Unemployment Periods

ID Job Seeker
Date entering
Date leaving
Status on entering
Status on leaving

VDAB Dossier Data

Interest
Languages
Labour Market competences
Personal competences
Vocational Trainings

VDAB dossier data

Age
Region
Sex
Nationality
Drivers Licence

Desired jobs
Desired region
Desired Labour regime
(References)
Certificates
MLB auditlog
SIP / SMP+ auditlog

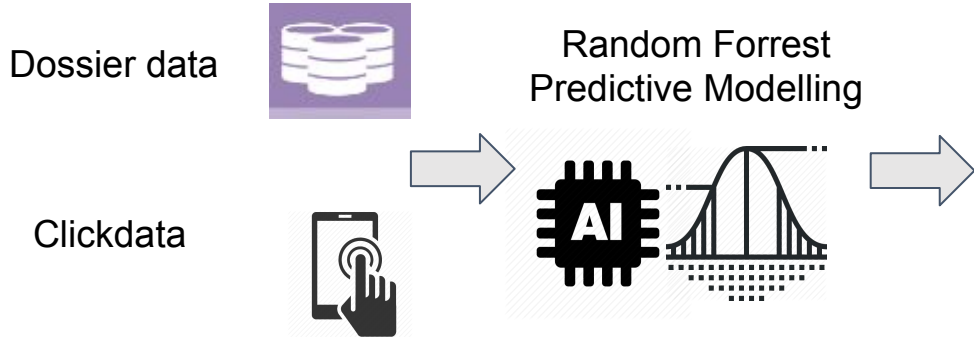
Studies
Work History
Stages

Searched Vacancies

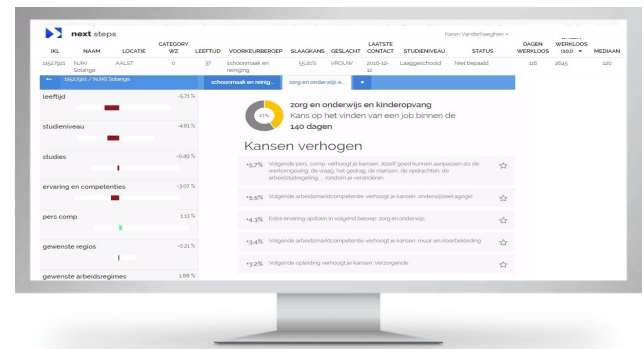
On Line logdata

Profiling Jobseekers

Algorithmic activation



Chances of finding a job in X days



Activity monitoring of a jobseeker

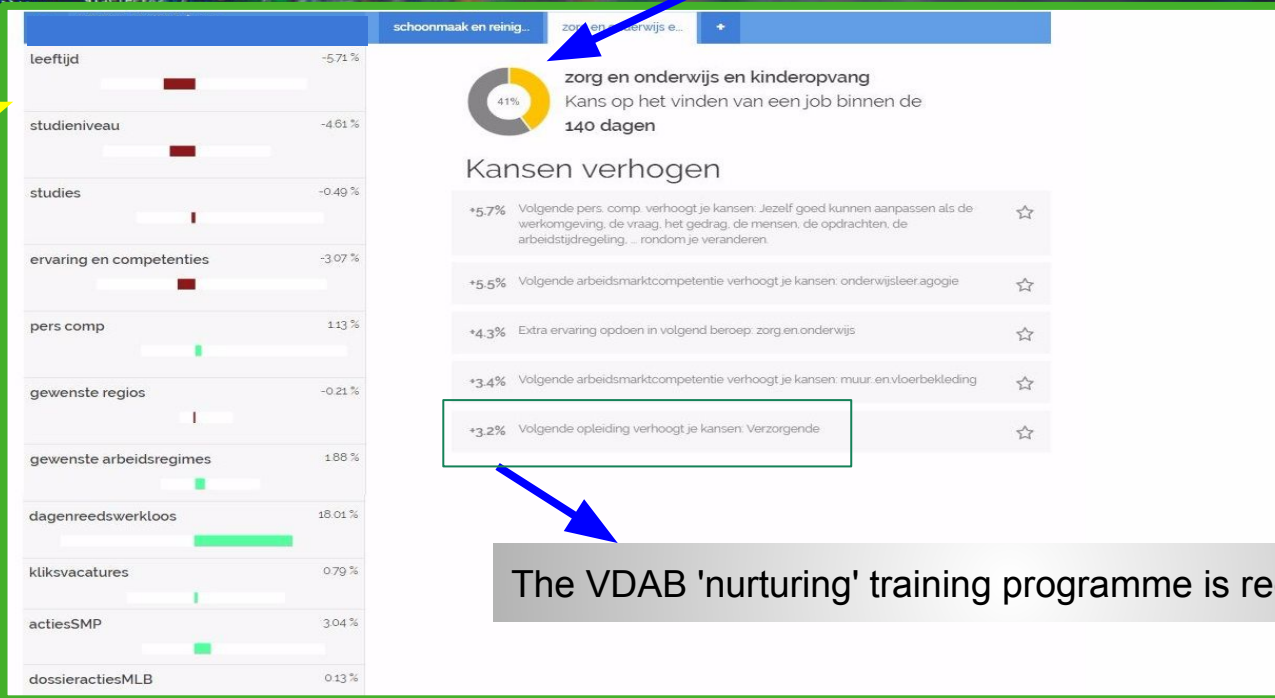


Next Steps

Jan seeks work in the healthcare sector.

Only 41 % Chance for Jan to find work within 140 days

His age and level of education are a disadvantage



The VDAB 'nurturing' training programme is recommended.

The customer's chances of success in a single view.

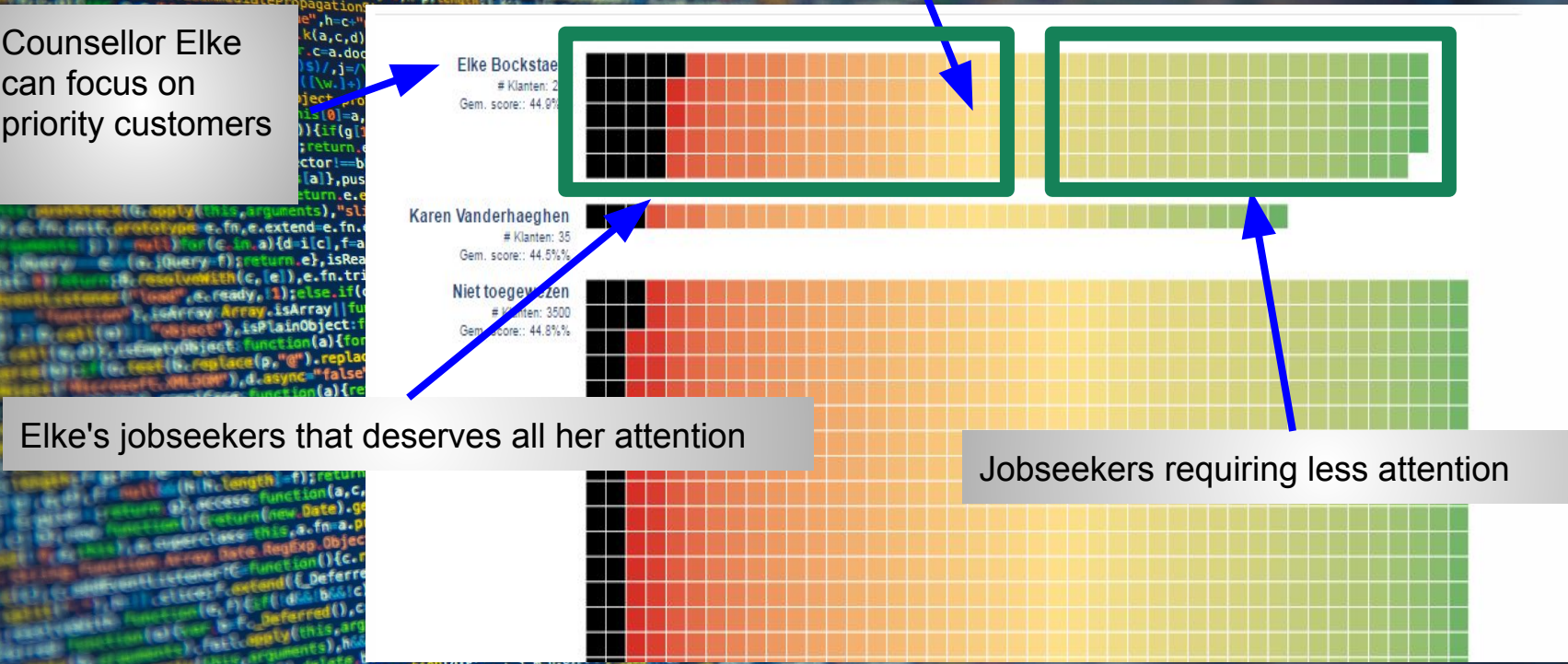
A look at the customers of the Ghent VDAB office

Jan

Counsellor Elke can focus on priority customers

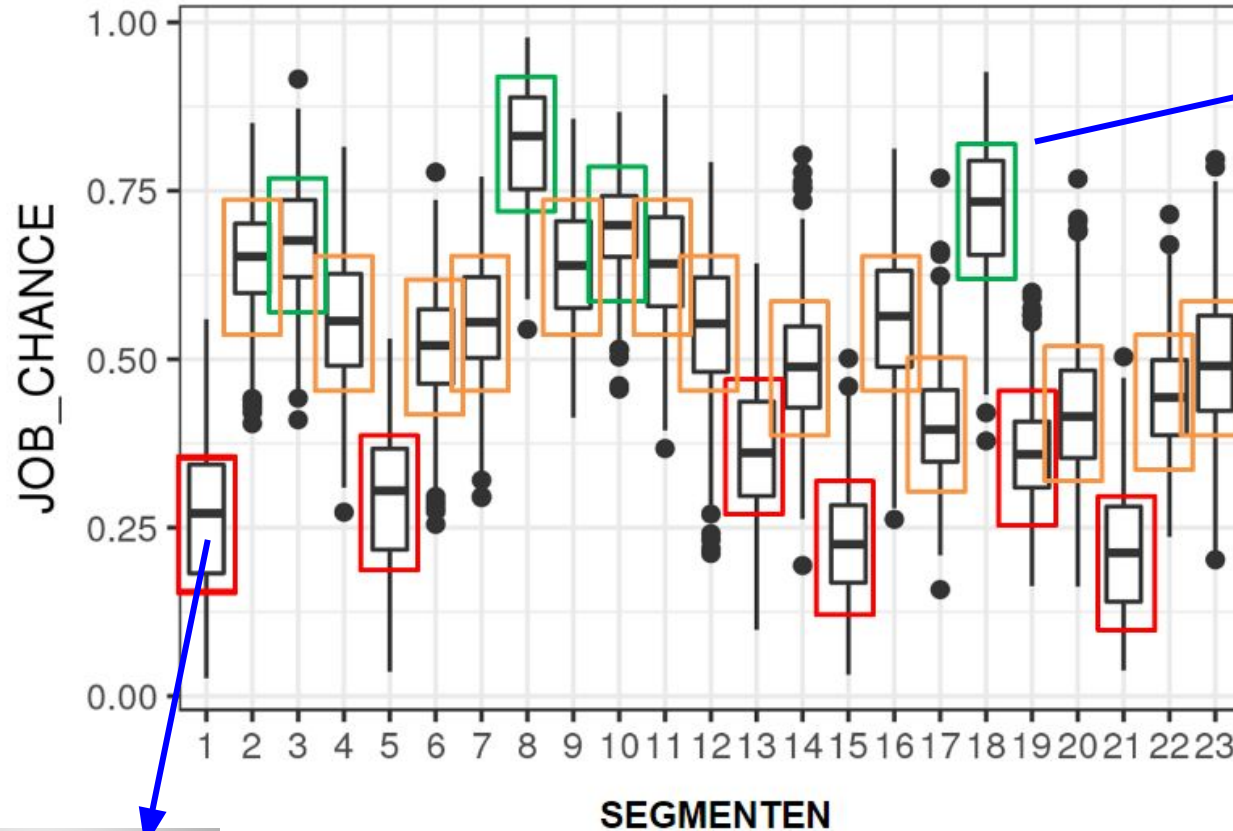
Elke's jobseekers that deserves all her attention

Jobseekers requiring less attention



The chances of all customers at a glance

Customer Segmentation in “distance to the labour market”



*Women,
between 30-35,
highly educated,
driving license*

*Young Jobseekers
no diploma*

Proactive Profiling

6th State Reform

In addition to counselling, now also **controlling** and **sanctioning** authority

Criticism

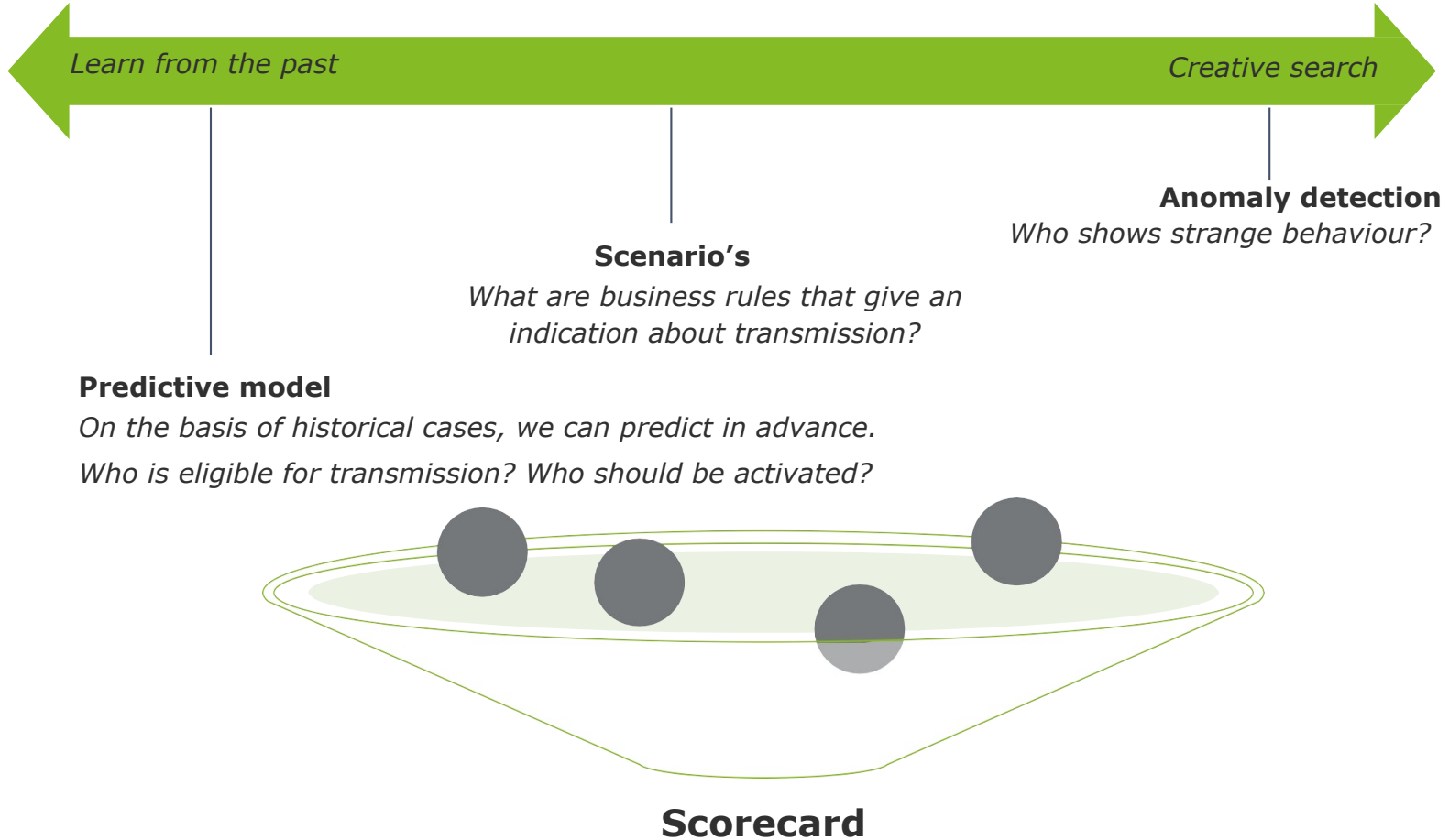
Parliamentary hearing
CEO Fons Leroy after
commotion
transmission figures

Active and consistent counseling

Data mining for improvement of counseling and detection of **insufficient search** behaviour. At the same time a positive focus on **activation**.

Proactive Profiling

A balanced approach from various angles

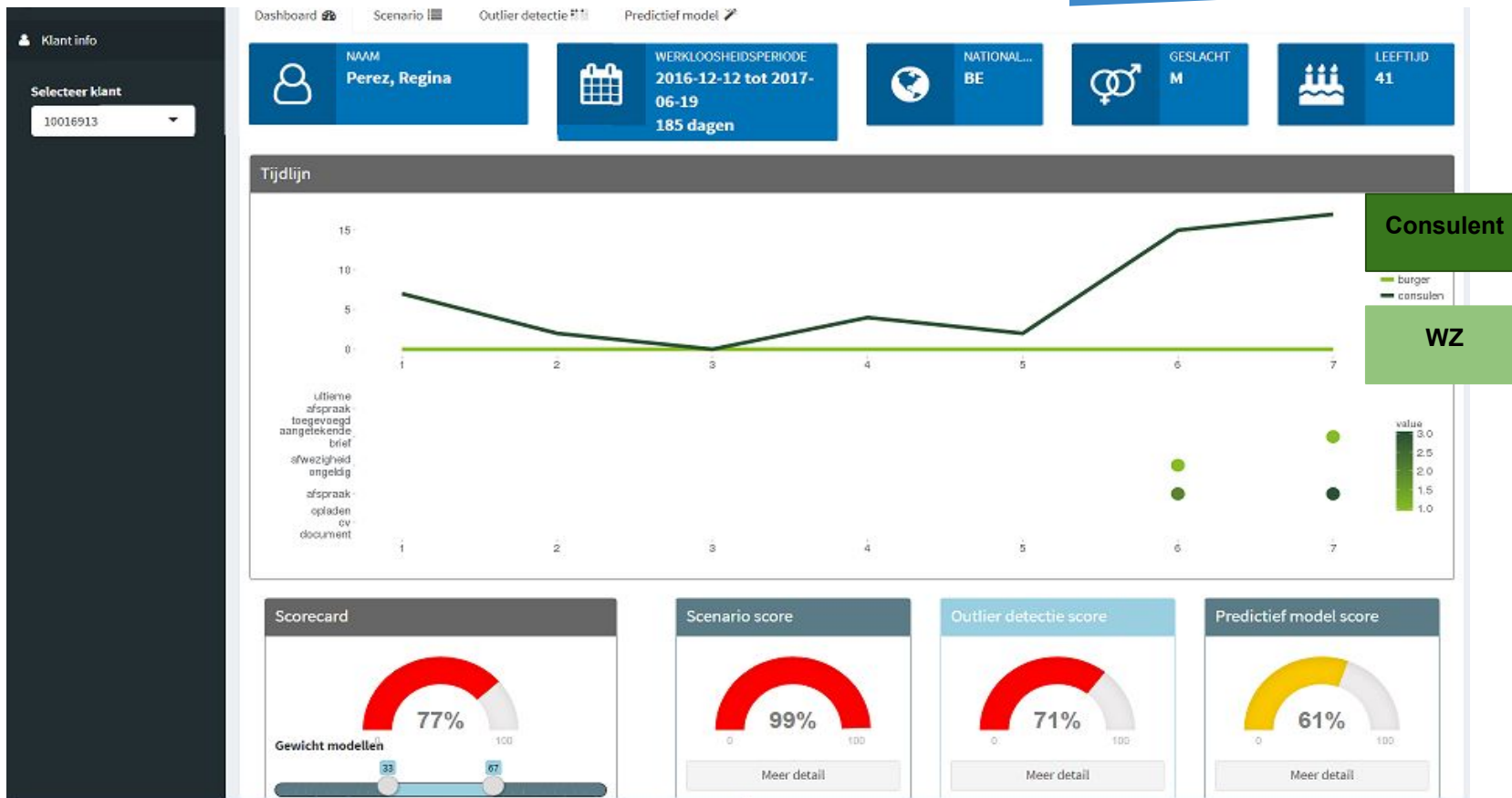


Proactieve Profilering

A balanced approach from various angles

VDAB

16



Total Risicscore

1 % segment largest Risk Score
By expert rules

Degree of deviation
to the modal jobseeker

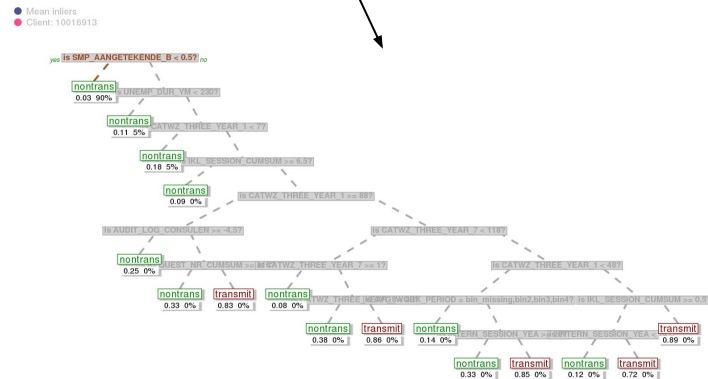
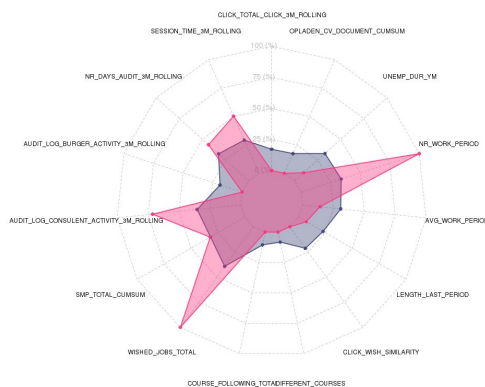
Risk of suspension
over three months

Proactieve Profiling

A balanced approach from various angles

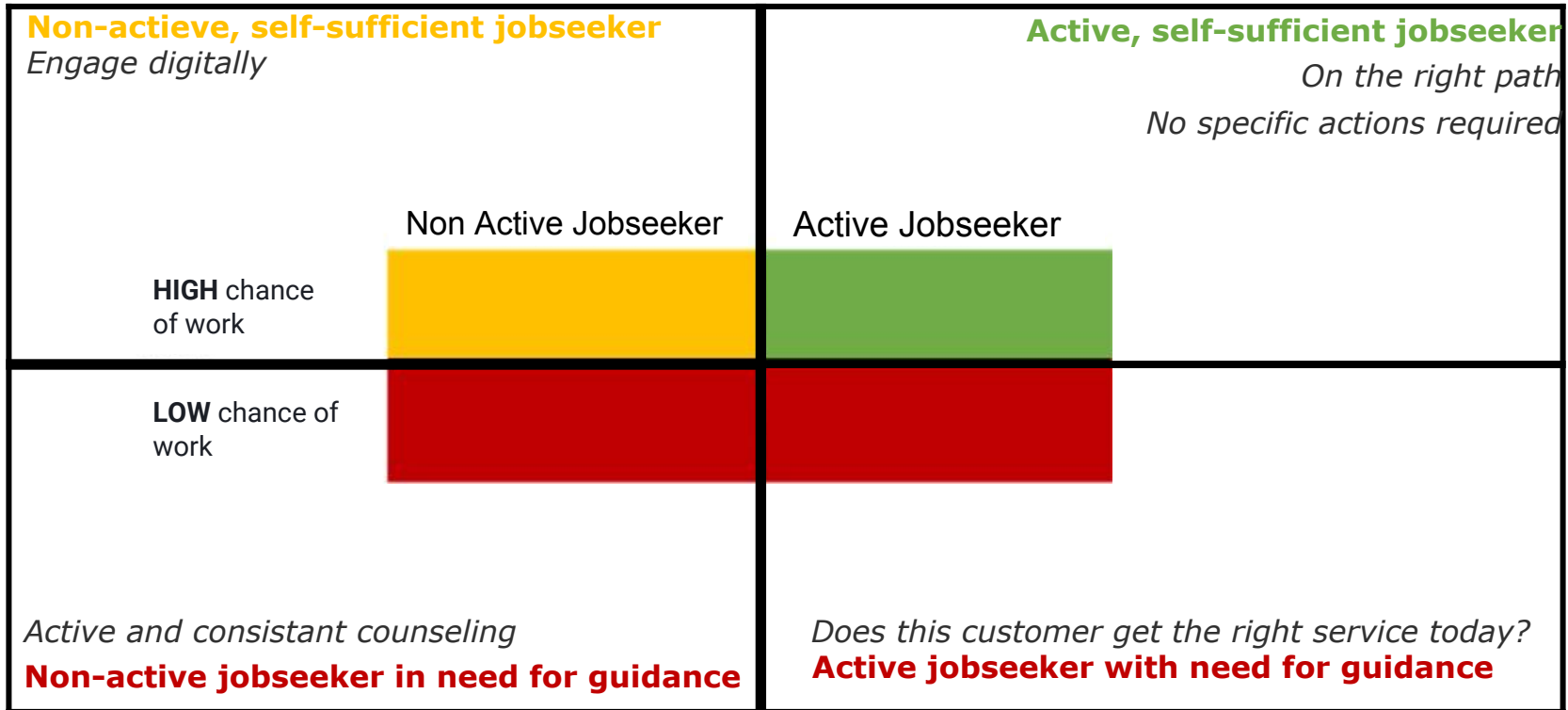


Rules	Score
3 of meer aangetekende afspraken maar nog geen transmissie	0
3 of meer in formele afsprakenbladen maar nog geen transmissie	0
Transmissie aangemaakt maar niet doorgestuurd	0
Geen activiteit gedurende 6 maanden maar geen transmissie	1
Geen activiteit gedurende 12 maanden maar geen transmissie	0
IBO ongeldig stopgezet maar geen transmissie	0
Geen activiteit in de eerste 3 maanden maar geen transmissie	1
Geen activiteit in de eerste 6 maanden maar geen transmissie	1
Zelfredzaam maar geen activiteit in laatste 3 maanden	0
Ondersteuning onbepaald maar geen activiteit in laatste 3 maanden	1
Totale Score	98.76 %

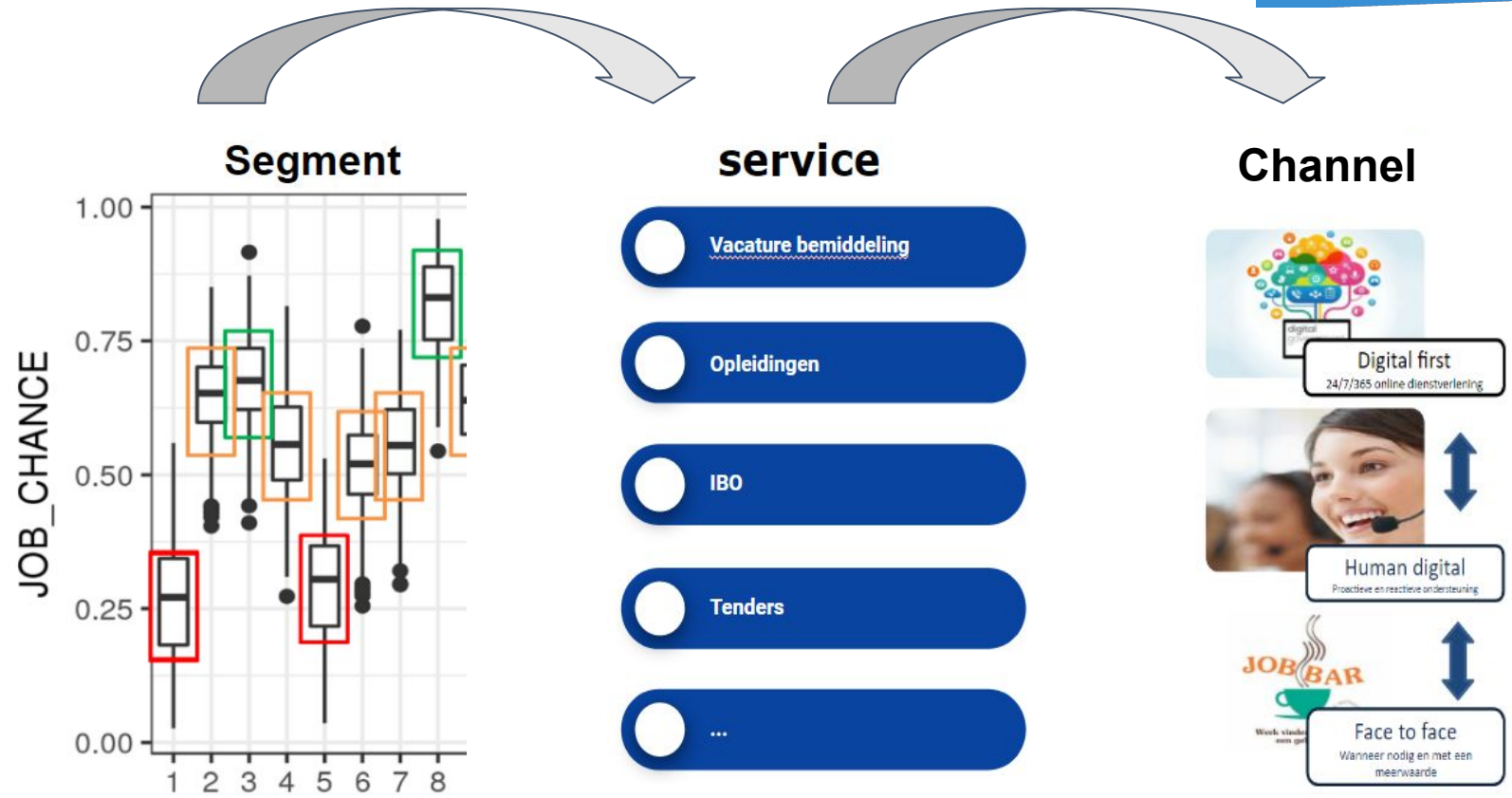


Vision

Segment Jobseekers



Data-driven strategy for VDAB



For each **segment**, the right **action**, the right **approach**.

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Next Steps

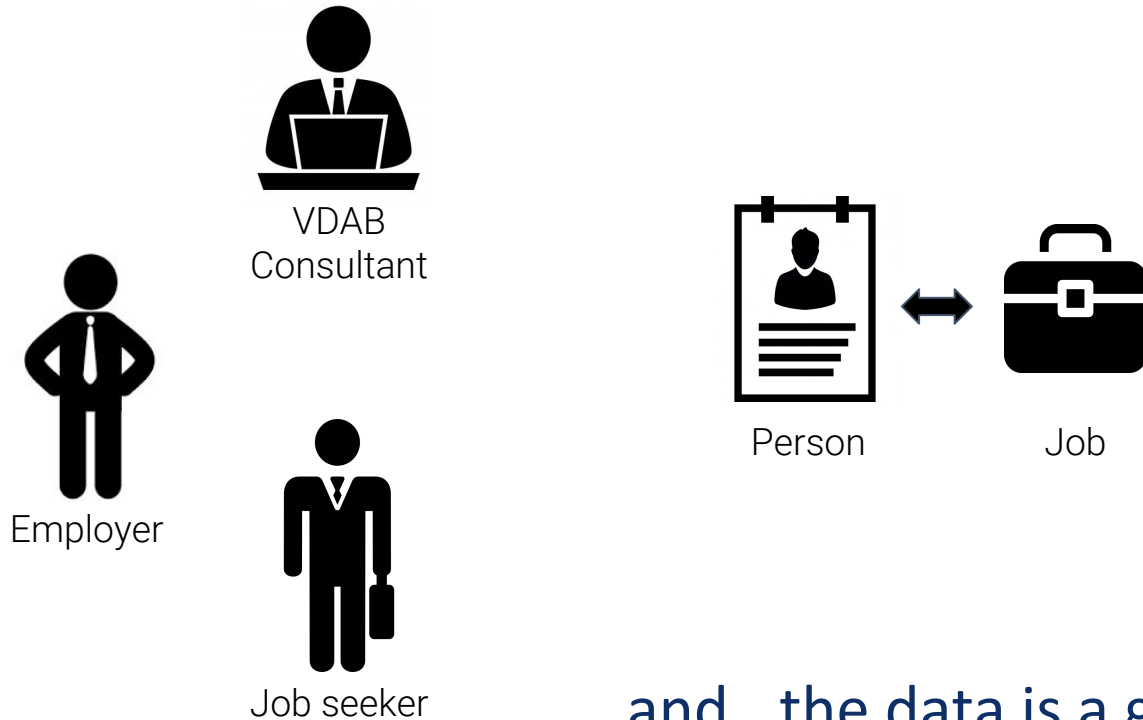
Jobnet

Proactive Profiling

JobNet

Job Matching with Deep Learning

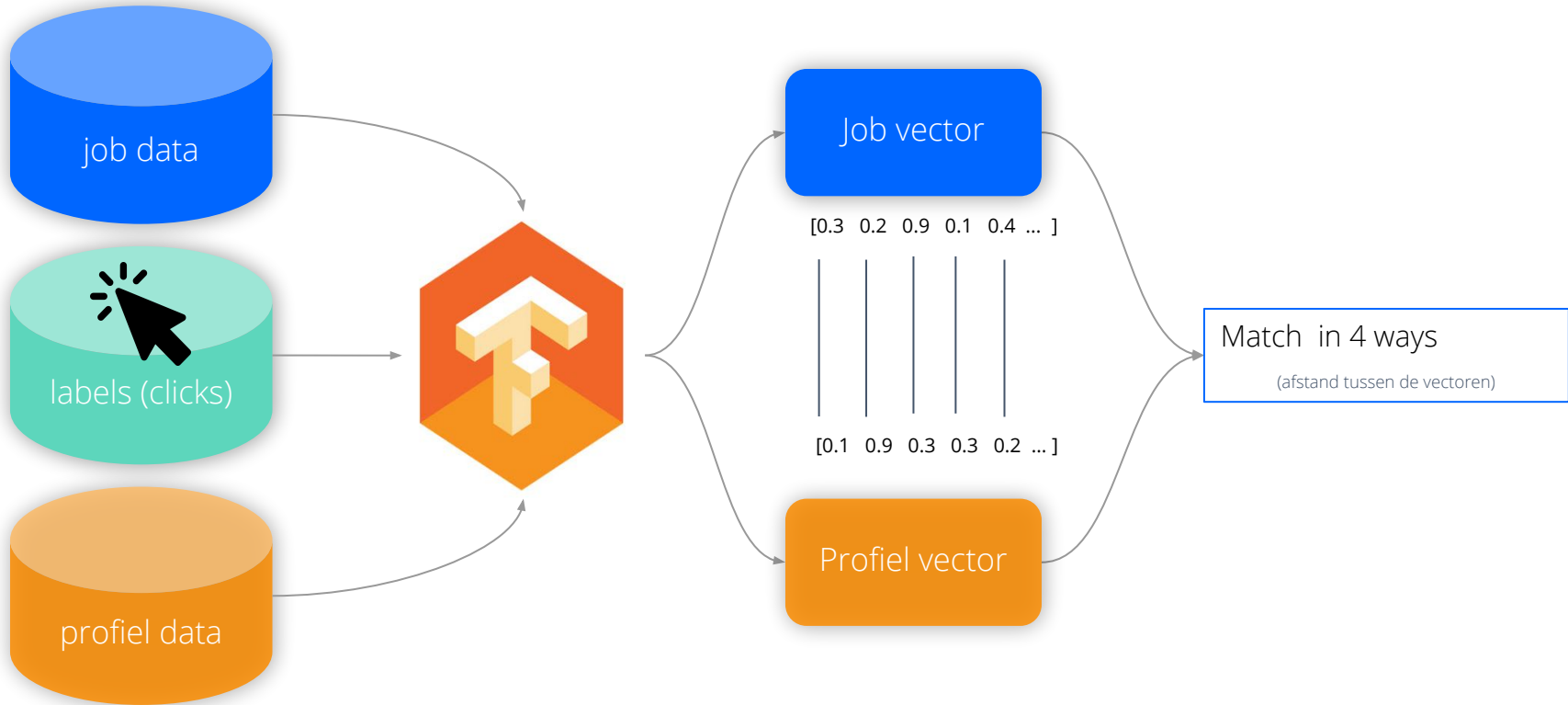
Job matching is a core service at VDAB



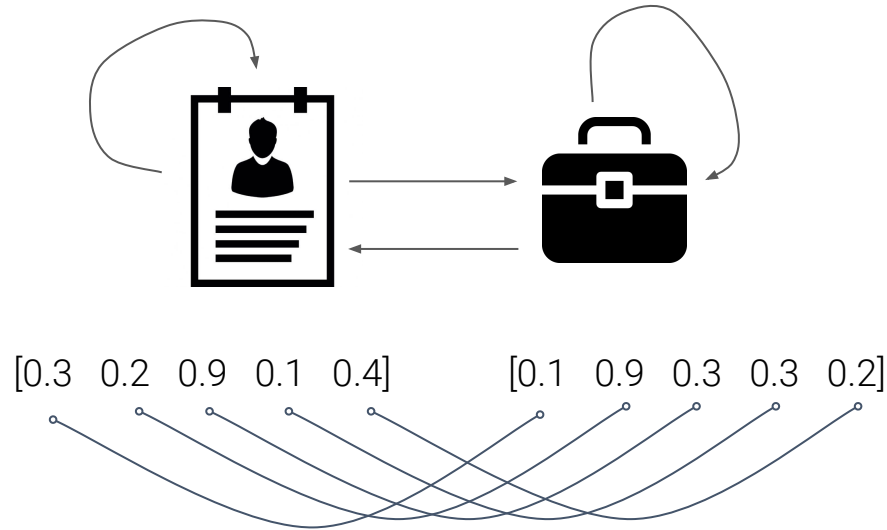
and...the data is a gold mine !

Jobnet

Job matching with deep Learning



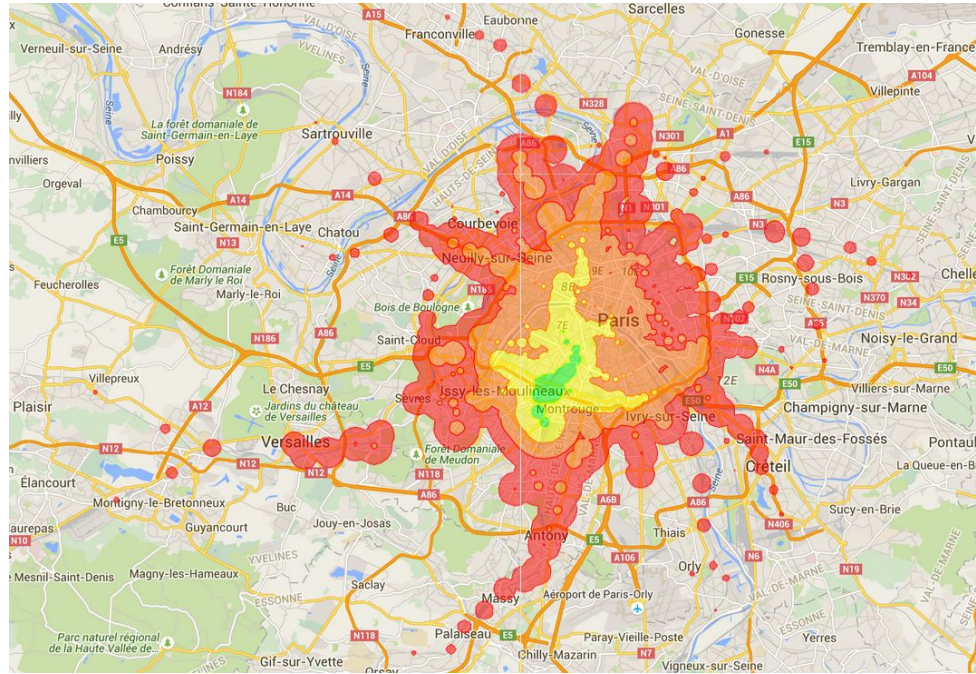
1. Jobnet allows 4-way match



2. Jobnet 'understands' text

- ✓ spelling correction bartender = bartendar
- ✓ semantic understanding server = bartender
- ✓ word order understanding dental assistant ≠ assistant with dental benefits
- ✓ multi-lingual kelner = bartender

3. Commute time optimization



JobNet x Laurent

127.0.0.1:5000

VDAB JobNet

Search Vacancies or Employers

Toon mij een vacature werknemer die past bij een vacature werknemer gesorteerd op relevantie voor werknemers werkgevers consulenten

99% 98% 100% 38%

54533145 leper - poperinge - wervik <2> ervaring 12714463 random

deeltijds tijdelijk 12714463 8670 oostduinkerke 1995 hogeschoold eigen wagen voltijds

Functie: Begeleider recreatieve activiteiten voor kinderen en jongeren ANIMATOREN Voor onze klant in ruime regio leper kijken wij uit naar animatoren. Je staat in voor het begeleiden van kinderen en jongeren.

Profiel: Plannen (= ordenen) Zich kunnen aanpassen aan veranderende omstandigheden (flexibiliteit) Creatief denken (Inventiviteit) Leervermogen hebben Regels en afspraken nakomen Commercieel zijn

Gewenste functie: Opvoeder begeleider Opvoeder begeleider

Studies: Orthopedagogiek, Orthopedagogiek, Menswetenschappen, Algemeen secundair onderwijs

Ervaring: Opvoeder-begeleider Opvoeder-begeleider, Opvoeder-begeleider, Opvoeder-begeleider

98% 99% 98% 79%

55382008 voltijds tijdelijk

Functie: Opvoeder in onderwijsinstelling Preventiemedewerker Preventiemedewerker in het kader van het startbanenproject Scholen voor jongeren - Jongeren voor Scholen. De jojo-preventiemedewerker

Profiel: Omgaan met stress Leervermogen hebben Zich kunnen aanpassen aan veranderende omstandigheden (flexibiliteit) Contactvaardig zijn Resultaatgerichtheid Plannen (= ordenen) Zin voor

Employee is interested in a vacancy

Employer is interested in employee

The Jobnet algorithm has learned to

- Fast 4 way matching
- Match Semantic: can be matched both in terms of content and contextual
- Dynamically take the location into account: some people prefer to work close to home, while others have no problem not doing so.
- to match over more than 4 languages

Key take aways

Key take aways

- Process with trial and error
- Prototype & show
- Data is Key
- Technical - fast moving -
- Mix of own Data Scientists (self-training) & External Consultants
- Advanced Analytics Platform
- Experiment / Explore / Exploit
- Essential for Digital Transformation

- **AI - Peak of Inflated Expectations ?**

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