

Risk Detector Tool

ECA conference on Big and Open Data for European Union Supreme Audit Institutions

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You don't need to know everything



Public procurement data 2018

4 070 719 411 €

62

buyers

24 789

suppliers

614 010

invoices

Current situation

CHALLENGES



Auditors are manually working on **large datasets**



Struggling with **finding** the potential procurement **risk cases**



Auditors have to recognize the potential risk areas based on their **own expertise and judgement**



Introducing Risk Detector

Advising auditors on risky procurements



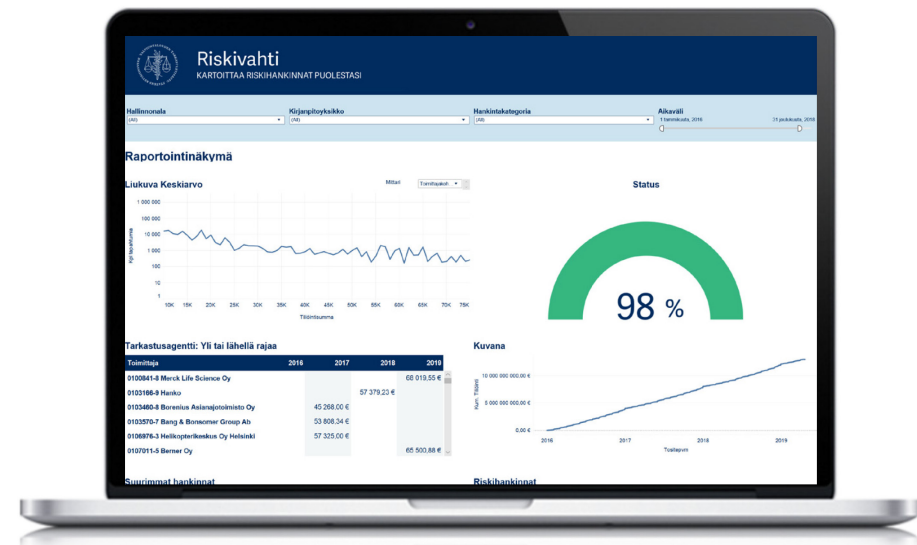
THE TOOL

- Guides auditors in planning and targeting their work
- Identifies potential risk cases: what procurements auditors should focus on?
- Useful for audit planning



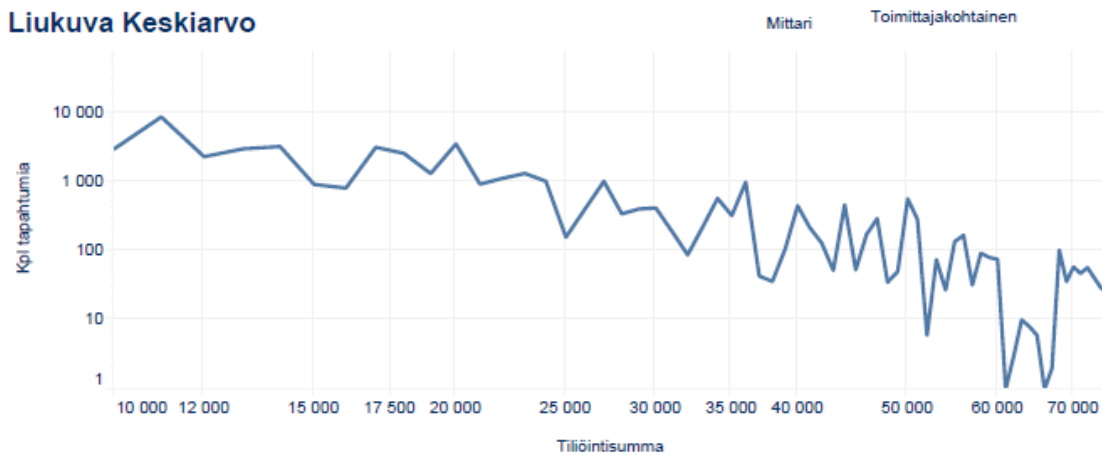
MAIN TARGET GROUP FINANCIAL AUDITORS

- Especially for accounting unit level audits

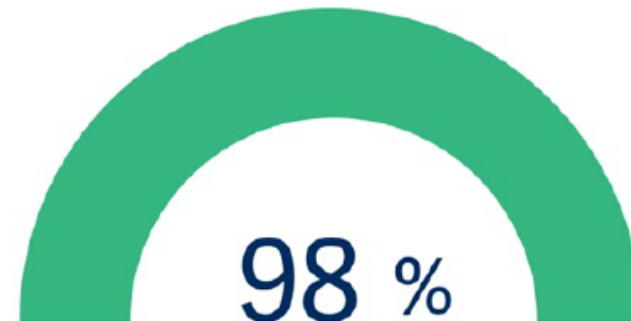


Raportointinäköymä

Liukuva Keskiarvo



Status



Tarkastusagentti: Yli tai lähellä kilpailutusrajaa

Toimittaja	2016	2017	2018	2019
0100346-5 Oy Aga Ab			53 217,51 €	
0103166-9 Hanko			56 403,39 €	
0103288-0 AAC Global Oy			50 993,35 €	
0103602-1 Asianajotoimisto Castrén & S..		62 045,18 €		
0105201-3 Papru Invest Oy	52 296,83 €			
0107011-5 Berner Oy			55 552,82 €	

Kumulatiiviset tiliöinnit



Suurimmat hankinnat sis. ALV

Case Id	Toimittaja	Tosittepvmm	
9786523	2096054-3 Crayon Oy	7 maaliskuuta, 2018	15 893 467,31 €
9479539	2096054-3 Crayon Oy	1 tammikuuta, 2018	14 576 487,77 €
11154858	2096054-3 Crayon Oy	11 tammikuuta, 2019	12 034 747,40 €
6049194	2640270-2 East Enterprises LLC, Suo	6 tammikuuta, 2016	9 903 600,00 €

Riskihankinnat

Case Id	Toimittaja	Tosittepvmm	Riskin syy	
6800087	0289075-6 Onarg Oy	6 kesäkuuta, 2016	Likvidointi	17 560,90 €
9753591	0790844-1 Telemar Oy Ab	1 maaliskuuta, 2018	Epäselyvyksi..	12 818,55 €
9903171	0790844-1 Telemar Oy Ab	5 huhtikuuta, 2018	Epäselyvyksi..	11 028,06 €
10941494	0790844-1 Telemar Oy Ab	23 marraskuuta, 2018	Epäselyvyksi..	10 513,63 €

Making of Risk Detector

The process



Data understanding

Enrich the Tutkihankintoja.fi dataset with other public data. Also some experiments with Python, Tableau and Power BI

Business understanding / UX design

Understand the problem we are trying to solve, tool requirements and functionalities





UX/UI design

As an end user tool, UX was an important part of the design process. NAOF's brand guide was used in the layout design

Co-design with end-users

The visualizations were co-designed together with the auditors. Commitment was strong on both sides





Deployment

After some experiments with **Angular**, **Tableau** was eventually chosen as front-end tool. Azure is running in the background.

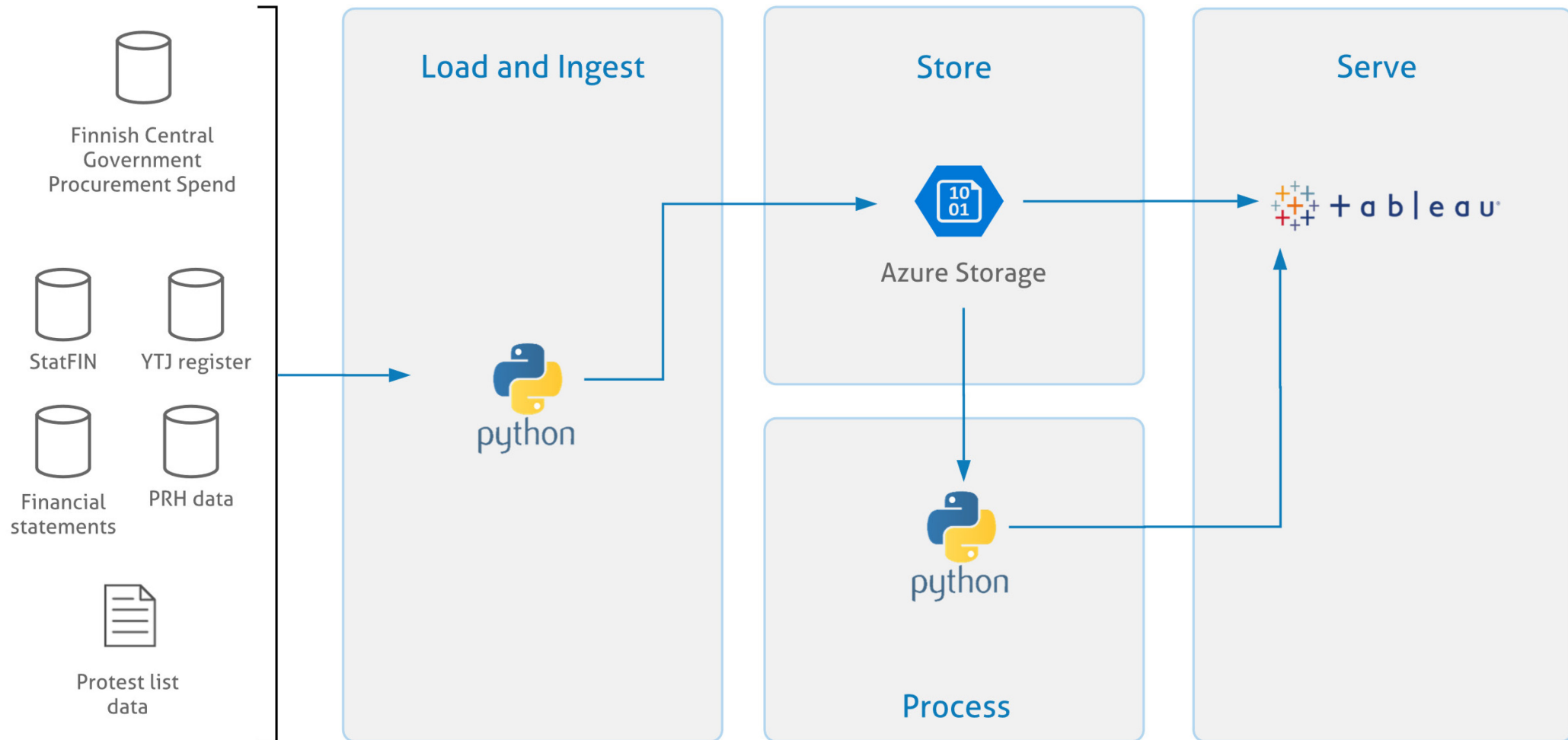
Modeling and evaluation

After thorough research into graph theories, a focus on visualizing the buyer-supplier network was chosen






Data and Technology

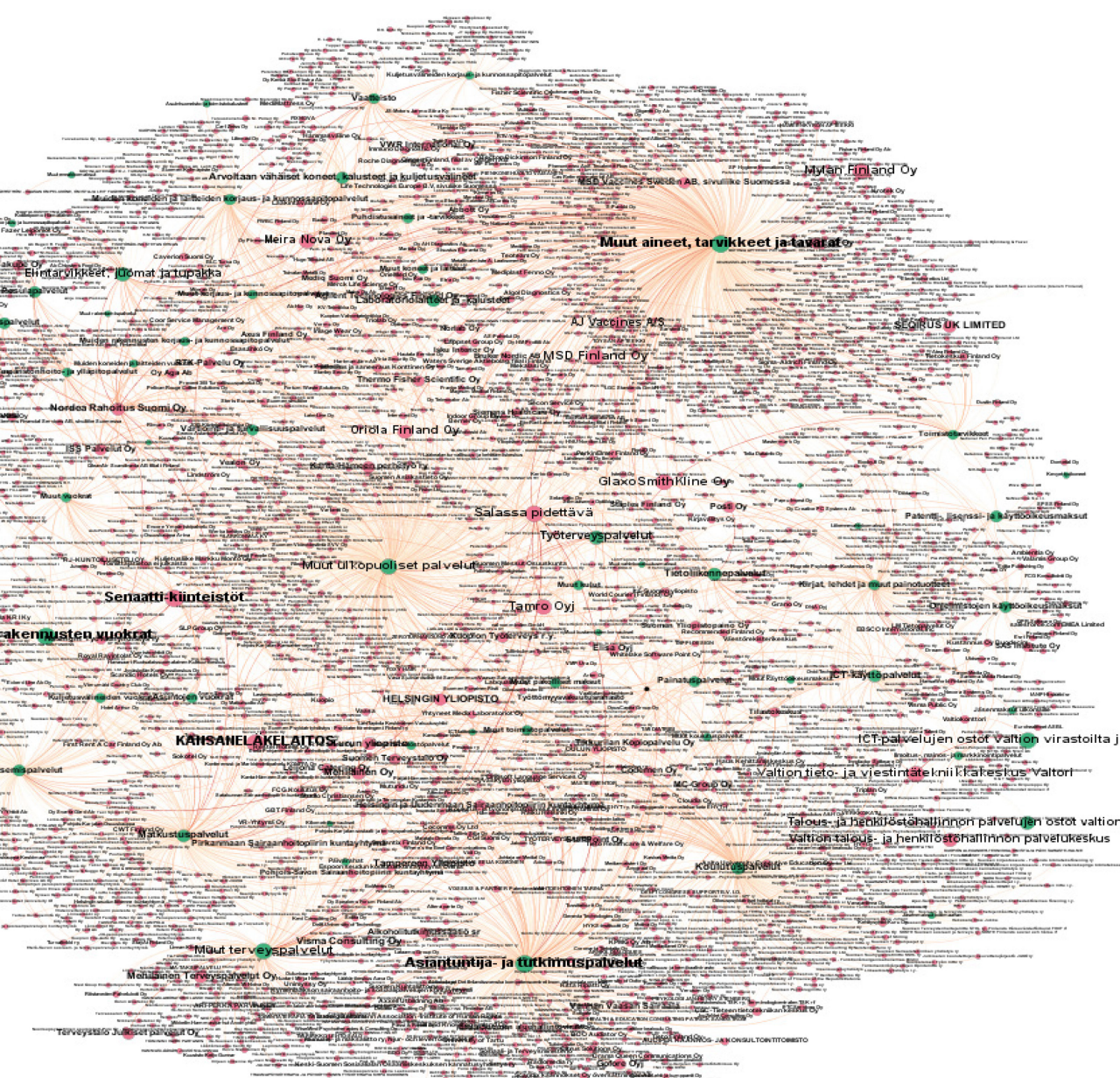
Open data and pilot architecture



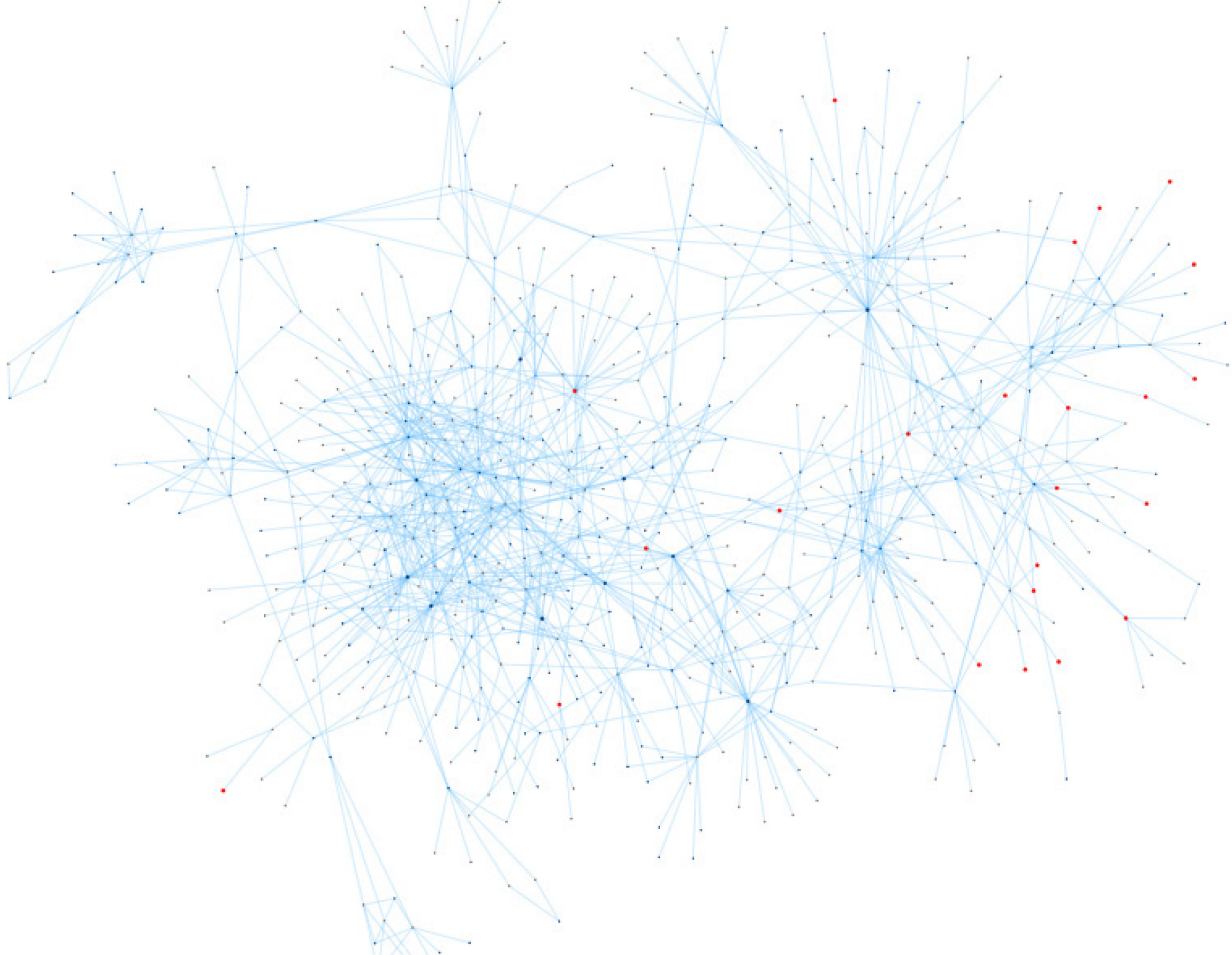
Challenges

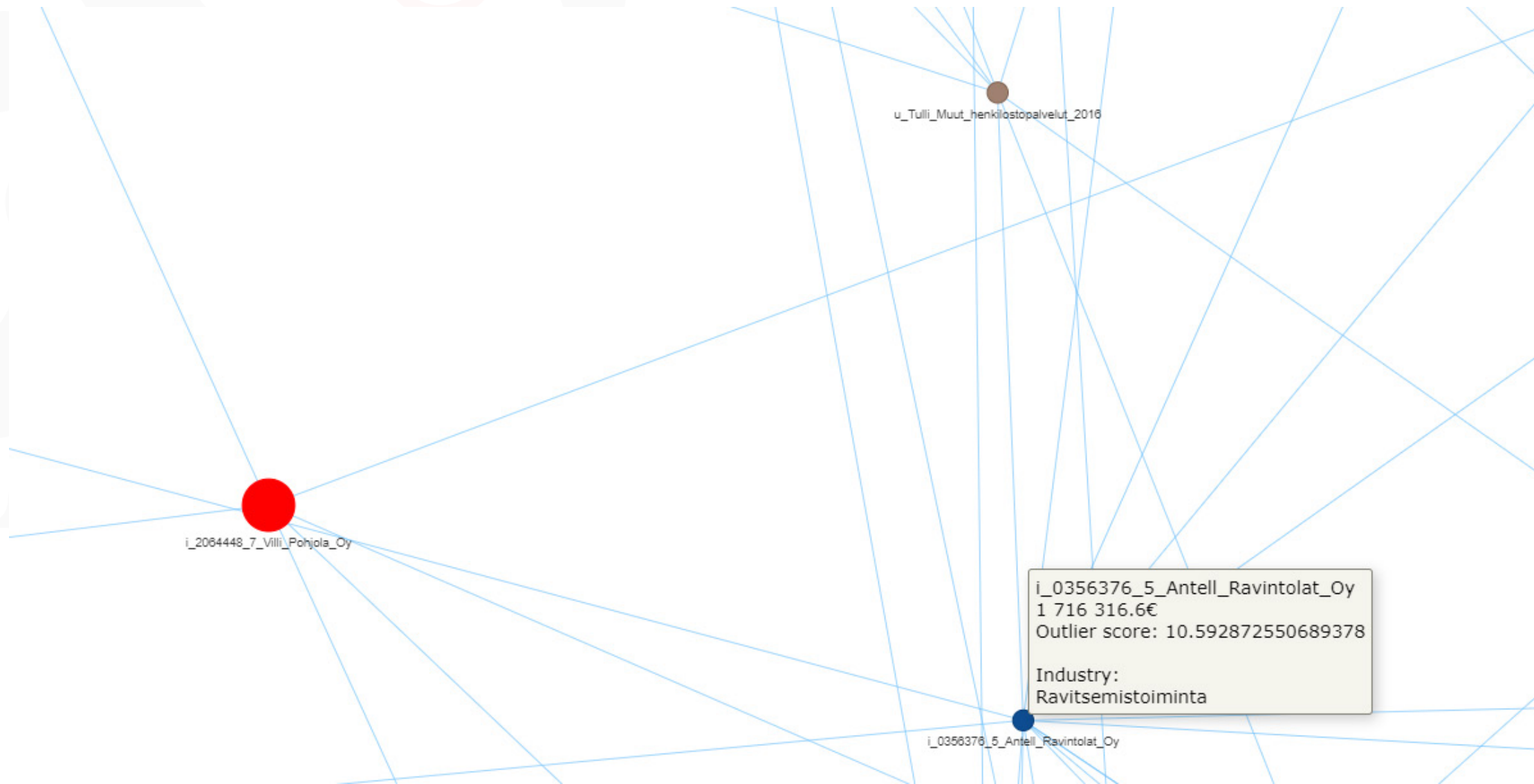
-  **Low expressive power of data**
 - Original dataset has only a handful of features
 - Resulting in a combination of datasets
-  **Heavy bureaucracy**
 - Finnish Security and Intelligence Service clearance process (data protection)
 - 100% built on public datasets
-  **Completely new area of analysis for the team of coders**
 - Graph analytics, spend analytics

The AI part: purchasers & suppliers



- The whole of relations between purchasers and suppliers constitutes a bipartite network
 - Similar to: Tinder, Netflix
 - Visualization: Cutting edge meets classic





Cool! Now what?

Top benefits



Helps to identify potential risky procurements



Makes the impossible possible



Ensures the quality of the audit work



Gives the overall picture to the auditors



Next steps

- The future of the pilot is in the hands of the management
- The development possibilities are endless
 - Find chained procurements
 - Check the inner circles
 - Enrich the data with actual invoices
 - Election campaign and political party funding
 - Corporation relations
 - Policy coherence
 - SDG affiliations
 - Going from Open data to private data?



Thank you!

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