DATA SCIENCE AT DNB

WORLD BANK - FINSAC CONFERENCE ON FINTECH

IMAN VAN LELYVELD

22 MAY 2019

Agenda

Process	How did it go? What have we accomplished so far?
Technology	Challenges & Solutions
Showcase	Explanation of PoCs: what are the new possibilities?
What's next?	What have we learned?

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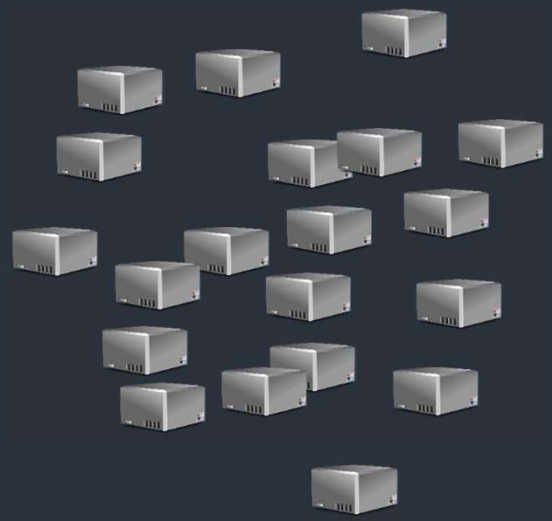
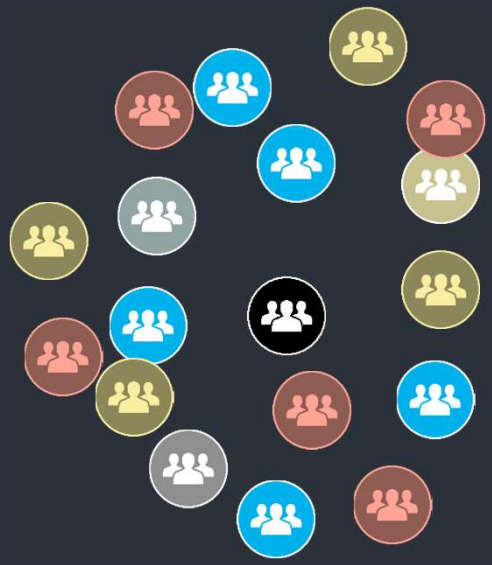
A dot on the horizon …



IT and tools

Data



People

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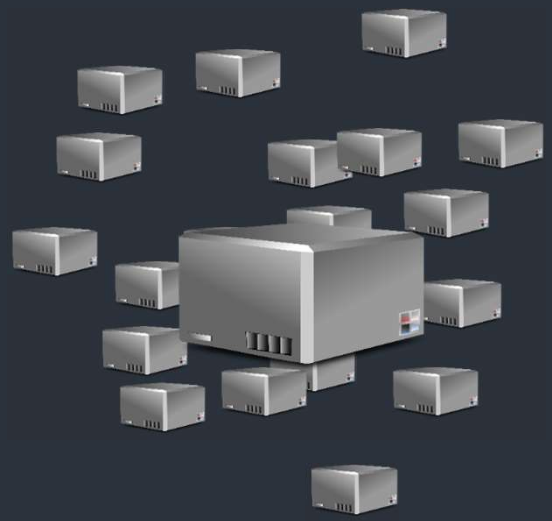
A dot on the horizon …



IT and tools

Data

People

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The dream …

… and reality

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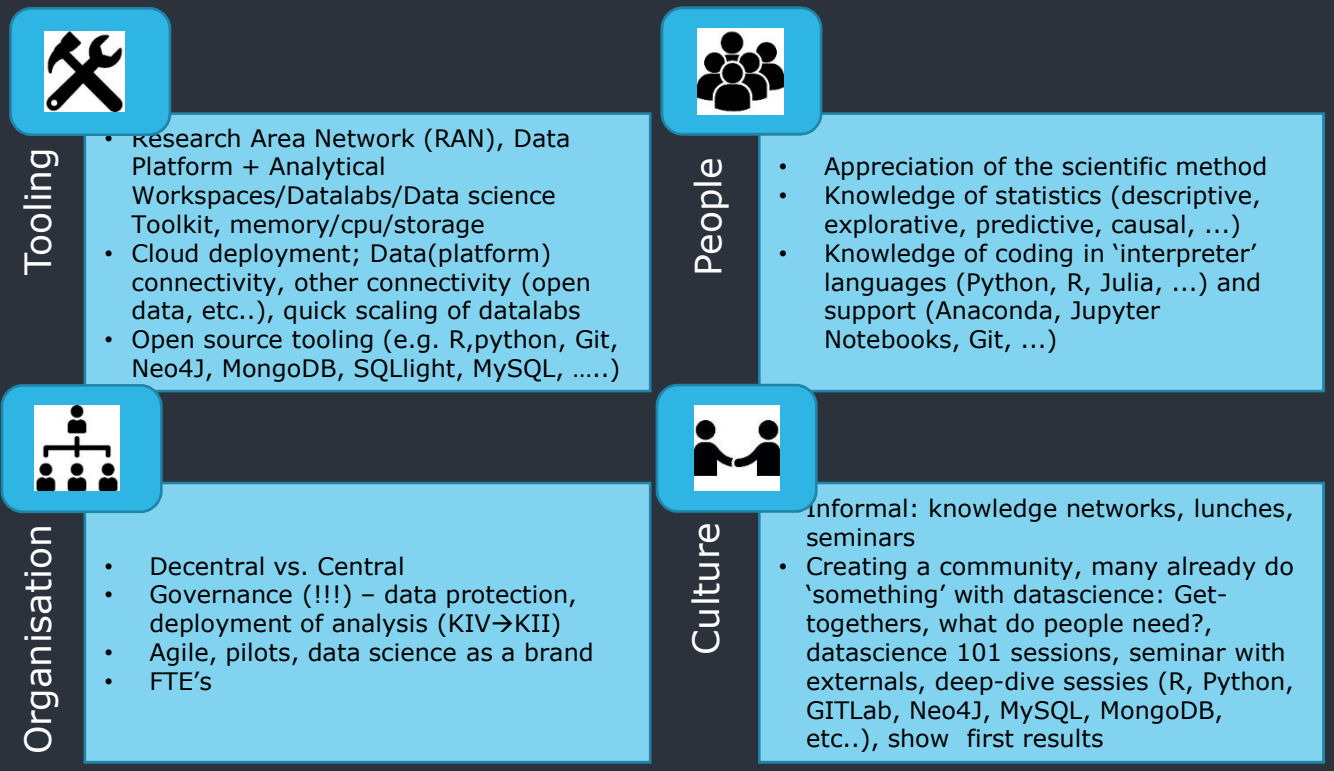
Which elements do we need?



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Process: venturing down unbeaten paths…

- Means and projects

- Legal
  - tension between experiments and a complete contract
- Technology

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Modern
Flexible
Scalable

Secure
Manageable
Traceable

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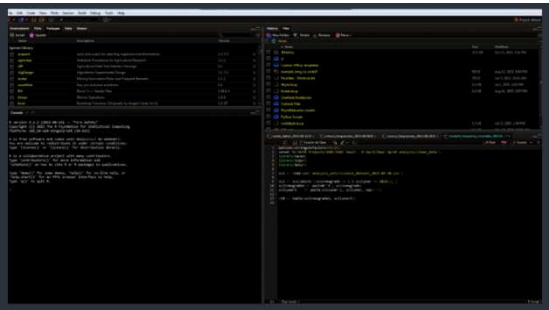

DNB

RAN High Secure

workplace workplace workplace X10

GIT Repo.

Ansible Log

DNB proxy

Internet

VPN Tunnel

SSH Tunnel

HTTPS

Surf Sara

DNB Net

VPN

Project Project

X∞ Project Project

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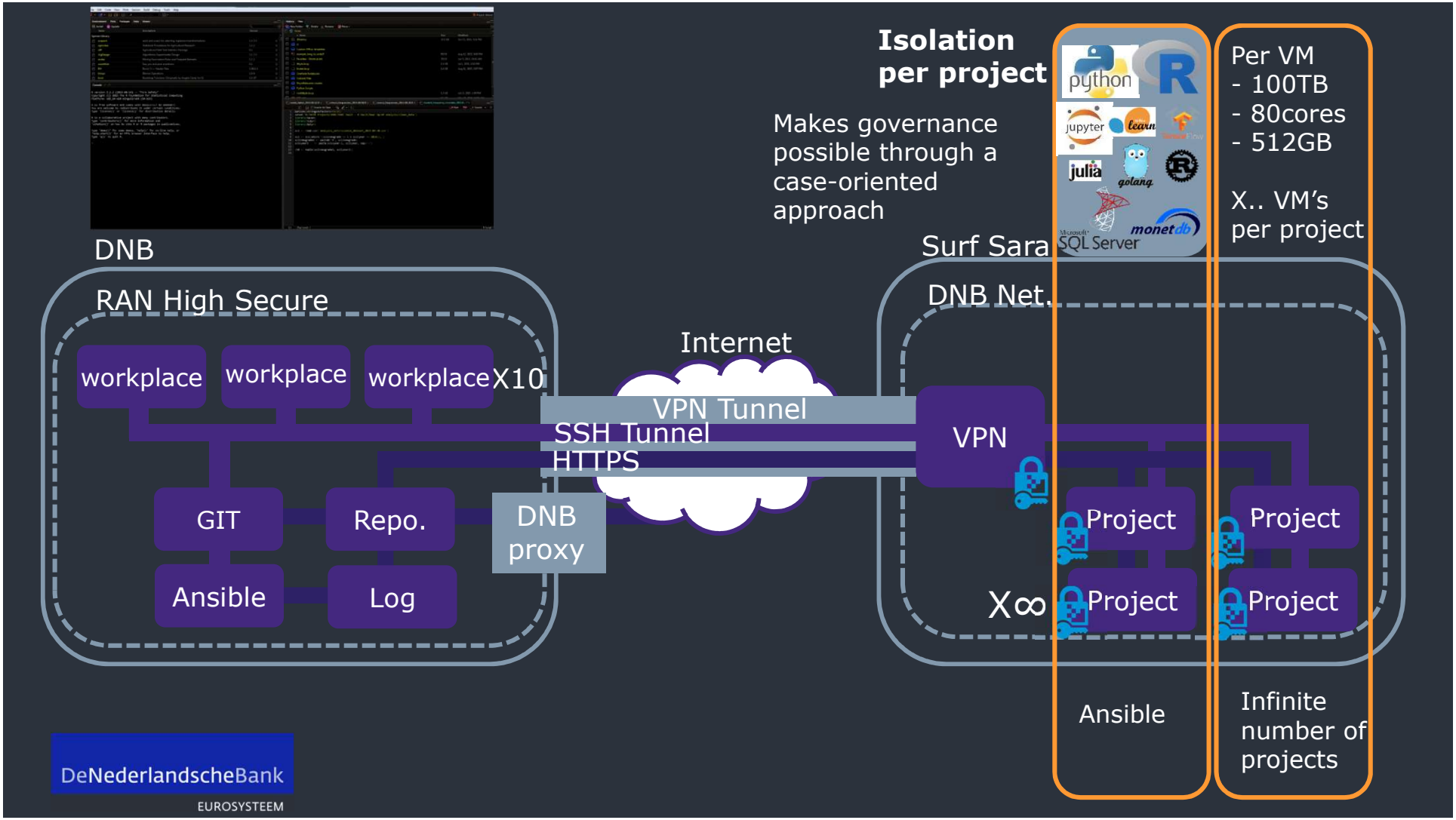
Isolation per project
Makes governance possible through a case-oriented approach
Per VM
- 100TB
- 80cores
- 512GB
X.. VM's per project
DNB
RAN High Secure
workplace
workplace
workplace
X10
GIT
Repo.
Ansible
Log
DNB proxy
Internet
VPN Tunnel
SSH Tunnel
HTTPS
Surf Sara
DNB Net.
VPN
Project
Project
Project
Project
X∞
Ansible
Infinite number of projects
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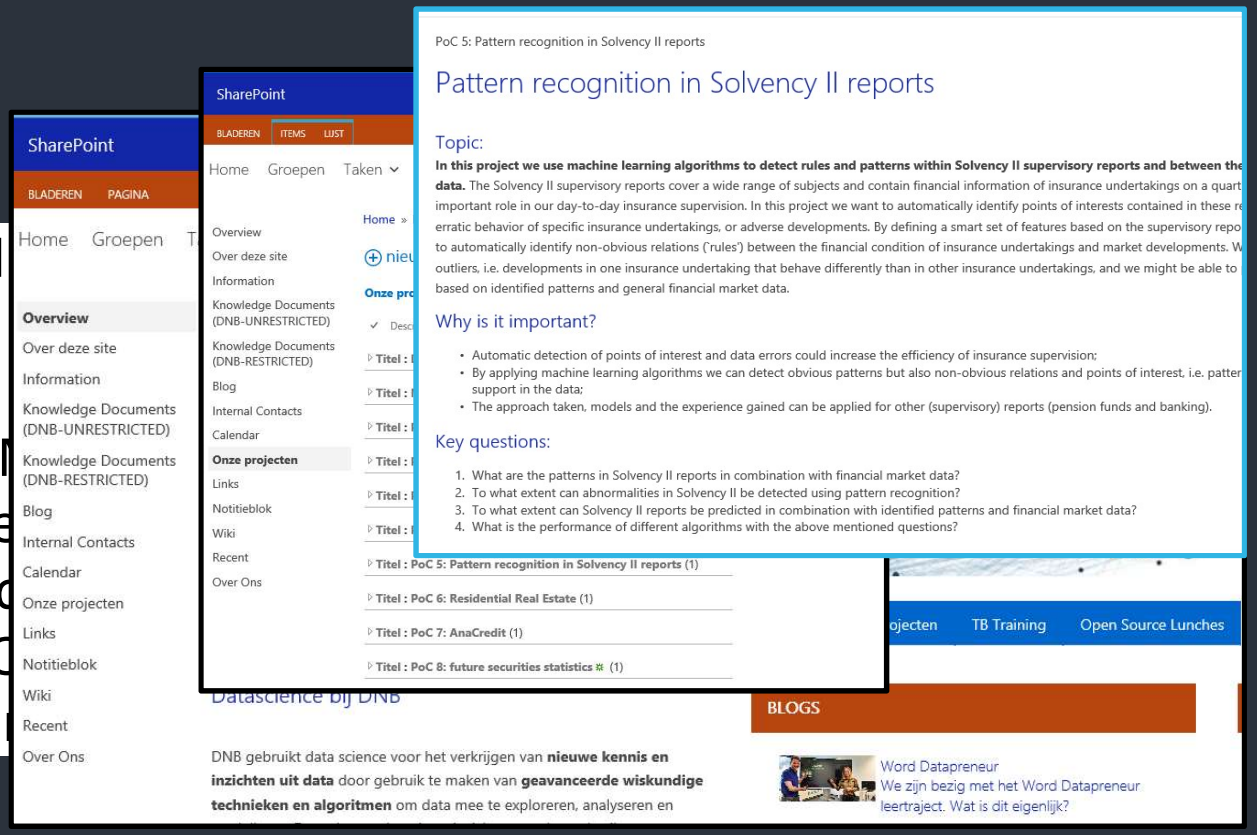
PoC 1: Cred
PoC 2: CCP
PoC 3: CDS
PoC 4: IRS
PoC 5: Patte
PoC 6: Resid
PoC 7: AnaC
PoC 8: Futu



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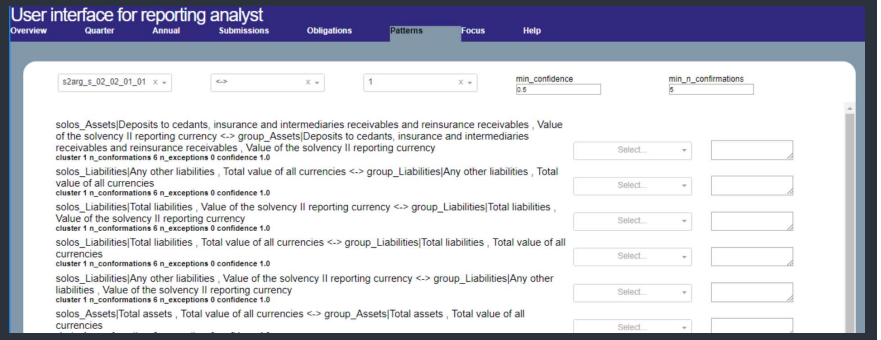
PoC 5: Pattern recognition in Solvency II reports

- Plausibility of group reporting in Solvency II
  - Sizable reports (> 4.000 dimensions per group)
  - Domain knowledge required
  - Specifying DQ checks labour intensive
- Applying machine learning algorithms
  - Checking causal relations within reports
  - Comparing group reporting and solo reporting
- On going work
  - Further DQ checks
  - Linking with other financial data
  - Other algorithms (# dimensions >> # groups)
  - User-interface for visualising and feedback



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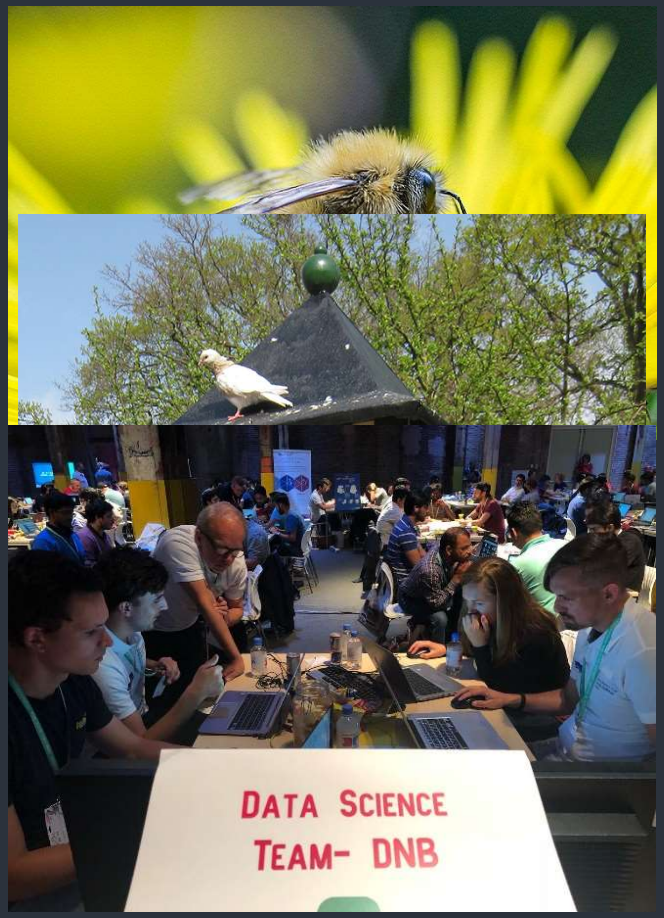
Lessons?

- Cross-pollination
  - Lelione
  - STAT ML
- The hard core
- Hackathon



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Community

- Python & R lunches
- A whiff of Data Science
  - Hands on case study with Jupyter Notebook for DNB board and management
- Manifest
  - What is responsible data science?
- Datapreneur
  - 22 participants from across the whole bank starting with open source and tackling their own business problems
  - Python, R, GIT, Agile, co-coding
- Training
  - Data Science 101, Joint with DNB Academy

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