bit

DeKleineConsultant

DUTCH4LIFE
DUTCH ENERGY DRINK
D4L

BITES WE LOVE

elastic

HackDelft

It's Hacktastic!

Immigratie- en Naturalisatiedienst
Ministerie van Justitie en Veiligheid

CGI

Join the Discord to get updated during the event!

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Opening

What is HackDelft?

- 24 hours hackaton
- 3 challenges and 2 partners
- 2 secondary challenges
- Pitches
- Judges & Prizes

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Announcements

- Join our Discord!
  - Get the role!
- Connect to WiFi
  - Password: “hackdelft”
- Sleeping in X2

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Drinks & Snacks

- Stamp card
  - With welcoming drink!
- Drinks, beer & snacks available

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Schedule - Saturday

- ± 14:00: Start hacking!
- 17:00: Elastic workshop
- 18:30 - 20:00: Dinner
- 23:00 - 8:00: X Closed

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Schedule - Sunday

- 7:00: Morning Gymnastics
- 8:00 - 10:00: Breakfast
- 10:00: Bit Workshop
- 12:00: Pitch Workshop
- 12:30 - 14:30: Lunch
- ± 14:00: Hacking Ends
- 14:30: Networking Drinks
- ± 16:00: Award Ceremony

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CHallenges

- CGI
- HackDelft
- IND

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Extra Challenges

- Elastic
  - Workshop at 17:00!
- Cup stacking

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Judging

- Pitching!
- 2 judges + the partner
- Judged on:
  - Originality
  - Implementation and scalability
  - Use of technology
  - Pitch
  - Wow-factor
  - Sustainability

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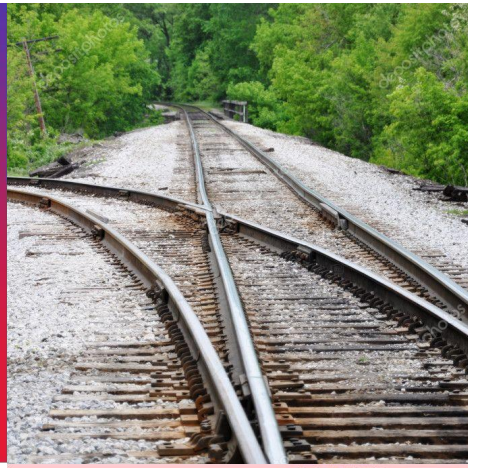
Prorail Monitorings Platform



30 April 2022

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Hackaton contact

Jeroen de Bekker
Software Architect /
Director Consulting Services

Sven Kardol
Experienced software
engineer

Ralph Oud
Experienced Software
engineer

Joppe Roebroeks
Experienced software
engineer

2 insider guests from ProRail:
Kenny Peters & Jan Rombout

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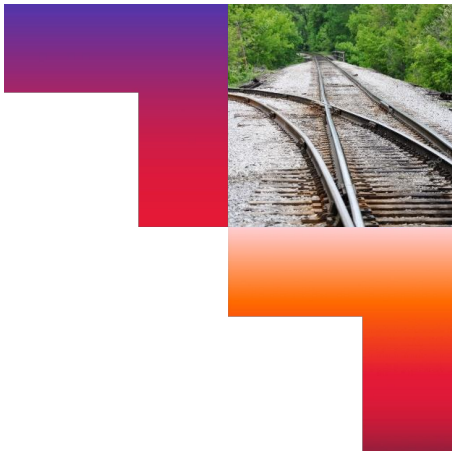
PMP

(Prorail Monitorings Platform)



Mainly railroad Monitoring:

- **Switches**, Sections, Switch Heating systems
- Train bridges, ground faults
- Etc

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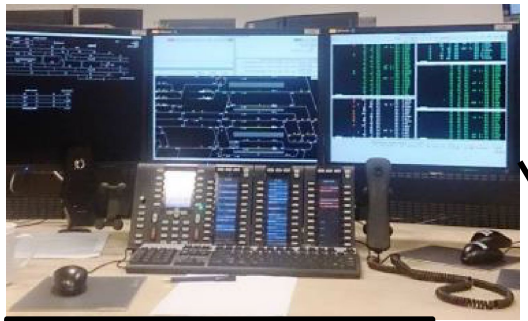
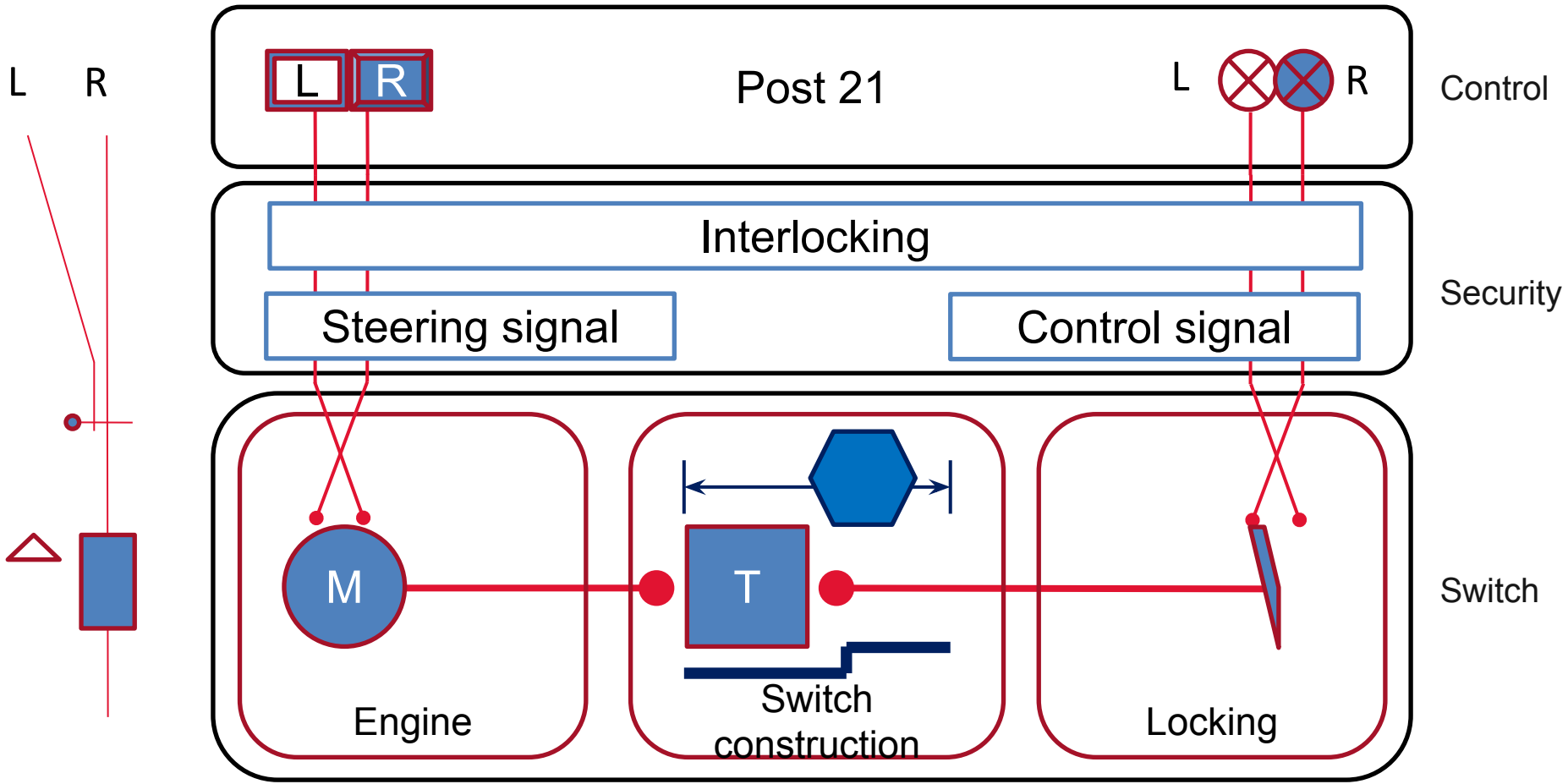
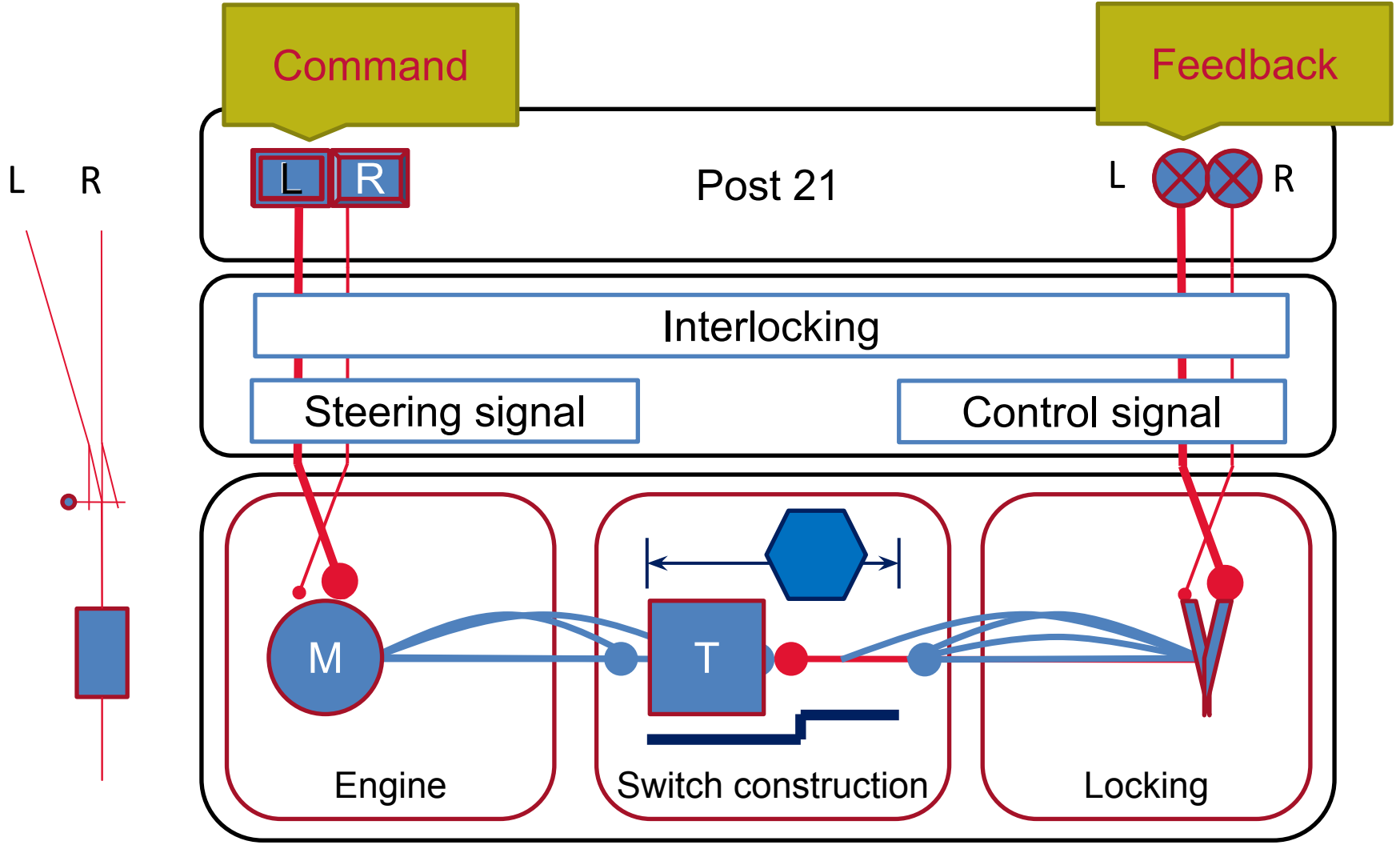


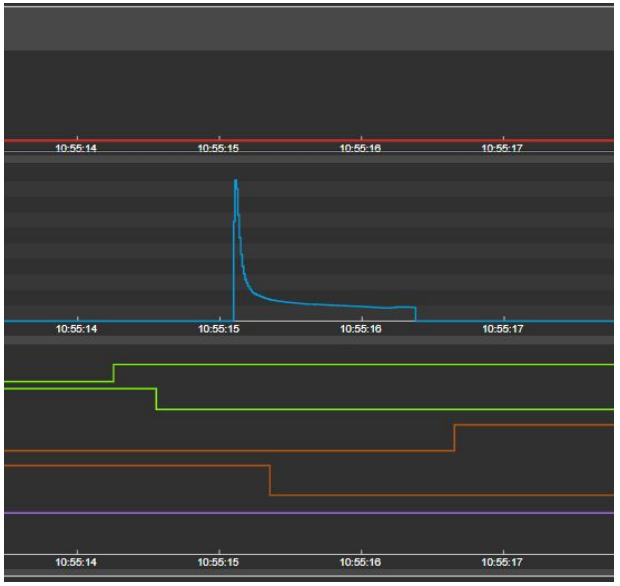
Traffic controle System

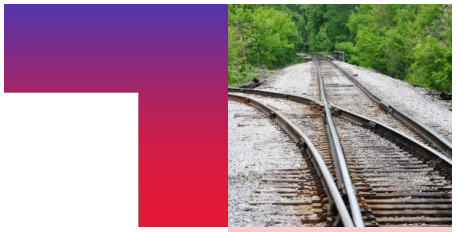
Monitoring systems


L
R
L
R
Post 21
L
R
Control
Interlocking
Steering signal
Control signal
Security
M
T
Switch
Engine
Switch construction
Locking


Command
Feedback
L
R
L
R
Post 21
L
R
Interlocking
Steering signal
Control signal
M
T
Engine
Switch construction
Locking

Switch data





Simple case

- Engine current (A)
- 2 Steering signals (L & R) (0 or 1)
- 2 Control signals (L & R) (0 or 1)
- Switch occupation signal (1)

PMP has over 50 variations the above case where PMP accounts for:

- Multiple engine currents
- Multiple steering signals
- Multiple types of motor currents/sequences
- Complexity in combined switches
- Multiple monitoring systems (FLEX/POSS)
- Special switch specific cases

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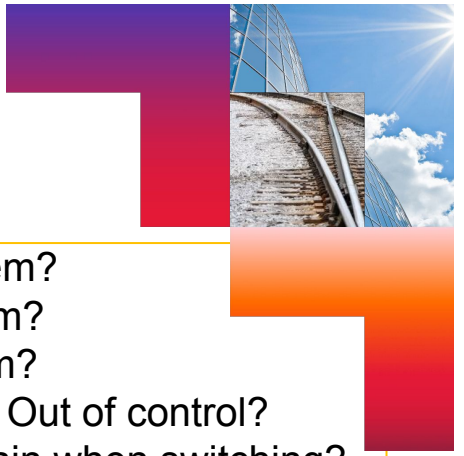
Result switch turn event



- Turn event definition
- Incorrect events
- Summarized values
- Exceeded limits

Did the switch turn left or right?

- Steering problem?
- Turnout problem?
- Control problem?
- Spontaneously Out of control?
- Occupied by train when switching?

Were the summarized values too high or too low?

- How much power was used?
- How long did the engine run?
- How high was the initial motor power peak?
- How long was the switch not in control?
- etc.

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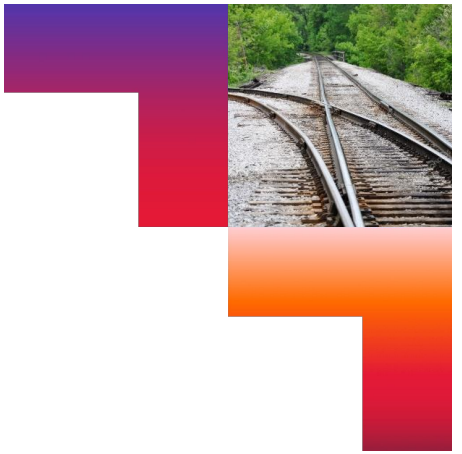
Overview dataset



60 switch containing data from March:

- **PMP** (technical) data and results
  .csv data files
- **WENS** (technical switch occupation) Data
  .sql data files
- **Sherlock** (functional) notifications
  .csv data files
- **Background information** on switches

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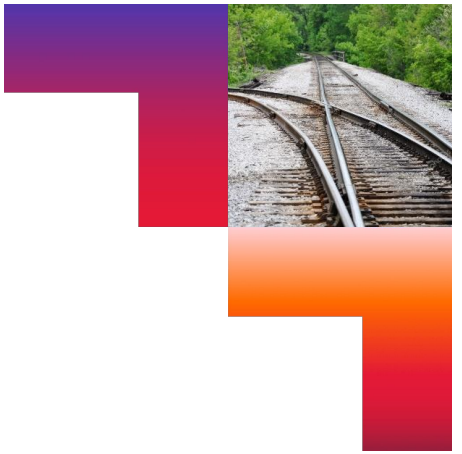
Cases



- Relation between weather and switch behavior
- Relation PMP data/results and WENS results
- Relation between ground material and switch behavior
- Relation between type of switch and switch behavior
- Is a switch turnout problem predictable based on previous switch events?

Please discuss your own use cases.

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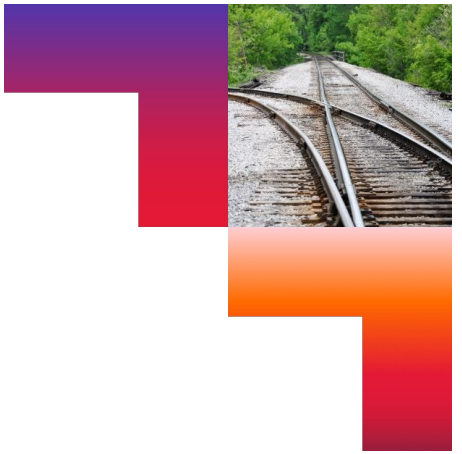
Contacts



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Travel Challenge

Can you relate?

My friend and I tried to book a holiday to Portugal

- We found nice AirBnBs
- We made a list of things we want to see
- We found a time where we both could travel

But …

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Can you relate?

- The flights were too expensive :(

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Your task:

- Travel planner application
- Taking user preferences
- Functional UI
- Various API calls
- Finding the data actually up to you

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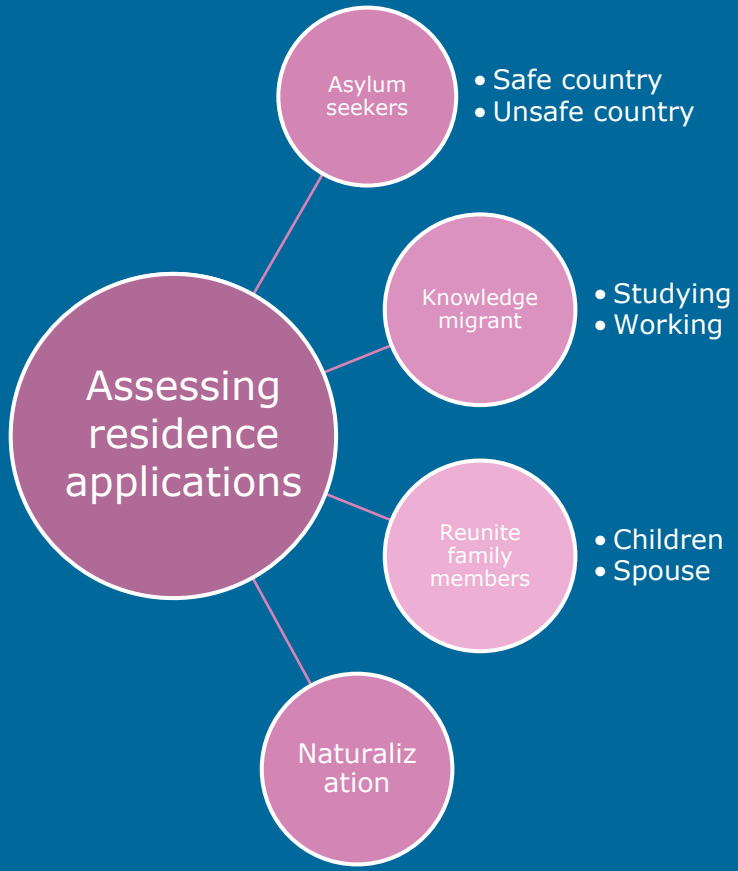
Immigration and Naturalisation Service
Ministry of Justice and Security

Immigration and Naturalization Service (IND)

Predict influx based on geopolitics

Laura Kreuk – Data Scientist

IND


Assessing residence applications
Asylum seekers
• Safe country
• Unsafe country
Knowledge migrant
• Studying
• Working
Reunite family members
• Children
• Spouse
Naturaliz ation

Data expertise center

Data analist

- Analyzing information need
- Data exploration
- Develop dashboards

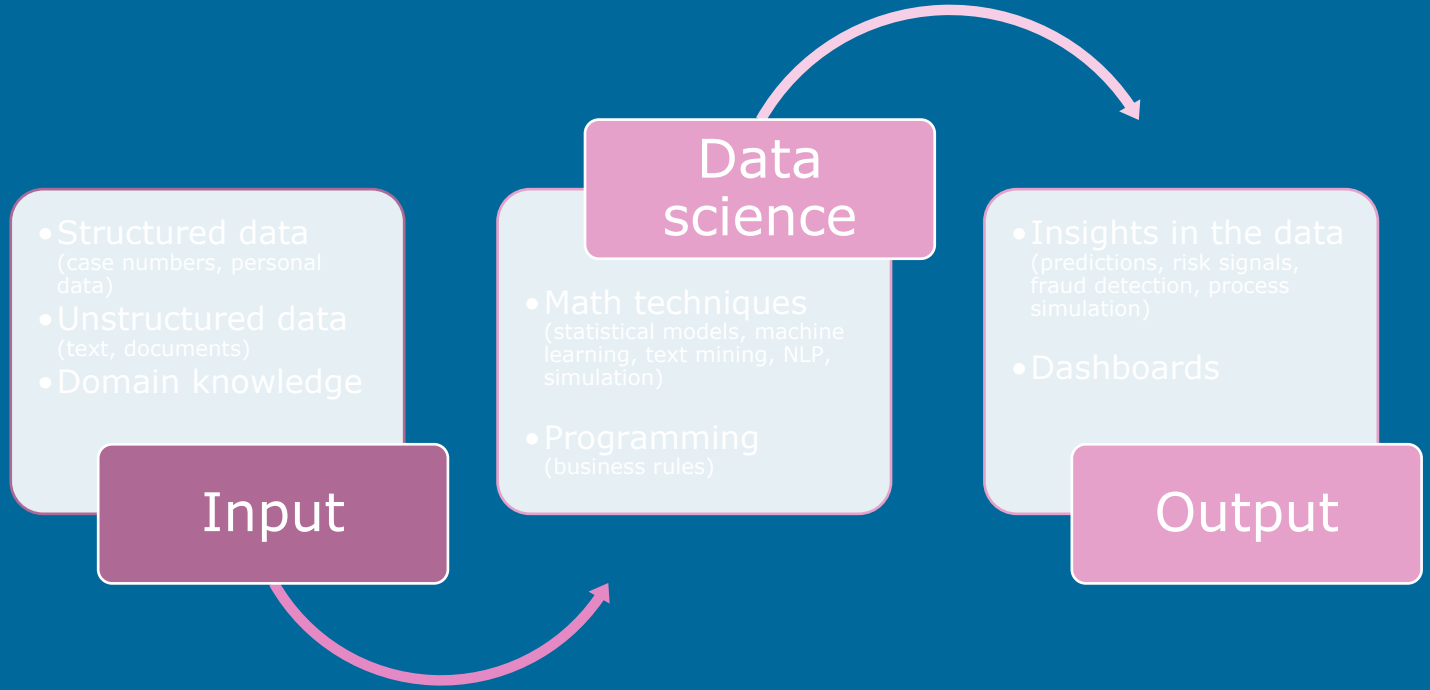
Data scientist

- Complex analyses
- Math models
- Create insights from structured & unstructured data

Data engineer

- Analyze data sources
- Building data pipelines
- Make data available

Data expertise center



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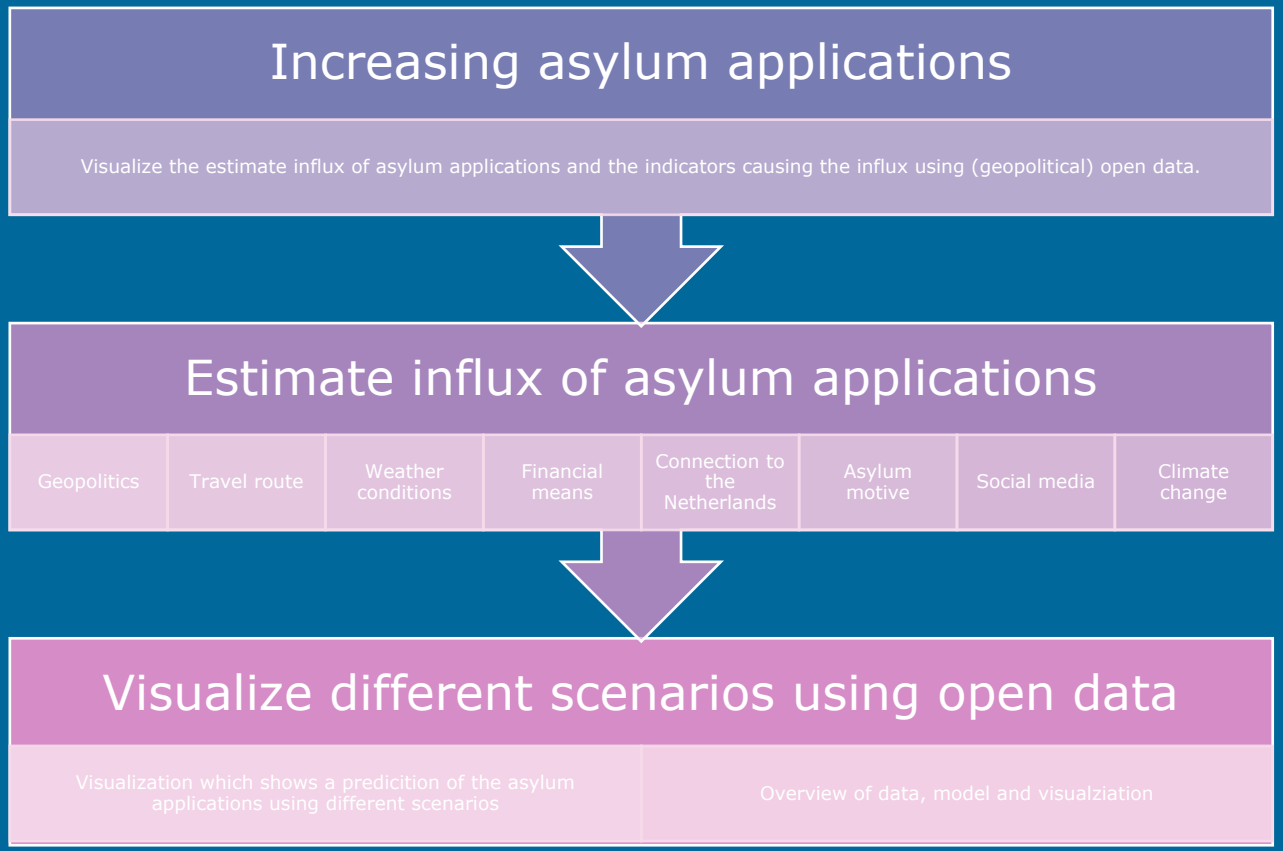
Ministry of Justice and Security

Case

Predict influx based on geopolitics

Intro
Influx scenarios

The number of asylum applications submitted to the IND has been increasing.

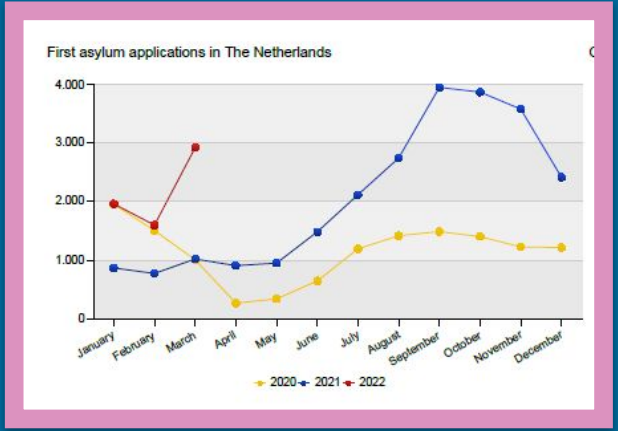


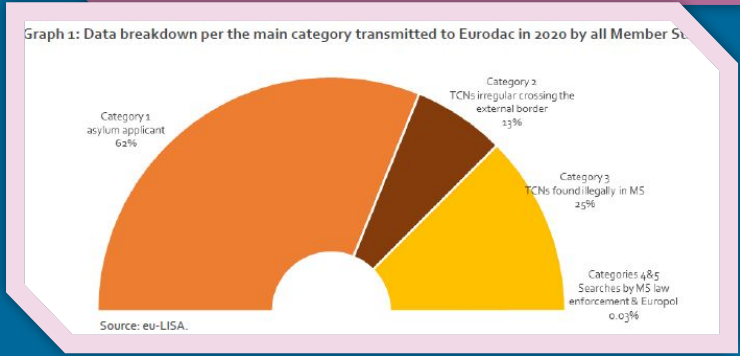
Data

- Asylum requests and relatives; nationality, gender and age
- Asylum Trends
- Eurodac statistics

Asylumlrequests and relatives; nationality, gender and age
Gender: Total man and female
Age: Total

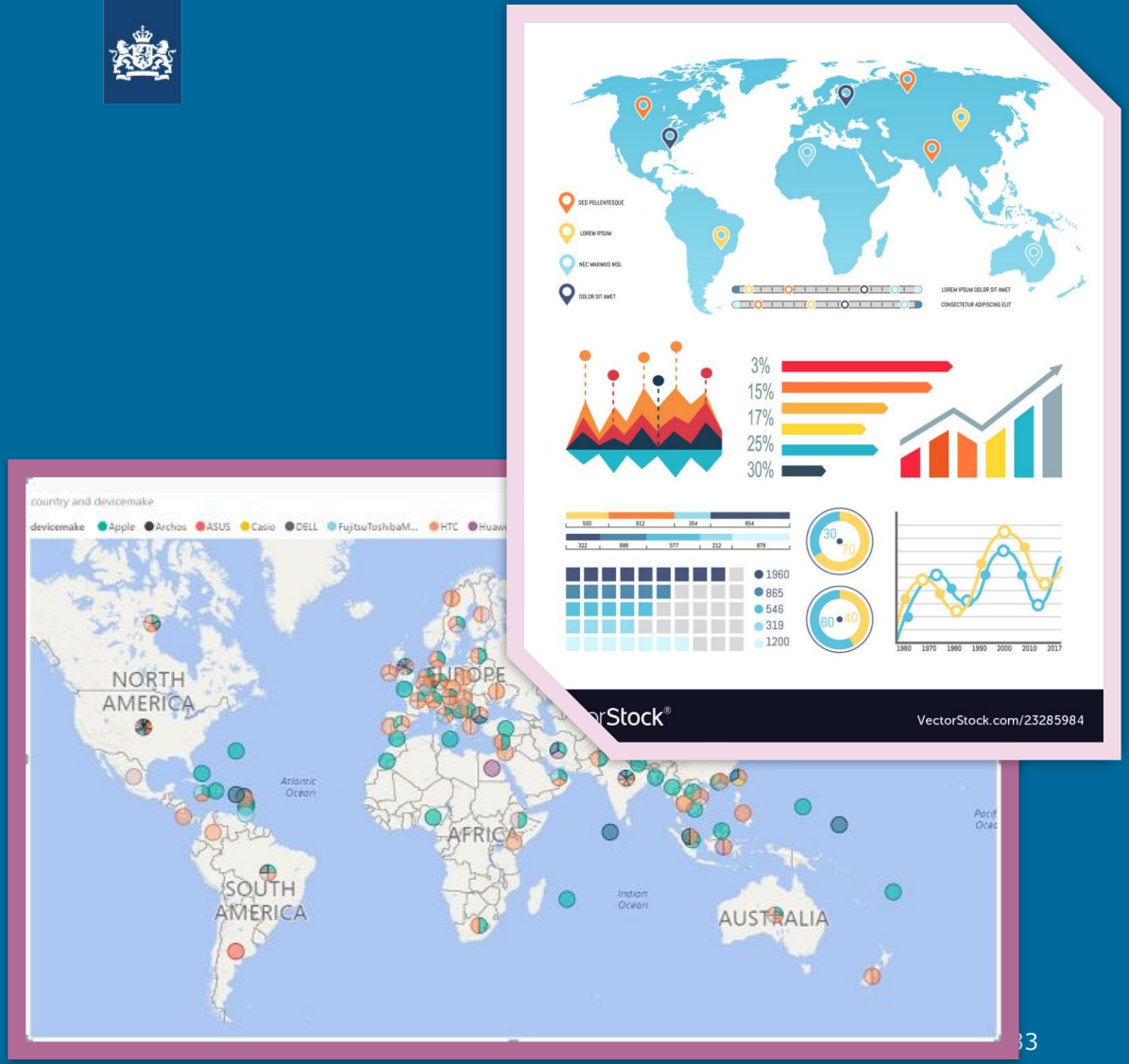
			Period						
Subject	Nationality		2013 janua	2013 febru	2013 maar	2013 april	2013 mei	2013 juni	2013 juli
First asylu	Totaal	amount	735	675	695	690	615	705	765
First asylu	Afghaans	amount	50	40	40	55	30	25	50
First asylu	Albanees	amount	0	5	0	0	5	5	0
First asylu	Algerijns	amount	0	0	5	5	0	10	0
First asylu	Angolees	amount	0	5	0	0	0	0	0
First asylu	Armeens	amount	20	10	10	10	25	10	15
First asylu	Azerbeidzj	amount	5	5	5	0	5	5	0
First asylu	Bosnisch	amount	0	5	5	0	0	20	5
First asylu	Burundisch	amount	0	0	0	0	0	0	0
First asylu	Chinees	amount	5	5	10	15	5	5	0
First asylu	Colombiaa	amount	0	0	0	0	0	0	0
First asylu	Congolees	amount	0	5	5	5	5	0	5
First asylu	Cubaans	amount	0	0	0	0	0	0	0
First asylu	Egyptisch	amount	15	15	15	15	25	5	20
First asylu	Eritrees	amount	45	55	35	20	20	25	60
First asylu	Ethiopisch	amount	5	0	10	0	5	5	5
First asylu	Gambiaan	amount	0	5	5	5	0	0	5
First asylu	Georgisch	amount	10	5	15	10	10	15	15
First asylu	Ghanees	amount	5	0	5	5	0	5	5
First asylu	Guinees	amount	5	20	15	10	15	10	10
asylu	Indiaas	amount	0	0	0	5	0	0	0
sylu	Iraaks	amount	110	40	55	50	25	35	40
u	Iraans	amount	65	65	45	70	40	50	50
	oriaans	amount	5	5	10	0	5	0	0





Suggestions

- Data
  - Which indicators are used
  - Quality of the data
- Model
  - Techniques
  - Robustness
  - Transparency
  - Training and test procedure
  - Performance
- Visualization
  - Usability
  - Accuracy



Questions?

Laura Kreuk – Data scientist

Marcel Geraads – Manager

Paul Schoenmakers – Data scientist specialist

Pieter van der Deijl – Data engineer

Give your preference!

No group? Stay seated!

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