

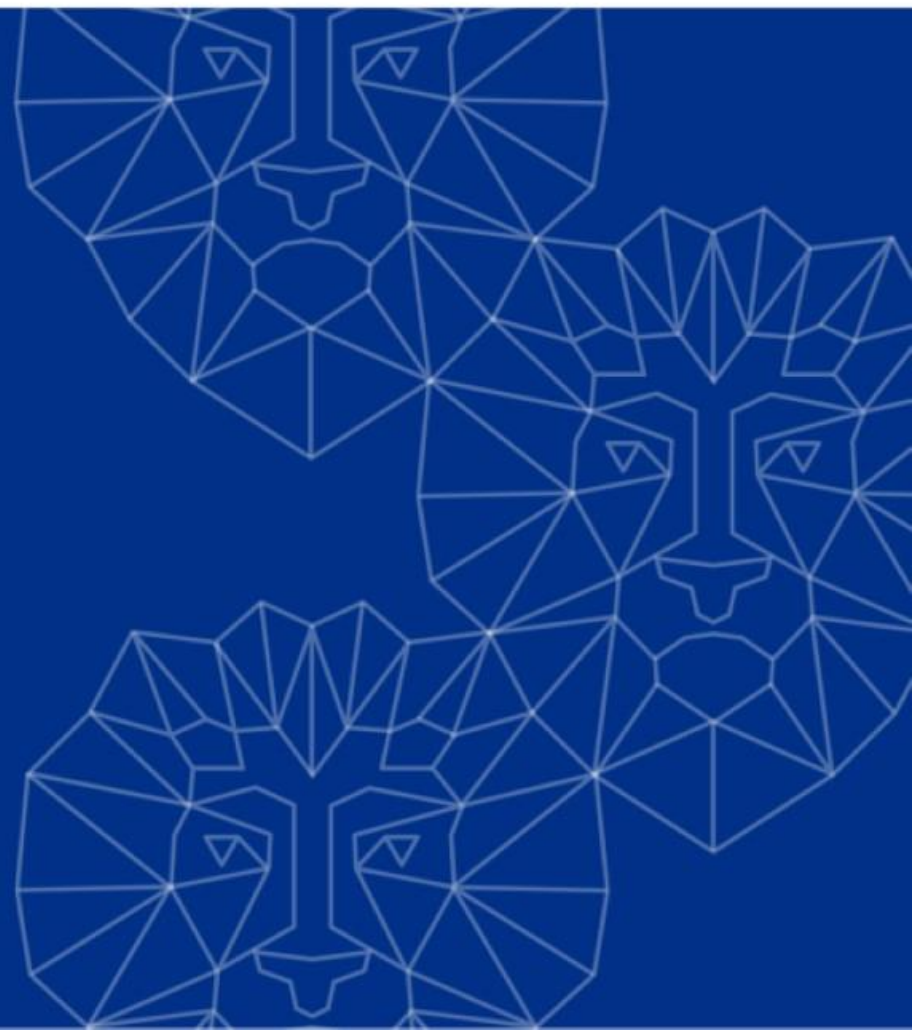


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# Risk analyses tools supporting Estonian tax authority in detecting fraud

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# Why ETCB piloted AI tools?

- Risk analysis is rule-based
  - rules for storing, sorting, and processing data are hand-crafted
  - companies that are in risk groups are prioritized according to how high or low the risk is
  - initial selection is made automatically and then reviewed by analysts
  - final choice is made by an auditor, who also decides how to proceed
- Time consuming and resource intensive
  - although the accuracy can be high

# Envelope salary model

- The 1-year pilot project was launched in 2021
- Took 6 months to structure data suitable for AI
- 17 000 features, data since 2004 (in-house)
  
- Trained AI – 90% accuracy
- Trained AI + human rules - 97% accuracy in correctly detecting tax fraud
  - Rule-based model's accuracy appr 80%
- Diversified the image on risky companies
- Although „black box“, auditors could understand why the company was risky
- Did not estimate the sum of tax fraud

# VAT AI model

- Goal - more accurate target selection
- Based on the experience of the Norwegian Tax Administration
- 350 features, lot of training
- In-house data + external databases
  - Lack of documentation of external databases
  
- Did not estimate the sum of tax fraud
- AI needed less data to give same accuracy than rule-based risk model

# What we learned

- Importance of data structure
- Much more can be done with existing data and reduce the necessity to collect additional data
- AI+human is better than only AI
  - AI learns from history, we need to look also ahead
- Explainability of AI outcome is very important – auditor needs to know where to look and taxpayer needs to know why we see taxrisk
  - AI is a tool, it does not bear responsibility
- Can't be developed as regular IT projects – needs constant input from business side to train AI
- High level support - need to change current working processes, implement new roles and hire people with different knowledge
- More costly – benefit can be further away (esp in beginning stage)

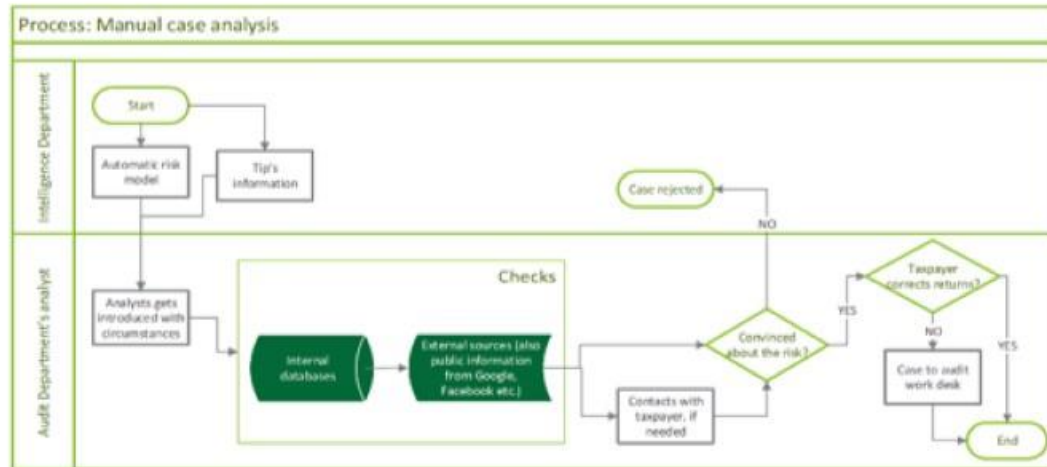
# AI strategy in ETCB

- Aim: to support the organization's capability to design, develop and implement reforms related to artificial intelligence and digital solutions
- Compile implementation plan and prioritize projects
- 18 months project with Deloitte and European Commission

# Mapped key processes across 11 ETCB departments

...using:

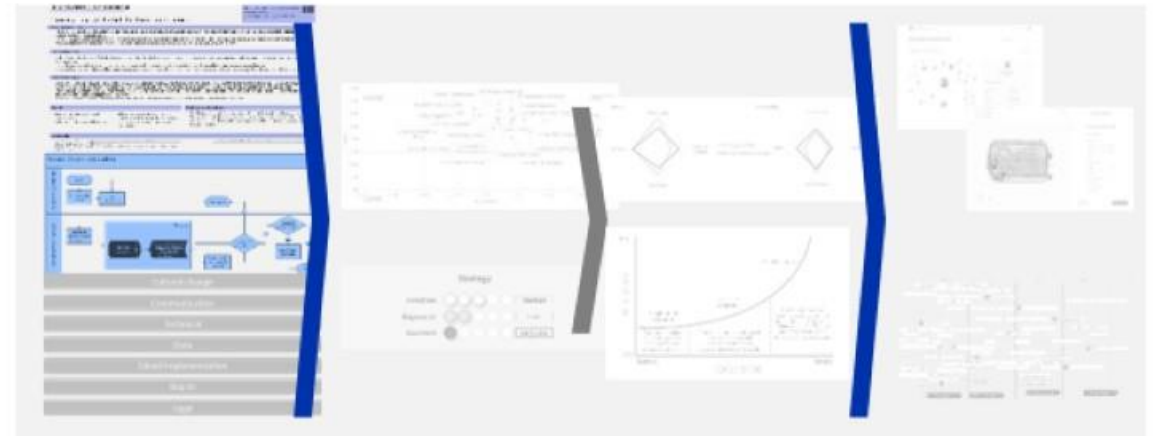
- Departmental interviews across Management, 11 departments, and 4 additional sub-departments
- Business Process Modelling Notation (BPMN)



Data gathering

Analysis

Outputs



# Identified bottlenecks across 7 themes from across the ETCB

...using:

- Additional stakeholder interviews with pilot project managers and RMIT
- Analysis of ETCB's pilot AI projects

Cultural change

Communication

Technical

Data

Siloed implementation

Buy-in

Legal



# AI Readiness - Pillars

## Strategy

The ETCB has strong innovation-related ambitions

## Technology

- The ETCB does not have separated environments for AI development
- Technology dependencies (SAS) should be analysed with continuity planning

## Ethics

- A framework for AI explainability must be developed within the ETCB
- Regulatory and legal concerns have been identified when it comes to sharing and controlling data

## Process

Efforts around data governance are being conducted

## People

- A proper operating model is required to move forward in the AI roles definition
- There is a significant skill gap to bridge in terms of AI and data science

## Data

Strong data privacy and security rules are applied



— Current State

A person is silhouetted against a dark, starry night sky. They are standing in a field of tall, thin grasses. In the center of the sky, there is a bright, glowing nebula or star cluster. The overall scene is dark and atmospheric, with the person's silhouette providing a focal point.

**Thank you!**

**estonishing future**