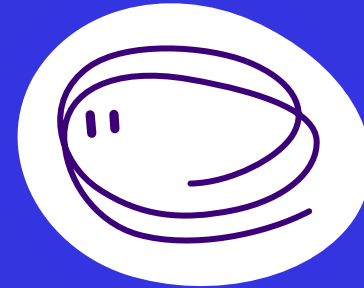


Building AI-powered government: The Estonian experience



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Government Chief Data Officer

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MAJANDUS- JA
KOMMUNIKATSIOONI-
MINISTEERIUM



KRATT
Eesti
Tehisintellekt



bürokratt

#eEstonia digital government agenda 2030

OBJECTIVE	Best experience			
LEAPS	Switch to life-event based and proactive services	AI-powered government	Human-centric digital government	Green digital government
	Management and user-centricity of public services	Data-driven governance and reuse of data	Futureproof digital government platforms	Centrally provided basic IT services
	Systematic experimentation with new ways	Open innovation and development of govtech community	Empowering digital change in public sector	Targeted international cooperation
FOUNDATIONS				

Estonia is a leading user of AI solutions in the provision of public services in the world: **our government is AI-powered**

Define Principles

- We protect people's basic rights
- We cherish Estonian culture and language
- We maintain trustworthiness
- We are technology neutral
- We build digital society together
- We are innovative



Foto: Heiko Kruusi

AI strategies

National AI strategy for 2019-2021:

- public sector
- private sector
- legal system
- education+R&D

National AI strategy for 2022-2023:

- public sector
- private sector
- legal system
- education+R&D
- data as an enabler

National AI strategy for 2024-2025:

- collaboration
- reusability...



Kratt in e-government

Number of use-cases

120+

Reusable AI components
koodivaramu.eesti.ee

40+

Number of organizations

60+

Fully automated processes

0

There are no fully automated processes!

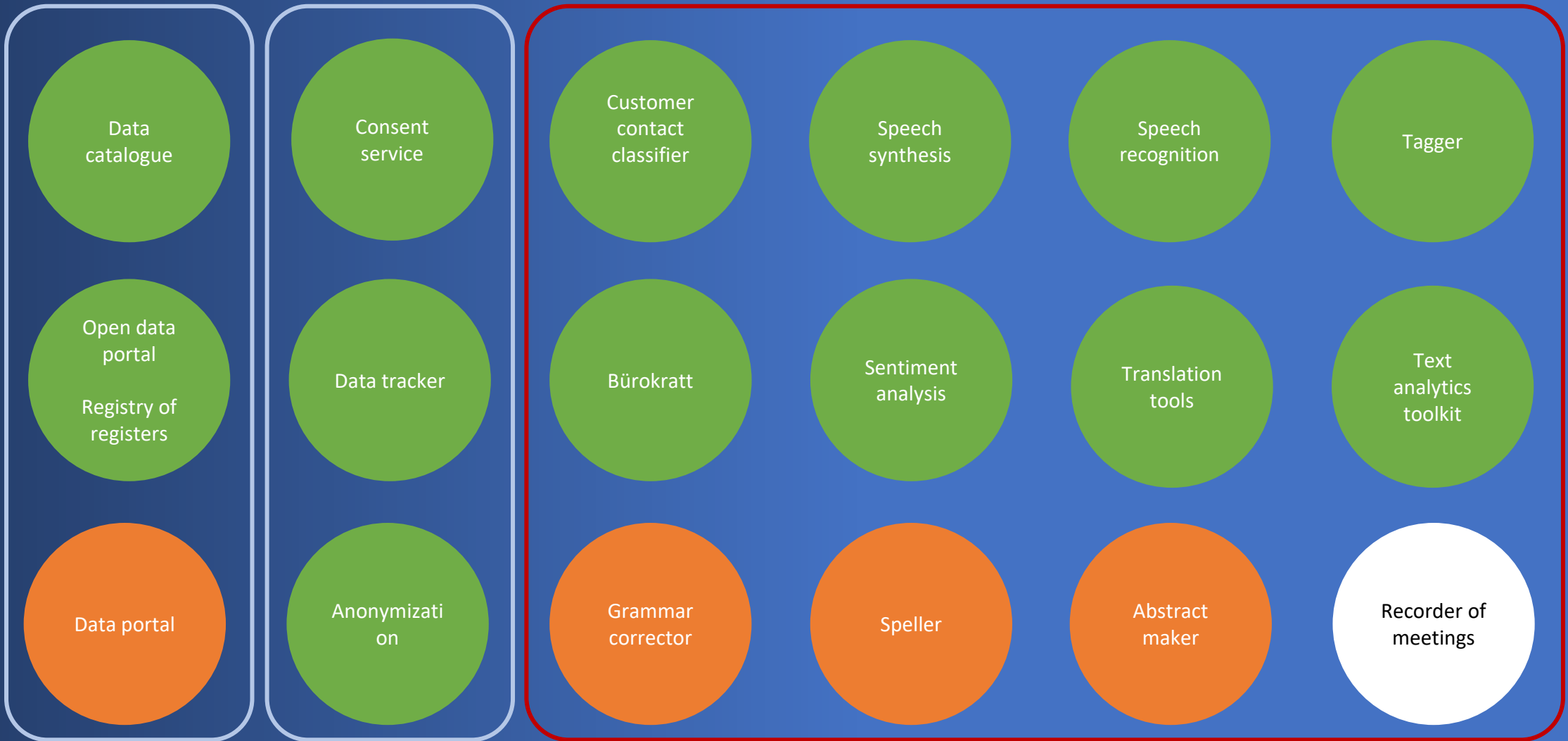
AI-powered government focus areas

Area	Technology				Competences and skills	Legislation, ethics and citizen-centricity	Data as an enabler
	Bürokratt	Natural Language Technology	AI	Core components (BükStack)			
Objective	National virtual assistant based on artificial intelligence – an assistant in every area of life	Core reusable language technology components and language models - we ensure the sustainability of Estonian language technology	We help to reorganize the work of organizations with the help of artificial intelligence, supporting adoption through the A portfolio and central components	Reusable core components for service development - personal services and human empowerment	We ensure competencies and raise awareness of sustainable and reliable artificial intelligence development, implementation and procurement.	We regulate the human-centric and trustworthy development and use of artificial intelligence, ensure opportunities for issuing automatic administrative acts	We support institutions to disclose open data and ensure data reusability, improve the findability and use of data in a way that protects privacy, ensure efficient data governance and data quality



Reusable core components

● Developed ● In-development ● Planned



Skills and competencies

- + **You can never do enough!!!**
- + Data expert network with 500+ participants (regular webinars, best-practice exchange)
- + Annual events: Data Camp, Open Data Forum, AI meetup
- + New ways of experimenting (hackatons, competitions)
- + Public e-courses on key topics (incl. data literacy, AI, open data, data governance)
- + Regular in-person trainings
 - + More than 500+ attendees in 2022
 - + All sessions recorded and published on YouTube



Expert support

- + **National competence centre on data**
 - + Hands on support: data management, incl description, quality, lifecycle; and data publishing
 - + Hands-on support: **implementation of data analytics, AI, privacy enhancing technologies**
 - + Facilitating access to domain experts in academia and the private sector
 - + Providing support for carrying safely out experiments (i.e. sandbox) and pilots

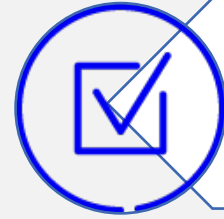


AI Support Toolbox



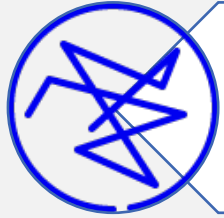
Morning seminar

• 45-90 min



Algorithmic impact assessment

• 45-90 min



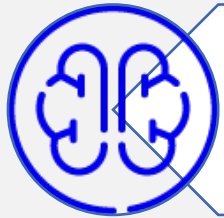
AI seminar

• 45-90 min



Data panel

• 2-3 hours



Brainstorming session

• 1 day



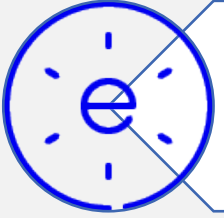
Data sandbox

• 3-6 months



Deep dive

• 1-3 days



Business panel, system architecture panel

• 2-3 hours



Examples of projects from AI support toolbox

Snow AI

Measuring snow cover and snow layer thickness in weather stations using machine vision to save time and money and collect data on which to develop new forecasting models.

Environment Agency

Energy efficiency of buildings

Analysis and monitoring of energy consumption of city-owned buildings. The goal of the project is energy savings and input for management and investment decisions.

City of Tallinn

Bürokratt integration

Integrating the Bürokratt into the created self-service environment makes it possible to make the provision of user support faster and more efficient. Simpler appeals are handled by Bürokratt, more complex ones by a help desk employee.

Estonian IT Centre

Faster information retrieval

Creating institution's own "ChatGPT" trained on internal documents

Ministry of Foreign Affairs

Tartu vAlm

Increasing road safety, reducing the amount of man-hours, saving the environment and saving money. Streamlining supervision operations through faster resolution of appeals.

City of Tartu

Training object recognition through machine vision

Identifying objects from orthophotos using machine vision saves time and money and keeps map layers as up-to-date as possible.

Land Board

New ways of collaboration

☰ kaggle

+

 Create

🏠 Home

🏆 Competitions

📁 Datasets

⌂ Code

💬 Discussions

🎓 Learn

⌵ More

📄 View Active Events

🔍 Search

Sign InRegister

🏆 Community Prediction Competition

Drinking Water Quality Prediction

Invent a predictive water quality model and automate the work of water inspectors.

28 teams · 8 days to go

REPUBLIC OF ESTONIA
MINISTRY OF ECONOMIC AFFAIRS
AND COMMUNICATIONS

European Union
European Structural
and Investment Funds

Investing
in your future

OverviewDataCodeDiscussionLeaderboardRules

Join Competition...

Leaderboard

📄 Raw Data🔄 Refresh

🔍 Search leaderboard

PublicPrivate

This leaderboard is calculated with approximately 50% of the test data. The final results will be based on the other 50%, so the final standings may be different.

#	Team	Members	Score	Entries	Last	Code	Join
1	KristjanRoosild		0.98936	9	6d		
2	maverick_ss_26		0.93617	23	3d		

Guidelines (some examples)



Control questionnaire

This guide provides an overview of the most common problems and possible solutions that could be considered for data science projects.

Overview of AI for project managers

This document provides an overview of the most common concepts, machine learning, big data and project management.

Data science project canvas

The purpose of the project canvas is to help think through the proposed project.

A guide to carrying out procurements

This guide provides an overview of how to efficiently carry out procurements for a data science project

Guidance material for data annotation

The purpose of the guide is to help owners of image or video files annotate their data for use in training systems.

Data protection impact assessment

An impact assessment must be carried out by all data processors whose personal data processing, taking into account the nature, scope, context and purposes, is likely to pose a major threat to the rights and freedoms of natural persons.

Citizen-centric data governance



Requirements

- + Monitoring the use of personal data
- + Requirements on data management
- + Privacy impact assessment
- + Privacy-by-design



Solutions

- + PET
- + Synthetic data
- + Data tracker
- + Consent service
- + Anonymization
- + Data science environment



Support

- + AI and analytics sandbox
- + Data and AI panel
- + Up- and re-skilling
- + Data literacy
- + Experience sharing



Impact assessment toolset

- + Principles of responsible data processing
- + Algorithm Impact Assessment Methodology

lessons learned

be bold^{est}

- + Ensure customer and problem focus
- + Ensure data quality and access to data
- + Reusability, open-source works
- + Practical cooperation and support
- + Education and upskilling are critical
- + keep it short and simple

Thank you!



Let's connect!



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