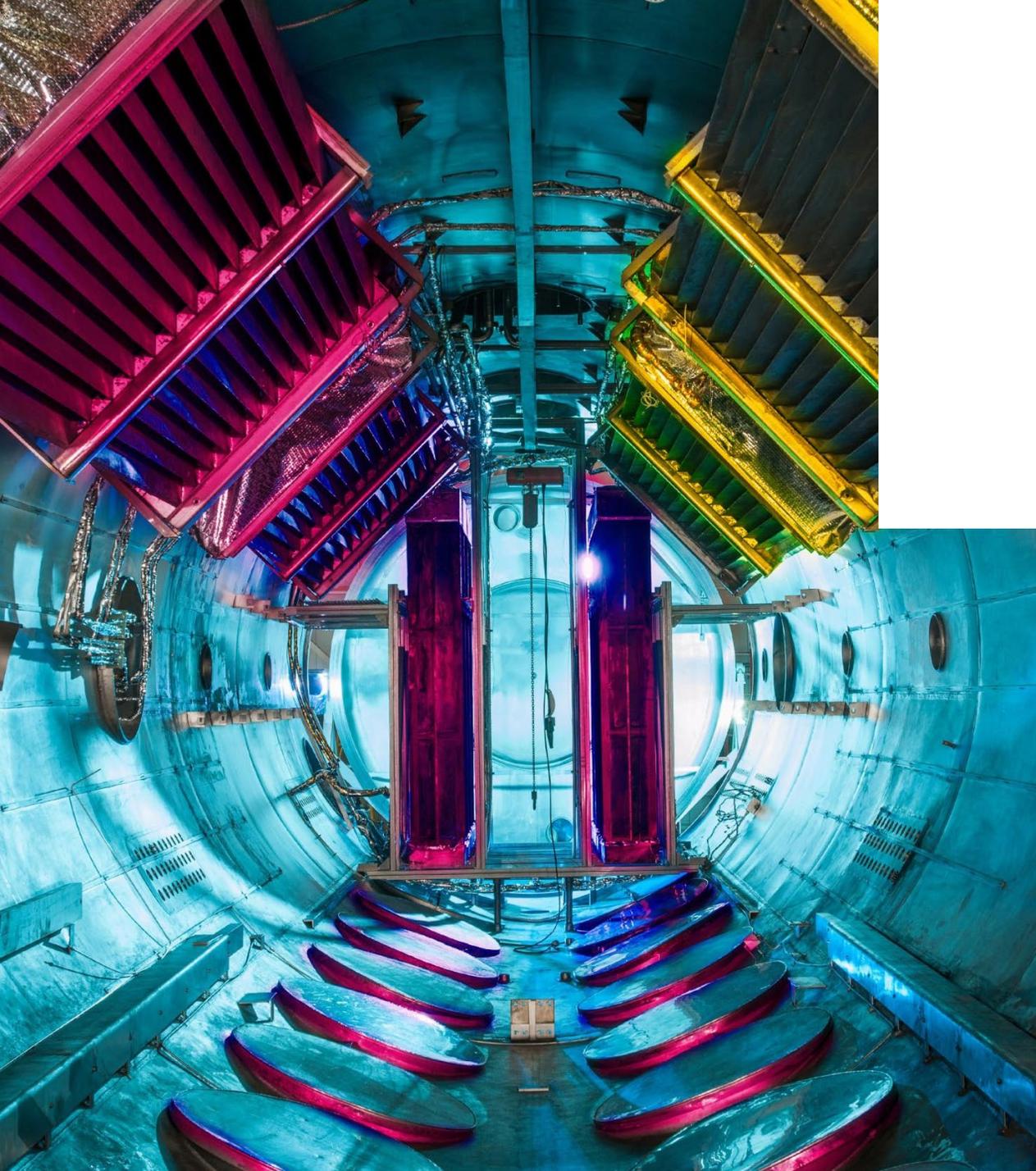


**TAL
TECH**

REGULATING AI AND IT'S USE-CASES

Prof. Tanel Kerikmäe
tanel.kerikmae@taltech.ee
Director of TalTech Law school
Tallinn University of Technology



**WHAT IS THE
ARTIFICIAL
INTELLIGENCE? IT'S
COMMONLY
UNDERSTOOD AS A
SIMULATION OF HUMAN
INTELLIGENCE BY
MACHINES**

HOWEVER, LEGAL DEFINITIONS ARE LONGER:

For example, as proposed within the European Commission's Communication on AI:

Artificial intelligence refers to systems that display intelligent behaviour by analyzing their environment and taking actions – with some degree of autonomy – to achieve specific goals

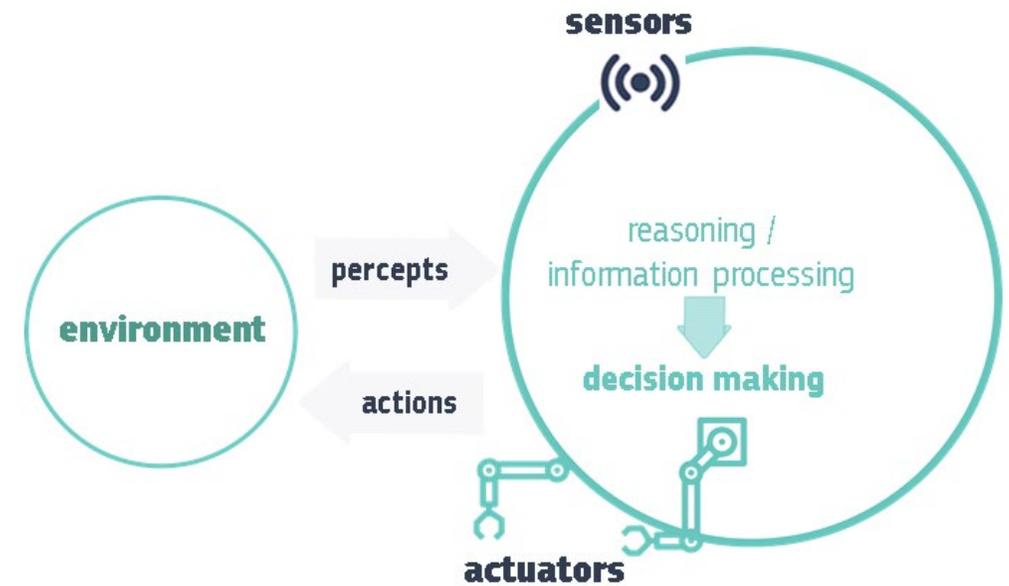


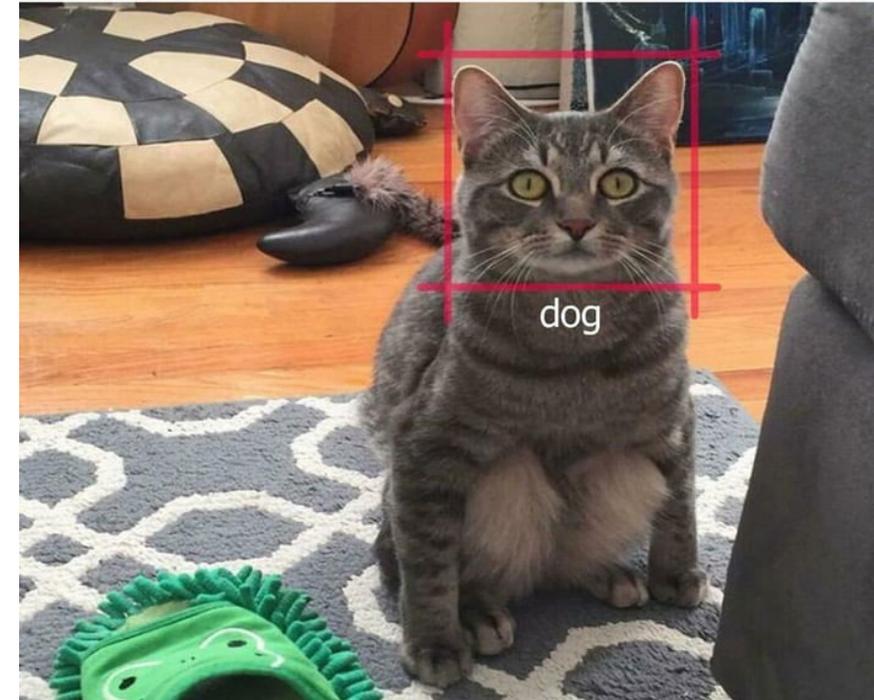
Figure 1. A schematic depiction of an AI system.

HOW DOES AI WORK?

- Some AI algorithms train themselves, through trial and error
- Other AI programs need to be trained by humans feeding them data. The AI then derives patterns and rules from the training set, and clearly identify what is being presented to the AI
- The AI then builds a model (a set of rules) to classify the objects, e.g., cats and dogs
- That model might be based on things like size, coloring, the shape of the ears etc.

Movies of the 90s: soon AI will take over the world

AI now:



WHAT CAN **AI** DO IN THE LEGAL SPHERE?



Lots of **legal routine** can be managed by AI: control of the receipt of the state fees when filing the case, control of relevant information to be submitted, appointment of a judge, booking the courtroom, forwarding the precepts etc.

For example, AI is perfect for "**search-and-find**" tasks to find answers to a keyword or phrase even if they are different in the spelling

Estonian e-court system KIS 3.0 can **recognize** the category of applied requests of plaintiff and advise the assistant to the judge to review the document accordingly

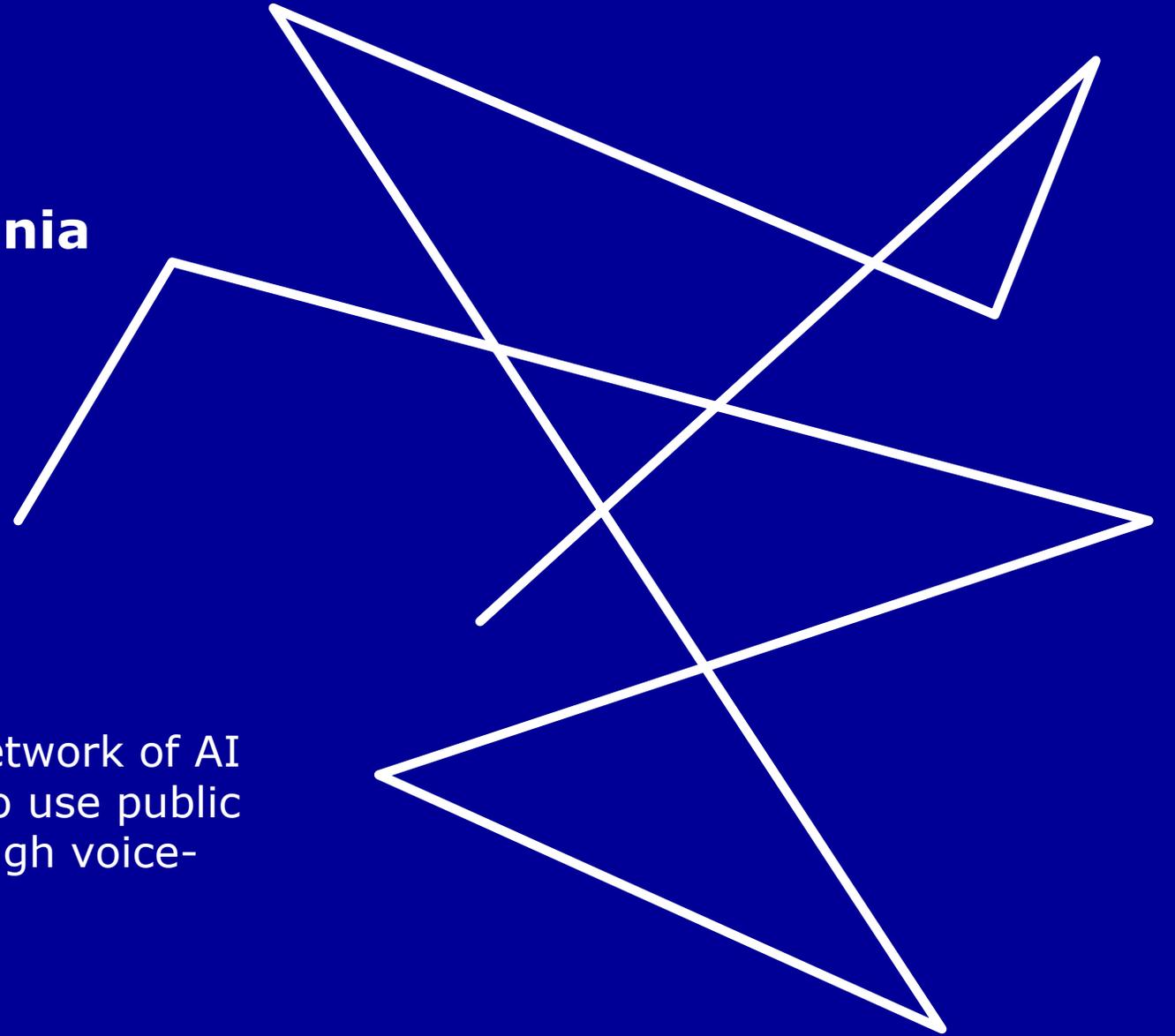


KRATT

National AI strategy of Estonia

kratid.ee/in-english

- + public-private partnership
- + government initiative
- + 50+ use cases in public sector
- + Bürokratt will be an interoperable network of AI applications, which enable citizens to use public services with virtual assistants through voice-based interaction





ESTONIAN ROBOT-JUDGE?

THE ARTIFICIAL INTELLIGENCE-POWERED "JUDGE" IS SUPPOSED TO ANALYZE LEGAL DOCUMENTS AND OTHER RELEVANT INFORMATION AND COME TO A DECISION

THE ALGORITHM HAS TO DEAL ONLY WITH SMALL UNCONTESTED CLAIMS, FOR EXAMPLE, PARKING TICKETS OR CHILD BENEFIT CASES, THAT CLAIM UP TO 6,400 EUROS



AI IS CONQUERING GLOBAL LEGAL MARKETS:

- **Due diligence** – Litigators perform due diligence with the help of AI tools to uncover background information. We've decided to include contract review, legal research and electronic discovery in this section.
- **Prediction technology** – An AI software generates results that forecast litigation outcome.
- **Legal analytics** – Lawyers can use data points from past case law, win/loss rates and a judge's history to be used for trends and patterns.
- **Document automation** – Law firms use software templates to create filled out documents based on data input.
- **Intellectual property** – AI tools guide lawyers in analyzing large IP portfolios and drawing insights from the content.
- **Electronic billing** – Lawyers' billable hours are computed automatically.

Bürokratt: a G2B case from Estonia

Bürokratt is the vision of how digital public services should work in the age of **artificial intelligence (AI)**

All government services and information available from one place via virtual assistants:

- by voice, open-source and free
- in Estonian language (+ more) in any most common device and channel and proactively

TAL
TECH



What problem is Bürokratt solving?

Problem

People don't know which public agency to contact. They don't have an overview of their obligations and opportunities offered by the government, and communication is time-consuming for both the people and the government.

Opportunity

Improvements in AI and especially in virtual assistants (e.g. in mobile devices) enable us to solve this problem significantly better than before.

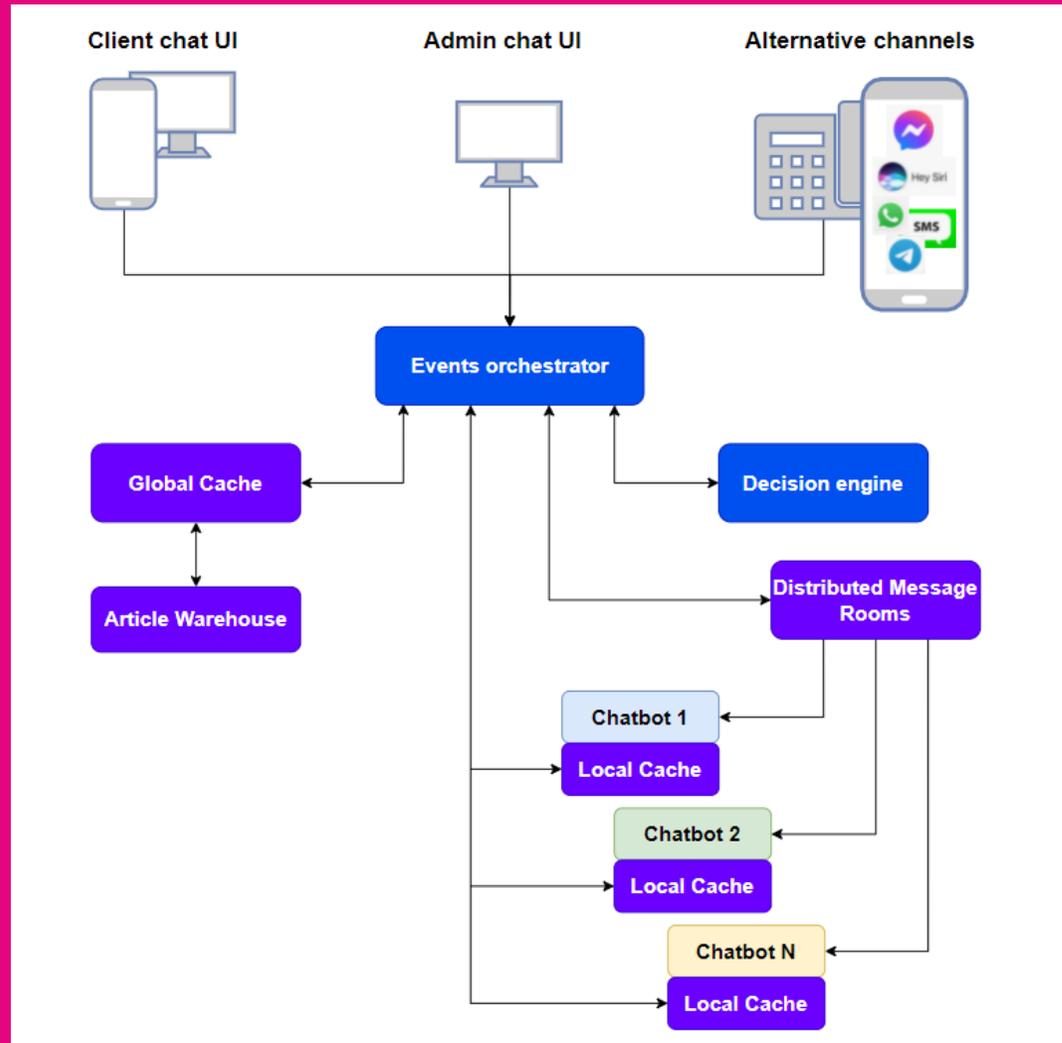
Current situation

Mobile devices are used by 98% and the Internet by 90% of Estonian households. The use of mobile devices and the Internet continues to increase amongst the public.

Aim

Making digital public services radically easier to use and more accessible to people through voice-based virtual assistants, providing the best user experience for digital government.

Bürokratt high-level architecture



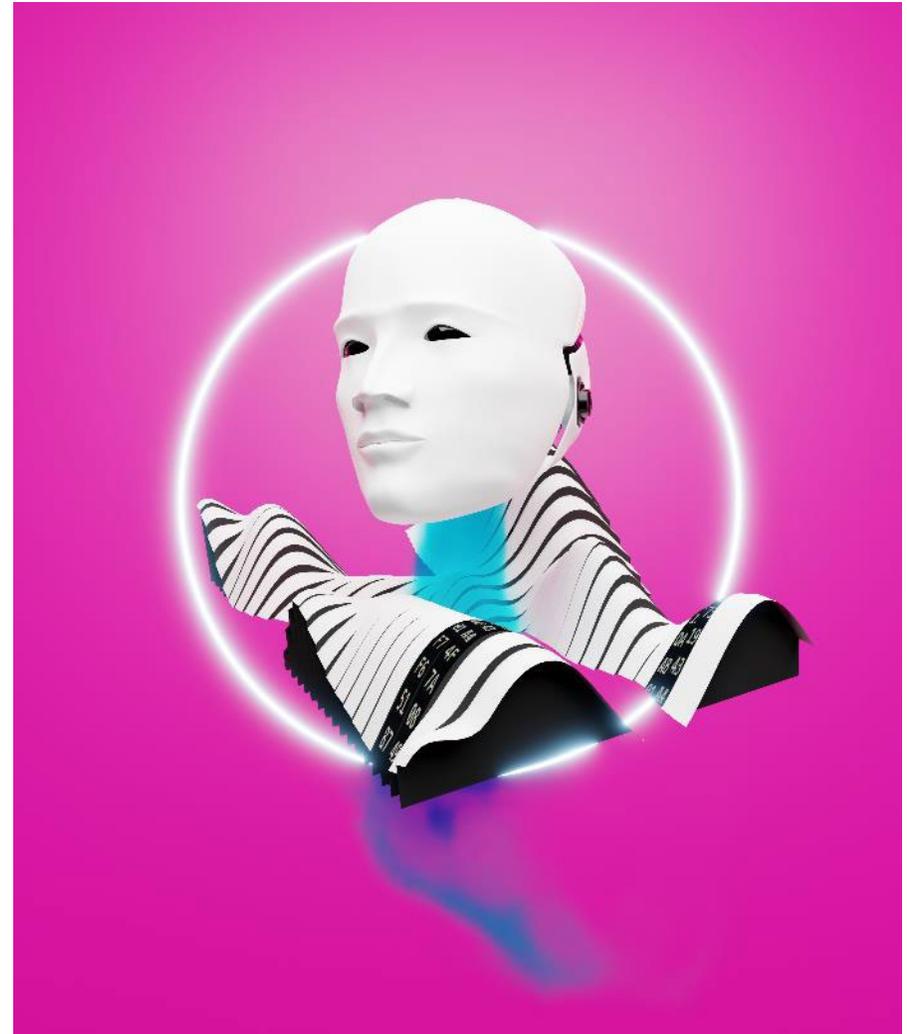
Further development

- Speech enabled and multi-language support
- Personalized services (both public- and private sector)
- Government mobile application and alternative communication channels
- Cooperation with companies & other countries



AI + ONLINE DISPUTE RESOLUTION (ODR) IS A TREND:

- The AI-enabled ODR systems are programmed by experts in the field and employ rule-based algorithms to make decisions based on information received from the parties
- AI Driven ODR is necessary for consumer disputes, particularly in cross-border eCommerce
- Neural network may provide better reasoning or negotiation strategy during the process



SINCE 2017, CHINESE INTERNET COURT IN HANZHOU DEALS WITH:



LEGAL DISPUTES OVER DIGITAL MATTERS, INCLUDING INTERNET TRADE ISSUES



COPYRIGHT CASES AND DISPUTES OVER ONLINE PRODUCT SALES



NOW ALSO ESTABLISHED IN BEIJING AND GUANGZHOU

BEST (?) PRACTICE FROM CHINA

China's Hebei Supreme Court has developed Intelligent Trial 1.0, which helps courts automatically **digitize statements, classify documents, search for relevant laws, decisions and documents, automatically create documents** (such as notifications) and coordinate tasks in the workflow

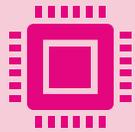


The Beijing judicial system uses a robot, Xiaofa, which can answer **40,000 litigation questions and handle 30,000 legal problems**. More than a hundred robots work in Chinese courts to help courts with various issues

IS THE AI GOOD FOR **PROCEDURAL LAW**?



The procedural law dealing with digital phenomena can be perceived as law of limitations to the judicial system rather than to the policy makers who are much more interested in the material law, i.e., extending the scope of permissible activities, services and products.



With the answers TRUE or FALSE (Boolean logic) the procedural law can be well tested with the rules that require limitations

AI AND INTERNATIONAL LAW ENFORCEMENT

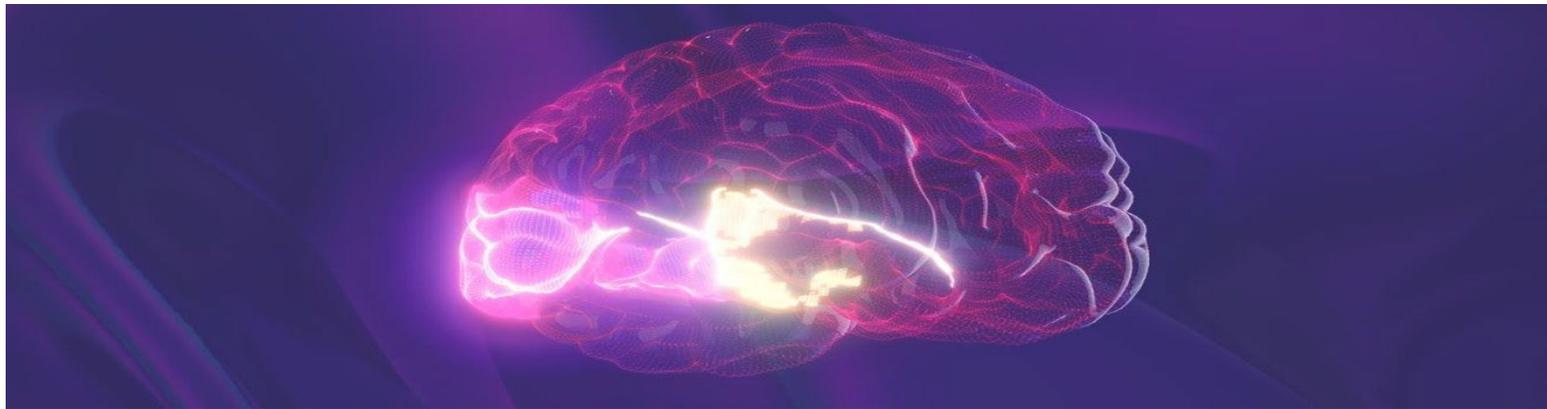
- **Anti-Money Laundering:** the AI can elaborate the sample of money laundering scheme by location, amount, type of the customer based on transaction data
- **Identifying** stolen or suspicious vehicles, **prediction** of crime spots, **surveillance** systems, voice analysis, **identification** of child pornography



INTERPOL

AI AS A TOOL FOR **PREDICTABILITY**:

- In 2004 Washington University tested their algorithm's accuracy in forecasting US Supreme Court decisions and the AI was forecasting successfully 75% of the outcomes against 59% of human experts
- Recently, the AI has accurately (79%) predicted most verdicts of the European Court of Human Rights in 584 cases relating to torture and degrading treatment, fair trials and privacy
- Daniel L. Chen, a researcher from Toulouse University argues that we can use the AI to help correct the biased decisions of human judges



PREMONITION.AI: PREDICTING EVEN THE **LAWYER'S SUCCESS RATE!**





NON-EXHAUSTIVE LIST OF **AI USE CASES** IN JUDICIAL SYSTEM TODAY

- Doctrine.fr **France** (search engine)
- Prédicte, **France** (analytics)
- JurisData Analytics (LexisNexis), **France**
- Luminance, **United Kingdom**
- Watson/Ross (IBM), **USA**
- HART, **United Kingdom** (criminal behaviour, risk of reoffending)
- SplitUp, **Australia** (dividing the property in the case of divorces)

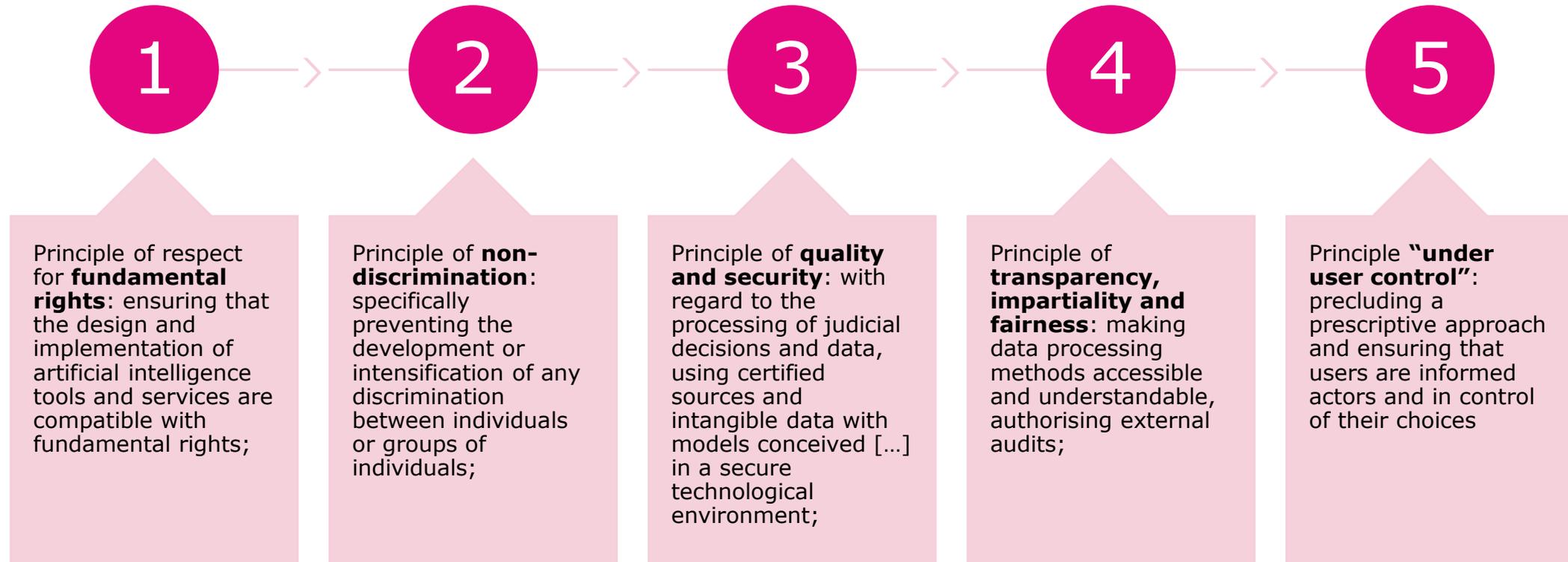


TAL TECH

CRITICISMS FROM EUROPEAN PARLIAMENT

- ...the use of AI in the justice system raises many questions regarding fundamental rights.
- For example, the software involved **is said to be able to assess the risk of a person committing a crime or of a prisoner reoffending after release.**
- This use of AI raises questions in connection with the right to a fair trial.
- The justice system, which underpins the social contract, **must remain in the hands of judges and prosecutors and not become a performance indicator for computer processors.**

ETHICAL CHARTER ON THE USE OF ARTIFICIAL INTELLIGENCE IN JUDICIAL SYSTEMS (COUNCIL OF EUROPE, 2018)



WHAT ARE THE MAIN **THEORETICAL PROBLEMS?**



Sunstein suggests that computers and AI cannot reason by analogy “because they are unable to engage in the crucial task of **identifying the normative principle that links or separates** the cases”

At the same time, many systems are operating based on big data and derive their solutions from the **living legal practice** (not prevailingly from legal norms or rule of law)

Prof. Borgesius: AI systems are often "**black boxes**". It may be unclear for somebody why a system makes a certain decision on them.

Because of the opaqueness of such decisions, it is difficult for people to assess whether they were discriminated against based on, for instance, racial origin

<https://spacetimeinsight.com/demystifying-analytics/black-box/>



BIASED AI

- AI decision-making can have discriminatory results if the system is 'trained' or 'learns' from discriminatory training data
- E.g., COMPAS system applied in the US has proved to be biased against black people due to being trained on biased data
- Vernon Prater was picked up for shoplifting \$86.35 worth of tools from a nearby Home Depot store.
- Prater was the more seasoned criminal. He had already been convicted of armed robbery and attempted armed robbery, for which he served five years in prison, in addition to another armed robbery charge.

Two Petty Theft Arrests

	
VERNON PRATER	BRISHA BORDEN
LOW RISK 3	HIGH RISK 8

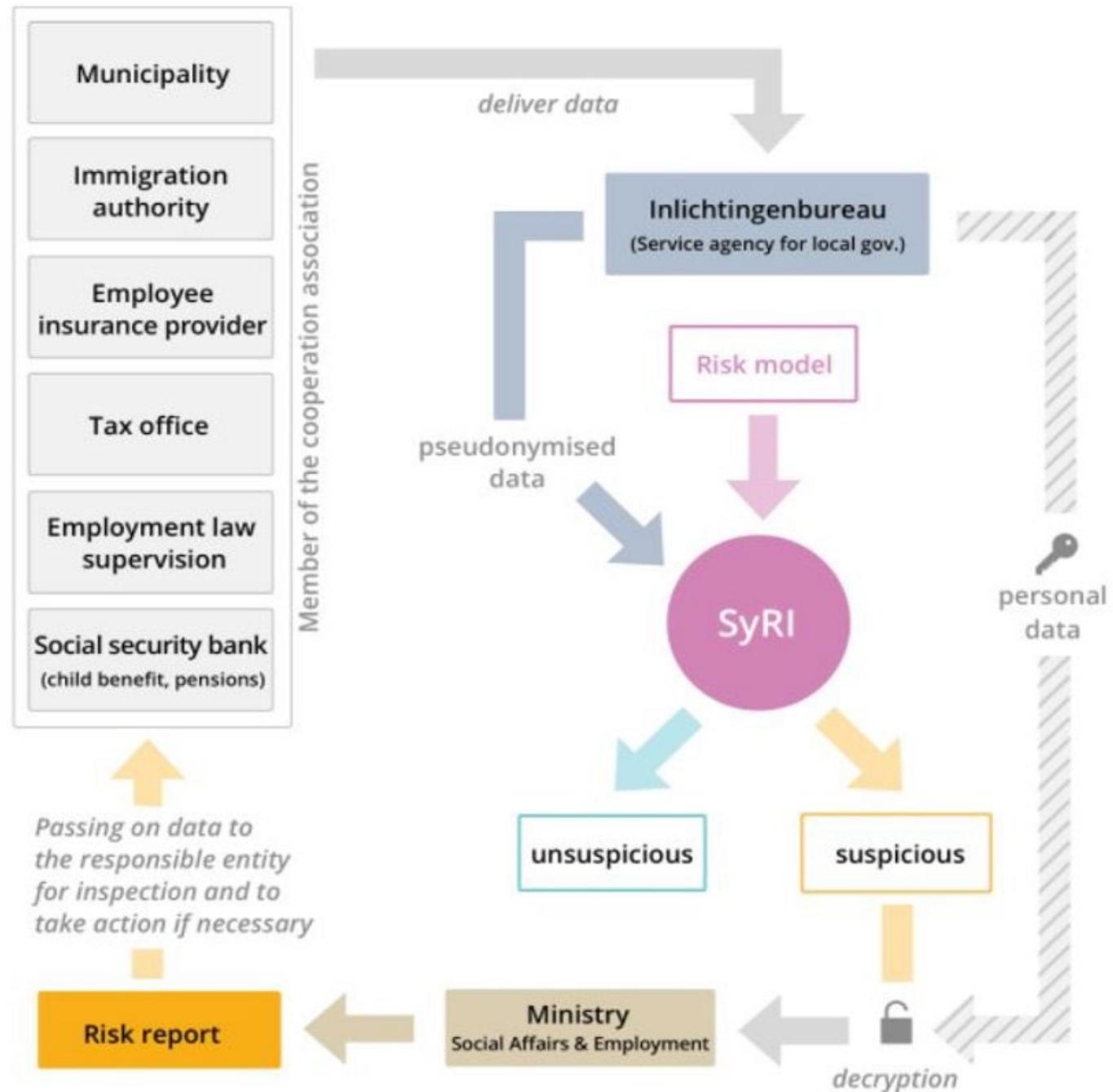
Borden was rated high risk for future crime after she and a friend took a kid's bike and scooter that were sitting outside. She did not reoffend.

FACIAL RECOGNITION ALSO RAISES CONCERNS ON **DATA PROTECTION**

- In 2020, UK's High Court ruled against the South Wales Police's use of facial recognition, after a civilian had argued it was a violation of privacy to scan people's faces as they move around in public
- The court argued that there was no clear guidance on where the algorithm could be used and who could be put on a watchlist, a data protection impact assessment was deficient, and the police did not take reasonable steps to find out if the software had a racial or gender bias



SYRI ALGORITHM:



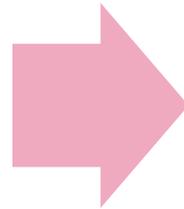
Most common types of GDPR violations



AI ERRORS: GENERALISATION

A problem with AI decisions is that they are often incorrect for a **particular individual**

80% of the people living in postal code X pay their bills late



A bank, based on group profiling, denies to give a loan to all people in postal code X, including to the 20% who pay their bills in time

AI ERRORS: **SAMPLE SIZE**



The sample size is important: the more data, the more accurate the extracted model



Areas of law with large numbers of decisions on a given topic will be more suitable for AI models



POSSIBLE SCENARIOS ON STATE LIABILITY

PRO	CONTRA
<p>Better legal clarity and from that would come bigger trust in the government and all in all trust in using kratts.</p>	<p>The possibilities to use state liable increases: In the implementation of state liability disputes, the state cannot rely on the absence of guilt based on the fact that the liability which is grounded on the glitch in kratt' creators work or based on the error in the underlying data</p>
<p>Less resistance against using kratts by the public (citizens, entrepreneurs) in the public sector.</p>	
<p>States clear liability being kratt' user, leads the state to take instant precautionary measures before starting to use them</p>	



POSSIBLE SCENARIOS FOR CRIMINAL LIABILITY

PRO	CONTRA
Better legal clarity	Threat of criminalizing can become a barrier of innovation
A more effective way of prosecuting perpetrators of crimes committed when using kratts	Due to the principle of legality, the procedural burden of the state may increase if the punitive provisions are added
Better protection of legal order, individuals' rights and their interests; prevention of offences	-



POSSIBLE SCENARIOS FOR TAX LAW

PRO

The algorithm collects information from all the databases maintained by the state and makes a tax decision on the basis of it. Efficiency is achieved, man-hours are saved.

Estonia validates taxation of 'robots' labour. The state's income basis increases.

CONTRA

1. There may be a violation of private law.
2. There is no technical and legal readiness.

Robot labour taxation hinders automation in entrepreneurship because the entrepreneur does not have sufficient motivation in the form of income.



POSSIBLE SCENARIOS FOR SETTING UP INSURANCE

PRO	CONTRA
Insurance relieves risks and encourages innovation	An extensive insurance claim can cause less interest and limit innovation.
If the robot/kratt causes damage, it will be known to whom to turn to	An insurance claim cannot be made unless there are insurance companies that provide this service, which may also counteract innovation.
The insurance requirement and with-it related requirements create clarity	For an insurance system to work, it must be known, who carries out any activity that would lead to registration and/or authorisation of a claim.
Insurance gives courage to the developer and its user.	If krats' activities, nature etc. are not clearly defined, it is difficult to insure.
The insurance reduces the risk of the krat using subject who is unable to pay for compensation.	Autonomous intelligent agents are so diverse, that it is difficult to assess risks and thus the reasonable insurance claim.
The participation of insurance companies means than no big claims are made to the state.	The private sector is not interested, if the possible damages are not detectable.

IN CASE OF INTEREST:

Kerikmäe, T.; Nyman-Metcalf, K. (2020). The rule of law and the protection of fundamental human rights in an era of automation. In: J.-S. Gordon (Ed.). Smart Technologies and Fundamental Rights. Bri

Nyman-Metcalf, K., kerikmäe, T. (2021). Machines are taking over - are we ready? Law and Artificial Intelligence. Singapore Academy of Law Journal, 33, 24–49.

Kerikmäe, T.; Hoffmann, T.; Chochia, A. (2018). Legal Technology for Law Firms: Determining Roadmaps for Innovation. Croatian International Relations Review, 24 (81), 91–112.

Kerikmäe, T.; Pärn-Lee, E. (2018). Digitalisation and Automatisations as Challenges for changing European Union. In: N. Šišková (Ed.). European Union – What is Next? Political Visions and Legal Analysis on the Future of the Union (296–313). Wolters Kluwer.

Kerikmäe, T.; Särav, S. (2017). Paradigms for Automatization of Logic and Legal Reasoning. In: Krimphove, D.; Lentner, G. M. (_EditorsAbbr). Law and Logic: Contemporary Issues (205–222). Duncker & Humblot.

Kerikmäe, T.; Pärn-Lee, E (2020). Legal dilemmas of Estonian artificial intelligence strategy: in between of e-society and global race. AI & Society.

**TAL
TECH**

THANK YOU FOR ATTENTION!