

Kapsch BusinessCom

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Explainable AI



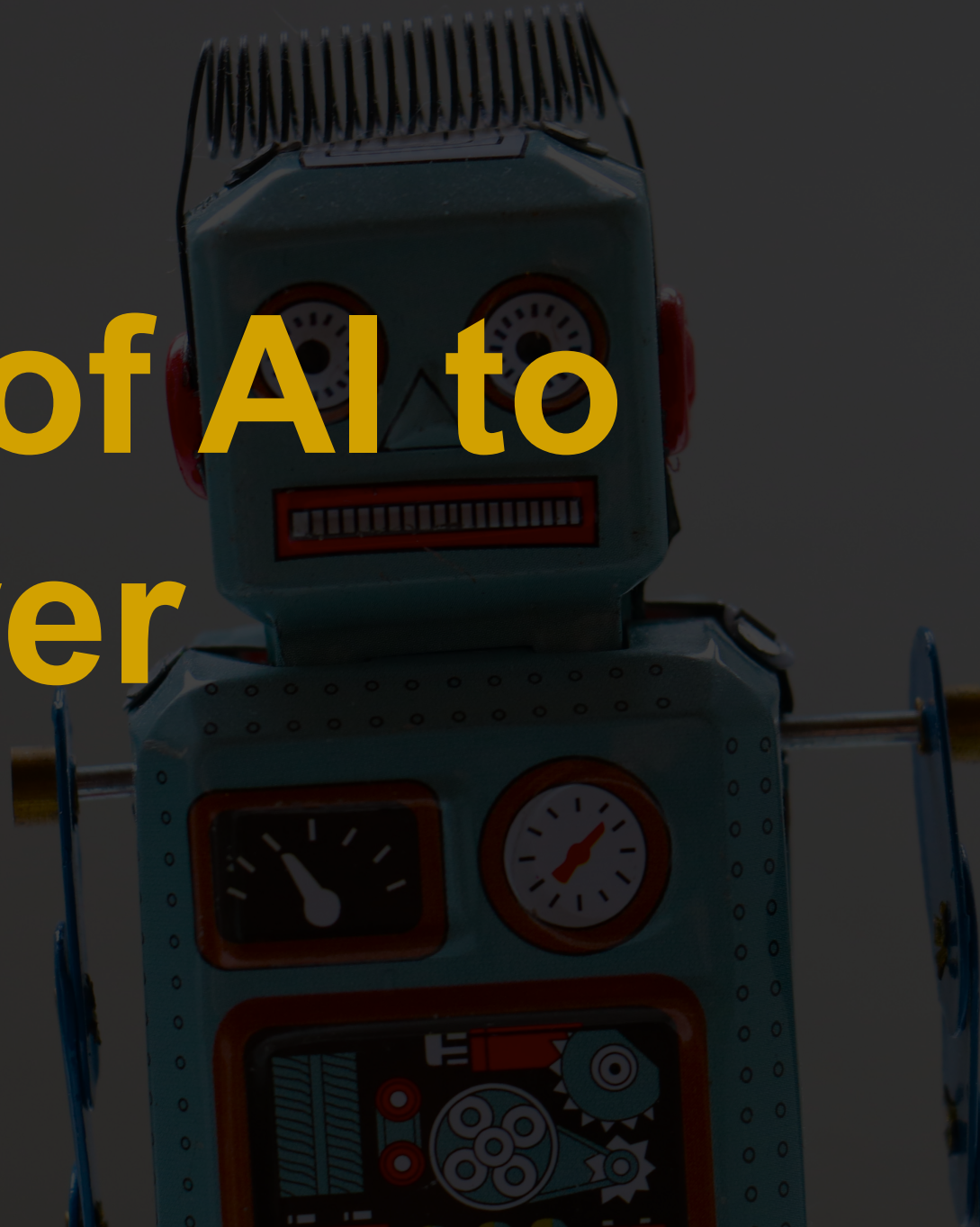
A photograph taken from the driver's perspective inside a car. The driver's hands are visible, holding a large, unfolded paper map. The map shows a network of roads and geographical features. The steering wheel is on the left, with a "LAND ROVER" logo visible. The background shows a road with lane markings and a car in the distance. The overall scene is dimly lit, suggesting it might be dusk or dawn. A small, light-colored object hangs from the rearview mirror.

**Who is making
decisions?**

Who is making decisions?

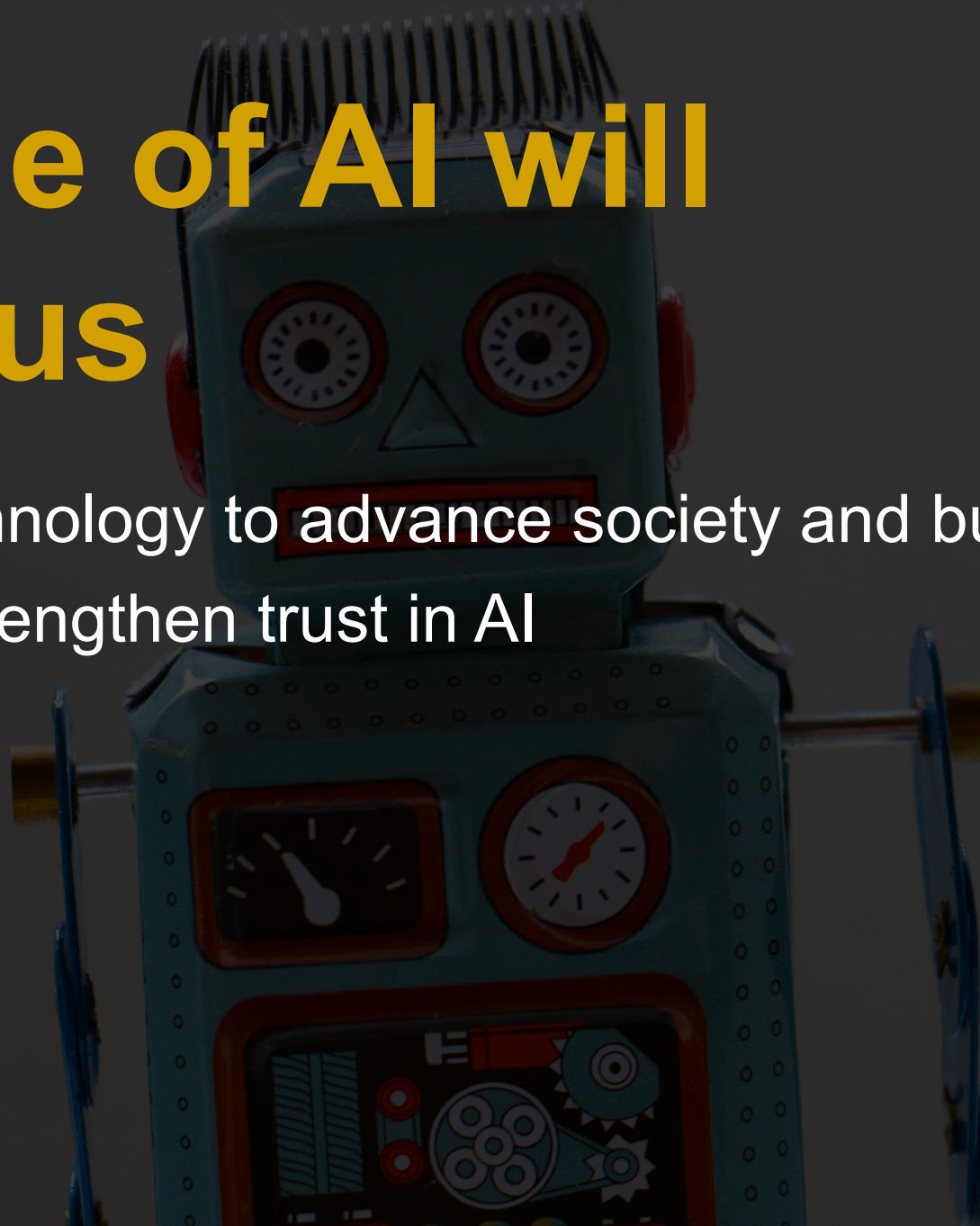
- Digitization leads to more information, data and speed
- Manufacturing, Financial Analyst, Medical Researcher, Cyber Security Analyst – all challenged
- Decision making based on ever more information
- More and more decisions made by machines

Usage of AI to empower



Only usage of AI will empower us

- We are driving technology to advance society and business
- We support and strengthen trust in AI



Manufacturing



Empowering Manufacturing

- Optimizing machine settings based on thousands of parameters
- Image Analytics keeps an eye on production

Finance



Supporting Financial Analysts

- AI to find patterns to avoid money laundering and fraud
- AI to offer Next best Offer recommendation



Medical



Medical Assistance

A photograph of a microscope in a laboratory setting, with a dark overlay and yellow text. The microscope is the central focus, with its eyepieces, objective lenses, and stage visible. The background is blurred, showing other laboratory equipment. The text is overlaid on the left side of the image.

- Image Analytics for diagnostic support
- AI based document Analytics to support knowledge management with billions of information sets

Cybersecurity

A man and a woman are seated at a desk in a dimly lit office, working on a computer workstation. The man is on the left, seen from the back, wearing a light blue shirt. The woman is on the right, seen in profile, with long dark curly hair, wearing a black top. They are looking at multiple computer monitors. The word "Cybersecurity" is overlaid in large yellow text across the center of the image.

Cybersecurity with AI

- Kapsch Cyber Defense Center for managed security
- AI for analytics to find patterns of bots and dangerous malware in business networks



**Sensitive vs.
non-sensitive**

Sensitive vs. non-sensitive

- Application for a job – sensitive
- Detection of tumors in medical images - highly sensitive
- Voice Recognition – less sensitive
- Recognition quality patterns – less sensitive (but performance)
- Finding security issues – less sensitive (but performance)

Business Needs

A modern office interior with a high ceiling featuring exposed wooden beams and large silver ductwork. The office is furnished with wooden desks, ergonomic chairs, and multiple computer monitors. Several people are seated at the desks, working. In the foreground, there is a brown leather sofa with a green snake plant on a small table. To the right, there is a grey armchair and a large television mounted on the wall. The walls are made of brick and wood paneling. The overall atmosphere is professional and collaborative.

Meeting Business needs

- Business Applications don't accept black boxes in many cases
- We focus on Open Tools and Open Source
- **Intrinsic AI behavior will never be exactly traceable**
- But we have implemented 6 methods and tools to make our AI explainable



Methods and Tools for XAI

It all starts with Data



Propper and professional data work

- Transparent Training Data

- Labeling together
- Transparent AI models – no pretrained models
- No Feedback Loops

- Statistic Quality

- High standards on quality and quantity of training data
- Focus on minorities
- Critical checks with minority data
- Regularly checking system behavior



Tools to support AI operations

Tools for AI Operations

- Attention Focus

- Visual tool, displaying which areas of an image have influenced a decision – looking for bias

- Shapley Additive Explanations

- Tool to highlight which parameters of a data set have influenced a decision – looking for bias

- What if Tool

- Simulation tool to check the AI behavior (E.g. Changing Male against Female)

- Continues Monitoring

- Regularly checking the system behavior to find critical changes during runtime in a project

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Thank you!