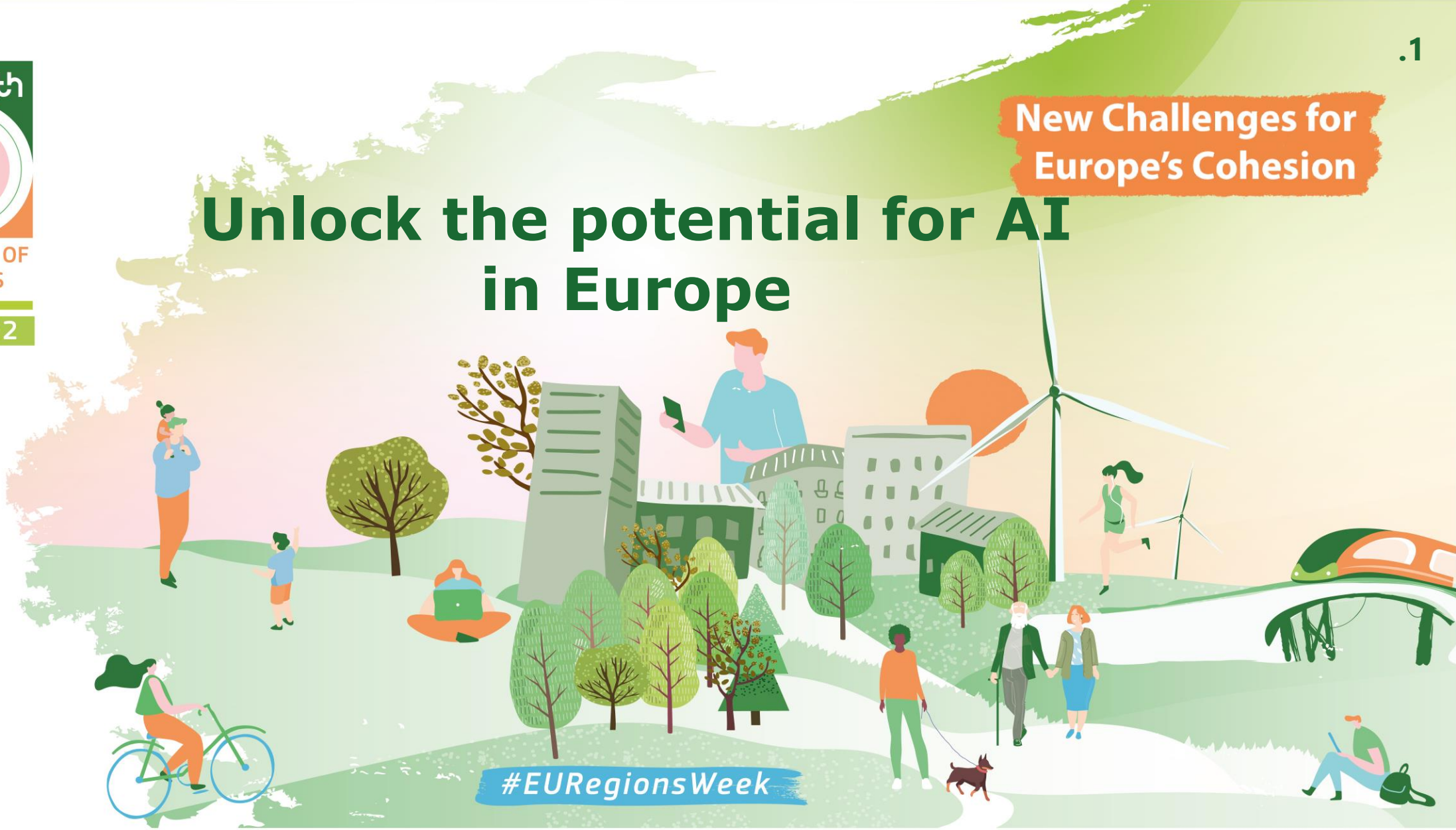
EUROPEAN WEEK OF REGIONS & CITIES
2003 - 2022

New Challenges for Europe's Cohesion

Unlock the potential for AI in Europe



Miguel de Prado
Senior Researched at Bonseyes Association

EUROPEAN WEEK OF REGIONS & CITIES
2003 - 2022

AI Overview

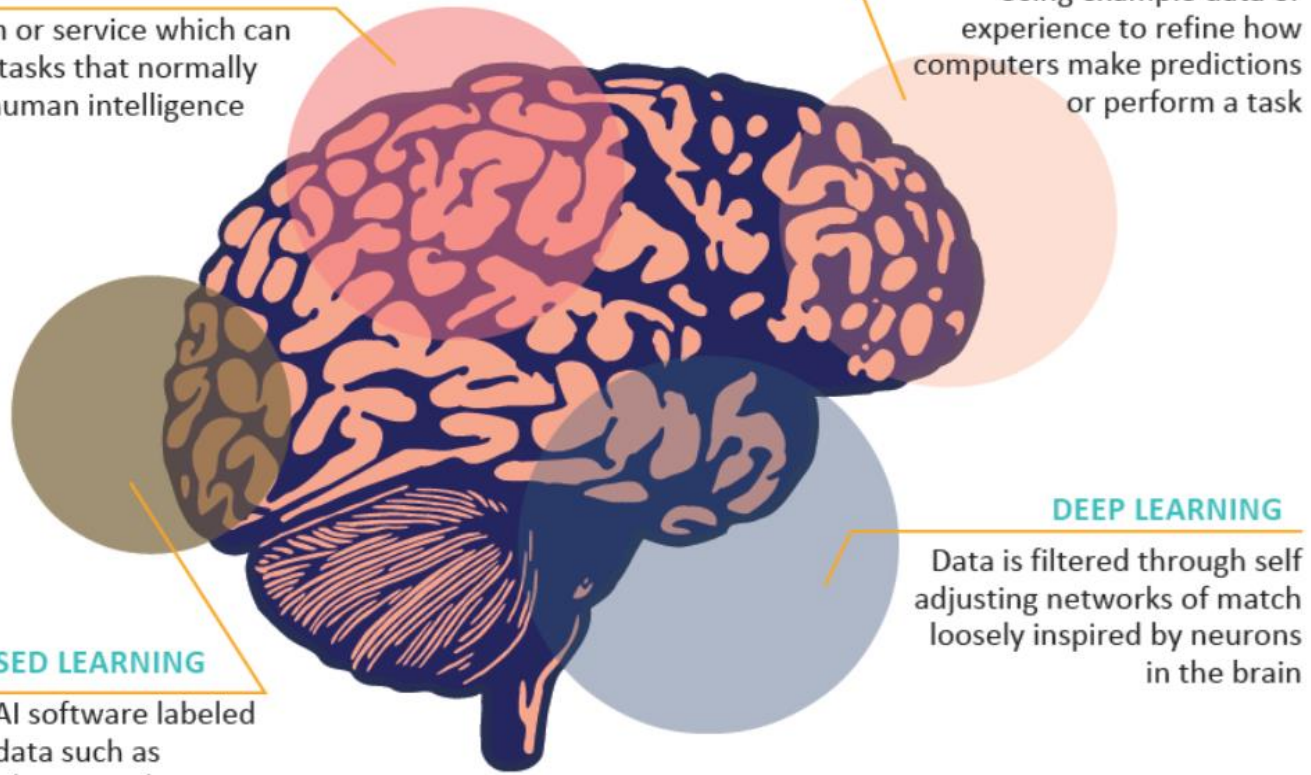
New Challenges for Europe's Cohesion

ARTIFICIAL INTELLIGENCE

A system or service which can perform tasks that normally require human intelligence

MACHINE LEARNING

Using example data or experience to refine how computers make predictions or perform a task



DEEP LEARNING

Data is filtered through self adjusting networks of match loosely inspired by neurons in the brain

SUPERVISED LEARNING

Showing AI software labeled example data such as photographs to teach computer what to do

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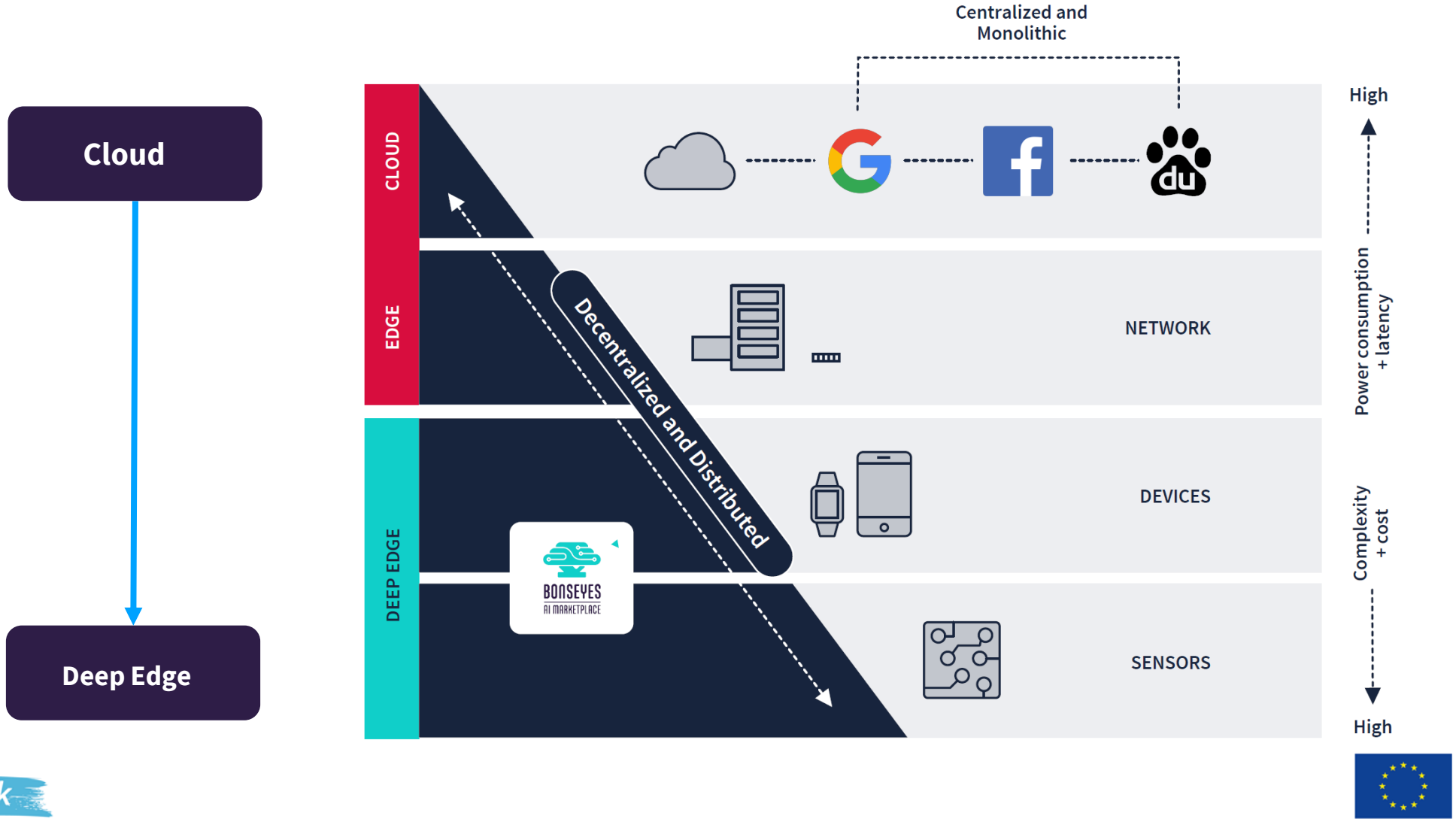
AI Overview

New Challenges for Europe's Cohesion



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2003 - 2022

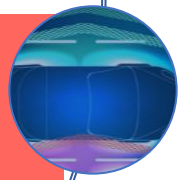
Use Cases

New Challenges for Europe's Cohesion

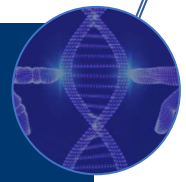
Robotics
- Collision avoidance
- Keyword spotting

Manufacturing
- Defect detection
- Object detection

Automotive
- Gaze detection
- Body part tracking
- Gesture recognition

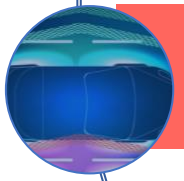


Health
- Remote vital signs
- Heart rate detection
- 3D Body detection

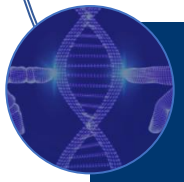


Space
- Atmosphere monitoring
- Environment/Climate monitoring
- Emergency management

Energy
- Demand forecast
- Energy usage & opimisation



Security
- Fraud detection
- Personalization



Marketing
- Targeted marketing
- Churn prediction

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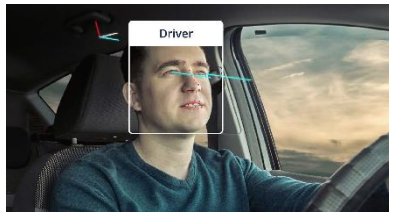
Use Cases: Automotive

New Challenges for Europe's Cohesion

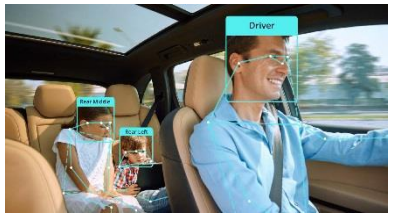
Smart Mobility
INTERIOR SENSING

IN-CABIN INTERIOR CAMERA
Detect distracted and drowsy drivers by accurately measuring eye and head position, attention, fatigue, and dangerous driver activities. Highly accurate biometrics analysis helps in the identification of individuals by precisely recognizing their unique characteristics to ensure vehicle security. Being mandated by regulators for autonomous driving features.

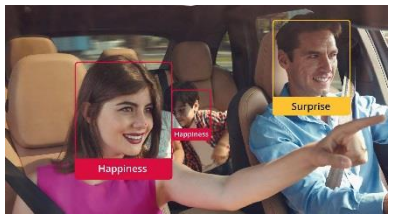
Use Cases



DRIVER MONITORING
SAFETY



OCCUPANT DETECTION
SECURITY



GESTURE RECOGNITION
EXPERIENCE

Videos

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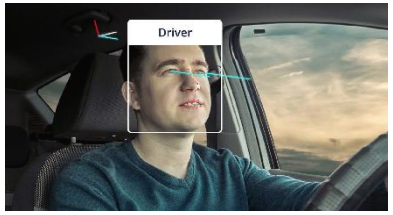
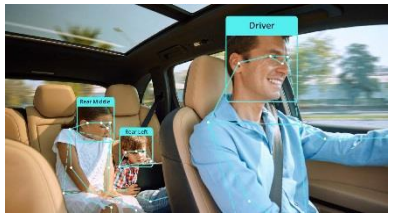
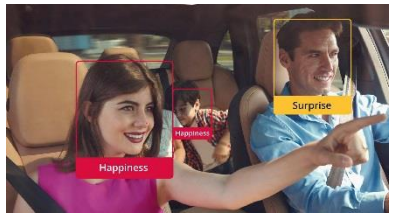
Challenges for AI Solutions



DRIVER MONITORING
SAFETY



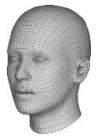
INTERIOR MONITORING
SECURITY



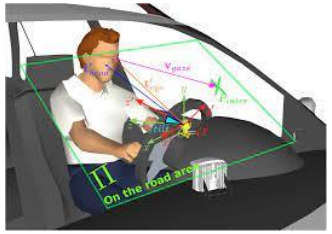
GESTURE RECOGNITION
COMFORT / HMI

Use Cases: Automotive

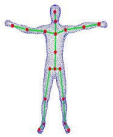
New Challenges for Europe's Cohesion



Face Detection
- 2D Face Detection
- 3D Face Landmarks
- 3D Headpose
- Gaze

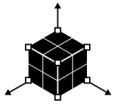


Eyes on Road



Body Detection
- 2D Body Pose
- 3D Body Pose

Objects Left Behind



Object Detection
- Object Detection

Objects In Use

Identity Detection
- Face Spoofing
- Face ID
- Emotion
- Gender
- Age

Gesture Recognition
- Gesture Recognition (Yawn, Blink)
- Gesture Recognition (Sign, Number)

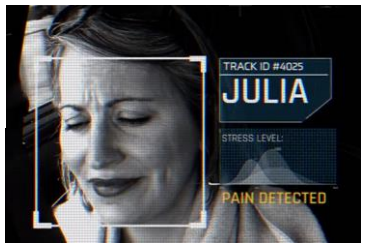
Gesture

Activity Recognition
- Activity Recognition (Drinking, Talking)

Use Cases: Healthcare

New Challenges for Europe's Cohesion

Challenges for AI Solutions

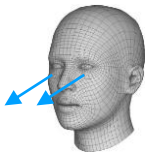


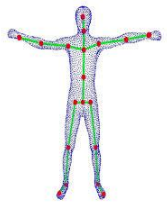
HEALTH ASSESSMENT

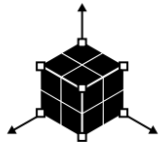
PATIENT MONITORING

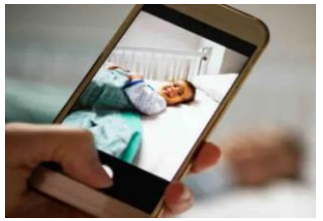
WORKFLOW SUPPORT

- **Face** Detection
- **Body** Detection
- **Object** Detection
- **Gesture** Recognition









Pain Assessment

Vital Signs

Mood

Fatigue

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Use Cases: Manufacturing

New Challenges for Europe's Cohesion

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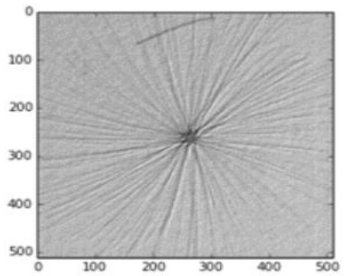
Challenges for AI Solutions



VISUAL QUALITY INSPECTION
QUALITY

PREDICTIVE MAINTENANCE
EFFICIENCY

HP FEEDING SYSTEMS
PRODUCTIVITY

- **DEFECT** Detection
- **ANOMALY** Detection
- **TOOLWEAR** Prediction
- **3D OBJECT** Detection

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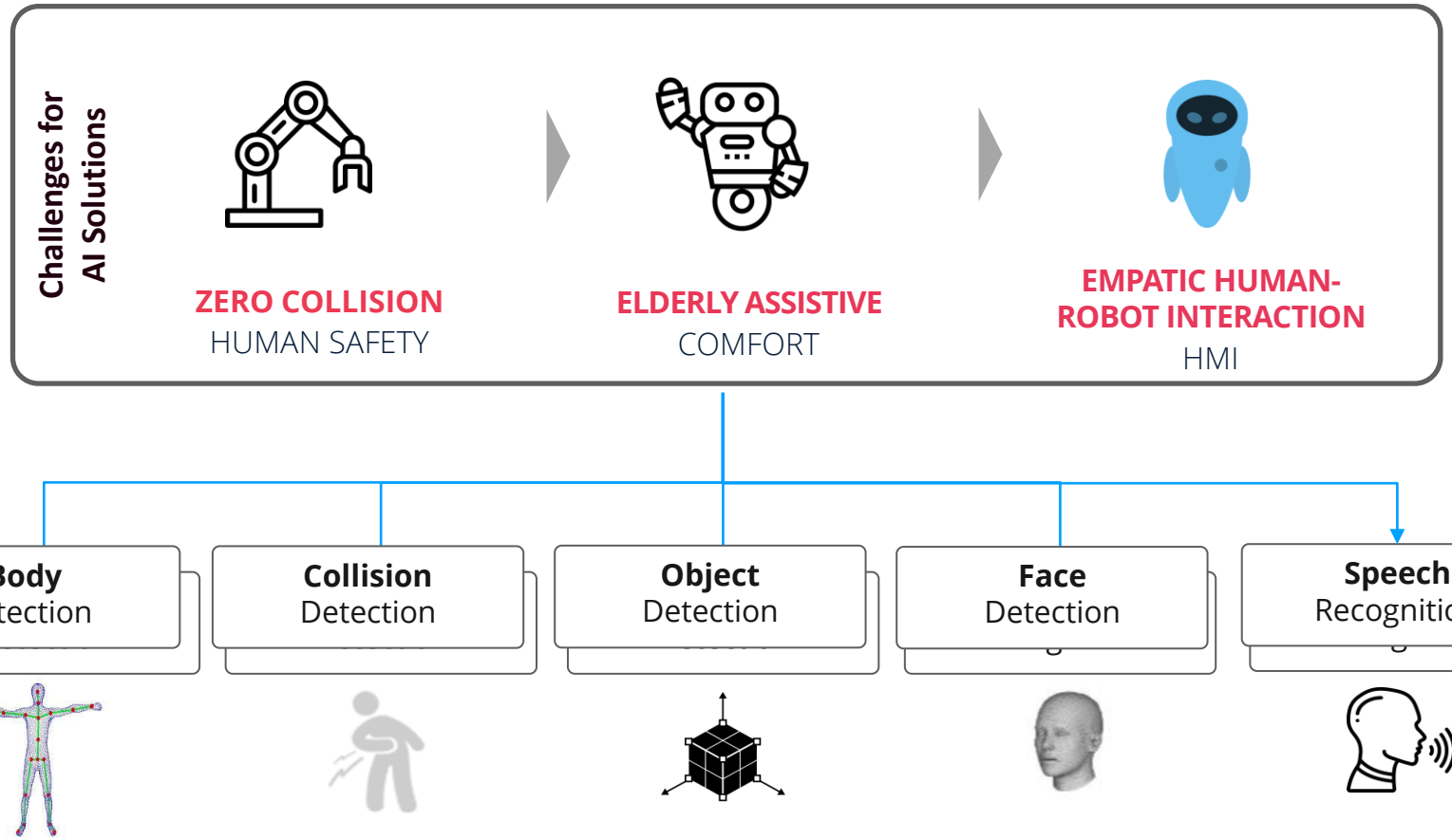
2003 - 2022

Use Cases: Robotics

New Challenges for Europe's Cohesion



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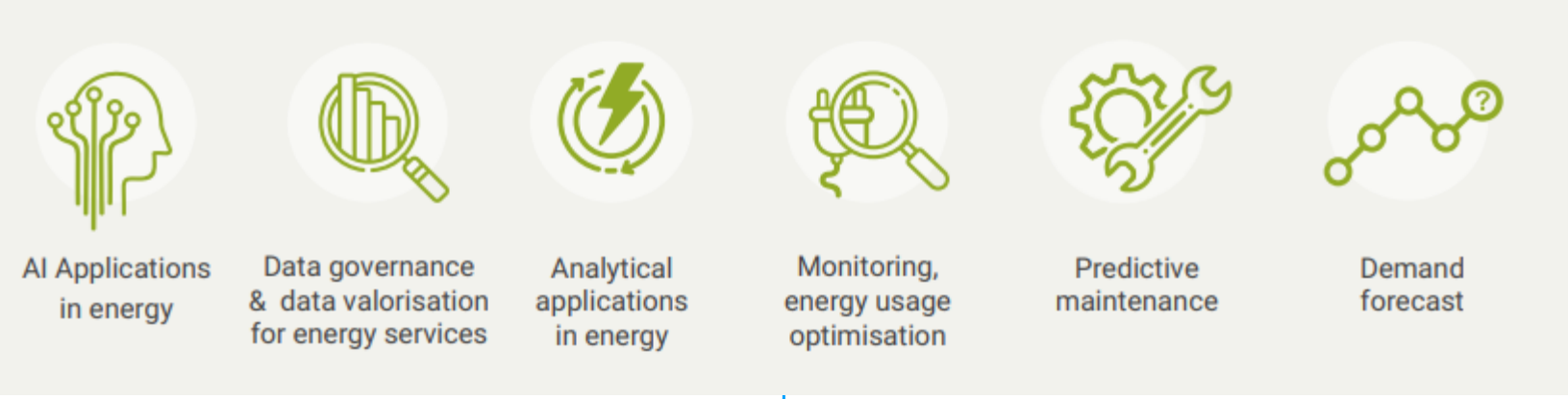
Use Cases: Energy

New Challenges for Europe's Cohesion



Energy Prediction

ANOMALY Detection

DEFECT Detection

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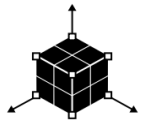
Use Cases: Space

- **Environment** Monitoring
- **Localization**
- **Security** Detection
- **Topography**
- **Emergency** Management



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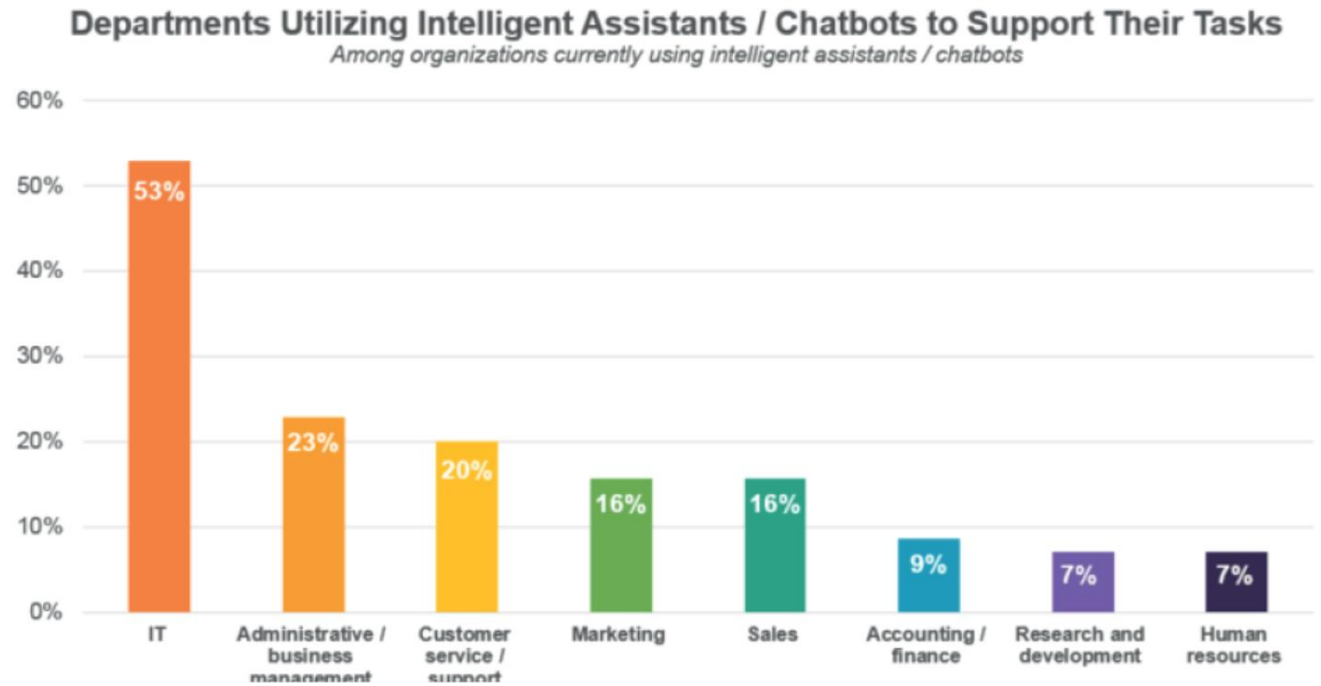
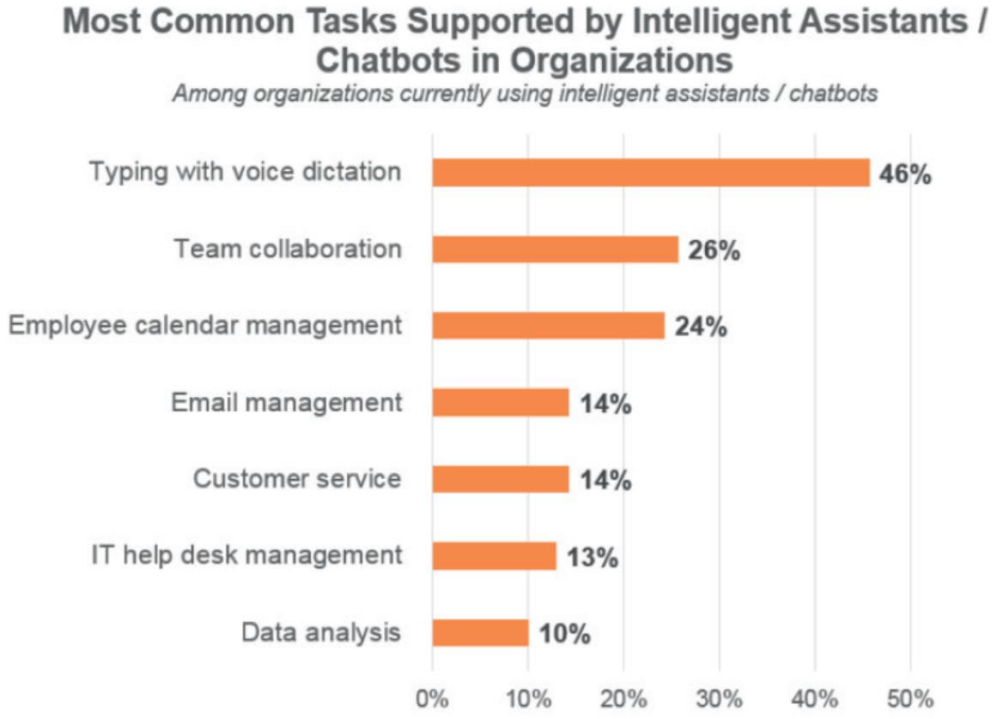
SMEs and AI: Status Quo

New Challenges for Europe's Cohesion





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SMEs AND AI: Challenges

New Challenges for Europe's Cohesion

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SMEs NEED TO ADAPT TO THE NEW PARADIGMS:

- Hardship to access or collect data: "Data Wall"
- High expertise to train AI models
- Expensive tools to deploy you AI models
- Long and costly iterative process to solve issues and overcomes barriers

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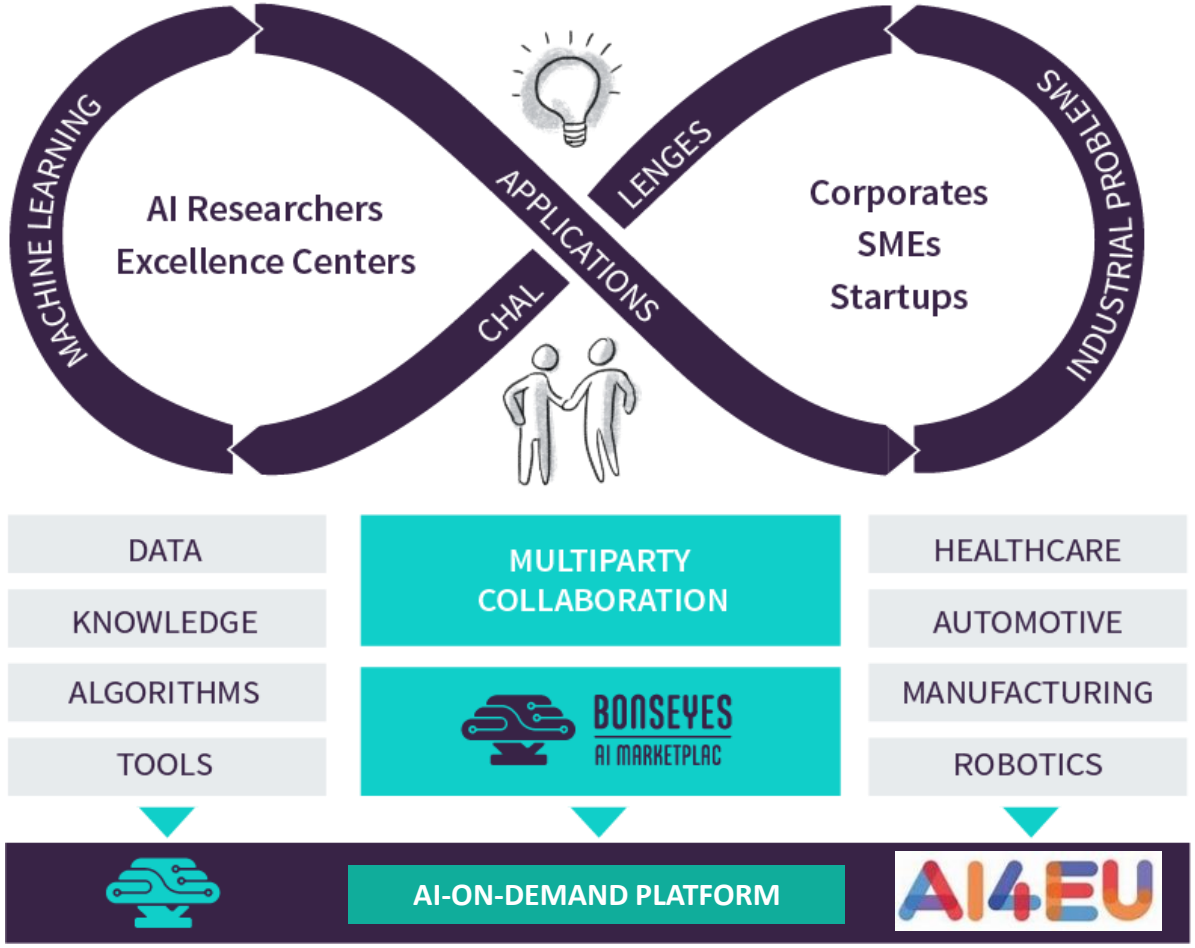
Bonseyes AI Marketplace
AI-as-a-Service

New Challenges for Europe's Cohesion



Bonseyes is a secure, distributed marketplace that offers a range of **vendor-agnostic**, **modular services (BonsAPPs):**

- ✓ **Experimentation**
- ✓ **Model compression and optimization**
- ✓ **Benchmarking**
- ✓ **Deployment on hardware**
- ✓ **Security & licensing**

Bonseyes AI Marketplace increases AI usage by enterprises and SMEs by providing tools to build **end-to-end, containerized, ready-to-integrate and re-usable solutions**

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Next:

New Challenges for Europe's Cohesion

Urszula Sobek

Project Manager of StairwAI
at FundingBox

Overview of:

Funding Opportunities

from different ICT-49 projects across Europe.

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