AI4 WASTE

FOSTERING AWARENESS AND INNOVATION IN ADULT EDUCATION

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TOOLKIT

Case Study #3 of application of artificial intelligence to the urban waste management sector in Europe

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SUMMARY

Case Study #3 of application of artificial intelligence to the urban waste management sector in Europe – Tomra (Germany).



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Case Study: Tomra Sorting Solutions (Germany)

Tomra Sorting Solutions, a Norwegian company, is a global leader in using **Artificial Intelligence (AI), machine learning, and sensor-based technology** to improve waste sorting and recycling processes.

How Tomra's Sorting Solutions Works

- Tomra utilizes **AI-powered optical sorting systems and advanced sensors** to identify, categorize, and sort waste materials from complex waste streams. The system processes materials with high speed and precision, improving recycling outcomes.
    - **Sensor-Based Sorting Technology**: Tomra'sAI-driven systems use a combination of near-infrared spectroscopy, X-ray transmission, laser technology, and visual recognition to detect the composition of different materials in waste streams.
    - **AI and Machine Learning Integration**: The AI models used in Tomra's systems are trained on large datasets that include millions of material samples. These models continuously improve as they process more waste, ensuring higher accuracy in sorting and classification of recyclables. The machine learning algorithms also allow the system to recognize new types of materials and adjust to changing waste compositions over time.
    - **Automated Robotic Sorting**: Tomra's robotic sorting systems automatically pick and separate different types of waste materials. Robotic arms guided by AI and machine vision perform tasks with greater efficiency and speed.

Benefits of Tomra's Solutions

- Higher Purity of Recyclables; Increased Recycling Efficiency; Cost Savings and Productivity; Environmental Impact.

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