

AI as a Tool in Managing Re-Use Systems

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Genossenschaft
Deutscher Brunnen eG



GDB: Facts and Figures



- Trading and service company of German mineral water bottlers
- Cooperative (“non-profit” - business)
- Headquarters: Bonn, Germany
- Founded: 1937
- Members: 150 (nearly all German mineral water companies)
- Turn over 2023/24: ca. 140 m. €
- Staff (group): 50

Corporate Structure



Genossenschaft Deutscher Brunnen e.G.

Purchase

Technics

Pool Management

100 %

PETCYCLE GmbH

PET-Circular System
Clearing
Mass Flow Verification



100 %

LOGICYCLE GmbH

Consulting
Glas-Reuse System
Crate Recycling
Reuse-to-go-Cup
Reuse-Trays
Sorting-Services
rPET Brokerage



33 %

INTERCYCLE GmbH

Single-Use-Deposit Clearing
(R)VM Connection
DPG-Depositlabel
Financial Clearing
Counting Centres
Logistics



Why AI to manage Reuse Systems?



The elementary allocation problem and permanent optimization task of established reuse systems

To provide as much as possible containers
to respective users
with as little as possible containers in the system
(at lowest cost & lowest environmental impact!)

Can AI help to solve this task?

Different kinds of AI...

Machine Learning



Large Language Models & Generative AI



AI in Reuse: not that new...



What's on the way?

On the way to optimize our reuse systems?!



- Sales Forecasts based on a set of up to 80 variables



- Forecasts of when and where reuseables are returned



- Availability & Quality

Status & Next Steps



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