



SUCCESSFUL USE OF UMBERTO IN WASTE MANAGEMENT

THE TASK

The objective was to analyze all energy and material flows in the German waste industry that can be allocated to DSD. This includes amongst others an as-is-analysis, and to provide the data necessary for external analyses and environmental balances. Then, a solution for material flow management that enables scenario calculation and sustainability assessment needed to be developed. After intensive research and testing, Umberto was identified as the best tool for addressing this complex objective.



THE CUSTOMER

STRATEGY AND IMPLEMENTATION

Duales System Deutschland (DSD) Integrator – a comprehensive solution for material and energy flow analysis of German waste data.

The area of activity of DSD covers more than 450 contract regions with more than 2.000 treatment plants and a total of approximately 4.000 processes. There are 97 generic treatment plant types, 150 different materials, and 46 substitute materials.

Altogether there are about 12.500 relations between treatment plants in the booking system, resulting from about 2,5 mio. transports per year.

This huge amount of data on collection, sorting and treatment of packagings is continuously collected from various data sources.

Within the DSD-Integrator, which has been developed especially for this purpose, this data is analyzed, amended, validated in 59 checks, and – if required – adjusted.

Validation checks include, for example, whether the respective master data is available for all material flows. No information that is required for the model must be missing.

Upon completion of the checks, the Umberto model is generated automatically from the data.

The “Green Dot” – the Duales System Deutschland GmbH (DSD) – is a private company. Its core activity is handling disposal and recycling obligations for packaging producers, fillers and distributors by licensing out the Green Dot. The company also maintains a nation-wide system for the collection, sorting, and treatment of packaging waste, and for the re-feeding of secondary materials into the material cycle.

Further, DSD offers services in the field of non-returns deposit, and supports the industry in implementing eco-compatible and WEEE compliant disposal of waste electrical and electronic appliances.

MAIN UMBERTO FEATURES USED

- Umberto Integrator to connect to existing IT systems
- Scenario analysis and comparison
- Continuous updating of data
- Umberto Library
- Valuation System Editor for definition of individual sustainability indicators

CUSTOMER TESTIMONIAL

"Umberto has proven to be a necessary and meaningful tool to set up the overall inventory for a complex material flow system such as DSD, and to make the data accessible for environmental and economic analysis. On this basis, we are able to annually present the overall environmental performance of DSD. This is our contribution to make sustainable development measurable. It is a fact that by collecting, conditioning, and recycling light packagings, the consumption of crude oil is reduced and CO2 emissions are lowered. Furthermore, this environmental success balance gives important impulses for the corporate decisions of Duales System Deutschland GmbH, and it supports us in re-orientating our corporate strategy towards higher sustainability."

Dr. Michael Heyde, Head of Technology Department at Duales System Deutschland GmbH and Managing Director of Deutsche Gesellschaft für Kunststoffrecycling mbH (DKR), 2006

The complexity of the material flows requires a multi-dimensional presentation:

■ Main Network Level

The waste fractions paper/board, glass, and light packaging (LPW) are shown for all treatment steps. The presentation includes the collection, sorting, treatment and recovery of the materials.

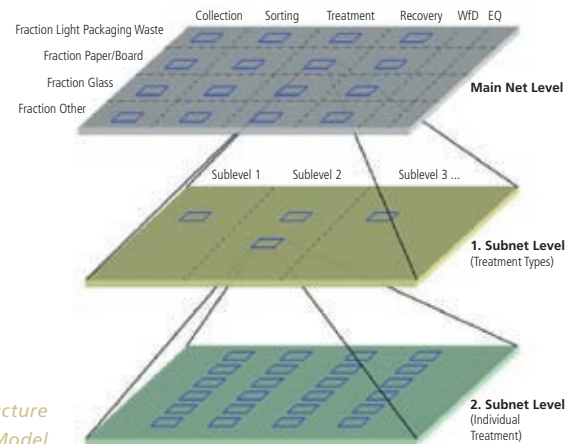
■ 1. Subnet Level – Treatment Types

All treatment plants are differentiated by their various types. For example, LPW are sorted from manually to fully automatic.

■ 2. Subnet Level – Individual Treatment Plants

Individual equipments refer to the corresponding equipment types on the first subnet level. Each individual plant is represented as a process.

The complete data import process is logged with date and time stamp. It was a development guideline to achieve a complete documentation, so that transparency and traceability can be maintained in all steps, and checking, correction and reuse of the data is possible at all times.



EXAMPLES OF UMBERTO APPLICATION

Protection of Natural Resources through Recycling

The production of new products or materials always requires interfering with our natural environment. It is often possible to use environmentally friendly secondary materials, instead of primary materials. An example of this are the versatile plastics pellets (regranules) that are used for the production of new plastics products.

DSD uses Umberto for the creation of detailed material flow models, which allows the comparison of a production from secondary materials to one that uses primary materials. The results of the modeling are used for external communication.

As-Is-Analyses support Decision Making

Analyses of the current situation with regard to various criteria and questions are made on a regular basis. In the next step the material flow and scenario analyses are performed. Any combination of material quantities can be transferred from the booking system to the DSD-Integrator, which allows for all possible substance/material mixes. These well-founded scenarios and their conclusions about efficiency and sustainability can be used to support future decisions.

MEASURABLE RESULTS AND BENEFITS

By using Umberto the complete material and energy flow in the area of activity of Duales System Deutschland can be represented in detail and comprehensibly. The quality (consistency,

completeness) of the raw data is excellent: an average deviation of only 0,004% overall can be observed before/after the automatic model building.