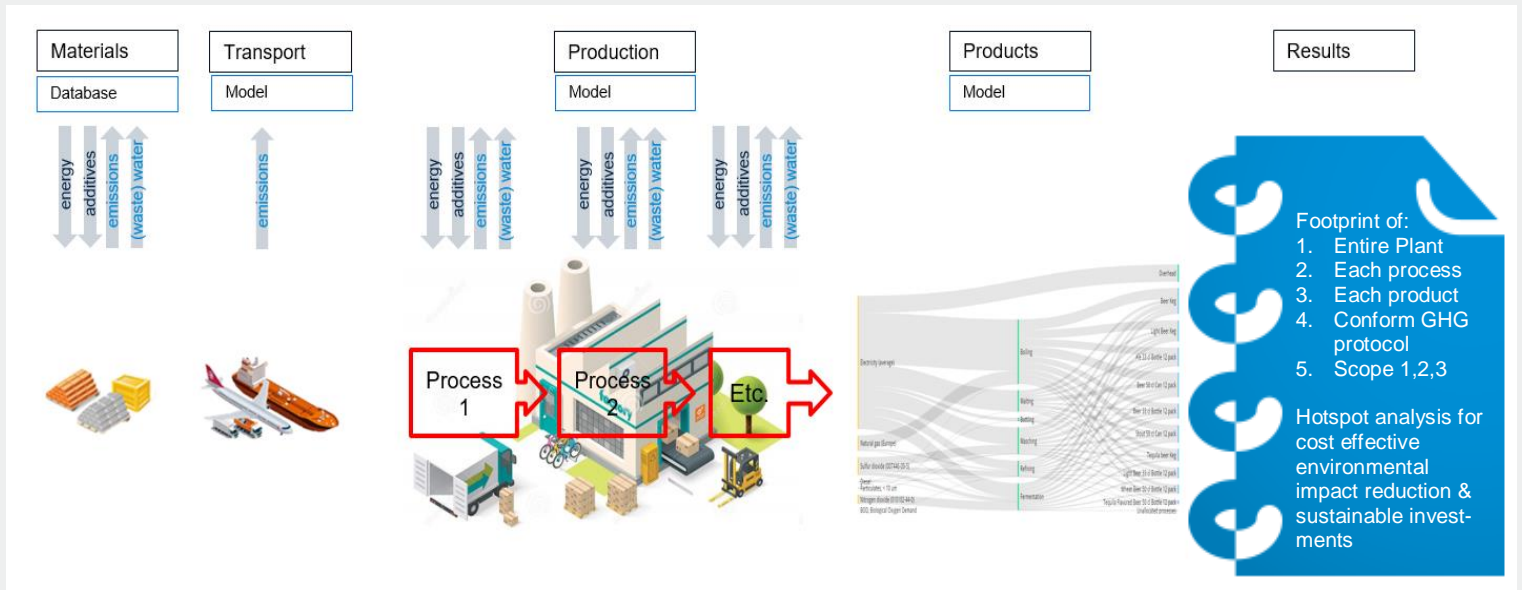


CIRCULAR PRODUCTION SCAN AN LCA-TOOL

FOOTPRINT OF CURRENT PRODUCTS AND PRODUCTION PROCESSES
IMPACT OF NEW INVESTMENTS ON SUSTAINABILITY GOALS



Smarter investment decisions

We provide insights in the financial benefits of circular production processes. With our scan we analyze your costs and environmental data to spot improvements and identify financial opportunities and innovations. Reduce costs and CO₂ footprint!

What we do, Step 1

We start with data collection on the production and production processes. This is data on:

- Raw materials (quantity, ton/year)
- Distance (km), Cost
- Process
 - Utilities: Energy, water, steam, etc.
 - Cost utilities

When possible, we also collect data on cost of machines, maintenance, repairs, downtime etc.

With this information, we will allocate the data to the main

Implementation Food, Chemicals, Government

Results

- Dairy producer
 - > Water intake 65% ↓
 - > Cost savings €1,6 million
- Coating supplier
 - > Energy 37% ↓
 - > Savings 10%
- Food producer
 - > Raw materials -1,5 ton
 - > Energy 40% ↓
- Agriculture
 - > Fertilizer 70% ↓
 - > Savings 40% (reuse waste stream)

processes:

- Utilities: Energy, water, steam etc.
- Raw materials
- Additives

We model the data against the process diagrams we have received. This will lead to an allocation of the processes per product on:

- Utilities: Energy, water, steam etc
- Raw materials
- Additives
- Cost

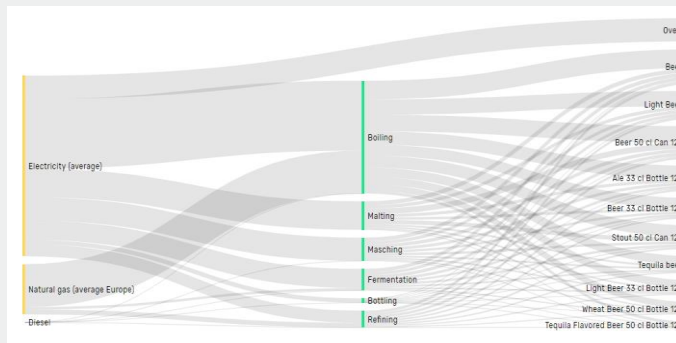


Figure 1 Allocation model

What we do, Step 2

After the modeling of all processes and products, we get insight in the hotspots for improvement. These hotspots give information on potential improvement in water, energy, CO₂ and materials.

Solutions, Step 3

Together with our engineering department, we find solutions to improve the footprint. Some results can be:

- With modern monitoring techniques, it is easy to identify energy-saving measures for your company.
- Opportunities to reduce costs in the process and building systems, such as inverters, motors, pumps, ventilation and lighting, for example by the optimization of setpoints.
- Revision of the utilities with the latest technology. There are many saving opportunities in greater efficiency of cooling, steam and compressed air.
- Optimal use of local waste heat can contribute to energy savings
- Producing bioenergy with biogas from wastewater or organic material can provide local green heat and energy.

Engineering & Technologies

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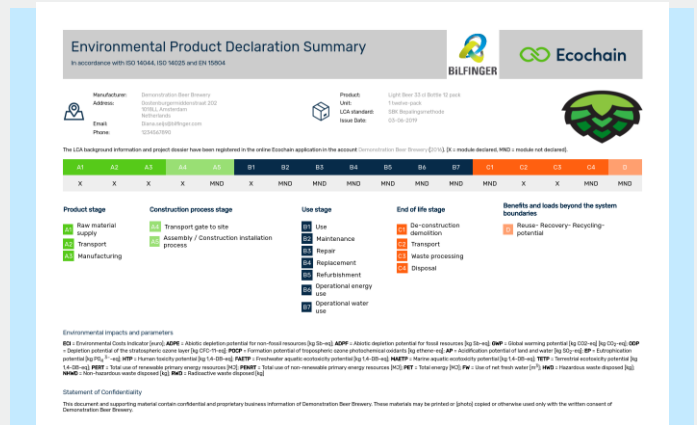


Figure 1 Optional output: Environmental Product Declaration (EPD)

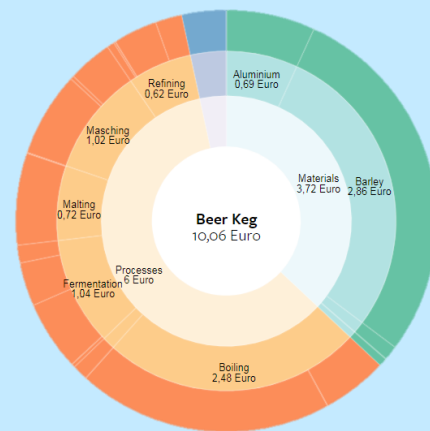


Figure 2 Example of Environmental Cost Indicator

Proposition

Start with modeling available (procurement) data/SAP in Ecochain before implementing the tool on your production location(s). Based on maximal 5 processes and 5 products, three days of modeling will give insight in the impact per process and product, an environmental hotspot analysis and optional a workshop with experts.

Correlation with the Energy Efficiency Directive (EED)

- A schematic overview of all existing energy flows (including transport)
- A description of the most important factors that affect energy consumption;
- A quantified overview of the energy saving potential for the next 4 years;
- A description of possible cost-effective energy saving measures.

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