



umberto®  
know the flow.

## UMBERTO – THE SOFTWARE FOR PROCESS OPTIMIZATION

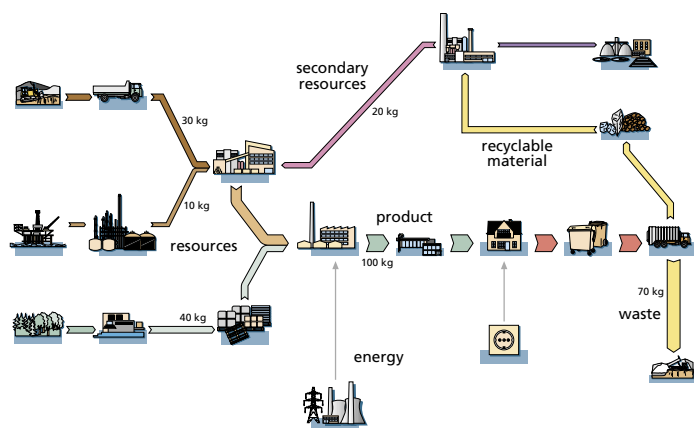
Model – Visualize – Evaluate – Optimize

Umberto is the world's most flexible and most powerful software tool for modeling, calculation, visualization, and evaluation of material and energy flows. Industries with material- and cost-intensive production, such as the chemical, semiconductor, waste management, and printing industries, use Umberto extensively. A proven tool with a known success record and intuitive user-interface, Umberto is also embraced by consulting businesses and research facilities in the completion of many successful projects.

The strength of Umberto lies in its versatility. You can use the software regardless of the size of your company or the industry you operate in, and it can

be adapted to meet your specific needs. Umberto keeps track of inventory and simulates your processes and systems. The results give you significant support for critical decisions.

*Example of a process flow diagram (Sankey diagram)*



### MATERIAL EFFICIENCY

An efficient use of materials and sensible handling of production resources offer significant savings potential. In many companies, this potential remains untapped. Umberto successfully supports you in the discovery and utilization of this potential. There are many options for efficient use of raw and other materials. For example, a company might implement quality improvements, product design optimization,

or measures for scrap and waste reduction. By modeling each option with Umberto, a facility can optimize its production process in a complete simulated environment, with all material, energy, and cost flows. Once Umberto has supported you to come to an accurate understanding of the material flows, you are provided with a solid basis from which to choose between these efficiency improvement options.

### OPTIMIZE PROCESSES AND SAVE COSTS

The main task of Umberto is to model and optimize production processes. Umberto is flexible enough to display even the most complex process with the level of detail needed for each decision. The user can look at the highest level, say the whole company, and then zoom into a specific product line, or even a specific process. The modeling process itself can also

start on a high level, with extensive detail added later as it is needed. These models consider all relevant causal relationships and transparently show the consequences of changing parameters. This allows you to reliably determine the effectiveness and results of optimization measures, **even before** you invest time and capital into their implementation.

*According to Michael Glos, the German Secretary of Commerce and Technology, "a more efficient use of materials can considerably save costs. (...) In view of diminishing natural resources and rising raw material prices it is becoming increasingly important for companies to deal with this topic."*

[www.materialeffizienz.de](http://www.materialeffizienz.de), 2006

## MATERIAL FLOW AND ENVIRONMENTAL MANAGEMENT

When working with a material flow model, you can see the effects of a change in parameters instantly. The reliability in planning offered by Umberto allows you to continuously improve operational pollution control, and to achieve the prerequisites for compliance with regulatory requirements. The understanding of cause and effect

provided by Umberto effectively supports you in reaching your objectives. For example, Umberto can help you simplify the creation of an annual environmental report. All relevant data can be brought together in one model and then automated to produce the annual data required.



## LIFE CYCLE ASSESSMENT

With Umberto you can also do life cycle assessments (LCA). That means that you can create an inventory of all ecological effects of a complete product life cycle. To facilitate this assessment, Umberto supports you with a module library that contains extensive data sets on numerous generic upstream and downstream processes (including ecoinvent data). These data consider all relevant flows and enable Umberto to provide visualization of the entire process – from raw material extraction to

waste disposal. This way you can analyze various scenarios until you have identified the optimal and most ecologically sensible production process.

Umberto allows you to connect process viewpoint and business viewpoint on the one hand, to life cycle assessment and life cycle costing (LCC) on the other hand. This unique perspective provides powerful insight into process and operation optimization.

## INTERFACES AND CUSTOMIZING

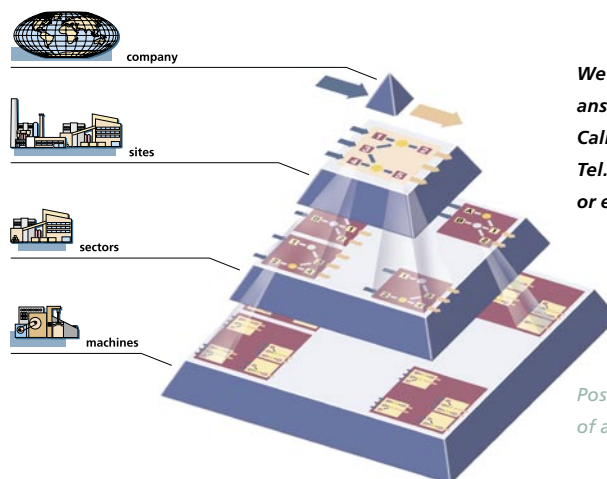
Regardless of the industry you are in, you can completely adapt and customize Umberto to your special needs, objectives, and operational contexts. Umberto's open concept allows you to connect it to standard business software like SAP, avoiding redundant data entry. You can export all Umberto

data through a variety of interfaces, and you can also import company data from other systems. You can build up your own process library and easily reuse processes or partial models in ever-changing new contexts. Umberto optimally adapts to your requirements.

## VISUALIZE AND ASSESS

Use Umberto to analyse and assess the production processes of your company. Choose any level of detail from global overview to individual machine level. The graphic display of the calculated mass and cost flows uses Sankey flow diagrams (graphical representations of all the energy transfers taking place in a process), providing you with optimal insight. Through this visualization, Umberto delivers an optimal basis for decision making as well as for internal and external communication.

**Free demo download at**  
**[www.umberto.de](http://www.umberto.de)**



**We would be glad to answer all of your questions.**  
**Call us at**  
**Tel. +49 40 - 480 009-0**  
**or e-mail us at [info@ifu.com](mailto:info@ifu.com)**

*Possible structure of a model in Umberto*