



## Waste materials cost money

The material audit carried out at Uponor Suomi Oy's plant provided the company with a means of identifying its potential material savings. The audit analysed all the factory's material flows and their costs. Nine areas for improvement were found, and a total of 45 concrete measures were suggested. Their benefits, feasibility and savings potential were assessed and recommendations made on which measures should be given priority.

Of the total costs of the factory's material flows, raw materials accounted for about 90 per cent and other costs about 10 per cent. In the audit of Uponor Suomi Oy, the information on material flows was collated into material balances. In addition to raw material costs, indirect costs, such as the labour, energy, maintenance and other variable costs of the processes were allocated to each material flow. The method revealed the actual total costs related to wastage and products (Figure 1).

### Significant savings by reducing plastic wastage

Plastics form the most important raw material flow in the plant, as well as the biggest in terms of volume and costs. The wastage created from plastics ends up as either recyclable scrap or in products as so-called excess weight. By improving the material efficiency of plastics, the average saving gained is EUR 1,450 per saved tonne of plastics.

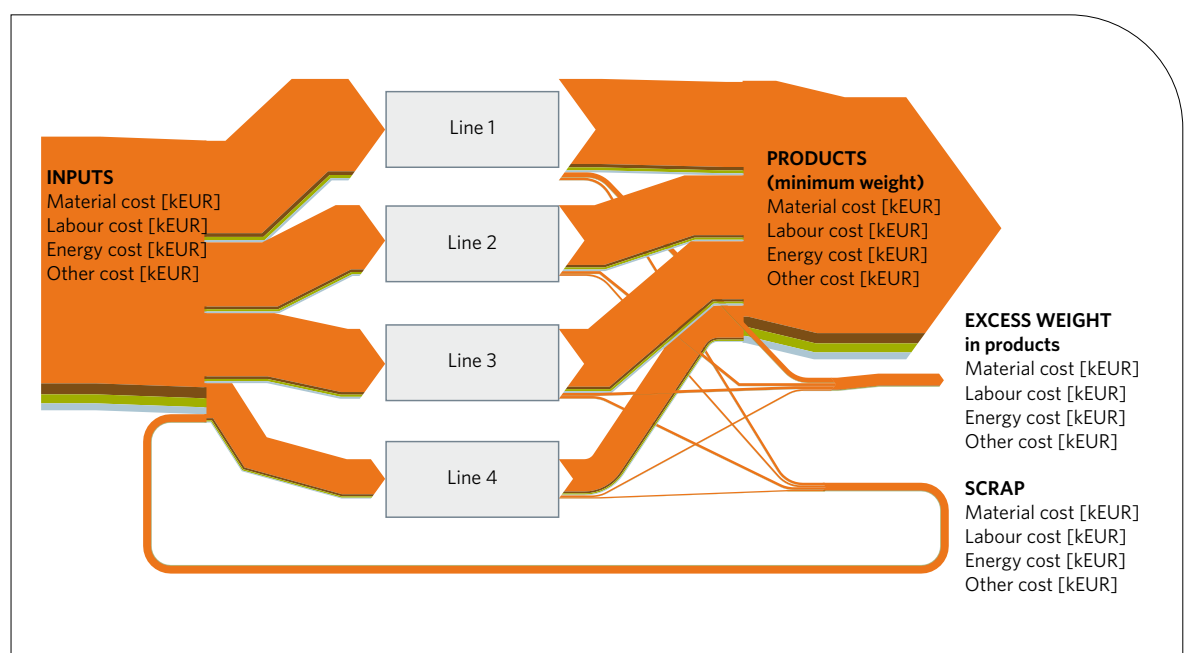


Figure 1. For each production line, direct and indirect costs (kEUR = EUR 1,000) were allocated to raw materials, products and the wastage created (scrap and excess weight contained in products).

The total savings gained from reducing scrap and excess weight are equal to the factory's total energy costs, several hundred thousand euros a year.

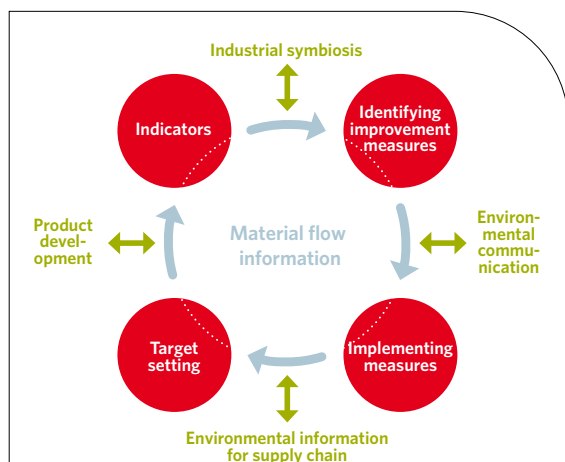
### Workshop increased staff commitment

During the material audit, a joint brainstorming workshop was held where the factory staff and the auditors exchanged information and sought ideas for improvement. The active workshop setting produced 45 ideas for actions. Working together was effective and it also increased the participants' commitment to the improvements to be made.

Of the improvement measures suggested by the audit, 18 were estimated to provide major overall benefits in terms of being easy to implement, requiring low investments and having significant savings potential. Some measures will demand investment or further development, but many can be realised purely by better work organisation and supervision and by improving skills and know-how.

### Audit procedure helps the company to develop further

– The audit procedure worked well, and the instructions for gathering information were excellent. We had to slightly modify the initial data and collect it



### Motiva's material audit

- Systematic means of seeking concrete measures for improvement
- Material flows analysed in terms of volume, cost, quality, and environmental aspects
- Brings out direct and indirect costs related to materials usage and wastage
- Visual (Sankey) and graphic presentation of material flows
- Audits carried out so far have discovered a savings potential of EUR 300,000 – 1 million/year
- Launches a continuous development process and provides valuable information for the company's development activities

## Uponor

- Uponor Suomi Oy develops, manufactures and markets heating, water and energy distribution, ventilation and wastewater processing systems. Uponor's main products are the various plastic pipes for these systems.
- Uponor products are sold in about one hundred countries.
- In 2012, the company had about 3,200 employees in 30 countries.

from different sources, although the job itself did not place great demands on Uponor, says Production Manager **Rami Silta-aho**.

Utilising a visual presentation of the material flows and the results of the brainstorming workshop, the material audit produces totally new concrete suggestions for actions, with estimates on the savings they provide, and their feasibility and benefits. From this basis, it is easy for a company to set out to implement the improvements and to integrate them in the continuous process of improving its operations.

– Now, three years after the audit, the excess weight of products has fallen by about 10–15 per cent, and we produce approximately 10–20 per cent less scrap per year. The most significant saving can be seen in the consumption of cooling water with a fall of 70 per cent from the 2008 level, says the delighted Rami Silta-aho.

### Material audit's findings

- 9 improvement proposals
- Workshop produced 45 concrete ideas for action

### Top 3 actions

- Determining factors having an impact on the production of scrap
- Improving measurement accuracy in the feed of raw materials
- Closed cooling water systems

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