

Use of Material Flow Management as a link to Eco-efficiency at SMEs



- Eco-efficiency and SMEs
- Material Flow Management

- Case Study
- Results
- Conclusions

Use of Material Flow Management as a link to Eco-efficiency at SMEs



- Eco-efficiency

Producing goods and services with less energy and fewer raw material



resulting less waste, less pollution and less cost

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Eco-efficiency and SMEs

- SMEs play an important role
 - SMEs account for 95% of companies (OECD)
 - 70% of employment
 - Major source of innovation
 - Essential role as subcontractors
 - Facing increasing pressure in promoting sustainable development

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Material Flow Management =

Optimization of material and energy flows

- In manufacturing companies 60% of costs related to material flows whereas 25% related to personnel
- Increasing material efficiency can cut costs by 20% (Arthur P. Little)



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Eco-efficiency (EE)

- Reduction of material intensity
- Reduction of energy intensity
- Elimination/reduction of toxic materials
- Enhancing material recycling
- Use of renewable resources
- Extended product durability

Material Flow Management (MFM)

- Reduction of material intensity
- Reduction of energy intensity
- Elimination/reduction of toxic materials
- Enhancing material recycling
- Use of renewable resources



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Case study

- Eight (8) Finnish companies (metal, technology, furniture, chemical)
 - Use of methods or means for incorporating material flow management and eco-efficiency
 - Counting and evaluation



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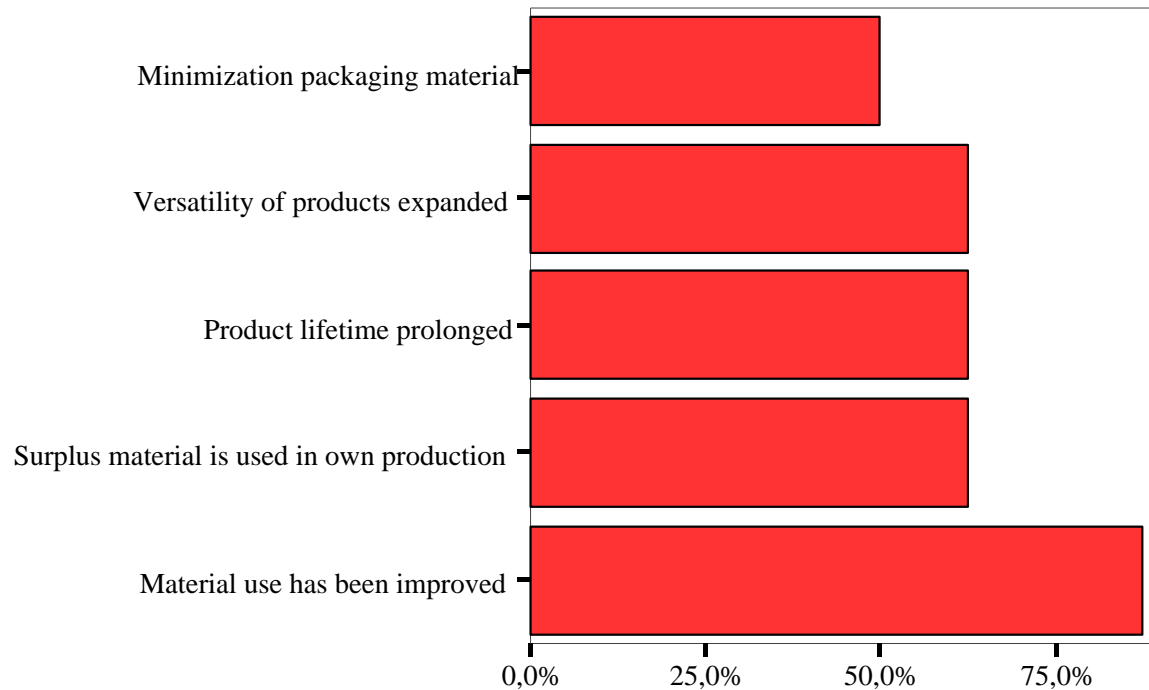
RESULTS

- Eight companies returned questionnaires, two interviews
 - Case companies did not use described methods for incorporating MFM or EE
 - About half of the companies had made improvements concerning MFM

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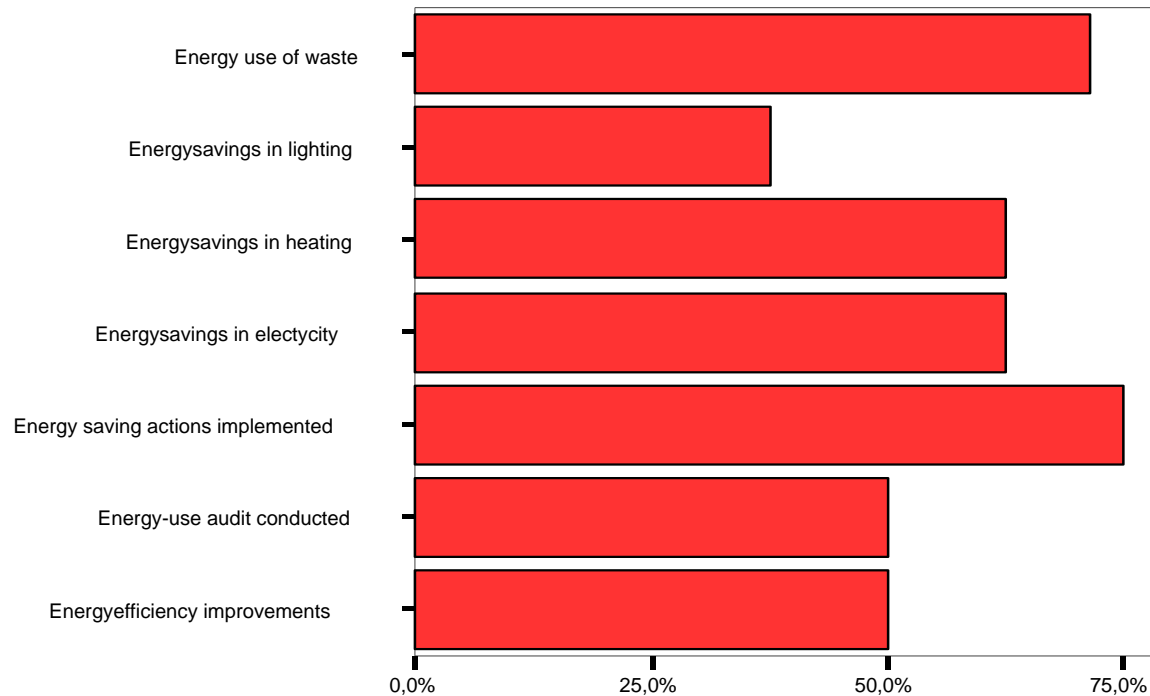
Material reduction efforts



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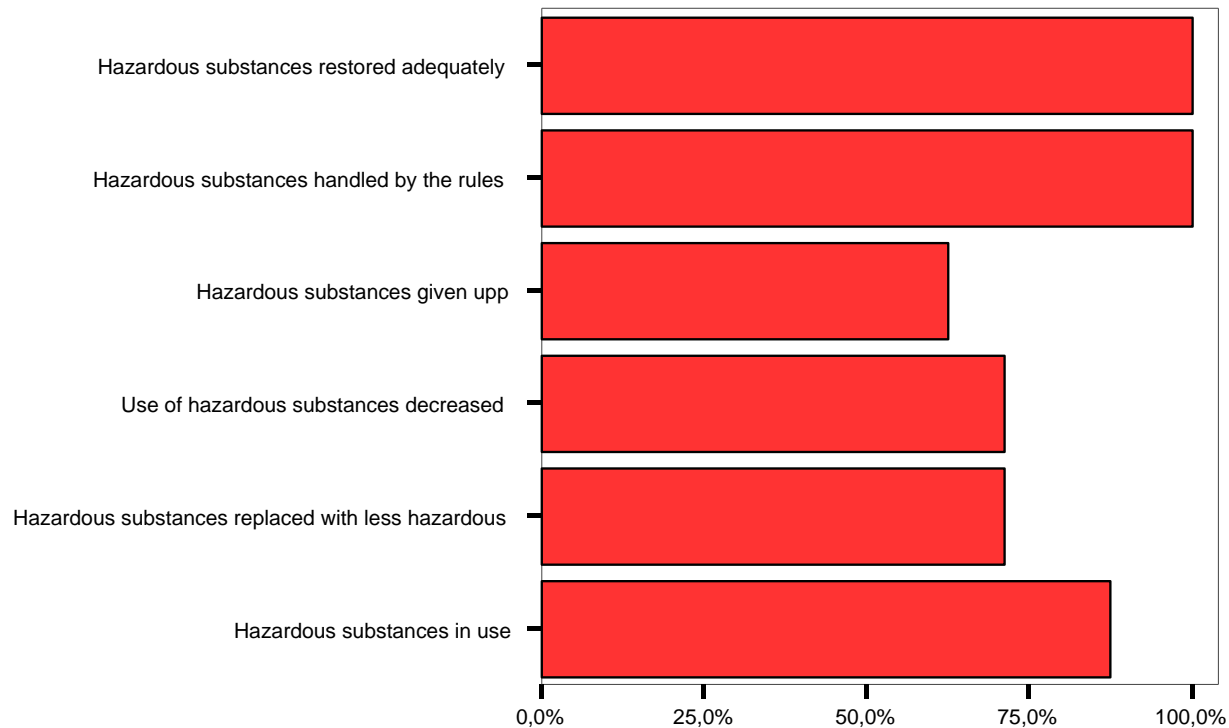
Energysaving efforts



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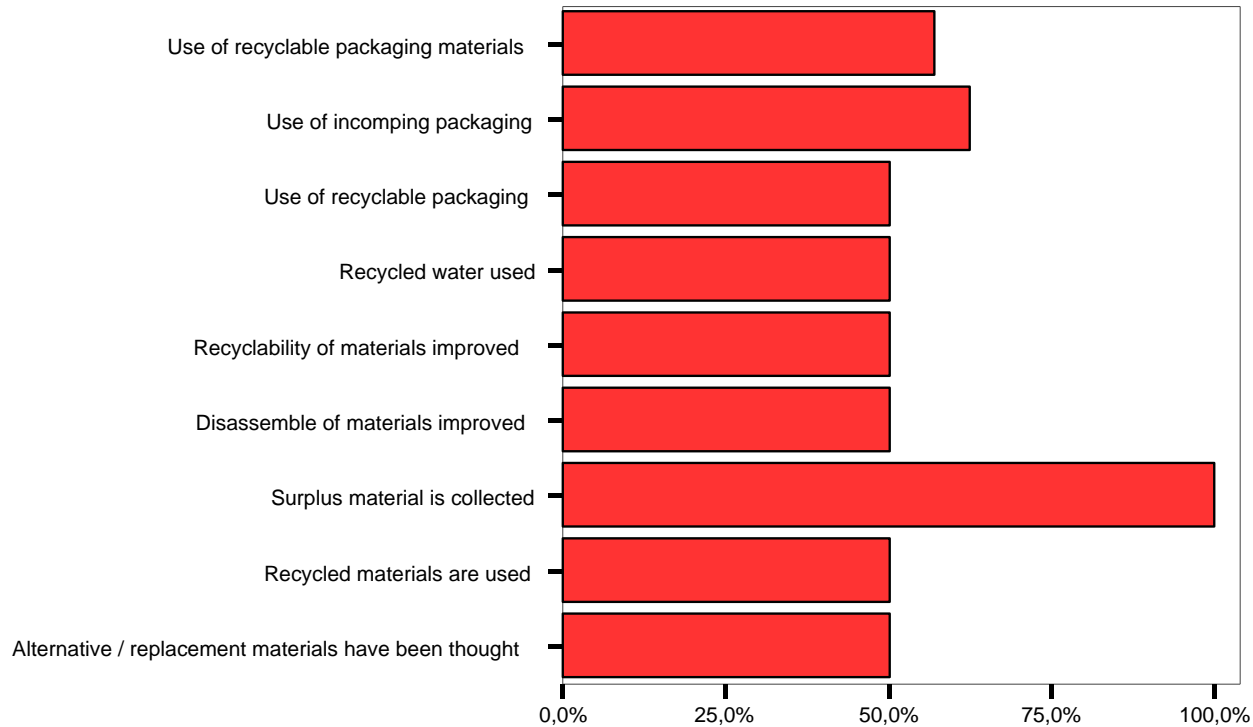
Elimination or reduction of toxics efforts



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Material recycling efforts



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Counting and evaluation

	M, Quantitatively		R, Financially		MR, Quantitatively and Financially		no	
	Count	%	Count	%	Count	%	Count	%
Counting / evaluation of Material use	2	28,6%	2	28,6%	3	42,9%		
Counting / evaluation of Material loss	3	42,9%	1	14,3%	3	42,9%		
Counting / evaluation of Energy use			2	28,6%	3	42,9%	2	28,6%
Counting / evaluation of Waste amounts	1	12,5%			4	50,0%	3	37,5%
Counting / evaluation of Environmental costs			2	28,6%	2	28,6%	3	42,9%
Counting / evaluation of production amounts	1	14,3%			5	71,4%	1	14,3%
Counting / evaluation of Sales			3	42,9%	4	57,1%		
Counting / evaluation of Stock amounts	2	28,6%			4	57,1%	1	14,3%



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RESULTS

- Eco-efficiency management issues not commonly recognized
- Material flow management relatively unknown
- Despite this many companies have improved their processes in respect to material flows
- Driver for improvements financial

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RESULTS

Main reasons for avoiding methods for MFM or EE

- Lack of time
- Lack of personnel
- Methods are considered too complicated or axhaustive

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CONCLUSIONS

- Modify methods easier to implement
- Consultancy from experts
- Parts of MFM and EE practices already in use

