PRESOURCE

Country Report 3.1.2.

Tools that are designed to identifying and exploiting the potential for resource efficiency within the production process and life enterprise and their unwanted shift into pollution in Germany

Federal Environment Agency, Germany

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PRESOURCE

Umwelt Bundes Amt
Für Mensch und Umwelt

Content

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1. Preface

The Federal Environment Agency has conducted in the framework of the PRESOURCE project (www.presource.eu) a desk research on existing tools already utilized in Germany for providing support to entrepreneurs and intermediaries in the field of resource efficiency in SMEs in a partner country.

This country report for Germany summarizes the findings of this research. It focuses on innovative tools, which are:

- Utilised to identify and/or to explore resource efficiency potential (or which contribute to this goal);
- Utilised within SMEs by enterprises themselves and/or by third parties which assist SMEs in order to achieve particular changes / innovations.

We were not interested in general instruments as described for example within ISO standards (like for example ISO 14001 for environment management systems) but rather focused on tools utilised in particular to increase resource efficiency in enterprises of the manufacturing sector.

We had expected that there would exist similar tools under different names in the 6 participating PRESOURCE countries (Germany, Czech Republic, Poland, Austria, Hungary and Italy). Therefore e.g. the tools we collected in Germany in the field of energy efficiency and efficient use of material (e.g. the Umberto tool) will be cross-checked with tools from the other countries in order to avoid unnecessary duplications in the analysis.

This is important as all these results shall be used in the development of the EDIT VALUE tool (Eco-innovation Diagnosis and Implementation Tool for Increase of Enterprise Value).

The EDIT tool shall be based on an objective approach assisting SMEs in answering question where to allocate limited resources which can be devoted to increasing resource efficiency through use of so called “voluntary instruments” of industrial management for sustainable development. It will be developed as a multi-criteria decision support system helping SMEs within production sector to explore resource efficiency potential both within their production processes as well as within the life cycle of their products.

Within the EDIT tool all levels of an enterprise’s management pyramid[1] shall be assessed in a systematic way from the perspective of possible resource efficiency opportunities for improvements,

[1] We distinguish the following basic levels within a management pyramid: stakeholders, vision and objectives, strategy, management system, production process and products

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which could enhance enterprise's value. That's why the current country report for Germany also comprises different levels within this management pyramid.

In this respect the current country report on tools constitutes the first step in the development of the EDIT tool.

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2. List of Resource Efficiency (RE) related tools in Germany

2.1. A PIUS Check

Characterictics: The ®PIUS Check offered by the Efficiency Agency of North-Rhine Westphalia is divided into 4 steps. In the first step, a rough analysis of the status quo of the company for assessment of possible efficiency measures is elaborated. Upon decision for implementation of the project, production methods and processes are analyzed through visualization in material flow diagrams followed by elaboration of different PIUS measures and assessment of its technical feasibility. In a third step a detailed dataset for two to three PIUS approaches is generated by means of all important economical and ecological facts. Here, detailed measures are established and evaluated for practicability and consequences towards other company facilities. The fourth and final step comprises set up of an implementation scheme for particular measures based on the outcome of the Check results.

Author: Effizienz-Agentur Nordrhein-Westfalen (EFA)

Target group: no strict limits, but focus on companies up to 1000 employees

Source/link: http://www.efanrw.de/index.php?id=40

Relevance for EDIT development: very high

2.2. Resource Cost Accounting (RCA)

Characterictics: Resource Cost Accounting is an environmentally-oriented extension of a business' cost accounting. It is EFA's instrument for the recording and illustration of the resource-related cost-reducing potential in a company.

With the RCA software, technical and business information can be linked and the incurred cost factors identified. Resource Cost Accounting is an effective planning, managing and controlling tool that not only considers the business aspects of a company, but also the technical side, by linking information about both areas. With this tool, the whole company, individual business units or particularly relevant production areas can be examined.

After RCA had been successfully introduced into nine companies in the wrench, chemicals, plastics and metal-processing industries by 2003, EFA pursued an additional standardisation of the RCA tool in 2004. They created a comprehensive handbook concerning the introduction of RCA and the usage of the RCA software. After the completion of the standardisation, additional companies were convinced to introduce the RCA software. Since 2005, EFA has offered small and medium-sized enterprises the introduction of the RCA tool as a cooperation project, in a similar way to the PIUS-Check.

Author: Effizienz-Agentur Nordrhein-Westfalen (EFA)

Target group: companies in the production sector, special aid for SMEs

Source/link: http://www.efanrw.de/index.php?id=146&L=1

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Relevance for EDIT development: very high

2.3. JUMP tool

Characterictics: Optimisation of production can reduce costs, improve quality and benefit the environment. At no time, however, are the environmental effect and costs of a product greater than during its development.

Here, the course is set for the entire life cycle – from production through use to disposal. Fewer resources, energy and emissions, the use of renewable raw materials or recycled materials, long life-expectancy and a good product capacity for repair, dismantling and recycling: by using modern technology and methods in terms of design for the environment, it is possible to minimise effects on the environment during the entire life of the product at no great additional cost.

The EFA developed with the JUMP-Tool an instrument for optimising the product development process in terms of eco-design.

Author: Effizienz-Agentur Nordrhein-Westfalen (EFA)

Target group:

Source/link: http://www.efanrw.de/index.php?id=114&L=1

Relevance for EDIT development: low (since design phase is not included in EDIT Value)

2.4. Umberto

Characterictics: The software tool is a powerful instrument to calculate, visualize and evaluate material and energy flows as well as consumption of resources of individual production processes or even single machines. A supporting tool, Umberto® for Carbon Footprint is also suitable for calculating product carbon footprints.The tool provides well arranged flow diagrams which reveal material and energy flows in a production process. Given input-output relations of processes are calculated from specific entry parameters. After each calculation the user can view and evaluate the results which can also be shown and processed as input-output balances. The calculated balances can be evaluated in many ways, e.g using economic and environmental performance indicators. With Umberto® it is also possible to compare two or more balance sheets. All balance sheet results or parts of results can be displayed as diagrams and exported to excel.

Author: ifu Hamburg

Target group: companies, research institutions and consultants

Source/link: http://www.umberto.de/en/

Relevance for EDIT development: high

2.5. Toolbox Ressourceneffizienzportal

Characterictics: The toolbox comprises RE-relevant instruments named Materialbewertungs(material assessment)-Tool and Material Stream Mapping Tool. The first can be used to set up an inventory for

material used in a company whereas the second illustrates material flows. Taken together they provide the same function as Umberto (see above) does, but they are free of charge.

Author: Hochschule für Technik und Wirtschaft Berlin, TU Berlin

Target group: companies

Source/link: http://www.resefi.de/

Relevance for EDIT development: high

2.6. demea-Selbstcheck (self-check)

Characterictics: online-tool in multiple choice format for a first assessment of RE potential in industrial and manufacturing trade companies. The RE performance of the participating company is visualized in the result through traffic light symbols. As the check is performed very quickly, one may regard the tool as a teaser to raise interest in the topic of in-plant RE measures with external consultancy funded by the Federal Ministry of Economics and technology.

Author: German Material Efficiency Agency (Deutsche Materialeffizienzagentur, demea)

Target group: industrial companies

Source/link: http://www.materialeffizienz-selbstcheck.de

Relevance for EDIT development: medium

2.7. VDI ZRE Resource Checks

Characterictics: similar to the demea Selbstcheck, the Resource Check is an online tool with a few general questions to resource efficiency (RE) issues in the companies. The difference is a two step approach with i) a basis module and ii) sector specific modules for a more detailed analysis. Corresponding with the Resource Checkspecific modules, the website also provides information to the succeeding steps of process chains in the different sectors, comprising R&D projects and implemented RE projects, best available techniques (not identical with BREF documents) ans (sometimes) viedeos of implemented projects.

Author: VDI ZRE (Zentrum Ressourceneffizienz)

Target group: companies of the production sector

Source/link: http://www.vdi-zre.de/home/wie-funktioniert-ressourceneffizienz/ressourcenchecks/

Relevance for EDIT development: High

2.8. REMake self-check for Recycling and Resource Efficiency

Characterictics: another multiple choice tool resembling the demea tool with some more questions and a comparison of the results in the fields production, management, product development and design as well as purchasing, sales and material logistics with a European benchmark. The tool is available in English, German, French, Italian and Spanish.

Author: REMake Project (EU CIP Programme)

Target group: companies of the production sector

Source/link: http://www.materialeffizienz-selbstcheck.de/remake

Relevance for EDIT development: medium

2.9. VOC tool - Calculation of emission levels of volatile organic compounds (VOC) in accordance with EU VOC guidelines

Characterictics: Due to the government`s VOC emission reduction plan (according to 31st BImSchV), an Excel-Tool has been developed for company specific solvent usage monitoring. With this tool, solvent flow rates and handling becomes visible which is the first step to reduce emissions and thereby meet EU requirements. Essentially, this tool is suitable for all solvent users in the creation of an internal solvents management system and enables entrepreneurs to exploit the economic and ecological potential of their company

Author: Effizienz-Agentur Nordrhein-Westfalen (EFA)

Target group: companies using organic solvents in their production process

Source/link:http://www.efanrw.de/fileadmin/user_upload/_AKTUELL_LM_Excel_Tool_1008.xls

http://www.pius-info.de/de/pius_info_pool/tools/voc-tool/index.html

Relevance for EDIT development: medium

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