

Report on suggestions list on European SMEs tools

Deliverable B4.2



Compiled by:
P. Buttol, S. Scalbi and P. Sposato (ENEA)
C. Facheris and E. Baldereschi (Scuola Superiore Sant'Anna)



Index of content

Introduction.....	3
PEFStarter.....	4
Ecodesign tool.....	5
Communication tool.....	6
MEdit tool.....	8

Introduction

Sub-action B4.2 aims to develop a toolkit that supports Product Environmental Footprint (PEF) implementation at small and medium sized enterprises (SMEs).

The initial objective defined in the LIFE EFFIGE proposal was the development of three new tools and the updating of the EC SMEs support tool for environmental footprinting, which was under development when the project proposal was submitted. This tool was expected to be ready during the first half of 2018, but the version currently available¹ is a prototype which does not allow any calculations of environmental impacts and whose development seems to have been stopped in 2014. In the meanwhile, some Life Cycle Assessment (LCA) software developers have developed commercial software and/or additional packages that support PEF studies, and simplified and specialised calculation tools have also been developed and tested for PEF of the European pilot test programme.

As the EC SMEs tool was not available at the time of starting Sub-action B4.2, and it is not available at the time of writing this report, the partners of LIFE EFFIGE had to introduce some changes in this activity. Starting from the results of the survey carried out in Sub-action B4.1, which are reported in Deliverable B4.1, and from their experiences about product eco-innovation, development of simplified tools specialised for SMEs and creation of Life Cycle Inventories databases, they decided to develop a toolkit, which includes four new tools instead of three and aims to fulfil the following main functions:

- increase SMEs awareness on the potentialities of the PEF method and encourage its use for a better competitiveness and for a continuous improvement of the environmental profile of products and companies;
- support the process of product's improvement (eco-design);
- communicate in a simple and practical way the PEF results and make it easier their interpretation;
- support the creation of a database of consistent, robust and quality-assured life cycle data.

The following 4 new tools are currently being developed:

1. PEFStarter tool, an interactive on-line tool to train SMEs in few steps on the main features of the PEF method, including the bases of the method (Life Cycle Thinking and LCA), the opportunities offered, the steps necessary for its application.
2. An eco-design simplified tool, specialised for a supply chain of the project, which supports the identification of an improvement action plan. It is worth to highlight that the survey results identified the products (re)design as the main driver to carry out LCA studies.
3. A communication tool, which promotes the communication of environmental footprint results and make them understandable to non-experts.
4. MEdit tool, an on-line tool for the editing and the management of the metadata in compliance with the ILCD-EF format. The description of the metadata is fundamental for the implementation of the database of LIFE EFFIGE (Sub-action B4.3) by the project partners. This tool aims to make it easier to report those elements which allow the description of a dataset and the calculation of its data quality rating.

¹ The prototype can be downloaded at https://ec.europa.eu/environment/eusssd/smgp/ef_pilots.htm#sme

PEFStarter

PEFStarter is an on-line tool developed to support Italian companies that are interested in understanding the opportunities arising from the PEF methodology, how it works and the main procedural steps necessary to carry out a PEF study. The tool consists in a questionnaire: depending on the user's answers, different paths (questions) and results are provided. At the end of the questionnaire, a final document is available and downloadable, which summarises the path taken by the user and the information received.

The questionnaire is a user friendly and short time-consuming tool for companies that have a first approach to the PEF methodology and want to receive a general overview of goals, procedures and main steps.

PEFStarter aims to stimulate the interest on the PEF methodology, to highlight its simplified approach (especially thanks to the availability of PEF Category Rules, PEFCR) and the opportunities offered in order to nudge companies (especially SMEs) to adopt it.

PEF starter questionnaire is divided into three main sections:

1. **LCA and LCT level of knowledge:** as PEF is based on LCA, in this stage questions are asked to understand the level of knowledge that companies have on life cycle thinking and ISO14040 - LCA. At the same time, depending on the answers, results highlight the principles and the approach of the product/service life cycle and the main opportunities related to LCA implementation at companies.
2. **PEF methodology level of knowledge:** questions are mainly focused on PEF methodology and aim to put in evidence purpose, opportunities and differences if compared to a standard LCA (i.e. PEFCR, simplification through common rules for category products, etc.).
3. **Procedures to develop a PEF study including both the situations: a) PEFCR of the product category of interest of the user is already available; b) PEFCR has to be developed.**
 - a) If the PEFCR of the product category of interest is not available, the main steps needed to develop a PEFCR are shortly described. At the end of this section, the user can also continue to the next one to obtain information about the PEF development.
 - b) If the PEFCR exists, the tool trains the user about the main steps and activities required to carry out a PEF study, on the basis of the general approach adopted in all PEFCR documents. This section focuses on key concepts, terminology, and most relevant technical aspects (ex. data collection, LCA inventory, mandatory/default data, dataset etc..), without entering into the details.

According to the different questions and answers, specific links to the official website of PEF programme are given in order to redirect the user to a more detailed documentation and training if she/he is interested in increasing her/his knowledge of PEF methodology and procedures. Also links are suggested to PEF supporting tools developed in LIFE EFFIGE and in the framework of other European initiatives.

Ecodesign tool

The results of a PEF study are complex and structured and include a set of environmental impact categories (more than fifteen). Furthermore, the calculation models are technical instruments that require specific training on LCA and therefore they cannot be directly used by inexperienced staff. This level of complexity makes it difficult to use PEF results and raises the need for a simplification instrument.

The Ecodesign tool has the aim of removing these drawbacks affecting the implementation of PEF within SMEs. It would be developed as an operational tool to support adoption and implementation of the PEF methodology.

The Ecodesign tool could be used as a practical instrument to support product design, with the objective to include and evaluate the environmental impacts at the design phase. This tool makes PEF results dynamic, allowing more sustainable design choices.

The tool was conceived as a prototype of an experimental application. For this reason, it was decided to test it on a single chain, specifically on the furniture sector, in which the design plays a relevant role.

The tool will be built on the basis of the environmental impact data extracted from the PEF screening calculation model which was related to the representative product of the furnishing sector.

The tool will be a simple excel table with a series of predefined alternatives and it is able to work on every support.

More specifically, the Ecodesign tool is characterised by few variables of input processes and of impact category outputs. For example, companies can choose to evaluate only the processes that emerged from PEF analysis as most relevant, such as raw materials and packaging. In the same way the environmental impact results can be related only to the most relevant impact categories or, indeed, to one category such as climate change.

Some cells of the excel table will be fixed, without the possibility of making changes by the user. Among these fixed cells there will also be the environmental impact results of the representative product, so as to allow a direct and clearly visible comparison between the product we want to analyse and the representative product itself. Other cells are instead interactive, and the user can choose the elements to be inserted from a drop-down menu and enter the respective quantities. Once the element and the respective quantity are inserted the environmental impacts are shown in the fixed cells for the chosen impact categories.

Communication tool

The goal of environmental communication is to make tangible and detectable the environmental advantages linked to the choice of a product or service.

For some kinds of product, a higher environmental performance can be noticed at the selling shelf even by sight, but for the largest part of products the environmental improvement cannot be perceived at the time of purchase. As a consequence, it is essential that consumers concretely understand the environmental benefits coming from the use of a product in order to make them aware of the ecological surplus associated to the product itself.

The challenge for producers is to make the environmental benefits connected to the consumption of their products perceptible and effective as much as possible. However, messages conveyed to consumers are often contradictory, unclear and they do not allow consumers to distinguish between a general claim of ecological values and the real product's environmental performance. The results of an environmental footprint study are, instead, a solid scientific baseline and they enable the communication of objective, credible and comparable information regarding the product's performance. Indeed, the results of an environmental footprint study are obtained strictly implementing scientific methodologies and international standards which ensure accuracy, reliability and replicability of results, moreover they represent a product or service environmental impact through all its life cycle. However, at the same time, it is not possible to affirm that the results of a product or service environmental footprint are easy to communicate; even if reliable and exhaustive, they lack simplicity and comprehensibility.

The environmental communication needs to be clear and comprehensible in order to be effective. This does not mean that environmental impacts or benefits connected to a product can be expressed in a simplistic way or, in other words, trivialised through slogan. What is expected from producers' declaration is to have them adapted to the target's ability to understand. Therefore, one of the main objectives for companies is the search for an effective mix between completeness and credibility of the environmental information on the one hand, and simplicity and attractiveness of the messages on the other.

Under the Life EFFIGE project, it is planned to develop tools to understand data emerging from environmental footprint studies, in order to facilitate the communication, interpretation and to enhance the outcomes with the final aim of company's growth. The project includes the development of "user friendly" indicators and environmental claims which enable the promotion of environmental footprint results inside communication activities, isolating environmental information (LCA results) from the technical context of LCA, making them understandable to non-experts thanks to "equivalents".

Examples of these "equivalents" could be:

- the impact, expressed in kg of Carbon Dioxide (CO₂ eq.) emitted over the product's life cycle, is compared with a weighted average of carbon dioxide emissions per km covered by registered vehicles in Italy in 2015 (equal to 0.1154 kg of CO₂/km²);

² https://www.mise.gov.it/images/stories/documenti/GUIDA_CO2_2016.pdf "According to the European Agency for the Environment, the weighted average of carbon dioxide emissions coming from new vehicles in Italy in 2015 is equal to 0.1154 kg/km"

- the impact, expressed in kg of carbon dioxide (CO₂ eq.) emitted over the product's life cycle, is compared with carbon dioxide emissions consequence of covering a known distance (i.e. Milan/Rome) by car or any other means of transport;
- the impact, expressed in water consumption, is compared with the average water consumption associated with an average shower in Italy (about 45 litres³).

This solution is also particularly effective in the communication of the improvement of a product's environmental performance, within an environmental performances tracking report, or in comparing different products. The Table below shows some examples of comparison between two products carbon footprint.

Examples of equivalents used to communicate environmental advantages			
product A	3.701 kgCO ₂ emitted over the product's life cycle		
product B	13.527 kgCO ₂ emitted over the product's life cycle		
Environmental advantages of product A compared to product B			
kgCO ₂ saved	9827		
	Equal to CO ₂ emission of a Euro 5 medium capacity vehicle on:	39.608 km	
	Equal to CO ₂ emission of :	68 Milano-Roma trips covered by car	390 Milano-Roma trips covered by HV train per person
	Equal to kg of CO ₂ absorbed by:	393 tree	
Equivalences			
The carbon footprint of Rome Olympic stadium lighting system during a 90 minutes match is equal to the carbon footprint of:	258 products A		
The kg of CO ₂ emitted to travel Milano/Roma route by HV train per passenger are equal to the carbon footprint of:	2 products A		
The kg of CO ₂ emitted to travel Milano/Roma route by a medium capacity car are equal to the carbon footprint of:	11 products A		

³ From 30 to 60 litres, according to ARPA Emilia Romagna (https://www.arpae.it/pianetaacqua/data/acque_potabili/consumi_domestici/text1.html)

MEdit tool

Action B4 of LIFE EFFIGE includes the creation of a Database supporting the development of pilot PEF studies. The format of the datasets that will be implemented is compliant with the International reference Life Cycle Data System (ILCD) EF format (last version available). This is an XML-based format which allows the exchange of environmental data between different sources and a common basis for consistent, robust and quality-assured life cycle data, which is fundamental in the context of the PEF initiative. This format includes also a set of metadata, which provides transparent and complete information to support the end user's choice of dataset. The data documentation format consists of several parts:

- **Process description** in terms of name, function, technical scope.
- **Modelling and validation**, which describes the modelling of a process as well as the validation of the resulting model. It includes allocation procedures and all the methodological choices made, e.g. which principles to use and what assumptions and exclusions to adopt. This documentation is valuable for data users when interpreting the relevance and quality of the data for a specific goal and scope definition.
- **Administrative information**, which describes properties of the documentation of a process that is not directly related to the model, but to the administration of its documentation, for example existing copyrights, background datasets etc.
- **Impact Assessment** results.

The MEdit tool is aimed at managing the metadata of the processes/products for the creation of the EFFIGE Database. It has the following features:

1. It is an on-line tool compatible with the main web browsers
2. It allows the uploading of datasets exported by LCA commercial software in the ILCD format, verifies the metadata nomenclature and solves incongruence issues of the different versions that have followed over the years, adds the fields mandatory for the compliance with the last version of ILCD EF format available.
3. It allows the editing of metadata (modification/addition) by the user and check for the compilation of mandatory fields.
4. It allows the modified dataset to be saved by the user, who is the proprietary of the dataset and can decide to make it available in the EFFIGE DB and/or to exchange it, for example within the supply chain.

The access to the tool is for free to everyone who subscribes via a social media account or the creation of a new account.