



Co-funded by the Intelligent Energy Europe
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Work package 7: Project Validation

Deliverable 7.2: Final indicators adjusted

EMSPI: Energy Management Standardization in Printing Industry

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TABLE OF CONTENT

Introduction of D7.2	4
1. Validation D7.2: indicators adjusted (FACTOR CO2)	4
2. Validation D7.2: Specific guidelines	5
2.1 Validation of the specific guideline: strategy & green marketing (INNOWISE)	5
2.2 Validation of the specific guideline: quality control (KVGO DC)	6
2.3 Validation of the specific guideline: ESCO's (FACTOR CO2)	6

INTRODUCTION OF D7.2: FINAL INDICATORS ADJUSTED

Once the implementation in SMEs is finished, indicators need to be assessed. This is logical due to the fact that after the implementation of about 100 energy management systems, including the energy monitoring, the consortium partners got more insight in the matter of energy performance indicators (from WP3).

IEE Performance and Standard Indicators (chapter 1: indicators adjustment):

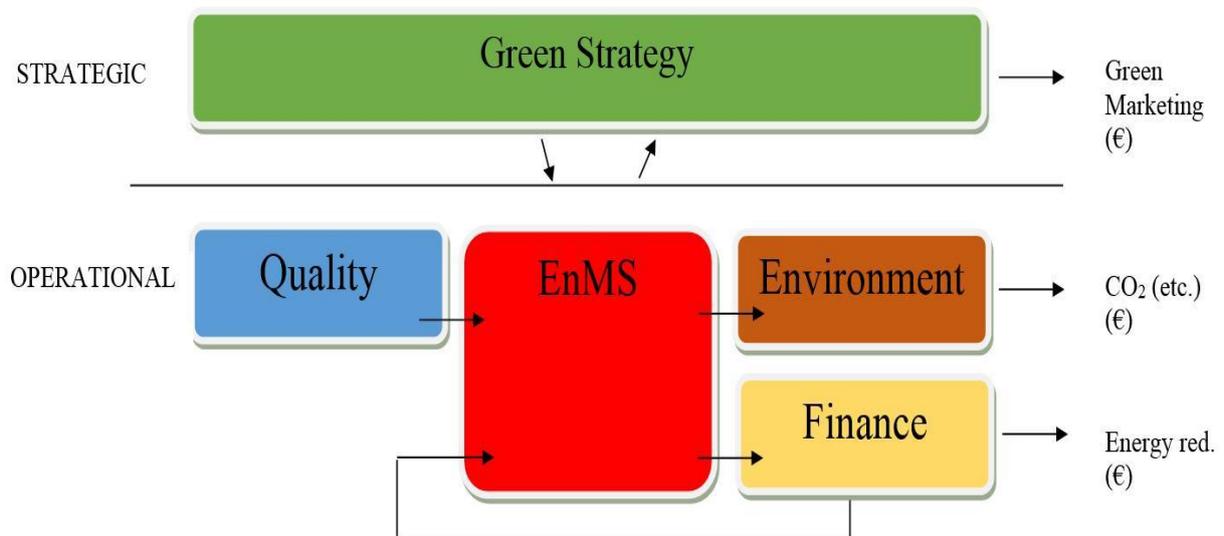
The consortium provides these indicators at the starting point of the project (research in WP2 and defining them in WP3) and will act as the quantitative baseline against which the project's success will be measured. Primary Energy, electricity, gas and fuel and GHG emissions need to be addressed in this section. Indicators will be analysed both per country and globally (5 countries) to identify any specific deviation from a country wise perspective. The leading task of this phase of D7.2 lays in the hands of Indicators elaborated during WP3 to act as technical base for the EMS standard development. These indicators will be validated the same way than IEE Performance Indicators.

Analyses and Adjustments of the Specific Guidelines of WP5 (chapter 2 till X):

Strategy / green marketing tools, quality control, and ESCOs feasible involvement will be assessed and evaluated too.

The evaluation actions will be done by the creator of the specific guidelines.

To give a general overview of the interaction between the main part of EMSPI (WP4+WP6) and the specific guideline one can use the figure below:



1. VALIDATION D7.2: INDICATORS ADJUSTED (FACTOR CO2)

According to the national stakeholders and SME's, the defined parameters are very suitable for the sector. Furthermore, these parameters are also used in the ISO-accredited ClimateCalc calculation methodology (a well-known carbon footprint accounting system).

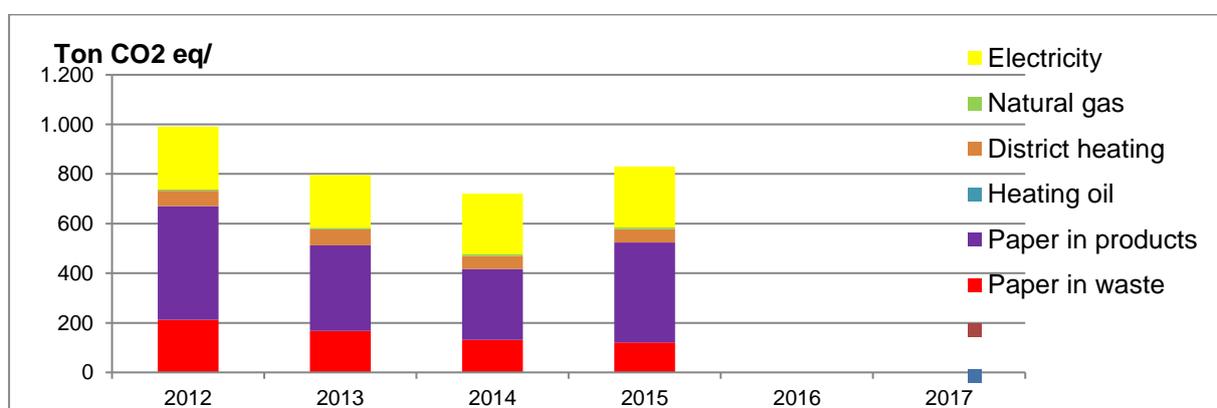
It was difficult to define the right specific energy indicators. Due to the lack of company data, the consortium made the right decision when taking into account kWh/ton paper as a right indicator. Almost 100% of the companies have used that indicator as the most relevant for their reality, considering the availability of data. However, other companies have considered to use other relevant indicators such as kWh / turnover, which is considered as more precise.

The considered indicators are expected to stimulate SME's much more than before, as they are specific for the printing sector. The indicators selected cover the different aspects and from the different points of view commonly applied for this type of industries. The guide is also considered well enough for its readers. In general, the Targets and Benchmark are considered adequate.

The adjusted suitability of the indicators was presented in the standard implementation guideline before the implementation. In order to elaborate a benchmark for all of the participating companies, the indicator considered as most suitable is the indicator presented below, as it is the most approachable for the majority of companies:

$\frac{\text{Energy consumption [GJ]}}{\text{Consumed paper [ton] or Paper waste [ton]}}$	<p>Remarks</p> <ul style="list-style-type: none"> • When energy sources for production and space heating are summarized the indicator can only be used with annual data. • Benchmark might be possible between companies with the same climate conditions. • The stability of the indicator decreases if the data for substrate is based on the amount of purchased substrate due to variations in stock.
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In terms of indirect energy related indicators, the carbon footprint (t CO2 eq) has also been calculated for energy consumption, paper consumption and paper waste for all of the companies, as it has been automatized in the energy diagnosis tool. See example below for the results of the carbon footprint as presented in the tool:



For companies which have indicator data for the production with a high frequency on e.g. a monthly basis it is possible to make a dynamic analysis and baseline of the energy consumption by including the variations in the production in the analysis.

2. VALIDATION D7.2: SPECIFIC GUIDELINES

Till now energy savings are not a clear issue for managers. They still have the perception that they cannot influence the energy use in the company. This may be due to the fact that 'energy' as a resource is invisible, and therefore does not exist in the perception of entrepreneurs. Another fact is that for most of the 'old fashioned' Chief Financial Officers (CFO) energy resources is a topic for the work floor, and therefore for the technicians of the company. In the same time, the technicians of the work floor are more interested in the splendid performances of their machines than in saving energy.

These facts - in combination with rather low energy prices for large users – will not stimulate managers to do their utmost to save energy. For sure not when we only would have focused on ISO 50001. Therefore we created the extra work package 5 – specific guidelines development, to show to the SME's that there is more to energy management than just energy savings. Other management aspects i.e. green marketing, quality control and cost management are important stimulators to start with energy management. Therefore the consortium wants to validate in what degree the use of the specific guidelines influenced the opinion of the SMEs.

In this chapter we will give a validation of the following aspects:

- Green marketing (research leader INNOWISE): paragraph 2.1
- Quality control (research leader KVGGO DC as the replacement of AIDO): paragraph 2.2
- ESCO's (research leader FACTOR CO2): paragraph 2.3

The specific guideline '*Environmental indicators*' will be validated together with the '*IEE performance indicators*' in chapter 1.

2.1 Validation of the specific guideline: strategy & green marketing (INNOWISE)

Green marketing is a concept that refers to the process of selling products and/or services based on their environmental benefits. With such a green marketing strategy companies should be enabled to make clear why their products bear a competitive advantage compared to their competitors and show to their consumers how they can benefit from that.

Especially for entrepreneurs in the printing industry a profound green marketing strategy can impose a positive impact. The printing industry is hard fought and energy efficiency and environmental awareness impose an increasing impact on consumer's preferences. But being "green" and "energy-efficient" alone isn't enough anymore. Instead the companies have to proactively demonstrate their products added value to their customers. That's the point when a broad and solid green marketing strategy comes in place.

According to the SMEs and the results of the validation, the positive factor of a solid green marketing strategy hasn't yet reached the industry on a broad level.

Some companies, especially the bigger ones, already use this tool to communicate to their customer and were quite happy about the materials presented to them during the EMSPI project.

Other companies, especially the smaller ones, even if they produce climate neutral or do a lot to decrease their influence on the environment don't actively use a clear strategy to communicate these efforts to their customers. This is often due to the fact that they often don't have the capacities, or at least they do think so.

All in all the project output was rated rather positive. But there are still great potentials in the field of strategy and green marketing. Companies who focus on this field may create a huge and positive impact for themselves and face a bright future.

2.2 Validation of the specific guideline: quality control (KVG0 DC)

Energy efficiency is directly related to Productivity, defined as "*the relationship between what is produced and the means employed, such as labor, materials, energy, etc.*" This is, obviously, directly linked with Economical Productivity, where production of a unit of goods is considered to be economically efficient when that unit of good is produced at the lowest possible cost.

Quality problems have a direct impact on productivity and energy costs when a full or partial production must be repeated, when printing machines must be stopped and started or when additional control process must be implemented.

Control of printing quality is a tool for increasing the energy efficiency of the printing SMEs, understood as the production of printed material versus energy consumed. This will be possible through the combination of validated printing processes, optimal machinery, well-maintained equipment and implementation of proper control processes.

According to the reactions of the SME's during the validation process of WP5, we can conclude that almost all the entrepreneurs are at the moment positive about the content of the quality control paper (see D7.4). They understand that one can define two kinds of quality control:

1. General quality management of the organization
2. Quality level of the produces physical product.

They also understand that for most of the SME's the second part is for them the most important part.

When we look at the validation results of the external stakeholders, The Netherlands can conclude that the general opinion if the stakeholders is positive. One stakeholder found the more strategic description of quality management maybe too complex for the smaller SME's. But this was just a general remark. The content of this specific guideline was still proven good.

Conclusion: according to the opinion of the Dutch stakeholders, no further adjustments need to be done for the specific guideline.

2.3 Validation of the specific guideline: ESCO's (FACTOR CO2)

An Energy Services Company (ESCO) designs, builds, finances and maintains an energy-efficiency project. An ESCO assumes technical and economic risks, and links its profits to the savings generated by the project. The ESCO finances the energy-efficiency project, invests in its core business and, probably, the opportunity interest rate used to analyse the investment is aligned with the energy-efficiency project's ROI, they are experts in energy-efficiency projects and measures properly the risks of the Investment, and is focused on giving advice to the company about the project in order to assure a win-win business relationship.

Participating companies and stakeholders have acquired a higher amount of awareness in terms of financial aspects and ESCO's during the process of implementation. That increase has to do with the ESCO guideline developed by the Consortium.

The companies understand that the participation of an ESCO in an energy efficiency project could be considered as a financial tool for the printing companies. The main idea is that the funds needed to develop the energy efficiency measures are not disbursed directly by the energy users, therefore this way it is an alternative to the own capital financing or the conventional bank loans.

Furthermore, they understand the objectives of contracting an ESCO, which are summarized as:

- Helps to reduce the technical risks. An ESCO is a company specialized on energy efficiency projects. The expertise of its staff allows the ESCO to properly develop and optimize the saving measures.
- Builds fitted and durable projects. The energy efficiency contracts use to be mid-term relationships. The ESCOS are concerned on provide the best performance as possible throughout the project life.
- Guarantees the economical results. This kind of company is extremely interested in develop projects that should be profitable

However, not most of the participating companies are expected to take the step to hire and ESCO. Furthermore, the participating companies are not considered as representative for this purpose, as they have been tutored by the Consortium, so they preferred to take advantage of the implementation of the energy management system, without considering deeply about other alternatives. Moreover, in most of the participating countries, energy improvement projects are funded by government subsidies and ESCO's as business model are not very well known.

To summarize, most of the companies have noticeably increased their awareness in terms of Financial issues including de possibilities of contracting an ESCO. However, it's not expected that companies will find this opportunity as their top priority in terms of energy reduction and finance.