

Deliverable D300.21

Specification of Eco-design Tools & ECO Optimization Services

First Version

WP 300

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1 Executive Summary

The strategic objective of the ProSEco project is to provide a novel methodology and a comprehensive ICT solution for supporting the collaborative design of product-services (Meta Product) and production processes, using Ambient Intelligence (Aml) technology, Lean and Eco-Innovation principles, and applying Life Cycle Assessment techniques. This is anticipated to allow an:

- Effective extension and configuration of products in different sectors (automotive, home appliances, automation equipment, etc.) through the development of highly customized Product Extension Services (PES)
- Enhancement of the products-services and their production processes in the direction of sustainability

The ideation and application of product extension services, so-called PES, and their associated business models will enable the industrial companies extend their existing products with added value features that will improve their environmental performance. On the other hand, the adaptation and configuration of these services will let the industrial companies sharply react to global market requirements.

This report is deliverable *D300.21*, which presents the first version of the specification of the Eco and Configuration engineering tools (early prototype). The Eco-tool and the Configuration-tool and their associated core services will allow streamlining Life Cycle Impact Assessment calculations in the products and process in order to support the ideation and implementation of environmentally aware Product Extension Services (PES) that will extend their current capabilities.

This document summarizes the work realized in the first part of *T320 Specification (M9-M30)*, which has the goal of specifying the early and full prototype of the Eco-tool and the Configuration tool. The purpose of the first version of this deliverable, which spans from M9 to M18, is to present the Early Prototype specification developed for the envisaged ProSEco solution, based on the general requirements elicited in *D100.2 Business Cases & Requirements Analysis*. Thus, the functional and non-functional requirements related to the Eco-tool and Configuration-tool are initially selected and further on detailed in Use Cases that describe the low-level functionality of the tools. During the elaboration of the detailed Use Cases, the envisaged users of the tools are identified and the data structures that support the functionalities described in the document are specified. To finish with, the functional specification is specified in detail in terms of description of the software components architecture and the required external interfaces (data input/outputs) with the other engineering tools that will cater for interoperability among them.

The ProSEco early prototype of these engineering tools and their associated core services will be implemented based on this specification in task *T330 Implementation (M16 – M40)*. The early prototype implementation of the Eco and Configuration tools will be focused on the development of tools that support the lean eco-innovation methodology in the identification and reduction of environmental impacts in different product systems configurations. The feedback provided by the end-users during the implementation of the early prototype of these tools in M24 along with the enhancement of the identified requirements, the elicitation of new ones and the results of the initial testing and assessment tasks, in *T620 Test in Application Scenarios*, will lead to the specification of the full prototype of the tools, which will be released in M30 as *D300.22*.