

Deliverable D200.31

Specification of Simulation first version WP 200

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1 Executive Summary

- x This report is deliverable D200.31, which results from work in T230 carried out up until end of March 2015. The work in T230 concerns the development of multi-resolution simulation tool to support the collaborative product services and process design of meta-products. In this report, specification of the early prototype of the multi-resolution simulation tool is provided. This includes the three sections listed below. This document reports the first version of the Simulation Specification - where in the next version of the document, D200.32 Specification of Simulation Final Version, the complete specification will be documented.

- x First, sources of dynamic complexity in meta-product introduction into international markets are explained. Meta-products have global potential. This is because much of the value of meta-products can reside in the Cloud and be accessed from any location via the World Wide Web. Hence, metaproduct offerings are international offerings. As a result, market behaviours will be heterogeneous diverse reflections of diverse markets in different parts of the world. Sources of dynamic complexity are described with reference to a wide range of relevant literature.

- x Second, an overview of the multi-resolution simulation model is provided. In particular, multiresolution encompasses high level low resolution simulation of overall ecosystems and low level high resolution simulation of key variables in parts of ecosystems. High level low resolution simulation reveals, for example, interactions between proposed new meta-product and market dynamics among current offerings, competitor responses, etc. Low level high resolution simulation reveals, for example, the influence of individual potential customers over demand for proposed new meta-product through word-of-mouth. User interfaces for inputs and user interfaces for outputs are shown.

- x Third, application opportunities are described. This involves a meta-product example comprising one basic option and nine additional options. Examples of user interface input entries are shown for customers, functional expectations, customers' brand expectations; customers' promotional channel preferences; customers' influence; and customers' purchasing capability. Subsequently, examples are provided of the types of questions that can be investigated with multi-resolution simulations. In particular, inter-actions are shown between three variables: level of co-design, level of self-efficacy, and level of competition.

- x Fourth, the place of multi-resolution simulation modelling in ProSEco is discussed. In particular, it can be applied to explore the market potential of initial meta-product ideas. Subsequently, multi-resolution simulation modelling can be applied in increasing depth and breadth to inform the development of initial ideas through concept design and detail design. In addition, information is provided about preconditions, inputs, outputs, and post-conditions for successful application of multi-resolution model simulation.

- x Work up to this first version of Simulation Specification has encompassed definition of sources of dynamic complexity in meta-product introduction; initial development of the multi-resolution simulation model; relating the multi-resolution simulation model to the overall ProSEco process and associated tools. Initial development of the multi-resolution simulation model has encompassed model formulation, consideration of input formats, and consideration of output formats. As the work progresses, principal challenges will be: ensuring consistency between models of different resolution; improving input interfaces; developing output interfaces that are easily understandable distillations of simulation outputs from models of different resolutions.