SEVENTH FRAMEWORK PROGRAMME
NMP-2007-3.1-2
New added-value user-centered products and product services

SERvice Oriented Intelligent Value Adding nEtwork for
Clothing-SMEs embarking in Mass-Customisation

Grant Agreement number:
CP-TP 214455-2

Funding Scheme:
Collaborative Project targeted to special groups such as SMEs and other smaller actors

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**Publishable summary (February 2010)**

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**Document description**
Brief report on the project objectives, the description of the work performed since the beginning of the project, the description of the main results achieved so far, the expected final results and their potential impact and use, in the form of a publishable stand alone document, for the period September 2008 to February 2010 (M01-M18).
The main objective of SERVIVE, EU NMP Grant CP-TP 214455, 2008, is to use the small-scale successes of the early adopters of Mass- Customisation (MC) in the European fashion industry, as the basis for its implementation throughout Europe on a wide and large scale. The project is developing a suite of technological and business innovations that shall seed a large and sustainable European mass customisation industry.

Major Business and Research Objectives include:

- the enlargement of the assortment of customisable clothing items currently on offer, which include mainly men’s business wear (suits, shirts) and simple casual wear (e.g. printed t-shirts). A large yet untapped market segment including women’s wear, knitwear and sportswear is targeted. The efficient customisation of such items presents several challenges, while in the same time opens new business opportunities for high-tech SMEs.

- the enhancement of all customer involvement aspects. End consumers will be encouraged to participate in the configuration of customisable items, enroll in a model Style Community where they will review and evaluate new designs, virtually-try-on different variants of the same garments along with their on-line friends (on-line group shopping concept) and obtain professional styling advise depending on their profile and preferences with the aid of an Intelligent style advisor.

- the development and testing of a new production model based on decentralized high-tech manufacturing cells (micro-factories).

Work performed since the beginning of the project include:

1. Activities pertaining to the exact definition of the overall scope, the specific product range and the market segments targeted by the project.

2. The definition of functionality and the identification of knowledge sources required for implementation of all innovative services (Style Advisor, Product configuration/co-design, distributed Virtual-try-on, Intelligent Pattern Configurator). The style advisor will be structured in two levels, one targeting generic style advice, the other being more product specific, i.e. suggesting customisation options fitting the customers profile and preferences regarding the SERVIVE product range. Considerable research work was conducted regarding the organisation and the representation of knowledge on human body types (classification of morphotypes) in relation to garment types and styles. Since no structured classification exists up to now for garments, an important work has been initiated by the SERVIVE Institutes (LCF, NCSR, with the participation of IFTH and Hohenstein) to define a standard taxonomy of garments and the elements of a garments ontology, which will not only solve interoperability issues (unified coding and representation scheme between different
SERVIVE services and the two platforms), but it will also be a significant contribution of scientific, as well as practical importance for the industry.

3. An exhaustive analysis of possible Business and retail models, integrating an academic perspective and industry exemplars, together with secondary research, to establish links between theory and practice (market needs). This has been combined with primary research comprising initial focus groups with potential customer segment(s), and a customer survey to gain market feedback on a range of issues concerned with mass customization.

4. Activities, related to production organisation and the design of the UNICATUM microfactory. The Hohenstein Institute experts worked closely together with UNICATUM to design the MF, define the required machinery, production organisation etc. This activity is considered as the most advanced in the project at the current stage, as foreseen in the overall project implementation strategy. As for the other pilots, intensive definition work and consultancy was undertaken by London College of Fashion with respect to the Team Colours pilot (sportswear). This pilot is an interesting case of an existing micro-factory which can profit substantially from SERVIVE, both in terms of production organisation enabling faster and more efficient order fulfilment, as well as in terms of expansion of their product range. Finally the new pilot company Matteo Dosso has been very quickly integrated in the project and offered substantial potential, since they are already offering customised women’s suits, including special occasion suits, which is one of the key as yet untapped market segments identified in SERVIVE.

5. Initial development work implementing the knowledge infrastructure, the administration functions and basic functionality, the design and for the Style Community.

6. Activities related to dissemination and management tasks have progressed according to the workplan. Apart form the project public website the project objectives and first results have been presented, among others, in the following events:
   ⇣ The Annual MIT Smart Customization Seminar 2008, MIT Faculty Club, MIT Sloan School of Management, Cambridge, MA, November 10-11, 2008
   ⇣ The Annual Conference of the European Technology Platform (ETP) for the Future of Textiles and Clothing (Brussels, 1-2 April 2009).
   ⇣ The MCPC2009 conference, from 4-8 October 2009, held at Helsinki
   ⇣ The Consumer Goods Research conference, held 4th of February 2010 at Brussels

Main results achieved so far include:

1. SERVIVE Market Study - Title: “What to sell to whom in mass customized apparel?” – An empirical study of the mass customization landscape. The study aims to identify potential target groups and product niches which are currently not fully covered by the existing players in the market.

2. The definition of a comprehensive business model combining a Transaction/ supply chain integration (SNI) platform (the SERVIVE platform – SPL) and a Portal (On-line Style Community) offering innovative services to the consumers and aggregating presentations and information on customisable products offered by the retailers subscribing to the SNI platform (SPL).
3. The launching by Unicatum, an innovative SME, of the first realization of a pilot micro-factory in Kaizerslautern (20th of November 2009) offering, among other items, customisable ladies dresses. The consumer enters the shop, selects a type of garment, sees different variants and co-designs, with the assistance of an advisor, her dress. The dress is adapted to her body morphology and personal preferences. Her preferred design is submitted to the micro-factory upstairs. The delivery time currently ranges from a few days to max 2 weeks. It is expected that by the end of the project, this time will be reduced to 1 day or even few hours in the case of customisable knitwear. This will be achieved with the installation of an automatic seamless knitting machine and its integration to the rest of the SERVIVE developments (e.g. product-specific style advisor, new production organization, etc).

The Prime Minister of Rhineland-Palantine, Mr. Kurt Beck, attended the official opening of the store thus declaring his support to an initiative that can have important social implications in a time of rising unemployment (see photo in the right). All workers in the micro-factory are selected from a list of experienced unemployed personnel in the region.

4. An enhanced version of the existing Customax Transaction and SNI platform (SERVIVE SPL) including integration of all three pilot companies is currently undergoing initial tests. A more advanced version of the platform is envisaged until the end of SERVIVE project, with improvements in terms of integration with other services (e.g. 3D visualization service,
Style advice, etc) and improvements to the engine, user interface and business features currently offered by the platform.

5. The basic shell of the Style Community incorporating user management and product presentation functionalities is currently in the stage of integrating the first service, namely the Generic Style Advisor. An extract of the user interface of the Generic Style Advisor is shown in Fig. 3 below.

![Generic Style Advisor](image)

**Figure 3: Generic Style Advisor**

6. A draft version (mockup) of an Intelligent Pattern Configurator (IPC) is undergoing first fit trials. The objective of the IPC is to generate a customised pattern block based on personal body measurements from scratch, based on an automatic process. The IPC guarantees a good fit whatever the size and the body type of consumer (including atypical bodies).

7. A stand-alone prototype of the intended Real-time distributed 3D Virtual Try On is currently being tested. The VTO is a real-time platform that enables consumers to evaluate physically simulated 3D garments on a static 3D representation of their own body. The VTO Service will, based on certain requests or commands, physically simulate garments in full 3D and upon completion of the simulation a 2D snapshot will be taken of a particular view of the final result. Consumers will interact with the VTO Service by means of a web application, which will simulate a Virtual Fitting room in the Style Community. The same view of the customer trying a garment variant will be available for viewing in real-time by the customer’s invited friends. The avatars will be integrating a 3D morphed face of the customers obtained form simple 2D photos uploaded by the members of the Style community (see figure on the side).