

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



**SERV**ice Oriented Intelligent Value Adding nEtwork for  
Clothing-SMEs embarking in Mass-Customisation



**D2.9 Final Integrated Style Advisors, including user interfaces**

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<b>Document description</b>	This report covers an overall presentation of the prototype deliverable <i>Final Integrated Style Advisors</i> , including the presentation of the final User Interfaces and a critical evaluation of the participating pilot companies Team Colours and Matteo Dosso.

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## LIST OF TERMS AND ABBREVIATIONS

Abbreviation	Definition
AJAX	Asynchronous Javascript and XML
HTTP	HyperText Transfer Protocol
JSON	JavaScript Object Notation
MC	Mass Customisation
MD	Matteo Dosso
ODATA	Open Data protocol
PServer	Personalisation server
SNI	System Network Integration
SOAP	Simple Object Access Protocol
SPL	SERVIVE Transaction Platform
SPO	SERVIVE Portal
WCF	Windows Communication Foundation
XML	Extensible Markup Language

# 1 Introduction

The purpose of this report is to present the prototype Deliverable *D2.9 Final Integrated Style Advisors, including user interfaces* which has been implemented in the framework of *WP2 Development of Knowledge Infrastructure and Knowledge management tools* of the SERVIVE project.

This prototype includes two separate developments, first being the integration of the knowledge sources (PServer, Recommendation engine) to the Generic Style Advisor and the second being the integration of the knowledge sources to the Product Specific Style Advisor. The first development is also integrated in the SERVIVE Portal (SPO – Style Community) while the second is part of the SERVIVE Transaction Platform (SPL).

More information on the development of the Generic and the Product Specific Style Advisors can be found at *D4.3 SERVIVE Co-design & Style-Advise shell first prototype* and at *D4.4 SERVIVE Co-design and Style-Advise final prototype*, where their implementation is described in terms of development steps, installation processes, presentation of main interfaces and also presentation of key use cases, for each of the components of the prototypes.

The present document describes briefly the final user interfaces, while it includes a critical evaluation of the participating pilot companies Team Colours and Matteo Dosso. Finally, based on the assessment by the pilots, recommendations and suggestion for improvement are concluding the report.

## 2 Final Integrated Style Advisors

### 2.1 Generic Style Advisor

This section of the report concerns the presentation of the Generic Style Advisor which is deployed as a service offered to the users of the SERVIVE SPO (Style Community), in the form of a wizard. The Style Advise concerns the generic matching of user preferences and offered garments available at SPO Showroom. This is done by matching the consumer to a selection of generic stereotypes, and then matching garments to these stereotypes.

The Style Advisor shell first prototype is *brand/assortment/retailer-independent*, which means that style advice is given to an individual consumer, based on his/her profile without taking into account the available customization options for specific products. This is part of the second Style Advisor prototype which is *product-specific* and it is presented in a next section of the present report.

The Generic Style Advisor prototype can be found at:

<http://community.servive.eu/STYLEADVICE/StyleAdviceWizard.aspx>

#### 2.1.1 User's preferences entry points

Below is the homepage of the Generic Style Advisor at SERVIVE portal (SPO).

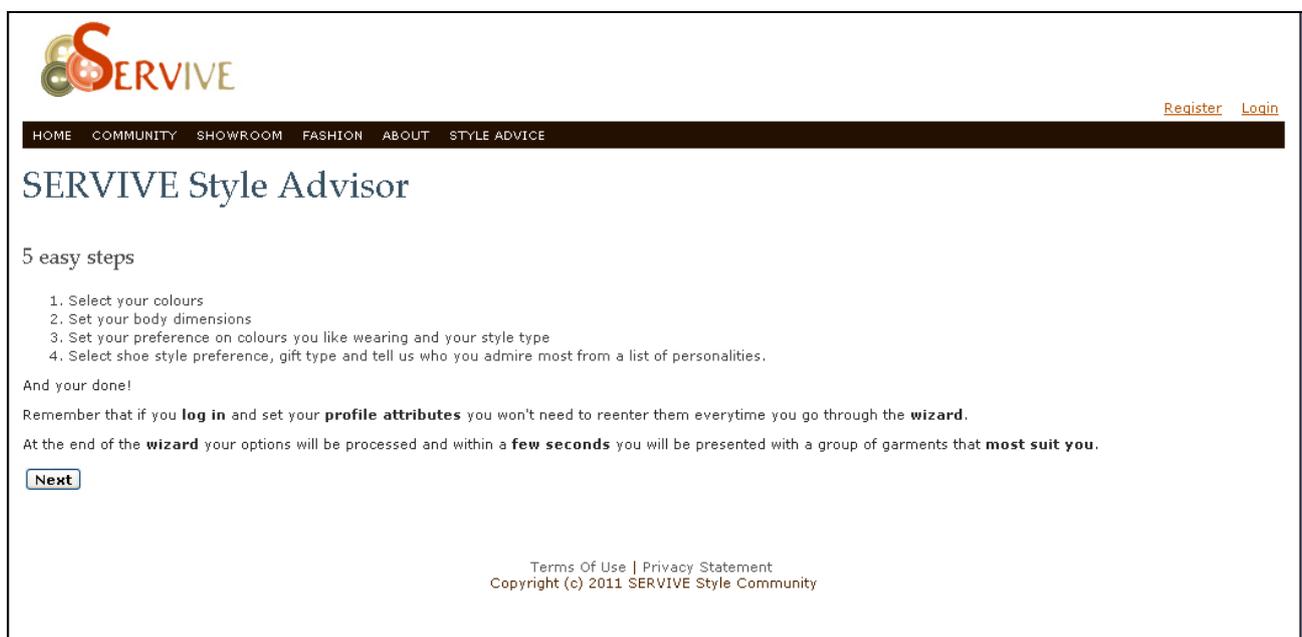


Figure 1: Style Advisor wizard home page (Interface 1)

Any member of the SPO can change the preferences they have inserted at SPO's Style Advisor on their profile management page, as seen below:

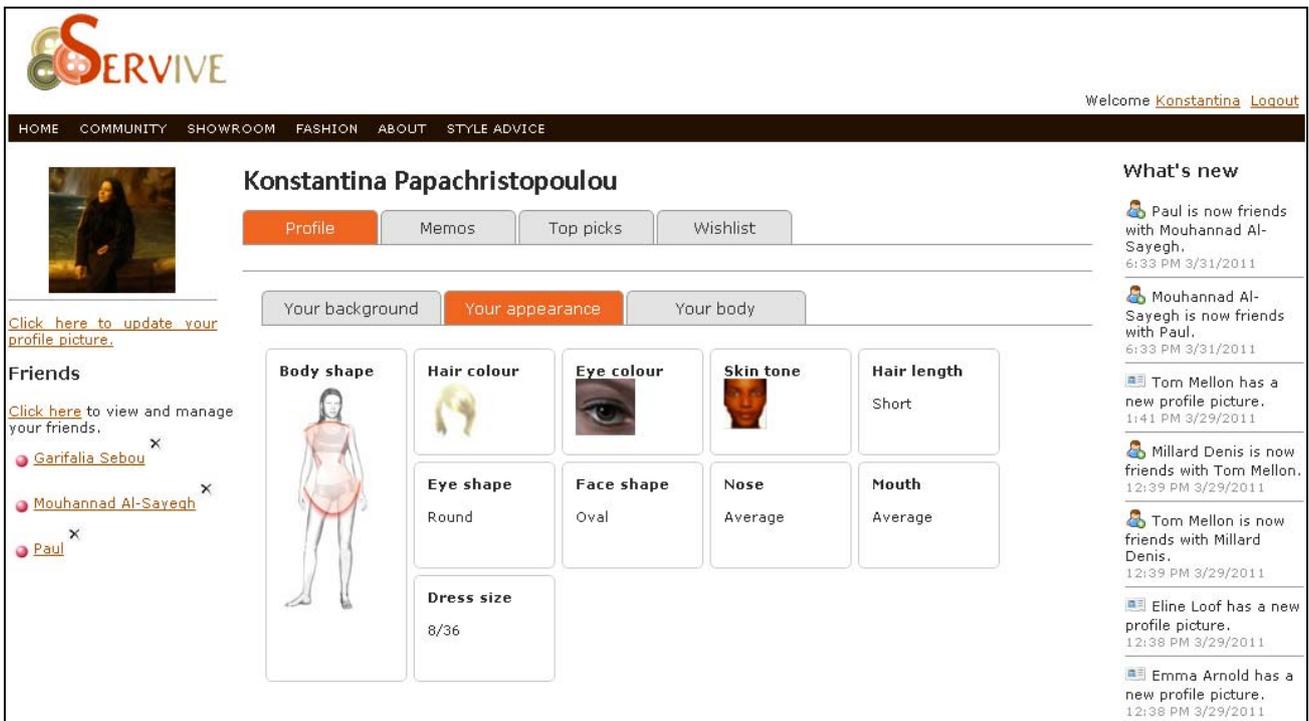


Figure 2: SPO Member profile stored preferences: "Your appearance" page

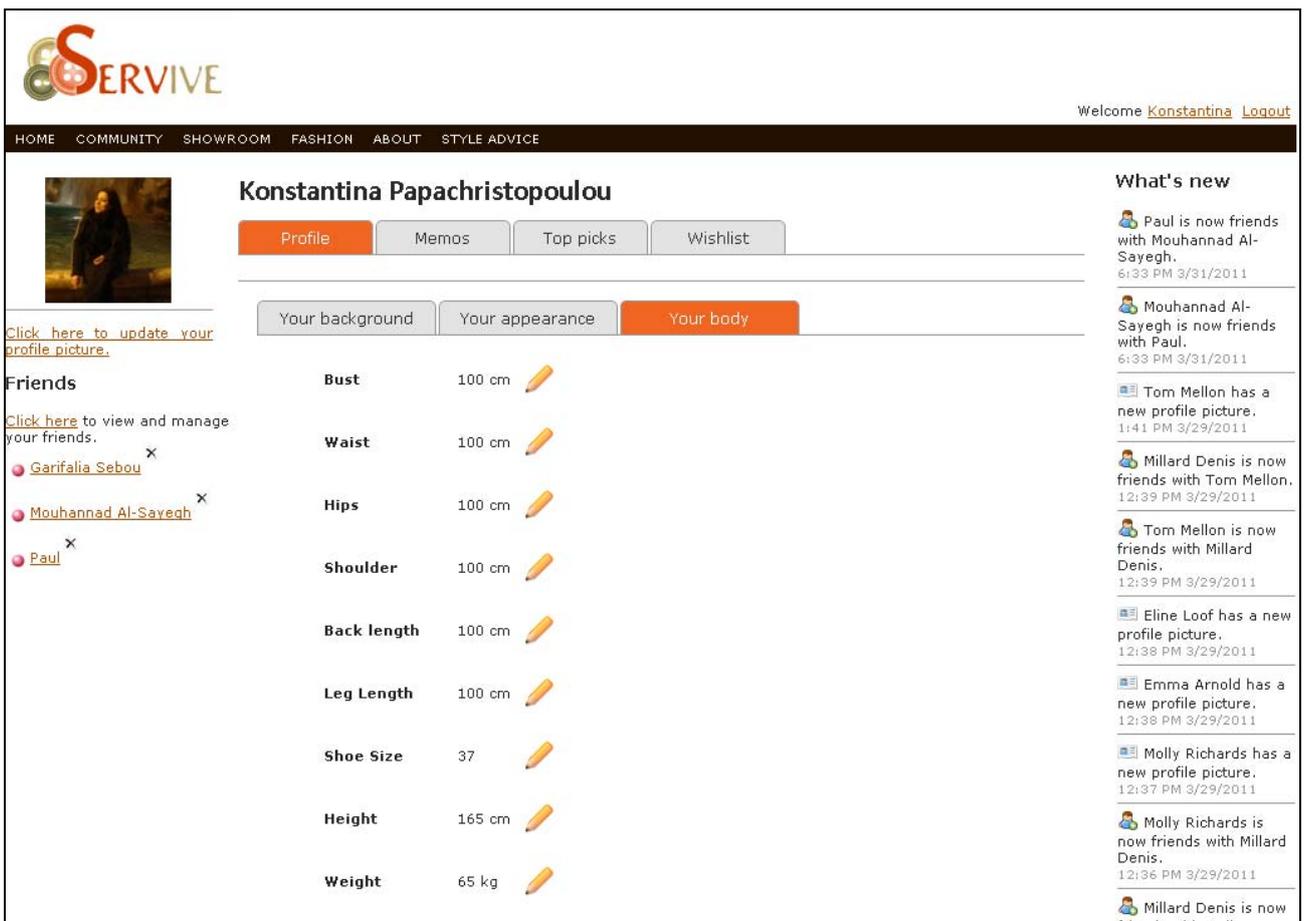


Figure 3: SPO Member profile stored preferences: "Your body" page

### 2.1.2 Generic Style Advisor interfaces

Screenshots of the user interfaces of the Generic Style Advisor are presented below. The Generic Style Advisor had been implemented in the form of a Wizard in order to present a user friendly application that is able to collect the needed user’s data in an easy and straightforward way.

Initially, the user is asked to provide information on the hair colour, the hair length, the eye colour and shape, the face shape and the skin tone, as well as info on the nose and mouth, by selecting one of the available options in the form of icons. By clicking the “Next” button, the user is transferred to the next step of the Generic Style Advisor Wizard.

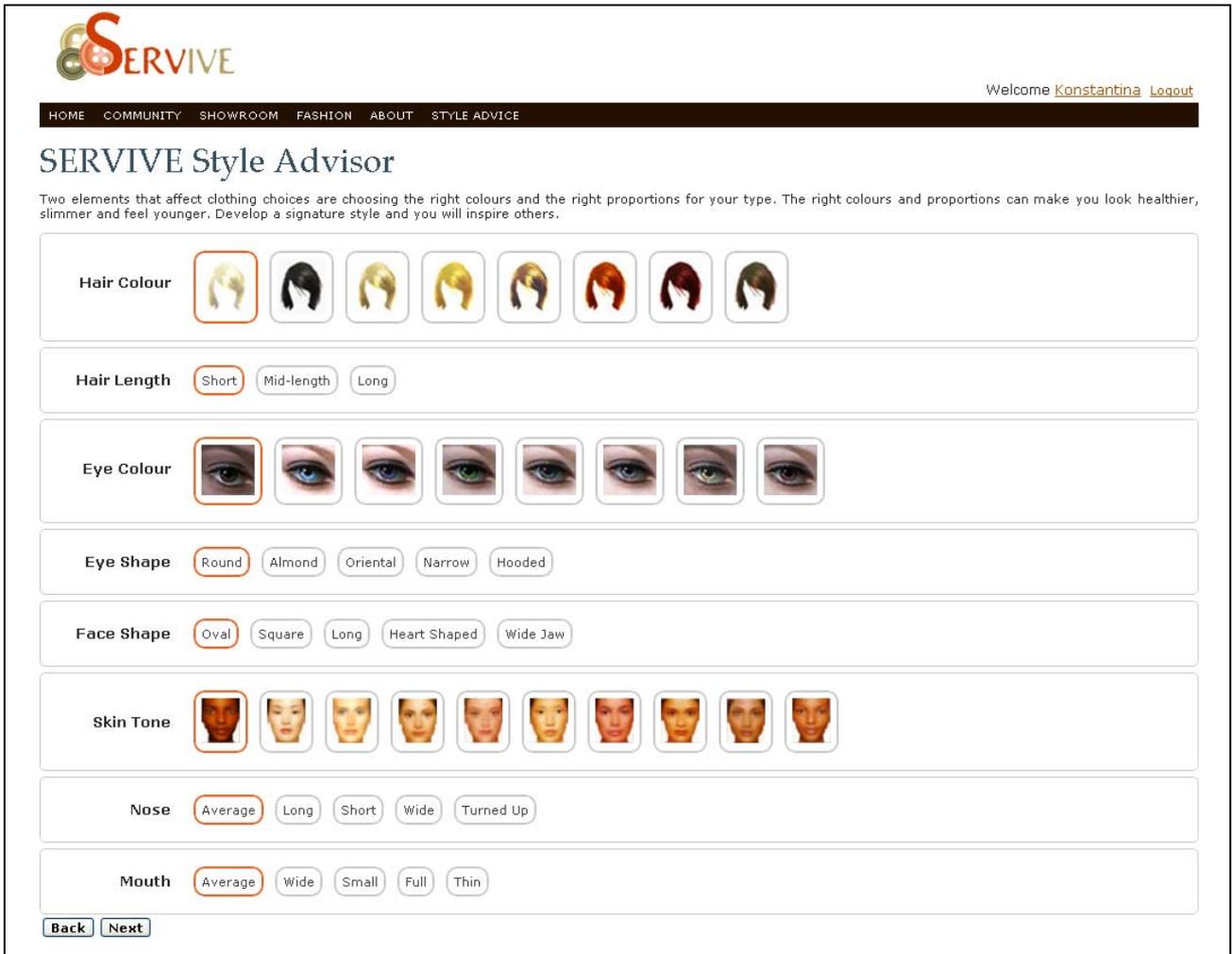


Figure 4: Generic Style Advisor Interface 2

In the next step, the user is requested to input the correct body shape, the dress size and a number of body measurements, include height, weight, bust, waist, hips, across shoulder, back and leg length, and also shoe size.

The needed measurements are stated by the user by sliding the bar to reach the correct number. The body type is selected by clicking to the related icon. On mouse hover, a second image is also presented to provide more details on the body types.

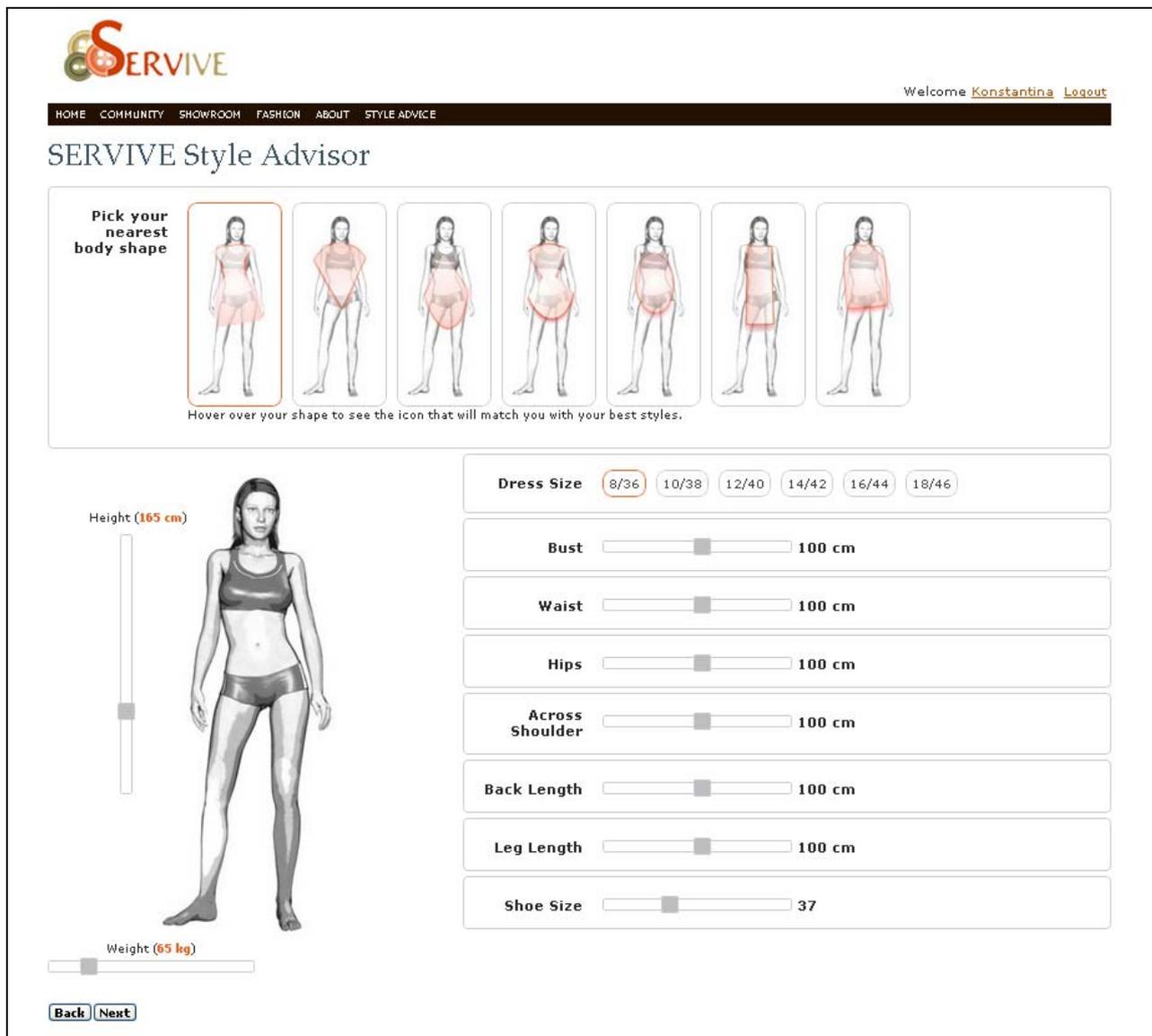
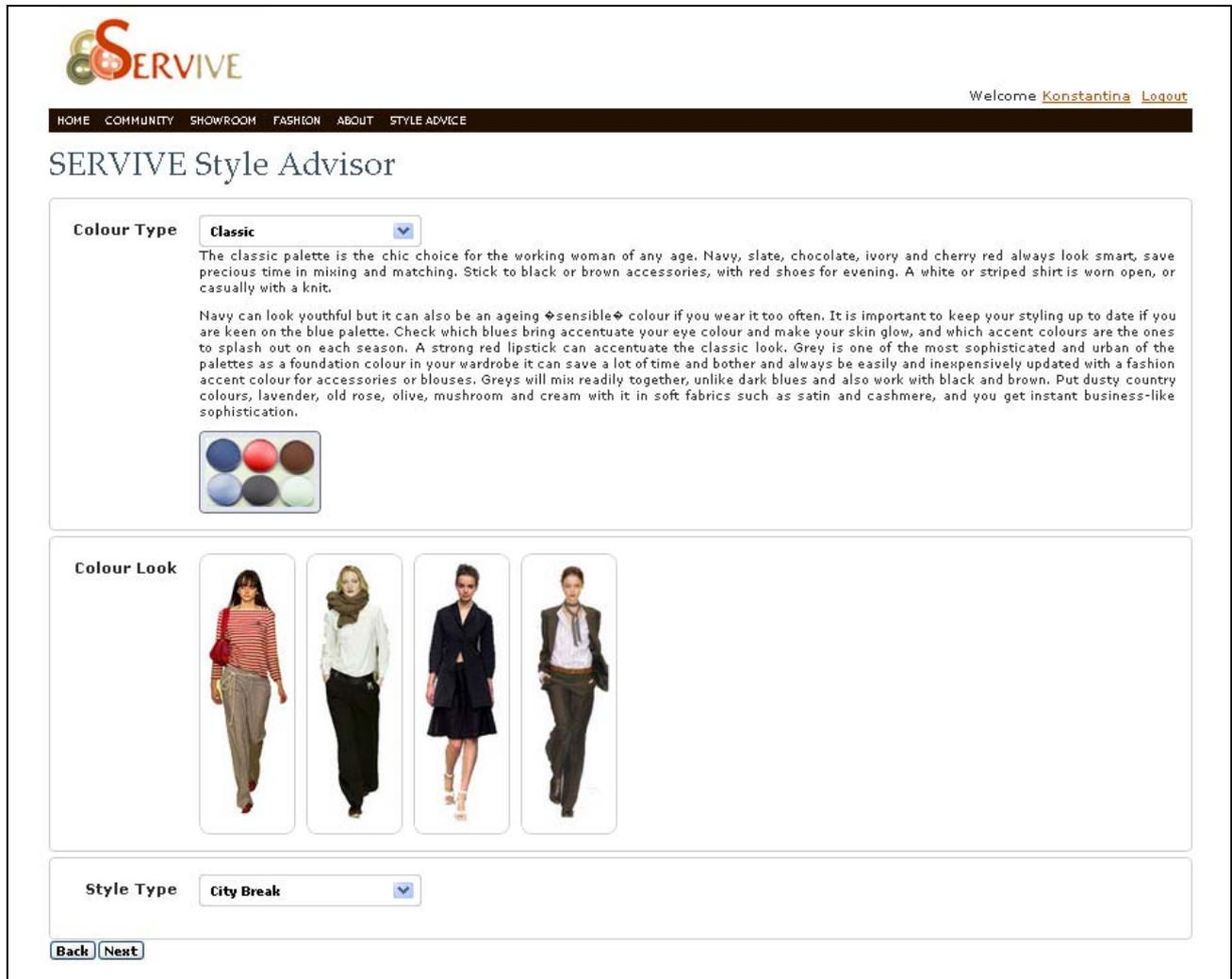


Figure 5: Generic Style Advisor Interface 3

Afterwards, the user is asked to provide the preferences with respect to the colour type and the style type. For better visualisation and easier selection of the Colour type, colour look examples are also presented on the screen.



The screenshot displays the SERVIVE Style Advisor interface. At the top, the SERVIVE logo is on the left, and a navigation menu includes HOME, COMMUNITY, SHOWROOM, FASHION, ABOUT, and STYLE ADVICE. A user greeting 'Welcome Konstantina Logout' is on the right. The main heading is 'SERVIVE Style Advisor'.

The 'Colour Type' section features a dropdown menu set to 'Classic'. Below it, there is explanatory text: 'The classic palette is the chic choice for the working woman of any age. Navy, slate, chocolate, ivory and cherry red always look smart, save precious time in mixing and matching. Stick to black or brown accessories, with red shoes for evening. A white or striped shirt is worn open, or casually with a knit. Navy can look youthful but it can also be an ageing <math>\diamond</math>sensible<math>\diamond</math> colour if you wear it too often. It is important to keep your styling up to date if you are keen on the blue palette. Check which blues bring accentuate your eye colour and make your skin glow, and which accent colours are the ones to splash out on each season. A strong red lipstick can accentuate the classic look. Grey is one of the most sophisticated and urban of the palettes as a foundation colour in your wardrobe it can save a lot of time and bother and always be easily and inexpensively updated with a fashion accent colour for accessories or blouses. Greys will mix readily together, unlike dark blues and also work with black and brown. Put dusty country colours, lavender, old rose, olive, mushroom and cream with it in soft fabrics such as satin and cashmere, and you get instant business-like sophistication.' Below the text is a small image of six colored circles (blue, red, brown, grey, white, green).

The 'Colour Look' section shows four fashion look images: a woman in a red and white striped top and grey trousers; a woman in a white blouse and black skirt; a woman in a dark blue suit; and a man in a brown jacket and grey trousers.

The 'Style Type' section has a dropdown menu set to 'City Break'. At the bottom, there are 'Back' and 'Next' buttons.

Figure 6: Generic Style Advisor Interface 4

As a last step of the wizard, the user is called to short out specific items (shoe styles and gift proposals) in terms of preference by moving the images at the end or at the beginning of the lines. Also, the user is called to state which personality admires more in a selection of 8 famous persons, again with the same procedure.

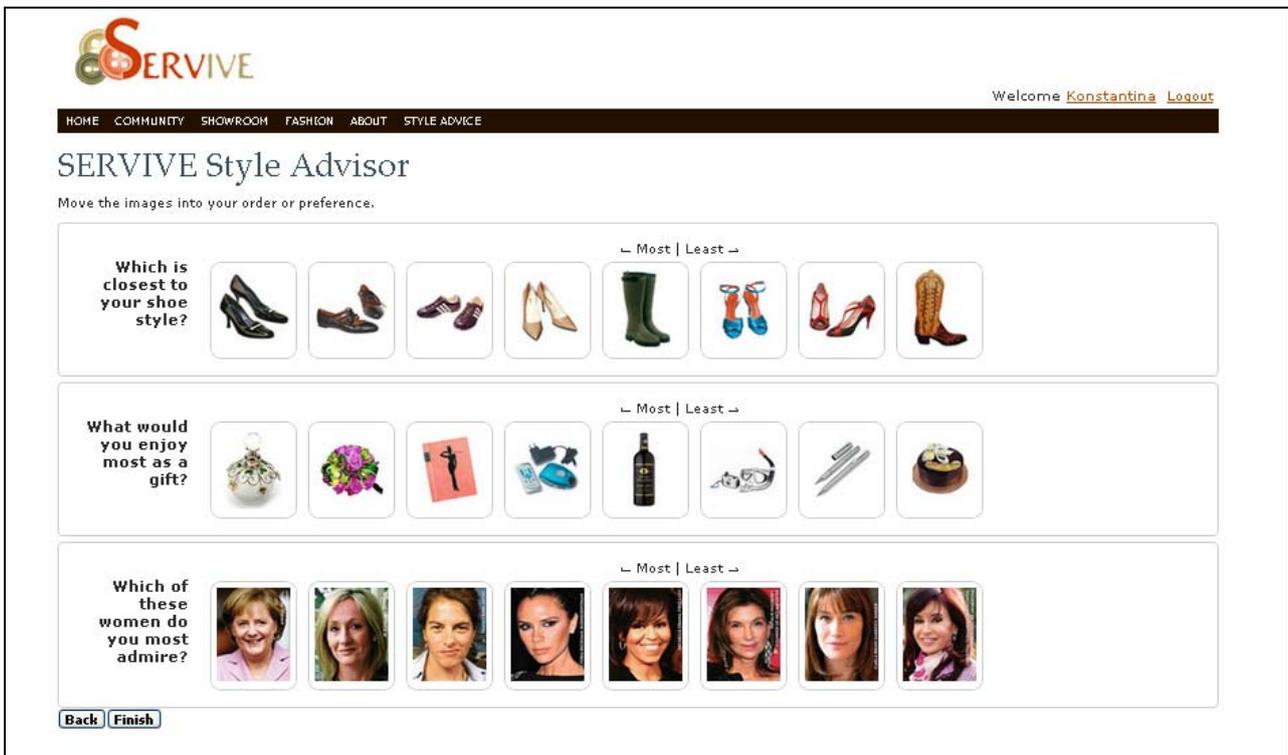


Figure 7: Generic Style Advisor Interface 5

By clicking Finish, the collected data are sent to the PServer and the PServer returns the garments included in the SPO showroom that best match the user preferences.

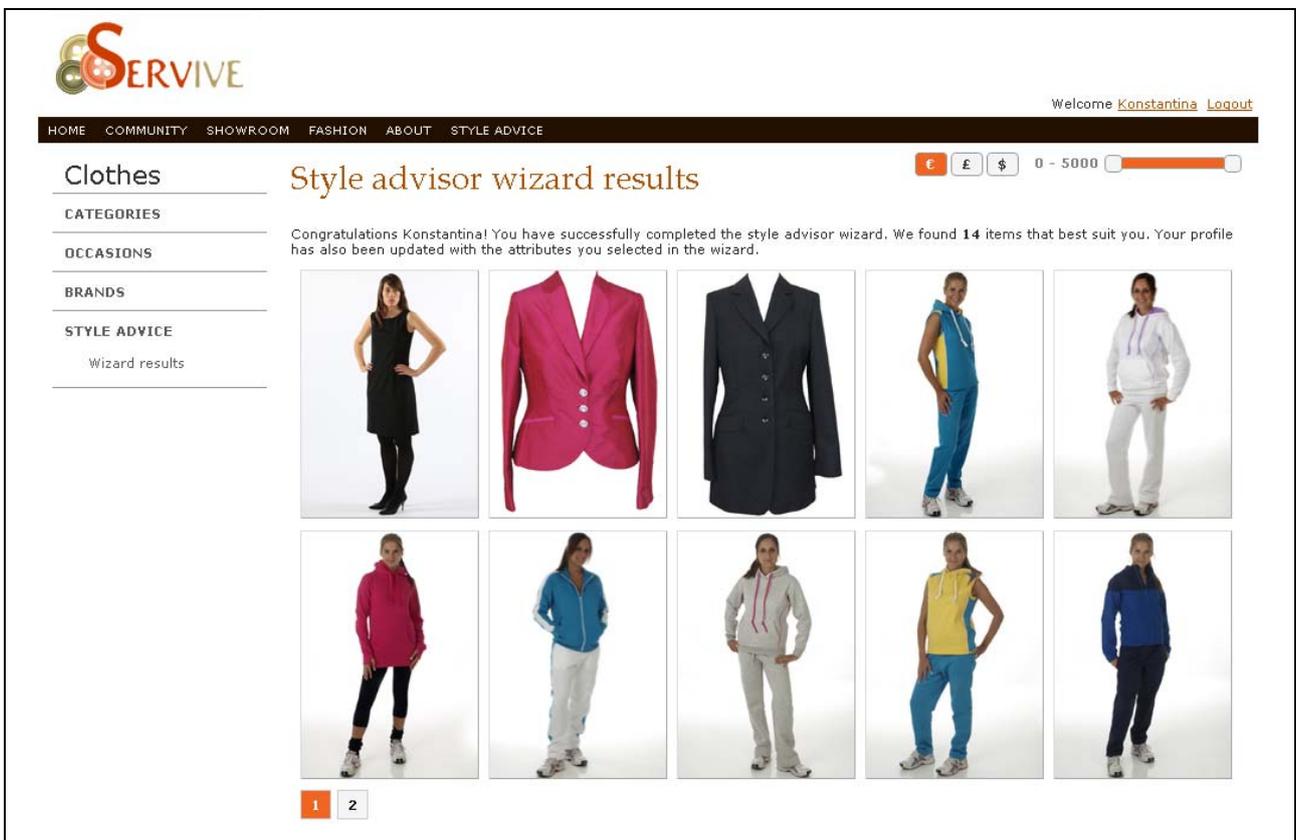


Figure 8: Generic Style Advisor Interface 6

## 2.2 Product Specific Style Advisor

In addition to the provision of Generic Style Advises through the Wizard integrated at SERVIVE Portal (SPO), the members of SERVIVE Style Community are able to receive Style Advise related to a selected garment, offered by the SERVIVE pilots from specific product catalogues, through the Product Specific Style Advisor which is implemented at SPL, as stated in Deliverable *D4.3 SERVIVE Co-design & Style-Advise shell first prototype report*.

As of this, the SERVIVE transaction platform offers "match-to-order" services, as it is called in the context of standard apparel retail style advice. This means the Product Specific Style Advisor is used to identify the best possible existing product customisation in an existing assortment according to the preferences of a consumer.

This specific case of style advice is used as support tool in the configuration process, taking place at SPL. The basic functionality of the detailed style advice is to match customer information with various basic styles of the product and the available customisation options.

The Product Specific Style Advisor is also a *sales support tool* helping the consumer and/or the sales assistant in selecting the right product with the right features from a wide range of product catalogues.

The current Product Specific Style advisor prototype is implemented at the product configuration level. The knowledge that is embedded in the knowledge base comes from Matteo Dosso pilot and is offering option selection advice for one of the products offered by this manufacturer: the 3 piece suit – Business Jacket + Trousers + Skirt for women.

The SPL Product Specific Style Advice implements a set of defined rules. The functionality is embedded into the product configuration page. This functionality is also made available in the product configurator that is made available in SPO, based on SNI and SPO-SPL integration.

The product specific style advice process is transparent and no additional interfaces are used beyond the main page of the product configurator, as seen below:

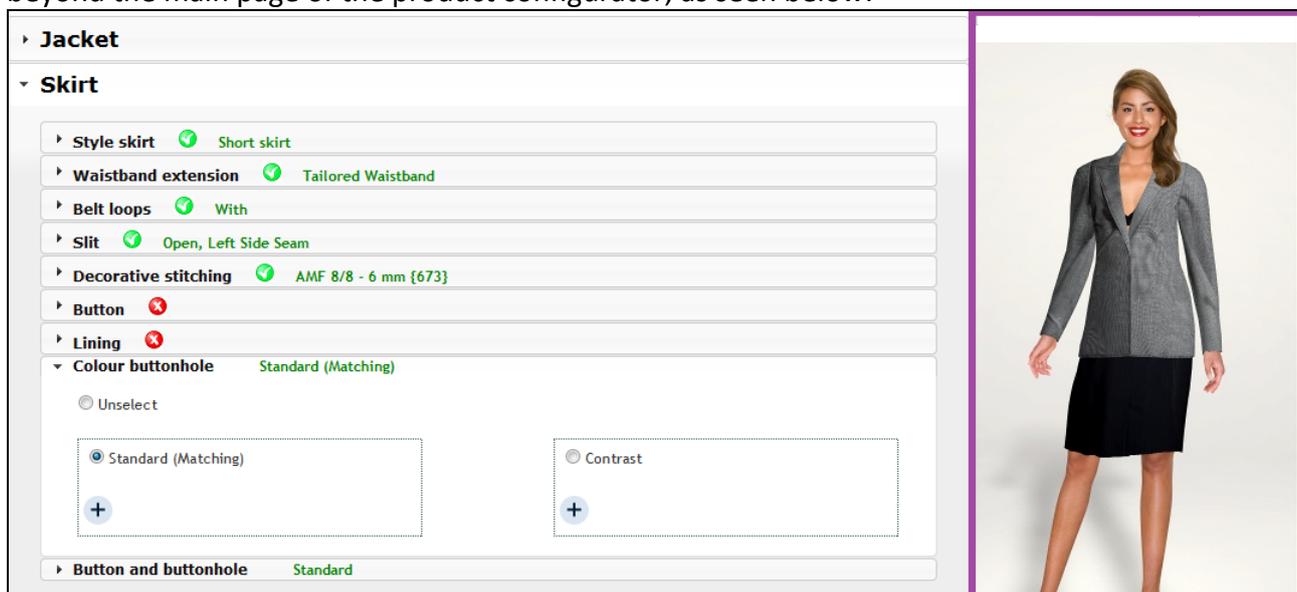


Figure 9: SPL/SPO product configurator – configuration & product specific style advice visualization

Two web services are called to communicate the user's data and preferences as stored in SPO and the type of the selected garment, in order to conclude to a pre-defined set of options which are shown directly at the product configurator page.

The PServer is used as the product specific style advice engine. The set of rules provided by MD Pilot is implemented in PServer and information is retrieved from PServer based on the body type (retrieved from the user profile at SPO level).

The main applications/web services involved in this process are:

- a WCF web HTTP web service named **psStyleAdviceProxy**, which is built as part of SPL and acts like a proxy between the product configuration page and the other web services/databases;
- the ODATA WCF data service already in place at ATC (used in this case for exchanging user information between SPO-SPL)
- the PServer SOAP web service provider by Demokritos and hosted by ATC.

The communication process follows the following main algorithms:

- product configuration page is using AJAX calls to **psStyleAdviceProxy** in two main stages:
  - a) when loading, to determine if a certain body shape ID is set in SPO for the customer configuring the product. The **psStyleAdviceProxy** prepares and forwards the call to the ODATA WCF implemented by ATC in order to retrieve the **bodyshapeid** for that customer, as set in SPO. If **bodyshapeid** is available in SPO, a link is presented to the user (next to a picture representing the respective body shape) which, once clicked, starts the style advice process;
  - b) during style advice process, the AJAX call is made by the configuration page to **psStyleAdviceProxy**, which uses the **bodyshapeid** to make a call to the PServer SOAP web service hosted by ATC. The call results in a list of style advice rules provided by the PServer. The list is used by **psStyleAdviceProxy** to prepare a proper JSON data package that is used by the product configurator page for selecting various recommended options.
- as a fall-back mechanism, when a certain **bodyshapeid** is not available in SPO for that customer (when for example the user was not created through SPO and the SPL interface is used directly) the old product specific style advice is launched which provides the user the ability to select its body type from a dropdown menu, in order to apply the Product specific Style Advise rules.

Finally, as mentioned above, the Product Specific Style Advisor is connected with other systems of the SERVIVE Portal (SPO) and the SERVIVE Transaction Platform (SPL) like the Product Configurator prototype. This development is referring to work performed in WP4 "*Community Based Co-Design*" and the related prototypes (First & Final Product Configurator Prototypes) are presented at Del4.3 & Del4.4 accordingly.

## 3 Style Advisors assessment from the SERVIVE Pilots

### 3.1 Team Colours pilot

The PServer, recommendation engine and Style Advice services effectively give a similar result of yielding preferences and variations that might appeal to the buyer. This application is considered valuable and meaningful and could ideally be extended for use on mobile applications, as sports people are more likely to be 'on the move' rather than sitting at console.

Recommendations regarding size, fit and colour are most applicable; however the full service has not been sufficiently consumer tested to reliability to use publicly. Sportswear recommendations and 'rules' differ significantly from fashion requirements and aspects such as the fit and length of garments may also be governed by sports regulations and safety issues that would need to be applied.

### 3.2 Matteo Dosso pilot

Matteo Dosso pilot was involved mostly in the specifications and testing of the Product Specific Style Advisor, for the development of which provided style rules per body type and occasion for a 3 – pieces suit (Jacket, trousers, skirt).

Matteo Dosso' expectations from the development of the Integrated Style Advisors were targeting at a high-end commercial solution, ready to be marketed and used after the end of the project. During the research and the implementation phase of the SERVIVE project, the prototypes developed proved to be very useful for a company like Matteo Dosso, as they have been tested for the target garments that were researched by the project.

However, the prototype is very limited to address the needs of Product Specific Style Advice for all the garments of the Matteo Dosso catalogue. In this respect, further research and development is required in order to include in the SERVIVE ontology all the available garment types, their variations and their customisation options in relation to a set of style rules for each specific catalogue item. Since the technology to support this type of solution has been successfully developed in the framework of the project, it is highly recommended to proceed with the development of a commercial product to address the aforementioned needs, after the end of the project.

To achieve this, further investigation will be also required from shops that are selling individual MC items since they face very different challenges, stemming from the differentiation and uniqueness of each customer and each order. To achieve a high end solution for product specific style advice, the system should be able to take into consideration not only style and body measurements, but also fashion trends, fabrics, sales skills, and many more. At the moment, there is no similar application to include all these aspects and at the same time to provide consistent and unique Product Specific Style Advice by incorporating all this different knowledge.

In this respect, the system and the related data structure to be developed should be able to provide recommendation that will address each time different needs in different situations. The architecture of such a system should be flexible, which means that data and recommendation should be provided in a more dynamic manner than the existing one of the prototype. For the development of such demanding development, a close cooperation with a store providing MC garments to consumers is required in order to include real life scenarios and feed the database structure with the actual needs of sales persons and customers.

Finally, Matteo Dosso is very interested to be a part of such a development and also to include this application in the daily business, as it addresses a number of identified business needs and there is no similar application in the market that could be used at the moment.

## 4 Conclusions

Style Advice tools were designed to offer a Business to Customer, (or Customer to Customer) interaction responsive to the customer's appearance and needs. The Intelligent Style Advisors (Generic and Product Specific) implemented into the framework of the SERVIVE project are part of a sophisticated 'recommender system'.

This system is envisaged as the principal behind a set of diagnostic tools for a range of consumer queries across broad apparel categories. A large database of users and a similar database of the selected SERVIVE range of products (content), each tagged with specific profiles, are now matched and interrogated through multiple access points (SERVIVE Portal, SERVIVE Transaction Platform).

Through the SERVIVE project, the integration of the Generic and the Product Specific Style Advisor in the overall SERVIVE platform proves the concept of the formulated SERVIVE garment ontology as a useful tool in Mass Customisation offered services through online channels. The SERVIVE ontology combines all related information such as human data, garment information, style and materials guides, and it is used by the implemented recommendation engine to provide accurate advice to each users' special requirements and preferences.

In terms of further developments, both Style Advisors should be extended as part of a mobile application that could leverage the excellent work done within the project and enhance the market positioning and differentiation as a bespoke platform to offer Mass Customised goods to the wider public.

Work is still required to expand the product database with the full range of available products based on catalogues of SMEs that manufacture and offer MC garments. The extended product database should include not only the garment types, but also all the available customisation options as offered by the manufacturers. Of course, the system to present a total solution, it should also include data on fashion styles, fabrics style recommendation, and sales skills of the personnel that interact with the consumers.

Last but not least, further investigation is required to extend the set stereotypes to meet the style needs of special consumer groups such as those with atypical body shapes and most importantly the disabled. Their needs for clothing can be regarded as extreme cases of the normal desire to look smart and fashionable: garments should not just fit, but should disguise and enhance body image. Thus, the Style advice needs will vary considerably given the wide variety of issues.