**Deliverable D1.1**

**Business case presentation & full set of requirements, version 1**

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**Description:**

In D1.1 the AS-IS processes for the on-line good and size selection by the final consumers are described in detail, focusing on present barriers and technological gaps, so to describe in details the different scenarios of AIDIMME and PIACENZA (AS-IS scenarios creation).

With the support of the scientific and technical partners, both the end users will describe the potential improvements deriving from the adoption of Morpheos that could lead to new scenarios (TO-BE scenarios definition). The final results will be the identification of preliminary business requirements of general validity, that will guide the design of the technical solutions. They will be evaluated and improved during the project lifetime in order to verify and evaluate also the technical feasibility of the provided expectations. The fully and definitive list of requirements will be provided in D1.4 on month 9. To ensure coherence in this activity, a requirements extraction methodology developed by Holonix and i-Deal, will be exploited.
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1. Introduction

1.1. Objective of WP1
By analysing current gaps and limitations as well as barriers of existing approaches Work Package 1 is responsible of the identification of the description of AS-IS processes on which Morpheos will have an impact. New processes and related opportunities enabled by the solution will be presented. Finally, detailed business and technical requirements to guide the development activities will be extracted and formalised.

1.2. Objective of D1.1
In this deliverable, the AS-IS processes for the selection, by the final consumers, of on-line goods and size are described in detail; focusing on present barriers and technological gaps, to highlight the different scenarios of AIDIMME and PIACENZA (AS-IS scenarios creation). With the support of the scientific and technical partners, both the end users will describe the potential improvements deriving from the adoption of Morpheos that could lead to new scenarios (TO-BE scenarios definition). The results will be the identification of business requirements of general validity, that will drive the design of the technical solutions.

To ensure coherence in this activity, a methodology for the extraction of requirements, developed by Holonix and i-Deal, will be exploited.

Morpheos project expected results described in D1.1 will be commercially exploited by ISizeYou platform and www.isizeyou.com website, both property of i-Deal, which will be also responsible of all privacy protection activities described in WP8.

Therefore, from now on in the present deliverable, it will be also made reference to ISizeYou platform and website, containing also the results of Morpheos project.

Since privacy authority specifically requires that the owner of the website fulfils privacy protection activities and that it specifies that the owner is the only subject entitled to act, the integration of Morpheos software test releases and commercial version into ISizeYou platform is the only solution to respect privacy authority requirements. Otherwise, if a specific Morpheos URL and/or app would be used, a specific owner would be very hard to identify since the consortium is not a legal entity.

Therefore for Morpheos testing environment it will be used an URL of isizeyou.com, such as morpheos.isizeyou.com/ (or a similar one).

1.3. Content of the document
The document is structured in 4 phases: business partners introduction, description of the AS-IS present situation provided by end users Aidimme and Piacenza, presentation of the expected TO-BE scenarios on the basis by end users and finally the scenarios will be grouped in high level business and technical requirements to guide the development of the Morpheos solutions. Each phase is linked and introduced by the previous one in order to describe and follow the logical process which has led to Morpheos proposal and will lead to its practical deployment.
2. Business Partners Introduction

This chapter presents the Morpheos business partners representative of the fashion and creative industries. AIDIMME is a Spanish non-profit association specialized in research activities to support associate companies in different industries (e.g. furniture, metal processing, packaging and so on). Piacenza is an Italian SME is of fine woolen fabrics, clothing and accessories for fashion and luxury markets. It is supplier of fabrics to all world-leading fashion brand manufacturers (e.g. Zegna, Gucci, Prada, Louis Vuitton, Hermès among the others). The chapter describes in details the two companies, providing an overview of the related markets and peculiarities, expectations within the project as well as the description of the identified project use cases.

2.1. AIDIMME

2.1.1. Company Description

The METAL-PROCESSING, FURNITURE, WOOD AND PACKAGING TECHNOLOGY INSTITUTE (AIDIMME) is a Spanish based, private, non-profit association consequence of the merger between AIMME (Metal Technology Institute) and AIDIMA (Wood and Furniture Technology Institute), both operating since the 80’s in Research and Technology activities for their industrial affiliated companies. AIDIMME’s headquarters include five buildings: two head offices, a pilot plant for training and advanced technologies, a technical unit for packaging and transport, and a pilot plant including a flexible warehouse, all located at the Technology Park of Valencia. AIDIMME also has a technical unit in Madrid.

AIDIMME has close links with their reference industrial associations and federations. It is the scientific and technical umbrella organization for around 800 associated companies throughout Spain, encompassing all kind of value chain companies: material suppliers, product manufacturers, retailers and ancillary services.
It belongs to other furniture networks, such as InnovaWood, that is an umbrella organization that integrates four European networks in the Forest, Wood-based and Furniture industries into a more effective mechanism to support innovation in these sectors.

AIDIMME has also very close contact at regional, national and international level with the following:

- Industrial associations: AEMMA, ACEBM, ACOMVAL, ASEMAD, AREMA, AFAMID, ANIEME, ASEMCOM, AMC, AFEMA, ASEFAPI, ASEFCA, AFCO, IAPRI
- Federations: FEVAMA, FECOMVAC, FEDERMUEBLE, CONFEMADERA, FAMO, FEDEMCO, CEI-BOIS, EFIC, UEA, FEIC, EPF, CEPI, FEFCO, EFPRO
- Technology platforms: FTP - Forest based sector Technology Platform
- Vocational Training Centres related to Wood and Furniture.
- Network of Technological Institutes of the Valencia’s Region (REDIT): 14 in total.

2.1.2. Main Business

AIDIMME aims at fostering the competitiveness of the companies belonging to the activities of its sectors through Research, Development and Innovation, from products and processes to market and organization. Among its sectors and activities AIDIMME works in: Metal products in general (household, machinery, jewellery, structural products, etc.); Surface treatments: electrochemical (metallic) and organic (paints, varnishes) both on metal, plastic and wood; Wood: wood-based products, veneer, plywood, boards, semi-finished products, doors, floors, wood pallets; Furniture: domestic, children, contract, office, kitchen, bathroom, regardless of the material (wood, plastic, metal...); Transport (automotive, aerospace, railway). Packaging: Cellulosic materials: wood, paper and cardboard and users of all types of industrial transportation packaging.

Regarding Standardization, AIDIMME is drafting some Spanish standards related to furniture and participation in the drafting of European and international standards concerning furniture, machinery safety, etc. AIDIMME works in Quality control testing of raw materials, semi-
elaborates, furniture and finished products. Over 200 companies have their products certified by AIDIMME’s Quality Symbol. AIDIMME helps in the implementation of ISO 9000 quality assurance systems in furniture factories and assesses in improvement of industrial and distribution logistics on shop floor.

Regarding Information to our associated members/clients, AIDIMME supplies of technical and economic information to member companies and institutions through advanced information systems producing e-magazines for the furniture, wood, packaging & transport sectors, e-newsletters for the abovementioned sectors), on-line service for member requests and questions, managing competitive surveillance systems Furniture Explorer & Packaging Explorer.

AIDIMME has a longstanding experience coordinating European projects in ICT area for the furniture sector of more than 15 years, as well as developing web-based business solutions for enterprises. AIDIMME has an extensive expertise developing interoperability eBusiness solutions focusing on SMEs with the goal of providing “easy-to-use solutions” for industrial users.

AIDIMME’s key competences are in Additive Manufacturing, Chemical Technologies, Product Development, Process and Sustainability (environment, production management, logistics, safety), Materials and products, Information and Communication Technologies, Socio-economic research, market research and business strategy and Testing laboratories.

Market areas of interest:

- Home furnishings and accessories, interior design.
- Furniture manufacturing companies and related industries, such as suppliers of fittings, wood coatings, etc. (mainly AIDIMME’s associated companies).
- Home product designers (mainly furniture and lighting).
- Interior decorators (i.e. woodwork, facing and flooring).

2.1.2.1. E-commerce as AIDIMME’s potential business area

**FURNITURE GLOBAL ONLINE COMMERCE**

Globally, online sales in the furniture industry represented 2.6% of the market in 2013, reaching around 20,850 billion dollars (source: CSIL). For 2014 the estimation was an increase of 14% in global online furniture sales, up to 23,800 billion dollars. By World regions, America and Asia are the largest furniture online markets, with more than one third of global sales each one. On the other hand, Europe captures the fourth part of furniture online global market.
Unconceivable some years ago, electronic commerce has finally reached the furniture market. Traditional players have always trusted on the belief that furniture must be touched and seen before making the purchase decision (and this is still a truth for most consumers). However, as it already happened in other markets, furniture online sales are gradually growing.

Three main formats are in competition for this market:

- General Websites and online purchase clubs (examples: Amazon, Alibaba, Vente Priveé...).
- Furniture, decoration and other home elements (tableware, home textiles, lighting, etc.) specialized websites and online purchase clubs (examples: Westwing, One Kings Lane...).
- Websites of specialized brick-and-mortar retailers (example: Ikea, Conforama, etc).

As for other markets, online channels have facilitated the entry of new players in the furniture market, being mainly large international marketplaces which have been well positioned amongst consumers.

**FURNITURE, RESTING AND DECORATION ONLINE COMMERCE IN SPAIN**

In Spain, 25% of online consumers purchased home and kitchen furniture, mattresses and decoration products in 2016 (source: Banco Cetelem, 2016), being 5 percentage units higher in relation to 2015. Notwithstanding, online average expenditure in these products decreased to 276€ in 2016, a 32% lower than in 2015.

In this market, home accessories and decoration was the most purchased category in 2016 (48%), followed by bedroom and living/dining room furniture (22% and 20% respectively). On the other hand, kitchen furniture is the category with the highest average expenditure (425%).
Home specialized retailers’ websites (49%) and international website marketplaces (37%, i.e. Amazon) stand out amongst consumer preferences. Particularly, home accessories and decoration, and auxiliary furniture are specially demanded categories. 38% of furniture online consumers visited a brick-and-mortar store before online purchasing (this is known as showrooming consumer behaviour). On the contrary, 62% of consumers bought online without visiting physical stores.
Worst appreciations by consumers about furniture, resting elements and decoration online purchasing are following ones: “Not being able to see and touch products”, “Waiting time until product delivery at home”, and “Shipping costs”. In 2016, 17% of online consumers returned the product. Of these, 58% returned due to product flaw, 39% due to having received a wrong product, and 11% due to delay in delivery.

![Figure 6: Main causes of furniture returns from online sales](image)

2.1.3. High level expectation within the project

Morpheos means a ground-breaking approach for furniture creative industries which are not familiar with new technologies. It’s a truly innovative way to provide AIDIMME’s target users, such as interior designers and furniture manufacturing companies, with the possibility of adapting their products to the taste, lifestyle, habits, morphotype, and needs of their final customers. In the furniture case, final customers can be seen and perceived as homes under all its forms.

AIDIMME Expects from Morpheos the following:

- **E1**: **e-commerce support service by correct product suggestion to users**, with a related significant reduction of returns due to the difference between customer expectations and the reality of the product selected.

- **E2**: **Support the definition of the furniture fitting, satisfaction, adaptation, taste, etc.,** for the specific morphology, living space, and lifestyle of homes. Customers will influence the design process based on market-driven insights enriching the creative approach of designers and interior decorators.

- **E3**: **Total customized user experience** with reduced number of customers lost during the purchase process as well as a decrease in the number of clicks needed for product selection.
- **E4: Increment of both online shopping and product reliability**, especially true in a market like the furniture one where clients need to look and feel the products before making a decision, let alone, making a purchase.
- **E5: Easy to adapt and integrate into any e-commerce site.** The Morpheos technical solutions must be as easy to integrate as possible in order to make a perfect fit in the e-commerce site.

Currently AIDIMME has identified the following use cases:

**Use Case A1:** During the e-commerce purchase, provide services to the user to support the **selection of the most suitable product/s** based on the morphology, customer preferences and the specific interest of the users

**Use Case A2:** During the e-commerce purchase, provide services to the user to support a **new project decoration design** based on the morphology, customer preferences and the specific interest of the users

**Use Case A3:** During the e-commerce purchase, provide services to the user to support a **new product design** based on the morphology, customer preferences and the specific interest of the users

2.2. Piacenza

2.2.1. Company Description

Piacenza is a SME manufacturer of fine woolen fabrics, clothing and accessories, leader in the top segment of noble fibre fabrics for fashion and luxury markets. It is supplier of fabrics to all world-leading fashion brand manufacturers (Zegna, Gucci, Prada, Louis Vuitton, Hermès among the others). Based in Italian textile district of Biella, where all its production is realized, and it is one of the oldest textile industries of the world, founded in 1733 and from then on owned by the Piacenza family. Its production organization is fully performed in Italy and it is completely integrated from raw materials to finished fabric, except spinning phase which is performed on its behalf by sub suppliers.
Piacenza will provide its e-commerce platform www.piacenzacashmere.com to test Morpheos implementation and collect result KPIs into a real clothing business environment of value creation and growth potential. It will provide also the testbed to collect design manufacturer feedback about the integration of Morpheos platform into an SME CMS (in this case Prestashop) and the efforts to validate the ecosystem. Piacenza will actively participate to the definition of the requirements of the platform as well as to all its test in order to provide constant feedback to support its improvement towards real business environment application and final validation.

Piacenza exploitation aims at improving the performance of its e-commerce website as well as to improve its design development process by the exploitation of the information provided by Morpheos ecosystem. It will also actively support the demonstration process by IT partners, interested into commercial exploitation of Morpheos platform.

2.2.2. Main Business

EU Textile and Clothing sector is the absolute leader of fashion and luxury all over the world. Four of the five worldwide largest conglomerates fashion groups are located in EU: LVMH, Richemont, Kering and Hermes. EU industries have successfully faced market change by a radical refocus towards high end and luxury. In these sectors they can exploit the peculiar competitive advantages of EU in design, quality, service and image, above all for the sophisticated luxury market, where design proposal, quality, flexibility in production and delivery, service and quick response to customers’ needs are critical to build the added value and overcome the pressure on prices. The overall size of the Textile
Clothing industry in the EU-28 represents investments of around 4 billion €, 173,000 T&C companies employ over 1.7 million workers, 90% SMEs, 6th in employment and the 4th highest share of added value in EU.

But this leading position of EU players must be defended and supported by a dynamic distribution update on the basis of fast evolving market from traditional retail to e-commerce, in a fully integrated omnichannel strategy.

“E-commerce is booming and retailers face many challenges and opportunities. The rapid development of the e-commerce industry has led to traditional retailers moving into the online market. Retailers and e-tailers are facing pressure to adapt since a strategy focusing on a single channel may no longer be sufficient to attract the demanding customers of the 21st century.”

But the rules of this new challenge for EU fashion is played with rules which are different from other e-commerce fields, due to the peculiar characteristics of clothing. Since basic ecommerce platforms, in form of CMSs, have become a standard the winning players will have to find a solution to the size problem, which is peculiar of this sector and in general of the ones where a physical relationship between human body and physical goods is expected - for example chairs, automotive seats, interior design, etc.

The percentage of worldwide clothing sales on-line has been 9%, far below 50% of computer electronics and 40% of books. Yet computers sold on-line represent a market of 30 Bln Usd, 9% of global apparel equals 31 Bln Usd. Apparel is already the biggest absolute sales category on the internet and in 2016 it is expected to double the turnover of 5 years before. Clothing market leaders have invested large amount of money in their own retail to control the image and distribution of their products and to grant their presence in the most promising markets. The fast growth of on line channel can represent, in the long run and in relation also with the growth of the “digital natives” expenditure power, a menace or an opportunity for EU leadership in the sector.

The low percentage of apparel sold on line is strictly linked by their intrinsic limit: the impossibility to try on the piece. The 1st reason of return of goods in the clothing sector is size mistake, reaching more than 80% of the total returns of on line sales.

On the basis of Matrix study ordered by EC DG Enterprise and Industry, of 46% of the clothing consumer who have experienced on line purchases 78% (39% of 46%) have experienced returns because the clothing product (of
which 9% often and 39% sometimes) does not fit the size of the customer. In North EU and US customers very often adopt the opportunistic behaviours to buy 2 sizes and to return the less fitting one, supported by the free return policy of the web retailers. A statistics presented by Zalando at textile and clothing EU technology platform the return rate overcomes 30% in Germany, Netherlands and Great Britain. In Southern EU countries, where the culture of consumer protection is weaker, the rate of return is lower and the impossibility of try on refrains the development of apparel on line sales.

This problem is strongly affecting the ROI of e-commerce and the success, especially of SMEs. Research by Barclaycard⁶, picked up by The Guardian, revealed that six out of 10 retailers have been impacted by the increasing number of people who make returns of online orders.

31% of the sample has in fact reported significant losses arising from the transactions made, and one in five admitted to having raised prices to cover the costs of returns. The problem, says the magazine, is such that many of the smaller business are backtracking from online. According to Barclaycard, 22% of retailers had consciously chosen to exit the business online or not to undertake it entirely on account of the operating costs of the deliveries and returns. The situation is particularly difficult for the player that offer free deliveries: according to the study, about half of consumers admitted that if there was a charge to be incurred for the return would not have ordered a product online. Moreover, send back the purchased products is getting easier, and it seems that customers do not consider it a product purchased up to that is not delivered on the kitchen table, aware that even then may discard postponing it back. With the result that more and more products are returned.

2.2.3. High level expectation within the project

Being an SME Piacenza has the peculiar limits of EU players of its dimension. Even if leader it has to exploit at its most its financial resources, addressing all the field of investment, including manufacturing machineries as well as distribution and retail.

In this last field, trying to anticipate the tendency of the market, it has been decided to shift investment from brick and mortar to e-commerce retail by closing the flagship store in Milan “fashion quadrilatero”, too expensive and with decreasing ROI, and to invest in e-commerce channel, whose inventory is fully integrated with the one wholesale distribution and of the local Piacenza shop, located inside the production premises in Pollone (Biella). This strategy is deploying a full omnichannel strategy, where the 3 main channels (ecommerce, wholesale and retail) are exploiting the same logistics, inventory, information and production.

In order to improve the ROI of ecommerce clothing distribution Piacenza expects from Morpheos:

- **#P1:** e-commerce support service by correct size suggestion to users, with a related significant reduction of the returns due to size mismatching and increased confidence of consumers regarding on line purchases (measured by cart lost during size selection)
- **#P2:** new clothing collection design and production support on the basis of consumers morphology, with a related increased level of matching between produced inventory and related sales, and decreased level of unsold goods at the end of the season.
- **#P3:** increased conversion rate of selling campaigns by customized product communication, measured a significant increase of the conversion rate of e-

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commerce, both on dedicated mailing and offers tailored on the basis of specific consumer morphology.

- **#P4**: enhanced and fully personalized user experience, both on desktop and mobile, with reduced number of customers lost during purchase journey and number of clicks needed for product selection.
3. As Is Scenarios

3.1. Interior design Use Case #A1: During the e-commerce purchase, provide services to the user to support the selection of the most suitable product/s based on the morphology, customer preferences and the specific interest of the users

3.1.1. Story Telling
Jose is interested in changing his bedroom since all of its furniture was inherited from his family and besides being rather old, it is unsuitable for his size. He needs a bedroom according to his dimensions, place for residence characteristics and personal preferences. He finds [www.abcdef.com](http://www.abcdef.com), a furniture specialized e-commerce site, where he can browse for different bedroom concepts and styles, but after a while, he starts missing a full personalized bedroom proposal where he could see and feel a collection of bed products, mattresses, chest of drawers, etc., suitable for his needs, and personal lifestyle. The web lacks the customization part he now needs to adapt to his special needs. One after another, he browses through different websites without finding what he needs. They all look and offer the same everyday mainstream products. Finally, he makes the decision to go to a physical store and prove his luck there, trying the products inside, thus making sure they will support his weight, taste, among other factors.

3.1.2. Involved Systems and Actors
In this section the main actors involved in the Use Case are presented:

- **End users (households)**
  They represent final consumers. The target audience are people with a taste for the decoration and interior design of their homes. Users browse e-commerce sites trying to find products to fit their needs by inputting in the search field the products they need. If the end user wants a complete bedroom for example, he/she can send their requirements through the platform.

- **E-commerce furniture platform**
  The online e-commerce sites where products are sorted into categories. The site has a full catalogue of products from their customer furniture manufacturers so that end users can browse through it. The lack of knowledge about who is accessing the web, including personal preferences and morphotypes, makes their final offer a non-personalized one, often leaving their customers unsatisfied when trying to buy furniture online.

- **Product designers for home furnishings, accessories, and interior decoration designers**
  The product designers working for furniture manufacturing companies are an important part by making their catalogues accessible in the portal to end users, so these can find them.

Designers’ use of the platform consists in keeping their catalogues updated, so end users can find their latest product offering. Under this business model, designers are not aware of the
customers profiles of the final buyers. Final users can send possible ideas for decoration through the platform.

3.1.3. Processes

- A1.1 Customer visits the e-commerce website and browses through the available categories
- A1.2 Customer enters query to look for bedrooms
- A1.3 Customer peruses through the different search results
- A1.4 Customer selects different search results to access their detail in order to try to find one that adapts
- A1.5 Customer decides no configurations are of his/her like
- A1.6 Customer decides to go to a physical store where he can look and feel find what he wants
- A1.7 Customer ends up buying the bedroom at the store

3.1.4. Problems and Limitations

<table>
<thead>
<tr>
<th>AIDIMME Expectation doesn't meet&lt;sup&gt;8&lt;/sup&gt;</th>
<th>Process Number involved</th>
<th>Problems and limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>#E1</td>
<td>A1.6</td>
<td>Products can be frequently returned</td>
</tr>
<tr>
<td>#E1</td>
<td>A1.7</td>
<td>Customer is reluctant about purchasing something he may later return</td>
</tr>
</tbody>
</table>

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<sup>8</sup> As reported in 2.1.3 - E1: e-commerce support service by correct product suggestion to users; E2: Support the definition of the furniture fitting, satisfaction, adaptation, taste; E3: Total customized user experience; E4: Increment of user’s trust in online shopping
Table 1: Summary of the perceived problems for use case #A1

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>#E2</td>
<td>A1.4</td>
<td>Product configuration is too general, so customer must check and discard too many products that don’t fit her/his preferences</td>
</tr>
<tr>
<td>#E2</td>
<td>A1.5</td>
<td>Customer wastes time in searching non-filtered product suggestions</td>
</tr>
<tr>
<td>#E2</td>
<td>A1.5</td>
<td>The customer doesn’t know exactly how the product fits to its body and taste</td>
</tr>
<tr>
<td>#E2</td>
<td>A1.5</td>
<td>Difficult matching between consumer lifestyle/preferences and ideas inspiration for furnishing.</td>
</tr>
<tr>
<td>#E3</td>
<td>A1.3</td>
<td>The products are totally mainstream without any customization</td>
</tr>
<tr>
<td>#E3</td>
<td>A1.6</td>
<td>Customer needs talking to somebody about preferences and customization necessities, so online channel is abandoned</td>
</tr>
<tr>
<td>#E4</td>
<td>A1.3</td>
<td>The products are totally mainstream without any customization</td>
</tr>
<tr>
<td>#E4</td>
<td>A1.1</td>
<td>There is not value added in the CMS site offer. It is just “one more”.</td>
</tr>
<tr>
<td>#E5</td>
<td>A1.1</td>
<td>Potential web service failures, the search process is not easy to carry out, and results are not as accurate as they should be.</td>
</tr>
</tbody>
</table>

3.2. Interior design Use Case #A2: During the e-commerce purchase, provide services to the user to support a new project decoration design based on the morphology, customer preferences and the specific interest of the users

3.2.1. Story Telling

Jose is interested in changing his bedroom since all of its furniture was inherited from his family and besides being rather old, it is unsuitable for his size. He needs a bedroom according to his dimensions, characteristics of his place of residence, and personal preferences. He finds www.abcdef.com, a furniture specialized e-commerce site, where he can propose an idea of how he want his bedroom to be. For that, he clicks on the “we make your project” tab, where he can enter his personal information such as name, address, email, and a free text message where he detailed a little more his needs. Finally, there is also an upload file button where he can upload a picture or a plane of his idea.

Even though this information is necessary for the designer to have an idea of the future to be project, it lacks more details like personal preferences and lifestyle, let alone, this has to be done over and over since it is not stored under any profile. Jose finally hits the submit button and the web responds with a message that says “Thank you for your message. We’ll soon be contacting you”. Eventually, he gets a few ideas of bedroom projects, but Jose thinks that none of them satisfy his needs and decides not to go for any of them. He makes the decision to go to a physical store and prove his luck there, talking to interior designers and expressing onsite, the ideas and getting proposals right on the spot.

3.2.2. Involved Systems and Actors

In this section the main actors involved in the Use Case are presented:

- **End users (households)**
They represent final consumers. The target audience are people with a taste for the decoration and interior design of their homes. User enters information to get proposed project decoration concepts.

- **E-commerce furniture platform**

The online e-commerce sites where products are sorted into categories. The site has basic input text areas where users can enter their ideas for creative project decoration proposals. The simplicity of the information provided, and the lack of knowledge about who is accessing the web, including personal preferences and morphotypes, makes their final proposals non-personalized, which causes users to abandon the idea of accepting the interior designers proposed projects, thus leaving their customers unsatisfied when trying to buy furniture online.

- **Product designers for home furnishings, accessories, and interior decoration designers**

The product designers working for furniture manufacturing companies are an important part since they are the ones to propose their interior decoration projects based on users requests.

Designers’ use of the platform here consists in receiving the request from users and, based on minimum information provided, elaborate and propose their interior decoration projects to be accepted by the user. Under this business model, designers are not aware of the full customer profile.

### 3.2.3. Processes

![Diagram of Processes]

- A2.1 Customer accesses e-commerce site
- A2.2 Customer selects the "we make your project" tab
- A2.3 Customer enters personal information
- A2.4 Customer hits "Send"
- A2.5 Customer waits for projects to arrive
- A2.6 Customer receives projects proposals
- A2.7 Customer is not satisfied with proposals
- A2.8 Customer goes to a physical store

**Figure 12: #A2 As Is processes**

- A2.1 Customer visits the e-commerce website to find a full creative project decoration proposal for his bedroom.
- A2.2 Customer selects the tab named “we make your project”.
A2.3 Customer enters personal basic information and uploads a picture of the bedroom.
A2.4 Customer hits the “Send” button.
A2.5 After a confirmation message, customer waits for the proposals.
A2.6 After some specific time, customers receive a few proposals to be studied.
A2.7 After careful consideration, customer doesn’t find any proposal that meets his expectations.
A2.8 Customer decides to go to a physical store where he can look and feel what he wants.

### 3.2.4. Problems and Limitations

<table>
<thead>
<tr>
<th>AIDIMME</th>
<th>Process Number involved</th>
<th>Problems and limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectation doesn’t meet(^{10})</td>
<td>#E1</td>
<td>A2.7</td>
</tr>
<tr>
<td></td>
<td>#E1</td>
<td>A2.8</td>
</tr>
<tr>
<td></td>
<td>#E2</td>
<td>A2.3</td>
</tr>
<tr>
<td></td>
<td>#E2</td>
<td>A2.6 A2.7</td>
</tr>
<tr>
<td></td>
<td>#E2</td>
<td>A2.8</td>
</tr>
<tr>
<td></td>
<td>#E3</td>
<td>A2.6 A2.7</td>
</tr>
<tr>
<td></td>
<td>#E3</td>
<td>A2.8</td>
</tr>
<tr>
<td></td>
<td>#E4</td>
<td>A2.2 A2.3</td>
</tr>
<tr>
<td></td>
<td>#E4</td>
<td>A2.6</td>
</tr>
<tr>
<td></td>
<td>#E4</td>
<td>A2.7</td>
</tr>
</tbody>
</table>

Table 2: Summary of the perceived problems for use case #A2

### 3.3. Interior design Use Case #A3: During the e-commerce purchase, provide services to the user to support a new product design based on the morphology, customer preferences and the specific interest of the users

#### 3.3.1. Story Telling

Jose is interested in purchasing a special office chair that can support his non-stop long daily hours of working at the computer. The chair he uses now, gives him a lot of back pain, plus its material is not suitable for his outdoor office located in the countryside. He is looking for a very specific design with a durable material for outdoor use, but yet, extremely comfortable and that can massage his lower back while he works.

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\(^{10}\) As reported in 2.1.3 - E1: e-commerce support service by correct product suggestion to users; E2: Support the definition of the furniture fitting, satisfaction, adaptation, taste; E3: Total customized user experience; E4: Increment of user’s trust in online shopping
He finds [www.abcdef.com](http://www.abcdef.com), a furniture specialized e-commerce site, where he can propose an idea of how he wants his chair to be. For that, he clicks on the “design your product” tab, where he can enter his personal information such as name, address, email, and a free text message where he can detail a little more about his needs. Finally, there is also an upload file button where he can upload a picture or of his idea.

Even though this information is necessary for the designer to have an idea of the future to be project, it lacks more details like personal preferences and lifestyle, let alone, this has to be done over and over since it is not stored under any profile. Jose finally hits the submit button and the web responds with a message that says “Thank you for your message. We’ll soon be contacting you”. Eventually, he gets a few ideas of office chairs projects, but Jose thinks that none of them satisfy his needs and decides not to go for any of them. He makes the decision to go to a physical store and prove his luck there, talking to product designers and expressing verbally onsite, the ideas and getting proposals right on the spot.

### 3.3.2. Involved Systems and Actors

In this section the main actors involved in the Use Case are presented:

- **End users (households)**

  They represent final consumers. The target audience are people with a taste for the decoration and interior design of their homes. User enters information to get specific product concepts.

- **E-commerce furniture platform**

  The online e-commerce sites where products are sorted into categories. The site has basic input text areas where users can enter their ideas for creative products proposals. The simplicity of the information provided, and the lack of knowledge about who is accessing the web, including personal preferences and morphotypes, makes their final proposals non-personalized, which causes users to abandon the idea of accepting the product designers proposed projects, thus leaving their customers unsatisfied when trying to buy furniture online.

- **Product designers for home furnishings**

  The product designers working for furniture manufacturing companies are an important part since they are the ones to propose their projects based on users’ requests.

  Designers’ use of the platform here consists in receiving the request from users and, based on minimum information provided, elaborate and propose their product projects to be accepted by the user. Under this business model, designers are not aware of the full customer profile, and work “blindly”.

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11 Fictitious website
3.3.3. Processes

- A3.1 Customer accesses the e-commerce site to find a full creative product proposal for his home office.
- A3.2 Customer selects the "design your product" tab.
- A3.3 Customer enters personal basic information and uploads a picture of his home office.
- A3.4 Customer hits the "Send" button.
- A3.5 After a confirmation message, customer waits for the proposals.
- A3.6 After some specific time, customers receive a few chair proposals to be studied.
- A3.7 After careful consideration, customer doesn’t find any proposal that meets his expectations.
- A3.8 Customer decides to go to a physical store where he can look and feel find what he wants, and is able to talk to product designers to express his needs.

3.3.4. Problems and Limitations

<table>
<thead>
<tr>
<th>AIDIMME Expectation doesn’t meet&lt;sup&gt;12&lt;/sup&gt;</th>
<th>Process Number involved</th>
<th>Problems and limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>#E1</td>
<td>A3.6</td>
<td>Projects proposals are too impersonal for the customer</td>
</tr>
<tr>
<td>#E1</td>
<td>A3.7</td>
<td>Products can be frequently returned</td>
</tr>
<tr>
<td>#E1</td>
<td>A3.8</td>
<td>Customer is reluctant about purchasing something he may later return</td>
</tr>
<tr>
<td>#E2</td>
<td>A3.3</td>
<td>Personal information is focused on the house, but not in customer lifestyle</td>
</tr>
<tr>
<td>#E2</td>
<td>A3.3</td>
<td>The customer doesn’t know exactly how the products fits to its body and taste</td>
</tr>
</tbody>
</table>

<sup>12</sup> As reported in 2.1.3 - E1: e-commerce support service by correct product suggestion to users; E2: Support the definition of the furniture fitting, satisfaction, adaptation, taste; E3: Total customized user experience; E4: Increment of user’s trust in online shopping
3.4. Clothing Use Case #P1 and #P4: “e-commerce support service by correct size suggestion to users” and “enhanced and fully personalized user experience, both on desktop and mobile”.

3.4.1. Story Telling

Like many other SMEs in order to limit the cost of e-commerce software Piacenza has decided to use a diffused CMS platform instead of a fully personalized software.

The choice has fallen to Prestashop\textsuperscript{13} CMS because of this diffusion, adopted by more than 250,000 merchant around the world, but also because of its continuous update and its flexibility towards the specific needs of clothing sales.

The website, at the address \url{www.piacenzacashmere.com}, sells knitwear, jackets, coats and accessories (scarves, shawls, gloves, blankets, etc.), in Italy and abroad. The inventory of available pieces is fully integrated with the one of the shop in order to widen the range of choices and exploit the investment as much as possible. Logistics is also in common with retail and wholesale distribution while e-commerce is provided with a dedicated customer service, back office, technical management and communication staff.

The website is fully responsive to user device, therefore its dimension and user interface change in relation with the specific device used (desktop, tablet, mobile) and with the dimension of its specific screen. This function is critical since the access to the Web from mobile has overtaken desktop one in 2014\textsuperscript{14}:

\begin{table}
\centering
\begin{tabular}{|c|c|p{0.6\textwidth}|}
\hline
\#E2 & A3.6 & Difficult matching between consumer lifestyle/preferences and ideas inspiration for furnishing.  \\
A3.7 & &  \\
\hline
\#E3 & A3.6 & The products are totally mainstream without any customization  \\
A3.7 & &  \\
\hline
\#E3 & A3.8 & Customer needs to talk to somebody about preferences and customization necessities, so online channel is abandoned  \\
\hline
\#E4 & A3.6 & The products are totally mainstream without any customization  \\
\hline
\#E4 & A3.2 & There is not value added in the CMS site offer. It is just “one more”.  \\
A3.3 & &  \\
\hline
\#E4 & A3.6 & The products are totally mainstream without any customization  \\
\hline
\#E4 & A3.7 & Current online channel seems to be too limited in terms of interaction with the customer  \\
\hline
\end{tabular}
\caption{Summary of the perceived problems for use case #A3}
\end{table}

\textsuperscript{13} \url{www.prestashop.com}
\textsuperscript{14} Source: \url{http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics/}
This statistics is particularly interesting since the use of mobile (phone and tablet) is prevailing out of working time, when consumer dedicates to their own private purchases like clothing. The only exception, which confirms the rule, is the lunch break when ecommerces of consumer goods are visited mainly from desktop, the one in use at work.

Nevertheless, besides the efforts dedicated to enhancement of mobile user experience, the purchase of a clothing product from mobile is quite difficult, as demonstrated by the related statistics:
The behaviour of clothing consumers of Piacenza has been more than in line with the average statistics. From a significant statistical reference basis of 168,068 users, only 49% come from desktop, which has generated more than 78% of turnover.

The 2 main steps of the process where the purchase process is abandoned are the size selection, with 78% average interruptions, and payment process with 46,15% of cart lost. It must also be highlighted that desktop and most of all mobile data input is drastically refrained by the dimension of the screen and by the absence of the keyboard.

Mobile ecommerce clothing consumers require an ad hoc purchase process development, which is expected to be implemented by Morpheos personalized user experience.

3.4.2. Involved Systems and Actors
The actors involved in the purchase process are:

- Consumer/customer
- Back office (management of the ecommerce platform)
- Logistics

\[15\] http://www.businessinsider.com/e-commerce-shoppers-abandon-carts-at-payment-stage-2016-3?IR=T
3.4.3. Processes

- A1.1: Consumer visits Piacenza website and selects the clothing item which he prefers from the available product
- A1.2: Consumer selects the size of the product, if available, and puts in the shopping cart
- A1.3: Consumer logs in (or register himself at first purchase) and enters his data and address for delivery
- A1.4: Consumer chooses payment method (credit card, Amazon Payment, Paypal, debit card, bank transfer, etc...) and authorizes the payment
- A1.5: Back office validates the order, contextually when payment is immediately approved by a third party (credit card, Amazon Payment, Paypal, debit card) or when the price is cashed in case of bank transfer
- A1.6: Logistics prepares the order, its related documents of transport, and ships it by forwarder
- A1.7: the customer receives the order, tries it on and decides if the size fits or not
- A1.8A: when the size OK, the clothing pieces is retained for use
- A1.8B: when the size is not OK, the clothing piece is returned for substitution or payment refund.

3.4.4. Problems and Limitations
### Table 4: Summary of the perceived problems during the As Is scenario #P1

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#A1.1</td>
<td>The navigation is standard but it is necessary to select the item to check which sizes are available.</td>
</tr>
<tr>
<td>#A1.2</td>
<td>The conversion table between Italian sizes and UK, France, Germany and US system is available, as well as the measures of the model. Nevertheless about 78% of the purchase processes are abandoned at the moment of size choice.</td>
</tr>
<tr>
<td>#A1.7B</td>
<td>Below 150 Euros of purchase the return cost must be paid by the customer.</td>
</tr>
</tbody>
</table>

### Table 5: Summary of the perceived problems during the As Is scenario #P4

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#A1.3</td>
<td>It is necessary to register, to provide personal information and log in Piacenza website with specific credentials. Average rate of cart lost in the payment phase is actually 46%.</td>
</tr>
<tr>
<td>#A1.4</td>
<td>The basic registration process is standard and does not save payment data (credit card number, expiry data, card holder).</td>
</tr>
</tbody>
</table>

### 3.5. Clothing Use Case #P2: new clothing collection design and production support

#### 3.5.1. Story Telling

Textile/Clothing product are object of a very fast renewal: each year at least fall winter and spring summer season are presented, each one declined for man and for woman market, for a total of 4 brand new design proposals per year. The needs of Fall/Winter and Spring/Summer seasons are different, like the ones of man and woman markets, therefore each collection is brand new.

Despite the short commercial lifecycle of the product (6 months), the length of each season activities is 18-20 months. Therefore, T/C companies must have a very well organized structure to face the several coexisting activities of different seasons.

During the most part of the year t/c companies manage at least 3 different seasons. For example, in the first semester of 2017 coexist the production and delivery of Spring/Summer 2017 season, the order collection and production of Fall/Winter 2014 and the design phase of Spring/Summer 2018. Design phase takes place more than 1 year in advance, almost in the same period when previous season is sold.

If we combine the intrinsic length of the design and industrialization process with the unpredictable fashion demand, we discover the risk dimension of this industry.

T/c is still based on physical sampling, which necessary to show new design to traders, agents and retailers. The success rate of new design proposal is very low.

![Figure 18: New clothing design process](image)
From more than 66,000 possible variations in initial samples of fabric only 500 final ones are selected for clothing sale to consumers, with a dispersion of energy and financial resources from now unbearable burden for industry.

The risk and the cost arising from the process of creation / design, which always absorbs the energies of the majority of fashion, leaving product innovation and its ability to deliver - and sometimes directing - the latest beauty and cultural trends, the possibility of commercial success of the company. It is estimated, in fact, that the incidence of design and product development of an Italian clothing company, including all direct costs, indirect and selling stocks, states around an average value between 6 and 7% of its global turnover (Source: Hermes Lab).

Actually the sources of information supporting incoming season design are:

1. Traditional sources of information are based on the closed collaboration with traditional retail, basically about the information from the sales of the previous corresponding (F/W vs F/W and S/S vs S/S) season during design period. This process has been fully explored and is based on efficient tools but it is affected by two critical limits. The first one is that it is limited to the past season proposal offer, therefore it is not able to describe future trends of product which are not included in the collection. The second is that this method is limited to quantitative indications, which do not include qualitative evaluations from the use of the product. If the choice of the product is based on its design and shape its quality and fitting, which regards its comfort, its duration and its appeal can be evaluated only on the use basis.

2. Because of the possibility of customer behaviour traceability and its interactivity e-commerce offers some added trend analysis chance, accompanied by the feedback of customers which usually are more willing to offer their comments to websites. Large fashion groups are starting to integrate traditional retail and e-commerce platforms to offer customers a more flexible and quick service. For example, Burberry’s is providing its shop assistants of its flagship store in London of portable devices where all information about a customer, including its previous web purchases, are collected to give a more efficient and personalized offer. Piacenza website has already followed this trend by integrating design choice, production, inventory and logistics between traditional retail and ecommerce.

3. A third way is based on social networking and the information collected by the web, which is the quickest and un informal source of qualitative information about products, trend settings and use evaluations. In this field the analysis of trends is under development and a proper semantic analysis is still to be refined as well as instruments which can leads to interpret images and posts.

None of the actually available sources of information is able to satisfy the ASIS following critical needs of design offices:

A. to measure the matching between clothing fitting and consumer body shapes (at aggregated level or per single consumer)
B. to provide precise indications regarding future collection measure definition in relation with the real morphology of customers
C. to simulate the level of matching of new products and new markets.
3.5.2. Involved Systems and Actors

- Clothing Stylist
- Marketing and sales team
- Modellist
- Retail (traditional and ecommerce) buyer
- Production
- Sales and retail manager

3.5.3. Processes

- **A2.1**: Clothing stylist analyses the previous season sales performance to select the design which are to be represented and the ones which must be substituted by new proposals.
- **A2.2**: Marketing provides the target price limits in line with brand target consumer/market/image/distribution positioning.
- **A2.3**: The structure of new season collection is defined in terms of number of items, new or represented designs, materials, colours.
- **A2.4**: Clothing stylist proceeds to design the new collection and launches the production of 1 piece per design item, in 1 size and colour. The process is repeated until (up to 3 or 4 times) until the prototype reflects the expected style.
- **A2.5**: Approved designs are selected or discarded for the new collection by stylist and marketing (very often also by general management and retail), including material and colours.

![Figure 19: #P2 As Is Processes](image-url)
• A2.6: Clothing modellist defines the size development in the local sizing system (IT, FR, UK, US, etc...) and the specific measures per each item and size. The measures of different items may obviously vary in relation with each item style as well as with its expected fitting (slim, over, regular).
• A2.7: Retail buyers (direct or multibrand) select item, colour, size and number of pieces in each size and place orders for production
• A2.8: Production is manufactured and delivered to shops
• A2.9: Retail sales season takes place and unsold goods are cleared at the end of the season
• A2.10: Retail management and administration analyses the performances of the sale season and provide feedbacks for the incoming ones as regards items/materials/colours most successful (to be represented). They also provide retail buyer with most the sales per each size to support next season order placement

3.5.4. Problems and Limitations

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1: A2.1-2.2-2.3</td>
<td>The feedback coming from the previous season is not able to consider specifically the fitting, i.e. if the success or failure of designs is related to unmatching with consumer body morphology. On the second hand it is not possible to simulate the matching of new style proposals and consumer body shape (aggregated) of target markets.</td>
</tr>
<tr>
<td>#2: A2.4-2.5</td>
<td>Prototyping selection and approval process does not consider fitting indications from actual or new target consumer body morphology</td>
</tr>
<tr>
<td>#3: A2.6</td>
<td>Modellist is not provided with the fitting information required to select the proper size development, i.e. the range of offered sizes (for ex from XXS to XXXL)</td>
</tr>
<tr>
<td>#4: A2.6</td>
<td>Modellist is not provided with precise measure suggestion per each size in order to cope with specific target consumer body shapes.</td>
</tr>
</tbody>
</table>
| #5: A2.7 | Buyers are only provided with the sale performance of previous season, therefore are not able to place orders taking into proper consideration:  
  • the specific measures of the new styles (which might be different even in case of repeated items) in relation of present consumers  
  • the specific measures of the new styles (which might be different even in case of repeated items) in relation of new target markets |
| #6: A2.9 | Sale performance are affected by potential mismatching of new collection measures and consumer ones. Shop assistants might be not able to provide correct indications to consumers, especially in case of high rotation of style proposal. It is not possible to provide personalised service regarding fitting. |
| #7: A2.10 | Retail management is not able to quantify fitting performance in terms of matching between consumer morphology needs and offered goods. This lack of information affects feedback reliability, since style/material/colour performance might be affected by the fitting of the clothing designs where
3.6. Clothing Use Case #P3: increased rate of conversion of selling communication campaigns

3.6.1. Story Telling

Since ecommerce is not characterized by the physical presence of the traditional retail it is necessary to promote and communicate the presence of the websites. Large enterprises can exploit the synergy between the brand awareness created by the traditional business, but have to properly support their online presence, especially towards new consumers in terms of age or geographical location (in growing countries). SMEs, which do not have already settled a strong brand awareness, must even more consider the investment into communication as strategic.

In a highly erratic and fast evolving market like the online one a smart and effective communication effort can become also an occasion to grow, especially where traditional retail requires very significant brick and mortar investments.

In 2016, because of this reason, marketing and communication has been the most significant investment for ecommerce player, with 38%\(^{16}\) of their short term investments, followed by user experience ones with 28%.

The most important KPIs to evaluate a communication and marketing campaign are the conversion rate and the cost per acquired customer.

In 2016 the average conversion rate of e-commerce (aggregated per all sectors) is 1,5%. Due to growing competition it is decreasing from 1,9% of 2015. The average cost per customer is 19 Euro. Clothing performance is below the average and acquisition cost are consequently even higher.

This fact is mainly due to the peculiarity of clothing, and of all similar sectors based on consumer morphology, that is the low consumer confidence that the product selected by ecommerce will fit for their specific morphology.

Since the investment in communication has become the barrier of entry to ecommerce like the investment into brick & mortar is for traditional retail, and that clothing performance is poorer than the average market, it is critical to support SMEs with instrument which can maximise the cost per customer acquired.

MORPHEOS is required to support a customized product communication, measured by a tailored communication on the basis of specific consumer morphology. Consumers will receive personalized and dedicated communication regarding the products whose size is matching with their body morphology, avoiding annoying and useless advertising when size availability does not cope with their needs.

3.6.2. Involved Systems and Actors

- Marketing and communication manager
- Advertising agency for content definition (if not internal)

\(^{16}\)Source: Casaleggio & Associati – Focus e-commerce 2016
3.6.3. Processes

- A3.1: advertising campaign is scheduled on the basis of the plan and the dedicated budget
- A3.2: the mailing list is defined from the available list of consumers of who have accepted to receive advertising. The selection of receivers is carried out on the basis of basic information like gender, age, residence. Additional selection parameters regarding consumer preferences and requirements are used if explicitly communicated by consumers and if the campaign is targeted on their basis
- A3.3: ecommerce manager launches the mailing campaign
- A3.4A: interested consumers click and read the advertising e-mail
- A3.4B: not interested consumers cancel the advertising e-mail
- A4.5: interested consumers visit the website and eventually purchase the goods

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1A3.1</td>
<td>The conversion rate of clothing advertising e-mailings is not satisfying and below 1.5% average of other sectors. E-mailings campaigns are targeted only by to basic consumer information like gender, age, place of residence.</td>
</tr>
<tr>
<td>#2A3.2</td>
<td>The available information to select consumers who can be effectively interested to the product are too generic, therefore mailing might appear useless and unsolicited to many recipients.</td>
</tr>
<tr>
<td>#3A3.3</td>
<td>The available information are too generic to support personalised contents on the basis of effective consumer needs</td>
</tr>
</tbody>
</table>

Table 7: problems currently perceived during the #P3 As Is scenario
4. To Be Scenarios

4.1. Interior design Use Case #A1: During the e-commerce purchase, provide services to the user to support the selection of the most suitable product/s based on the morphology, customer preferences and the specific interest of the users

4.1.1. Story Telling

Jose is interested in changing his bedroom since all its furniture was inherited from his family and besides being rather old, it is unsuitable for his size. He needs a bedroom according to his dimensions, place for residence characteristics and personal preferences. He has recently completed his full profile in Morpheos, a process that took some time, but he is sure that it will be worthy. He accesses www.abcdef.com, a furniture specialized e-commerce site that implements the Morpheos ID capability. He performs a query, looking for bedroom products, and then he clicks on the Morpheos icon that will authenticate him and load his complete profile. Thanks to a complex and customized algorithm, the site adapts and shows only the products that reflect his morphotype, personal preferences, and lifestyle. All products being shown reflects exactly his idea of his bedroom. He is truly sure that everything he sees and buys will result in an immediate hit, and that he will be able to enjoy for a long time. He selects all the desired products to complete his bedroom and makes payment. Then he just needs to wait for the goods to arrive home.

4.1.2. Involved Systems and Actors

End users (households)

They represent final consumers. The platform target audience are people with a taste for the decoration and interior design of their homes. There are the two main reasons for which users will want to connect to, and participate in the platform. Once connected through their universal ID, each user can have access to valuable information from furniture manufacturers and designers (product catalogues, classic pieces, new products being launched, etc.). The platform becomes an obligatory reference point when renewing or furnishing their homes. The running of the platform is based on customizing the suggestions and product query searches that each user does.

E-commerce furniture platform

Once users make login with their Morpheos ID’s, their contents are immediately oriented to the type of furniture products asked from the users. Information gathered will be classified in order to be processed and made use of. Platform management must allow analysing the information (data, text, comments, images, etc.). With all the information obtained, the system will be able to provide just the solution that fits their preferences.

Product designers for home furnishings, accessories, and interior decoration designers

The product designers working for furniture manufacturing companies are key to provide products to the platform, so users can find them. Designers will participate uploading projects and catalogues that will respond to ends users taste and lifestyle, addressing their searches from products, or customized project decorations that will satisfy end users request, and
searching for their clients profiles in order to offer them the best possible solutions according to their Morpheos ID.

4.1.3. Processes

- A1.1 Customer accesses e-commerce site
- A1.2 Customer enters query search to look for Bedrooms
- A1.3 Customer enters his unique Morpheos ID
- A1.4 System shows only Bedrooms according to his ID
- A1.5 Customer starts adding items to the shopping cart
- A1.6 Customer makes payment
- A1.7 Customer waits for goods to arrive
- A1.8 Customer is happy

Table 8: #A1 To be processes

- A1.1 Customer visits the e-commerce website and takes a quick look at the available functionalities.
- A1.2 Customer enters a query to search for bedrooms.
- A1.3 After an initial selection, customer filters by entering the unique Morpheos ID.
- A1.4 A system filter is performed based on unique morphotype and preferences of customer.
- A1.5 Customer peruses through filtered search picking up a desired configuration and adding it up to the shopping cart.
- A1.6 Customer finished the shopping cart and accesses the desired payment method.
- A1.7 Customer finishes the online transaction and simply waits for the product to arrive at its destination.
- A1.8 Happy customer means no returns, and possible return back to the site for more purchases.

4.1.4. Expected Benefits and Target parameters

<table>
<thead>
<tr>
<th>Expected benefits</th>
<th>Target parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of purchasing: less searching time, easy comparisons, secure payment, etc.</td>
<td>Instant product proposals according to consumer’s Morpheos ID.</td>
</tr>
<tr>
<td>Product customization: selection of possible choices according to lifestyle and preferences.</td>
<td>At least generation of 3 product choices.</td>
</tr>
<tr>
<td>Provider search: finding manufacturer or retailer for purchasing the selected product.</td>
<td>Radial map of closer providers according to consumer location. (Alternatively, a filtered list of providers ordered by expected delivery period).</td>
</tr>
</tbody>
</table>

Table 9: Expected benefits from the usage of Morpheos in #A1 To Be Use Case
<table>
<thead>
<tr>
<th>Related process number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1.1</td>
<td><strong>AS-IS PROBLEM:</strong> There is not value added in the CMS site offer. It is just “one more”&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> The CMS implements the Morpheos ID which adds the desired added value that differentiate it from others e-commerce sites.</td>
</tr>
<tr>
<td>A1.4</td>
<td><strong>AS-IS PROBLEM:</strong> Products can be frequently returned.&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> The unique Morpheos ID offers good guarantee that the customer will be satisfied, thus returns turnover should be reduced.</td>
</tr>
<tr>
<td>A1.5</td>
<td><strong>AS-IS PROBLEM:</strong> Customer is reluctant about purchasing something he may later return.&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> The unique Morpheos ID, offers a good level of “safety and trust” for the user, making him prone to make the purchase.</td>
</tr>
<tr>
<td>A1.3</td>
<td><strong>AS-IS PROBLEM:</strong> The customer doesn’t know exactly how the product fits to its body and taste. Personal information is focused on the house, but not in customer lifestyle&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> Having entered full profile under the Morpheos ID, customer will have a very clear idea the product bought will adapt to his body and taste.</td>
</tr>
<tr>
<td>A1.5</td>
<td><strong>AS-IS PROBLEM:</strong> Difficult matching between consumer lifestyle/preferences and ideas inspiration for furnishing.&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> The matching is now more accurate since unique ID contains all data from user, thus making the job of the designers easier when adapting goods to them.</td>
</tr>
<tr>
<td>A1.3</td>
<td><strong>AS-IS PROBLEM:</strong> The products are totally mainstream without any customization&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> Not any more, with the ID that reflects morphotype and lifestyle preferences of users</td>
</tr>
<tr>
<td>A1.4</td>
<td><strong>AS-IS PROBLEM:</strong> Product configuration is too general, so customer must check and discard too many products that don’t fit her/his preferences&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> Not any more, with the ID that reflects morphotype and lifestyle preferences of users</td>
</tr>
<tr>
<td>A1.5</td>
<td><strong>AS-IS PROBLEM:</strong> Customer wastes time in searching non-filtered product suggestions&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> With Morpheos ID information unnecessary searches are avoided.</td>
</tr>
<tr>
<td>A1.6</td>
<td><strong>AS-IS PROBLEM:</strong> Customer needs to talk to somebody about preferences and customization necessities, so online channel is abandoned&lt;br&gt;&lt;br&gt;<strong>SOLUTION:</strong> Morpheos ID must include lifestyle and subjective preferences, so latent demands of customer are covered.</td>
</tr>
<tr>
<td>A2.8</td>
<td><strong>AS-IS PROBLEM:</strong> Customer abandons online channel as no one understands her/his preferences, which are highly subjective</td>
</tr>
</tbody>
</table>
### 4.2. Interior design Use Case #A2: During the e-commerce purchase, provide services to the user to support a new project decoration design based on the morphology, customer preferences and the specific interest of the users

#### 4.2.1. Story Telling

Jose is interested in changing his bedroom since all of its furniture was inherited from his family and besides being rather old, it is unsuitable for his size. He needs a bedroom according to his dimensions, characteristics of his place of residence, and personal preferences. He finds [www.abcdef.com](http://www.abcdef.com), a furniture specialized e-commerce site which supports the Morpheos ID. In order to propose his idea of how he wants his bedroom to be, he logs in with the unique ID under the section “we make your project tab”. Then, he just needs to click on the submit button and the web responds with a message that says “Thank you for your message. We’ll soon be contacting you”.

After some specific amount of time, he receives a set of fully customized decoration proposals of bedroom projects that adapt to his original idea of how he wanted the project to be. After careful perusal, he makes a decision and chooses one of the proposals. Then he just needs to pay for it and schedule the work that will make his idea of a bedroom come true.

#### 4.2.2. Involved Systems and Actors

**End users (households)**

They represent final consumers. The target audience are people with a taste for the decoration and interior design of their homes. Users log in via their unique Morpheos ID to get fully customized project decoration concepts.

**E-commerce furniture platform**

The online e-commerce sites where products are sorted into categories. The site implements the Morpheos ID making the full morphotype and lifestyle preference available to the designers to propose creative project decoration proposals. This will have their customers very satisfied when buying furniture online.

**Product designers for home furnishings, accessories, and interior decoration designers**

The product designers working for furniture manufacturing companies are an important part since they are the ones to propose their interior decoration projects based on users requests.
Designers’ use of the platform here consists in receiving the request from users and based on the unique Morpheos ID, elaborate and proposed their interior decoration projects to be accepted by the user. Under this business model, designers are fully aware of the full customer morphotype, and lifestyle preferences.

4.2.3. Processes

- A2.1 Customer visits the e-commerce website that implements the Morpheos ID.
- A2.2 Customer enters his unique ID.
- A2.3 Customer selects the "we make your project tab".
- A2.4 Customer just needs to hit the button "Send".
- A2.5 Customer waits for proposals to arrive.
- A2.6 Customer receives customized proposals and studies them carefully.
- A2.7 Customer selects one proposal.
- A2.8 Customer accesses the desired payment method and selects scheduling for work.
- A2.9 Happy customer means no returns, and possible return back to the site for more purchases.

4.2.4. Expected Benefits and Target parameters

<table>
<thead>
<tr>
<th>Expected benefits</th>
<th>Target parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of purchasing: less searching time, easy comparisons, secure payment, no need to enter any kind of personal information, etc.</td>
<td>Instant product proposals according to consumer’s Morpheos ID.</td>
</tr>
<tr>
<td>Project customization: selection of possible proposals according to lifestyle and preferences.</td>
<td>At least generation of 3 proposals based on customer’s ideas.</td>
</tr>
<tr>
<td>Provider search: finding manufacturer or retailer for purchasing the selected product.</td>
<td>Radial map of closer providers according to consumer location. (Alternatively, a filtered list of providers</td>
</tr>
</tbody>
</table>
Table 11: Expected benefits from the usage of Morpheos in #A2 To Be Use Case

More details have been provided in Table 10.

4.3. Interior design Use Case #A3: During the e-commerce purchase, provide services to the user to support a new product design based on the morphology, customer preferences and the specific interest of the users

4.3.1. Story Telling

Jose is interested in purchasing a special office chair that can support his non-stop long daily hours of working at the computer. The chair he uses now, gives him a lot of back pain due to the long hours without getting up, plus its material is not suitable for his outdoor office which is located in the countryside. He is looking for a very specific design with a durable material for outdoor use, yet extremely comfortable and that can massage his lower back while he works.

He finds www.abcdef.com, a furniture specialized e-commerce site which supports the Morpheos ID. In order to propose his idea of how he wants his chair to be, he logs in with the unique Morpheos ID under the section “design your product tab”. Then, he just needs to click on the submit button and the web responds with a message that says “Thank you for your message. We’ll soon be contacting you”.

After a while, he receives a set of fully customized product proposals that adapt to his original idea of how he wanted the chair to be. After careful perusal, he makes a decision and chooses one of them. Then he just needs to pay for it and schedule delivery to start enjoying his new chair. Long working hours will never be the same.

4.3.2. Involved Systems and Actors

- **End users (households).**

They represent final consumers. The target audience are people with a taste for the decoration and interior design of their homes. Users log in via their unique Morpheos ID to get fully customized product concepts.

- **E-commerce furniture platform.**

The online e-commerce sites where products are sorted into categories. The site implements the Morpheos ID making the full morphotype and lifestyle preferences available to the designers to propose creative product decoration proposals. This will have their customers very satisfied when buying furniture online.

- **Product designers for home furnishings.**

The product designers working for furniture manufacturing companies are an important part since they are the ones to propose their projects based on users’ requests.

Designers’ use of the platform here consists in receiving the request from users and based on the unique Morpheos ID, elaborate and proposed their product projects to be accepted by the user. Under this business model, designers are fully aware of the full customer morphotype, and lifestyle preferences.
4.3.3. Processes

- A3.1 Customer visits the e-commerce website that implements the Morpheos ID.
- A3.2 Customer enters his unique ID.
- A3.3 Customer selects the tab "design your project".
- A3.4 Customer just needs to hit the button "Send".
- A3.5 Customer waits for proposals to arrive.
- A3.6 Customer receives customized product proposals and studies them carefully.
- A3.7 Out of the several product proposals received, customer selects the best fit.
- A3.8 Customer accesses the desired payment method and selects scheduling for home delivery of his chair.
- A3.9 Happy customer means no returns, and possible return back to the site for more purchases.

4.3.4. Expected Benefits and Target parameters

<table>
<thead>
<tr>
<th>Expected benefits</th>
<th>Target parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of purchasing: less searching time, easy comparisons, secure payment, no need to enter any kind of personal information, etc.</td>
<td>Instant product proposals according to consumer’s Morpheos ID.</td>
</tr>
<tr>
<td>Project customization: selection of possible proposals according to lifestyle and preferences.</td>
<td>At least generation of 3 product proposals based on customer’s ideas.</td>
</tr>
<tr>
<td>Provider search: finding manufacturer or retailer for purchasing the selected product.</td>
<td>Radial map of closer providers according to consumer location. (Alternatively, a filtered list of providers ordered by expected delivery period).</td>
</tr>
</tbody>
</table>

Table 12: Expected benefits from the usage of Morpheos in #A3 To Be Use Case
More details have been provided in Table 10.

4.4. Clothing Use Case #P1: Support the size suggestion during the e-commerce purchase

4.4.1. Story Telling

Clothing size suggestion module\(^{17}\) will be designed to be certified for purchase by Prestashop (and in the future by major CMSs) marketplace: to obtain this certification it will be plug & play. Fully integrated and stable. The certification process is carried out by Prestashop inspectors and is mandatory of public availability of the module.

The module is divided into 3 processes: user profiling collecting user data and his measures (by direct input or by the mobile app), product profiling back end to collect clothing measures and, finally, matching platform supported by its dedicated algorithm.

When the module will be installed in Piacenza website each customer, having completed the process of profiling and provided (or collected by mobile app) his measures, will be able to login in with his ISizeYou username. If he will use, or will have opened, Facebook or Amazon Payment or Paypal or by the module username (Morpheos for test or iSizeYou in the public commercial version) itself in the same session, he will be automatically recognized in Piacenza website by the cookies, whose application is described in D8.1 regarding privacy protection. He will be also recognised by all other websites using ISizeYou module.

This process is very user friendly, since it is very likely that especially Facebook or Amazon have been opened in the same session or recently.

When recognised, the consumer will receive his specific size suggestion per each model, with a fully personalised interaction with the sales website. He will be also not required to input credentials, since e-commerce website will recognize him by ISizeYou login or by Facebook or Amazon credentials. No passage of information is carried out from the module Morpheos/ISizeYou to ecommerce, since this last one recognizes the user name of the consumer by Facebook or Amazon cookies. If the customer uses this last one he will not be required to input also payment data, which is provided by his Amazon Payment profile.

The process has 3 variants: ISizeYou username login, Facebook (or other social network) login, Amazon Payments (or PayPal or other payment platform) login.

4.4.2. Involved Systems and Actors

- Consumer/customer
- ISizeYou platform
- Facebook (or other social network)
- Amazon Payments (or other social payment platform)
- Back office
- Logistics

\(^{17}\) commercially identified as ISizeYou
4.4.3. Processes

**Morpheos login (iYou in the commercial version)**

- **A1.1**: Customer visits the website and selects the garment
- **A1.2**: Customer checks size availability, logs in iSizeYou link and receives size suggestion
- **A1.3**: Customer logs in (or register himself at first access)
- **A1.4**: Customer carries out payment process, providing his payment credentials
- **A1.5**: Back office validates the order and sends order confirmation
- **A1.6**: Logistics prepare the piece and ships it
- **A1.7**: Customer receives the garment and tries it on
- **A1.8A**: Customer keeps the garment

**Figure 23: #P1 To Be Processes**

**Description (in green TOBE actions)**

- **A1.1**: Consumer visits Piacenza website and selects the clothing item which he prefers from the available product
- **A1.2**: Consumer selects the size of the product, if available, and puts in the shopping cart → Consumer is required to login at the module link and receives automatic size suggestion, shown in green. If he clicks “add to cart” button the correct size is directly poured into his shopping cart.
- **A1.3**: Consumer logs in (or register himself at first purchase) and enters his data and address for delivery → Not required anymore
- **A1.4**: Consumer chooses payment method (credit card, Amazon Payment, Paypal, debit card, bank transfer, etc...) and authorizes the payment
- **A1.5**: Back office validates the order, contextually when payment is immediately approved by a third party (credit card, Amazon Payment, Paypal, debit card) or when the price is cashed in case of bank transfer
- **A1.6**: Logistics prepares the order, its related documents of transport, and ships it by forwarder
- **A1.7**: The customer receives the order, tries it on and decides if the size fits or not
4.4.4. Expected Benefits and Target parameters

Solution in TO BE scenario (in green) vs AS IS problems

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
</table>
| #A4.1  | **PROBLEM:** The navigation is standard but it is necessary to select the item to check which sizes are available  
**SOLUTION:** it is under investigation if to show only the items where consumer size is available. To provide this function it is necessary a previous login at iSizeYou.com. It will depend only on each ecommerce commercial policy. |
| #A4.2  | **PROBLEM:** The conversion table between Italian sizes and UK, France, Germany and US system is available, as well as the measures of the model. Nevertheless about 78% of the purchase processes are abandoned at the moment of size choice.  
**SOLUTION:** Consumer is required to login at iSizeYou link and receives automatic size suggestion, shown in green. If he pushes “add to cart” button the correct size is directly poured into his shopping cart. In the same navigation session, the size is automatically shown in green and selected for the customer in all website using iSizeYou platform and not further authentication is required. |

Table 13: Expected benefits for #P1 To Be Use Case

**Target Parameters**

KPI A4.1-1: decreased return rate due to size mismatching  
KPI A4.1-2: increased conversion rate at size selection

4.5. Clothing Use Case #P2: new clothing collection design and production support

4.5.1. Story Telling

Morpheos is expected to satisfying the following needs of clothing design offices, actually not finding a proper answer (as described in AS IS par. 3.2):

A. to measure the matching between clothing fitting and consumer body shapes (at aggregated level or per single consumer)  
B. to provide precise indications regarding future collection measure definition in relation with the real morphology of customers  
C. to simulate the level of matching of new products and new markets.

The information collected by Morpheos (iSizeYou in its public commercial version) are required to address these specific needs of clothing market and to lead to the increase of the rate of success between new design fitting and its target market or group of consumers or, eventually, even single user for fully tailored production

4.5.2. Involved Systems and Actors

- Clothing Stylist
4.5.3. Processes

Description (in green TOBE actions)

- A2.1: Clothing stylist analyses the previous season performances to select the design which are to be represented and the ones which must be substituted by new proposals.
- A2.2: Marketing provides the target price limits in line with brand target consumer/market/image/distribution positioning
- A2.3: The structure of new season collection is defined in terms of number of items, new or represented designs, materials, colours.
- A2.4: Clothing stylist proceeds to design the new collection and launches the production of 1 piece per design item, in 1 size and colour. The process is repeated until (up to 3 or 4 times) until the prototype reflects the expected style.


- A2.5: Approved designs are selected or discarded for the new collection by stylist and marketing (very often also by general management and retail), including material and colours.
- A2.6: Clothing modellist defines the size development in the local sizing system (IT, FR, UK, US, etc...) and the specific measures per each item and size. The measures of different items may obviously vary in relation with each item style as well as with its expected fitting (slim, over, regular). A2.7: Retail buyers (direct or multibrand) select item, colour, size and number of pieces in each size and place orders for production
- A2.8: Production is manufactured and delivered to shops
- A2.9: Retail sales season takes place and unsold goods are cleared at the end of the season
- A2.10: Retail management and administration analyses the performances of the sale season and provide feedbacks for the incoming ones as regards items/materials/colours most successful (to be represented). They also provide retail buyer with most the sales per each size to support next season order placement
- A2.10B: by Morpheos platform aggregated data, collected by the web and by other websites exploiting the platform18, i-Deal is able to provide morphology indications regarding new targeted customers, and related customer needs
- A2.11: fitting needs, on the basis of actual (A2.10) and new (A2.11) targeted customer morphology are defined and provided to interested subjects: stylist (A2.1-A2.5), modellists (A2.6), buyers (A2.7), sale assistants (A2.9) and managers

### 4.5.4. Expected Benefits and Target parameters

Solution in TO BE scenario (in green) vs AS IS problems

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
</table>
| #1: A2.1-2.2-2.3 | **PROBLEM:** The feedback coming from the previous season is not able to consider specifically the fitting, i.e. if the success or failure of designs is related to mismatching with consumer body morphology. On the second hand it is not possible to simulate the matching of new style proposals and consumer body shape (aggregated) of target markets.  
**SOLUTION:** Style receives precise indications from i-Deal about present (A2.10+A2.11) and new (A2.10B + A2.11) targeted consumer morphology and related fitting needs and evaluation of matching between new design proposal and targeted consumers |
| #2: A2.4-2.5 | **PROBLEM:** Prototyping selection and approval process does not consider fitting indications from actual or new target consumer body morphology.  
**SOLUTION:** New design approval (A2.5) consider also the fitting requirements of present and new targeted consumers. |
| #3: A2.6 | **PROBLEM:** Modellist is not provided with the fitting information required to select the proper size development, i.e. the range of offered sizes (for ex from XXS to XXXL) |

---

18 Morpheos and IsizeYou in the public commercial version
| #4: A2.6 | **PROBLEM:** Modellist is not provided with precise measure suggestion per each size in order to cope with specific target consumer body shapes.  
**SOLUTION:** Modellist receives precise indications from i-Deal for measure definition (A2.6) per each size on the basis of present (A2.10 + A2.11) and new targeted (A2.10B + A2.11) consumer morphology and related fitting needs and evaluation of matching between new design proposal and targeted consumers. |
|---|---|
| #5: A2.7 | **PROBLEM:** Buyers are only provided with the sale performance of previous season, therefore are not able to place orders taking into proper consideration:  
- the specific measures of the new styles (which might be different even in case of repeated items) in relation of present consumers  
- the specific measures of the new styles (which might be different even in case of repeated items) in relation of new target markets  
**SOLUTION:** buyers are provided with precise size selection for order placement coping with present consumers and new targeted ones |
| #6: A2.9 | **PROBLEM:** Sale performance are affected by potential mismatching of new collection measures and consumer ones. Shop assistants might be not able to provide correct indications to consumers, especially in case of high rotation of style proposal. It is not possible to provide personalised service regarding fitting.  
**SOLUTION:** Sale assistants are provided with correct training regarding new design measures in relation with user body morphology. A dedicated mobile device size suggestion software for sale support on the basis of the platform is under investigation |
| #7: A2.10 | **PROBLEM:** Retail management is not able to quantify fitting performance in terms of matching between consumer morphology needs and offered goods. This lack of information affects feedback reliability, since style/material/colour performance might be affected by the fitting of the clothing designs where they are used  
**SOLUTION:** on the basis of the specific measures collected by the mobile app developed in Morpheos and elaborated by i-Deal it will be possible to evaluate the level of matching between product fitting and consumer morphology at the end of the sale season and to separate performance feedback regarding fitting from the ones related with style, colour and material.
Table 14: Expected benefits for #P2 To Be Use Case

**Target Parameters**

KPI A4.2-1: Increased conversion rate of new design proposal due to fitting matching  
KPI A4.2-2: Increased level of matching between size measures and consumer morphology  
KPI A4.2-3: Decreased number of abandoned purchase processes due to unavailable size  
KPI A4.2-4: Decreased level of unsold inventory at the end of the sale season

4.6 Clothing use Case #P3: increased conversion rate of selling campaigns

4.6.1. Story Telling

The information collected by Morpheos not only will suggest the size matching with consumer morphology but will also support the correct matching between communication messages and targeted consumer morphology. No more useless ads will be sent as regards clothing not fitting for the user body or frustrating sensation when opening websites where the right size is not available. The information collected by Morpheos will support the address communication messages only to those consumers who effectively be interested in products, since they are available in their size. It will also support and extremely personalised content definition on the basis of each consumer morphology.

4.6.2. Involved Systems and Actors

- Marketing and communication manager  
- Advertising agency for content definition (if not internal)  
- Consumers  
- E-commerce manager
4.6.3. Processes

**Figure 25: #P3 To Be Processes**

Description (in green TOBE actions)

- A3.1: advertising campaign is scheduled on the basis of the plan and the dedicated budget
- A3.2: the mailing list is defined from the available list of consumers of who have accepted to receive advertising. The selection of receivers is carried out on the basis of basic information like gender, age, residence. Additional selection parameters regarding consumer preferences and requirements are used if explicitly communicated by consumers and if the campaign is targeted on their basis
- A3.3: the measures and related sizes of the list of targeted consumer is checked
- A3.4: target consumers and inventory sizes are matched
- A3.5: consumers whose morphology is not satisfied by available sizes are excluded from the mailing list
- A3.6 dedicated messages and contents (for ex. pictures and colours) are defined per each available size
- A3.7: the mailing campaign is launched → a dedicated message regarding the product matching his size is sent to each consumer
- A3.8A: interested consumers click and read the advertising e-mail
- A3.8B: not interested consumers cancel the advertising e-mail
- A3.9: interested consumers visit the website and eventually purchase the goods

Solution in TO BE scenario (in green) vs AS IS problems
#1A3.1 PROBLEM: The conversion rate of clothing advertising e-mailings is not satisfying and below 1.5% average of other sectors. E-mailings campaigns are targeted only by to basic consumer information like gender, age, place of residence.

SOLUTION: available information regarding consumers will consider also their body morphology. Targeting will be more accurate and conversion rate is expected to be increased.

#2A3.2 PROBLEM: The available information to select consumers who can be effectively interested to the product are too generic, therefore mailing might appear useless and unsolicited to many recipients.

SOLUTION: consumers are selected on the basis of the sizes which are effectively matching with their morphology. Interested consumers will effectively find goods in their size. The number of advertising emails will be reduced and focussed, useless and unsolicited ones will be avoided.

#3A3.3 PROBLEM: The available information are too generic to support personalised contents on the basis of effective consumer needs.

SOLUTION: mailing contents will be personalised per each consumer morphology, fitting and size. Contents will be coherent with the specific and personalised needs of each consumer morphology.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1A3.1</td>
<td>PROBLEM: The conversion rate of clothing advertising e-mailings is not satisfying and below 1.5% average of other sectors. E-mailings campaigns are targeted only by to basic consumer information like gender, age, place of residence. SOLUTION: available information regarding consumers will consider also their body morphology. Targeting will be more accurate and conversion rate is expected to be increased.</td>
</tr>
<tr>
<td>#2A3.2</td>
<td>PROBLEM: The available information to select consumers who can be effectively interested to the product are too generic, therefore mailing might appear useless and unsolicited to many recipients. SOLUTION: consumers are selected on the basis of the sizes which are effectively matching with their morphology. Interested consumers will effectively find goods in their size. The number of advertising emails will be reduced and focussed, useless and unsolicited ones will be avoided.</td>
</tr>
<tr>
<td>#3A3.3</td>
<td>PROBLEM: The available information are too generic to support personalised contents on the basis of effective consumer needs. SOLUTION: mailing contents will be personalised per each consumer morphology, fitting and size. Contents will be coherent with the specific and personalised needs of each consumer morphology.</td>
</tr>
</tbody>
</table>

Table 15: Expected benefits for #P3 To Be Use Case

**Target Parameters**

KPI 3.4-1 Increased percentage of advertising mail messages opened by consumers

KPI 3.4-2 Increased conversion rate of communication and advertising mailings

4.7. Clothing Use Case #P4: enhanced and fully personalized user experience, both on desktop and mobile

4.7.1. Story Telling

If he will use, or will have opened, Facebook or Amazon Payment or Paypal or the platform itself in the same session, he will be automatically recognized in Piacenza website by the cookies, whose application is described in D8.1 regarding privacy protection. He will be also recognised by all other websites using ISizeYou module.

This process is very user friendly, since it is very likely that especially Facebook or Amazon have been opened in the same session or recently.

When recognised, the consumer will receive his specific size suggestion per each model, with a fully personalised interaction with the sales website. He will be also not required to input credentials, since e-commerce website will recognize him by ISizeYou login or by Facebook or Amazon credentials. No passage of information is carried out from the platform to ecommerce, since this last one recognizes the user name of the consumer by Facebook or
Amazon cookies. If the customer uses this last one he will not be required to input also payment data, which is provided by his Amazon Payment profile.

The process has 2 variants: social network login or payment platform login.

### 4.7.2. Involved Systems and Actors

- Consumer/customer
- The platform (Morpheos – ISizeYou in the commercial version)
- Facebook (or other social network)
- Amazon Payments (or other social payment platform)
- Back office
- Logistics

### 4.7.3. Processes

#### Social Network login

A4.1: Customer visit the website, is recognized, selects the garment and receives size suggestion

A4.2: Customer checks size availability, logs in iSizeYou link and receives size suggestion

A4.3: Customer (or register himslef at first access)

A4.4: Customer carries out payment process, providing his payment credentials

A4.5: Back office validates the order and send payment confirmation

A4.6: Logistics prepare the piece and ships it

A4.7: Customer receives the garment and tries it on

A4.8: Customer keeps the garment

---

**Figure 26: #P4 To Be Processes – Social Network**

Description *(in green TOBE actions)*

- A4.1: Consumer visits Piacenza website and selects the clothing item which he prefers from the available product
- A4.2: Consumer selects the size of the product, if available, and puts in the shopping cart → If the consumer has its social network username to login into Morpheos/iSizeYou and the social network has been opened in the same session (or recently) he is automatically recognised without login and receives automatic size suggestion, shown in green. No login is required any more for all websites using
ISizeYou in the same session. If the consumer clicks “add to cart” button the correct size is directly poured into his shopping cart.

- A4.3: Consumer logs in (or register himself at first purchase) and enters his data and address for delivery → Not required anymore
- A4.4: Consumer chooses payment method (credit card, Amazon Payment, Paypal, debit card, bank transfer, etc...) and authorizes the payment
- A4.5: Back office validates the order, contextually when payment is immediately approved by a third party (credit card, Amazon Payment, Paypal, debit card) or when the price is cashed in case of bank transfer

Solution in TO BE scenario (in green) vs AS IS problems

<table>
<thead>
<tr>
<th>#A4.3</th>
<th>PROBLEM: It is necessary to register, to provide personal information and log in Piacenza website with specific credentials.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SOLUTION: consumer receives size suggestion and a personalises user experience in relation with his specific morphology. It will be investigated it to offer also the possibility to hide the items where fitting size is not available. Consumers will not have to login anymore at ecommerce websites using Morpheos/ISizeYou since their social network user credentials will be used also for this purpose. This function is particularly interesting for mobile purchases, since it is very hard to input registration data from the small keyboard of mobile devices.</td>
</tr>
</tbody>
</table>
**Payment Platform login**

- **A4.1:** Customer visits the website, is recognized, selects the garment and receives size suggestion.
- **A4.2:** Customer checks size availability, logs in iSizeYou and receives size suggestion.
- **A4.3:** Customer logs in (or registers himself at first access).
- **A4.4:** Customer clicks on payment button, carries out payment process, providing his payment credentials.
- **A4.5:** Back office validates the order and sends payment confirmation.
- **A4.6:** Logistics prepares the piece and ships it.
- **A4.7:** Customer receives the garment and tries it on.
- **A4.8A:** Customer keeps the garment.

---

**Description (in green TOBE actions)**

- **A4.1:** Consumer visits Piacenza website and selects the clothing item which he prefers from the available product.
- **A4.2:** Consumer selects the size of the product, if available, and puts it in the shopping cart ➔ If the consumer has its payment platform (for example, Amazon Payment or PayPal) username to login into Morpheos/iSizeYou and the payment platform has been opened in the same session (or recently, and cookies have not been cancelled) he is automatically recognised without login and receives automatic size suggestion, shown in green. No login is required any more for all websites using ISizeYou in the same session. If the consumer clicks “add to cart” button the correct size is directly poured into his shopping cart.
- **A4.3:** Consumer logs in (or register himself at first purchase) and enters his data and address for delivery ➔ Not required anymore.
- **A4.4:** Consumer chooses payment method (credit card, Amazon Payment, PayPal, debit card, bank transfer, etc...) and authorizes the payment ➔ Not required anymore, since the simple click on payment button confirmation (for example, Amazon Payments) carries out the whole payment process.
- **A4.5:** Back office validates the order, contextually when payment is immediately approved by a third party (credit card, Amazon Payment, PayPal, debit card) or when the price is cashed in case of bank transfer ➔ Not required anymore, since the payment has already been finalised.
Solution in TO BE scenario (in green) vs AS IS problems

| #A4.4 | PROBLEM: The basic registration process is standard and does not save payment data (credit card number, expiry data, card holder). Average rate of cart lost in the payment phase is actually 46%. SOLUTION: Consumers will not have to input their payment data anymore, following Amazon “one click” user experience. This function is particularly interesting for mobile purchases, since it is very hard to input payment data from the small keyboard of mobile devices. The fully personalised user experience is implemented, covering size suggestion, automatic login and “one click” payment. |

Target Parameters

KPI A4.4-1: decreased percentage of cart lost at registration from desktop
KPI A4.4-2: decreased percentage of cart lost at registration from mobile
KPI A4.4-3: decreased percentage of cart lost at payment from desktop
KPI A4.4-4: decreased percentage of cart lost at payment from mobile

4.8. Clothing TO BE use case conclusions

The main factors which increase the satisfaction of consumers in purchasing process, and the related conversion rate, are the simplicity of the purchasing process, the convenience feeling, the assistance during the purchasing process, the perceived feeling of right choice, the customer relationship and the speed of purchasing.

Excluding the second one, which is directly related with the commercial and marketing strategy of the selling enterprise, Morpheos 4 uses cases will address all the other parameters affecting ecommerce purchasing process, providing a fully personalised user experience to consumers and reducing useless and frustrating communication messages and contents:
• **#P1**: e-commerce support service by correct size suggestion to users, is expected to impact on all the parameters, the second excluded, affecting consumer purchasing process satisfaction in clothing

• **#P2**: new clothing collection design and production support is expected to increase the satisfaction of consumer as regards offered design, i.e. the feeling to have made the right choice for their need

• **#P3**: increased conversion rate of selling campaigns will support the simplicity of purchasing process by communication advices promoting only those good with the right size as well as the feeing to have made the right choice in relation with consumer specific morphology. Finally, it will also provide a feeling of personalized customer relationship with consumers

• **#P4**: enhanced and fully personalized user experience, both on desktop and mobile will directly and significantly enhance the simplicity of purchasing process as well as its speed.
5. System Requirements

This chapter presents the requirements elaborated during the first three months of the project. They will be used to support the development and the implementation of the Morpheos system. Based on the identified requirements the team will define the proper system architecture, presenting different modules and interaction among them, as well as features to be addressed for each of the part of the system. The requirements presented in this document are a preliminary version of the final system requirements that will be delivered at month 9 in D1.4: Business case presentation & full set of requirements, version 2.

5.1. Business Requirements

5.1.1. Stakeholder needs

Provided the requirements of the end users it will be necessary to design an IT development strategy which can properly address them as well as to grant an effective commercialisation activity. This last one must address the needs of 4 main groups of stakeholders.

Each one must find a proper response to its needs and all of them must be satisfied at the same time.

Consumers. On the basis of a Nielsen worldwide survey carried out between 27,000 consumers in 52 countries at the question “Will consumers pay for online news and entertainment they now get for free?” 85% has answered that free online content will remain free. Nearly eight out of every ten (79%) would no longer use a website that charges them, presuming they can find the same information at no cost. The service offers an answer to the need of consumers to be suggested the right size to buy on-line and to improve their trust in on-line channel for their clothing purchases but it is extremely unlikely that they will be willing to pay for it. On the other hand, the quick growth of consumer morphotype DB dimension is a key element to start the self-refining positive loop of size suggestion. Because of this reason the service will remain free for consumers. Always in a user friendly philosophy the

integration with major social platforms will be supported, in order to avoid multiple registrations and to push data standardisation and interoperability. The quality of on-line service to consumers will be considered a key element to attract and to retain consumers but no income has been considered in the business plan from them.

**Vendors and web agencies.** Since on-line sales generally accepted policy, also supported by major local regulations, is “free return”, the related costs (logistics, administrative and financial) are sustained by vendors, which may be industries on their own or specialized operators, to which ISizeYou service will be charged. The first approach of i-Deal team has been focused to clothing industries and brand owners even in the fashion sector and in the technical sport one. The surprising outcome of this activity has been an immediate interest, flowed by an inexplicable resistance to its adoption. This attitude appeared illogical and the question: “**who is really managing clothing e-commerce?**” required an answer. This resistance is due to web agencies, to which the development of e-commerce platform is delegates, which are not willing to accept a third party application which is not developed or commercialised by their own. To jointly address the needs of vendors and web agencies it has been decided that the platform will be integrated with the major CMSs\(^{20}\) on the market, which are also the ones used by web agencies, and that these last ones will be approached to distribute the service as an additional function of the ecommerces which they develop for vendors. By this approach, a potential resistance is transformed into a source of introduction.

**Creative industries:** Morpheos concept, in a wide vision, is based on the matching of consumer physical body shape and a physical piece. Therefore, beyond clothing and interior sectors addressed in the project, the platform will be designed to be open to support also **3rd parties solutions and apps in other sectors**\(^{21}\), since its concept can be exploited in a wide range of applications, usually where **EU is leader.** For example it can support apps dedicated to the interaction between on-line and physical world (for ex. webrooming\(^{22}\) and shoprooming to integrate ecommerce and traditional retail), with additional personalised functions (for ex a personal virtual wardrobe) but also in security (protection apparel for workers or sports), personalised interior design, automotive, civil engineering and, in general, where a physical interaction between a consumer body and a physical piece (clothing, seats, workplaces, etc...) requires best matching of body end piece side, or deep personalisation. On the basis of the specific IT provider sector structure in EU, fragmented and characterized by many small SMEs, this ISizeYou approach will facilitate the development of new ideas, the creation of a **community of developers**, the enforcement of the project **social positive effect** by the setup of an **open ecosystem** supporting for **new web entrepreneurs**.

### 5.1.2. Information flow and related solutions

To address these specific stakeholder needs i-Deal will implement the following software architecture and information flows. The process of size matching (Fig.7) has been designed to sustain **ISizeYou integrated approach** and consists of 3 groups of phases (A,B and C):

---

\(^{20}\) For ex.Prestashop, Wcommerce, Magento, etc...

\(^{21}\) Described in expansion phase at par.1.4.2.1

\(^{22}\) In 2014 more than 50% of fashion purchases have been preceded by online search – Accenture rep.03/2015
1-Customer profiling consists in the collection of consumer measures and anagraphic data \( (A1) \). If the consumer is already registered in a social network (Facebook, Twitter, etc...) or web service account (Gmail, Yahoo) he can register into ISizeYou service by their IDs. Measure data collection will be performed by mobile app\(^{23}\), exploiting native integration with mobile technology\(^{24}\). The process combines measures collected by the camera with 2 information available to consumers (height and weight), and finally processing them with comparison with the most likely morphotype. This methodology, developed on the basis of H2020 Somatch project\(^{25}\), grants user friendly rapid consumer profiling, estimated between 1,5 and 2 minutes, and high data reliability by cross checked measure control by 3 sources (optic, physic, statistic).

Each consumer is assigned a Unique ID code in ISizeYou DB \((A2)\). During future navigations consumer profile will be recognized if using the same device or required to provide its ISizeYou ID\(^{26}\) (usually the social network one), only at session start when changing device or internet temporary files are removed. The platform will be ready to support 3rd parties dedicate apps\(^{27}\), which will be developed to enrich ISizeYou with additional functions (like virtual wardrobe, to increase consumer involvement and fidelity in the long run) and with new applications for sectors different from clothing, exploiting the potential of matching function (interior design, automotive, etc...)\(^ {28}\). ISizeYou Addon to CMSs will take track of the purchases of the customer and of the feedback to refine size suggestion by consumer preferences, providing fully personalized service.

\(^{23}\) If mobile is not available a B solution is based on the request of 4 basic measures, which the customer can self collect. On their basis and by an extrapolation by morphotype statistical indications a fifth one will be requested to verify the correspondence of consumer measure with the model of reference of his morphotype suggested by algorithm probability function.

\(^{24}\) A request of update of this process will be periodically requested to update body shape evolution. The reliability of data collection will be further refined by the purchase feedback.

\(^{25}\) H2020 Somatch project, into which i-Deal and Holonix are participating, is focussed on web image analysis for fashion.

\(^{26}\) This ID is independent from the one used on vendor websites, who remain proprietary of consumer information (credit card number, address where to ship, etc...) and are not required to communicate them to ISizeYou

\(^{27}\) IOS, Android and Windows Mobile

\(^{28}\) Par. 2.1.1.4
**2-Product profiling** process relies on the collection of the linear measures (B1) of the product. It is needed a set of 8 basic measures\(^{29}\), specific for upper and lower part of the body, per each product size. In the 1st period of ISizeYou algorithm set up a physical test of one piece per each style are be performed to integrate clothing measures with material characteristics (elasticity, extensibility and resistance). This process is necessary to refine the answer provided by size matching algorithm taking into consideration the real physical construction of the product. Vendor operators are be provided of a dedicated webpage where to input product measures\(^{30}\). ISizeYou model creator will assign (B2) each product GS1/EAN code per size by an internal code, which will be stored into a dedicated repository ready for matching definition. When clothing will propose for on-line sale, by producer own e-commerce or by a specialized 3rd party one, inventory will be requested to be integrated with EAN codes (B3). This standard is already adopted by all market leaders\(^{31}\) and it is a standard of logistic providers.

**3-Size indication** is the only real time process: when consumers will select the model and colour in the clothing sale website, he will be invited to user the service and provide the ISizeYou profile. If he still has no profile, he will be redirected to the measure collection page. If already registered, he will be requested his username (advisable if one of a social network) or the e-mail by which he has registered into ISizeYou. When the ISizeYou consumer code is available (C1) all the information necessary for size indication are ready: a query for the EAN codes (one per size) of the requested product (C2) is sent to ISizeYou system, which will proceed to the right size definition. The 1st step will be the selection of product internal codes (C3-C4) associated with EAN codes. With the internal product and customer, ISizeYou algorithm will proceed (C5) to verify the matching of measures in the morphotype multidimensional space, taking into account the clothing category, material and consumer preferences. The best size indication will be translated into the selection of the related specific EAN code associated to that size of that product, which is returned to the ecommerce portal (C6) and finally to consumer (C7). These last 2 passages can be alternatively performed in the form of pop up with size indication (ISizeYou branded or anonymous, on vendor request).

**5.1.3. Strategy**

The specific object of ISizeYou, i.e. the matching of human body shape with a physical piece, open wide expansion potentials. Its architecture, ready to 3nd parties’ additional applications, its peculiar native development for mobile and for social and its deep consumer personalisation have been designed to exploit this possibility, with the following timing:

**SHORT TERM (1-3 years).** Expansion from traditional clothing and interior design to wellbeing and healthcare, car sharing and automotive in general. These sectors are characterised by problems very close to the ones addressed in Morpheos, and **products are provided** very often as a service in the 1st 2 ones, with an higher turnover and shorter lifecycle of the product due to wearing in comparison with fashion market.

**MEDIUM TERM (3–5 years).** The creation of ISizeYou Big Data DB, including morphotypes, product measures, and consumer preferences can be a precious source of information to support industries in their product development process. Despite the very short commercial lifecycle (6 months), the length of each season design and preparation activities is 18-20

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\(^{29}\) Upper body: height, waist, belly, hips, shoulder length, arm length, upper arm width, collar width. Lower body: height, waist, belly, hips, belt, inside leg length, crotch, upper leg width

\(^{30}\) An automated solution for measures acquisitions through sensors and/or scanners is under evaluation

\(^{31}\) Vente Privee, Amazon-BuyVip, Privalia, Yoox
months\textsuperscript{32}. The incidence of design and product development states an average value between 6 and 7\% of its global turnover\textsuperscript{33}, the rate of survival between new fabric design proposal, in terms of item and colours, and the ones effectively chosen by retail is less than 5\%. ISizeYou will put in evidence the potential and unsatisfied demand: on the basis of size matching requests, and fitting product requirements, expanding in the sector of clothing modelling consultancy. It can be also imagined the extension of the “clothing as a service” model to luxury\textsuperscript{34} and business travel, where basic clothing (shirts, underwear, sport) can be provided in the different locations where people will travel, in relation with their preferences and expected use.

**LONG TERM (>5 years).** The contemporary presence of consumer morphotype integrated DB and the measures of different goods are key technical enablers to create an efficient on line goods search and selection engine\textsuperscript{35}, which can support customer choices even in on line sales and in traditional retail, exploiting the fast growing synergy between these 2 channels\textsuperscript{36}. For example the expected service will be able to provide a customer the possibility to search its most fitting clothing piece on his mobile and go the nearest shop to buy it, certain to find its right size, and can be integrated into TV advertising provided by smart TV and set top boxes\textsuperscript{37}. If producers and distributors will add the 3rd necessary information regarding product available quantity, all the necessary information to create a clothing search engine will be possible.

### 5.2. Technical Requirements

#### 5.2.1. Methodology adopted

This subchapter introduces the methodology adopted to elaborate business and technical requirements for the overall Morpheos system. From the use cases presented in the previous chapters combined with the technical and RTD partners’ expertise as well as with the overall Project vision the team has elaborated some preliminary system requirements that will be evaluated and validated up to month 9. In order to model the identified requirements, it has been used the SysML diagrams.

SysML is a graphical modelling language in response to the UML for Systems Engineering RFP developed by the OMG, INCOSE, and AP233. It supports the specification, analysis, design, verification, and validation of systems that include hardware, software, data, personnel, procedures and facilities.

There are nine SysML diagrams represented in white rectangles in the figure below:

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\textsuperscript{32} Per 2 seasons: Fall/Winter and Spring/Summer

\textsuperscript{33} Hermes Lab: “La distribuzione della moda” – Marco Richetti 2009

\textsuperscript{34} For example Armani has already expanded its business in luxury travel from ore than 10 years

\textsuperscript{35} Business model of Booking.com or Expedia

\textsuperscript{36} In 2014 more than 50\% of fashion sales have been supported by a previous web research: Webrooming – Accenture March 2015

\textsuperscript{37} H2020 – ICT19 - 2015 TEASER proposal
The behaviour diagrams include the use case diagram, activity diagram, sequence diagram and state machine diagram. A use case diagram provides a high-level description of functionality that is achieved through interaction among systems or system parts. The activity diagram represents the flow of data and control between activities. A sequence diagram represents the interaction between collaborating parts of a system. The state machine diagram describes the state transitions and actions that a system or its parts perform in response to events.

The system structure is represented by block definition diagrams and internal block diagrams. A block definition diagram describes the system hierarchy and system/component classifications. The internal block diagram describes the internal structure of a system in terms of its parts, ports and connectors. The package diagram is used to organize the model. The parametric diagram represents constraints on system property values such as performance, reliability and mass properties, and serves as a means to integrate the specification and design models with engineering analysis models.

A SysML requirement diagram enables the visualization of any kind of requirements of a specific system, both functional and non-functional. Is it also possible to visualize the inter-relationships between requirements. By using SysML requirement diagram is it possible to have a complete set of system requirements that involve the business goal, the user stories that describe user problems/concerns and the requirements to address the problems.

---

38 OMG SysML 1.4 (OMG Document Number: ptc/2013-12-09)
The structure of the SysML Requirement Diagram element is composed by two parts: the requirement diagram and the association. In particular, the structure is composed by the following elements:

- **Requirements** (A requirement specifies a capability or condition that a system must satisfy. A requirement may specify a function that a system must perform or a performance condition that a system must fulfil)
  - **Label**: Usually <<requirement>>, but can be used to differentiate types of requirement (e.g. <<functionalRequirement>>)
  - **Name**: A concise, descriptive name for the requirement.
  - **ID**: An ID (for nested requirements, a suitable notation can be adopted)
  - **Text**: A longer text describing in detail the requirement

- **Associations**
  - **Containments**: Used to connect composite requirements
  - **Derivations**: Used to signify that a requirement is derived from another (e.g. a requirement derived from „The car shall go fast“ could be „The car shall have a strong engine“)

The requirements must be composed in the following diagrams:

![Requirement Diagram Example](image)

**Figure 30: An example of composite SysML requirement diagram**

Besides the graph, requirements can easily be transformed into a table for reports:

<table>
<thead>
<tr>
<th>5</th>
<th><strong>Composite</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The system shall do A and B</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td><strong>A</strong></td>
</tr>
</tbody>
</table>
The system shall do A

<table>
<thead>
<tr>
<th>5.2</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system shall do B</td>
<td></td>
</tr>
</tbody>
</table>

Table 16: SysML requirement diagram in table form

5.2.2. SysML Overall schema

The project Morpheos aims to provide an Open and Centralized Ecosystem based on Consumer Morphology to support creative industries in the improvement of already existing product or in the development of new and better products to satisfy consumers’ expectations. From the other side it could be also used to support consumers during the selection of the most suitable product that satisfy its wishes and needs. In order to achieve the technical objectives of the project, a functional decomposition using SysML modelling diagrams, has been defined. The results of the decomposition are presented in the figure below and detailed in the next subchapters.
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31st March, 2017

Figure 31: First version of the generic system requirements
5.2.3. General Requirements

This section lists the general requirements of the Morpheos system in a tabular form. Each requirement element from the requirement diagram is represented in a separate table. The format of the tables is as follows:

<table>
<thead>
<tr>
<th>&lt;requirement ID&gt;</th>
<th>&lt;requirement name&gt;</th>
<th>&lt;requirement description&gt;</th>
</tr>
</thead>
</table>

Table 17: Requirement table format

The requirement MORPHEOS_GEN0 is the most abstract requirement towards the Morpheos system and represents the overall goal of the project.

**MORPH_GEN_0**
Provide an Open and Centralized Ecosystem based on Consumer Morphology

The MORPHEOS system shall provide an Open and Centralized Ecosystem based on Consumer Morphology

Table 18: General requirement

The general requirements show in the following table (Table 19) specify in more detail which processes and results should benefit from the implementation of the MORPHEOS system. These requirements cover the main pillars of the project: indicate the best design and product available based on consumer expectations, adapt goods or design new products.

**MORPH_GEN_1**
Indicate the best design and product already available

The MORPHEOS system shall indicate the best design and product already available

**MORPH_GEN_2**
Adapt and Personalize Products

The MORPHEOS system shall adapt already existing products to consumer needs

**MORPH_GEN_3**
Design New Product

The MORPHEOS system shall support the design of new products based on the consumer preferences

Table 19: Second level of General Requirements

In particular MORPH_GEN_1, MORPH_GEN_2 and MORPH_GEN_3 are fully covered by the use cases provided in chapter 2 and 3 from AIDIMME and Piacenza in fact:

- **#A1**: During the e-commerce purchase, provide services to the user to support the selection of the most suitable product/s based on the morphology, customer preferences and the specific interest of the users and **#P1**: e-commerce support service by correct size suggestion to users are strictly related with **MORPH_GEN_1**
- **#A2**: During the e-commerce purchase, provide services to the user to support a new project decoration design based on the morphology, customer preferences and the specific interest of the users; **#P3**: increased conversion rate of selling campaigns and **#P4**: enhanced and fully personalized user experience, both on desktop and mobile can be used to personalize services based on already existing goods as indicated with **MORPH_GEN_2**
- **# A3**: During the e-commerce purchase, provide services to the user to support a new product design based on the morphology, customer preferences and the specific
interest of the users #P2: new clothing collection design and production support are strictly related with MORPH_GEN_3

Based on the general requirements it has been analysed how the overall system features have to be addressed. In particular it has been defined three main system functionalities to achieve the MORPHOES objectives represented in the table below (Table 20).

**MORPH_CONSUMER**  Customer Information

The MORPHEOS system shall collect consumer information

**MORPH_PRODUCT**  Product Information

The MORPHEOS system shall collect products information

**MORPH_MATCH**  Match Consumer data with Products information

The MORPHEOS system shall match Consumer data with Products information

Table 20: Requirements identify the three main system functionalities

Regarding the collection of Customer Information (MORPH_CONSUMER) the system should be able to:

**MORPH_CONSUMER_1**  Identification Data

The MORPHEOS system shall collect Identification Data from the consumer

**MORPH_CONSUMER_2**  Interest Data

The MORPHEOS system shall collect data to understand the consumer interests

**MORPH_CONSUMER_3**  Morphotype Data

The MORPHEOS system shall collect data from consumer morphotype

Table 21: Decomposition of the MORPH_CONSUMER requirement

Based on the request of the use cases presented in chapter 2 and chapter 3 the MORPH_CONSUMER_1 requires data to individuate people origins as well as the main personal information. This data can be explicated in the following information:

- Name
- Surname
- Gender
- Date of birth
- Place of birth

MORPH_CONSUMER_2 requires all the information to understand the customers interests. Example of data requested could be:

- Design Style preferences
  - Slim
MORPH_CONSUMER_3 requires data to be used to analyse the consumer morphotype. This information can be the following:

- Height
- Weight
- Neck girth
• Chest girth

![Chest girth](image1)

• Waist girth

![Waist girth](image2)

• Hip girth

![Hip girth](image3)

• Shoulder width

![Shoulder width](image4)

• Upper arm girth (biceps)

![Upper arm girth](image5)

• Arm length (shoulder to wrist)

![Arm length](image6)
- Crotch length

- Crotch height

- Femur length (from hip to knee)
- Fibula length (from knee to end of heel)
- Back length (from back of the neck to tailbone end)

Regarding the collection of goods information (**MORPH_PRODUCT**) the system should be able to:

**MORPH_PRODUCT_1**  CMS Interoperability

The MORPHEOS system shall be interoperable with the most common Content Management System

**MORPH_PRODUCT_2**  Collect Products Data

The MORPHEOS system shall collect product related data

*Table 22: Decomposition of the MORPH_PRODUCT requirement*
The MORPH_ PRODUCT_1 requirement regards the Morpheos interoperability with the most common CMS from which the system should be able to acquire product related information.

In particular the main CMS identified from AIDIME and PIACENZA are:

- PrestaShop\(^{41}\)
- Magento\(^{42}\)
- Vcommerce\(^{43}\)

Based on the request of the use cases presented in chapter 2 and chapter 3 the MORPH_ PRODUCT_2 requirement can be decomposed as follow:

**MORPH_ PRODUCT_2.1**

Goods Design Data

The MORPHEOS system shall collect Design Data of Different Products

**MORPH_ PRODUCT_2.2**

Style Information

The MORPHEOS system shall collect Style Information

**Table 23: Decomposition of the MORPH_ PRODUCT_2 requirement**

MORPH_ PRODUCT_2.1 requires data to individuate dimensions, shapes, colours, yarn information of different goods category.

Piacenza has expressed the needed to collect information for its clothing regarding the following aspects:

**TOP PART OF THE BODY**

A. Body length
B. Chest width
   Shoulder width
C. Sleeve length from centre collar
D. Sleeve length
E. Underarm length
F. Front raglan length
G. Muscle width
H. Bottom hem height rib 1x1 double
I. Cuff height rib 1x1 double
J. Neck hem height rib 1x1 double
M. Neck opening width

\(^{41}\) https://www.prestashop.com/en/
\(^{42}\) https://magento.com/
\(^{43}\) https://www.vcommerce.com/home.shtml

![Figure 32. Measurement guide for clothing industry](image-url)
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N. Neck opening height
O. Sleeve width at 10cm from the bottom
P. Bottom width

LOWER PART OF THE BODY
Q. Waistline height
R. Crotch height
S. Hipline height
T. Kneeline height
U. Waistline width
V. Hipline width
W. Kneeline width

All these parameters are available as production technical specifications per style and size.

For AIDIMME the focus will be the house so that the main information that will be required to
categorize this kind of product are:

- Location
  - district
  - city
  - province
  - country
- Environment
  - coast
  - countryside
  - urban
  - mountain
- Home format
  - flat
  - house
  - loft
  - townhouse
  - cottage
- Home inhabitants arrangement
  - single
  - couples
  - number of children under 6
  - number of children above 6
  - number of elderly people at home

MORPH_PRODUCT_2.2 requires data to understand needs regarding the style

- Target place perception
  - Refuge
  - Functional
Regarding the collection of goods information (MORPH_MATCH) the system should be able to:

**MORPH_MATCH_1** Fitting Algorithms

The MORPHEOS system shall develop fitting algorithms to evaluate the product fitting with consumer sizes.

**MORPH_MATCH_2** Matching Algorithms

The MORPHEOS system shall develop matching algorithms to evaluate the degree of matching with consumer interest.

*Table 24: Decomposition of the MORPH_MATCH requirement*

In particular for **MORPH_MATCH_1** Piacenza needs to compare the fitting of the selected garment with the morphotype of their consumer.

For the requirement **MORPH_MATCH_2** Piacenza needs to provide to the e-commerce customer the best size of its knitwear while AIDIMME the suggestion of most appropriate measured for the selected home furniture as well as the best decoration styles compared with the consumer preferences.
6. Conclusion & Future Activities

6.1. Conclusion
The goal of this deliverable is the definition of a first structure for the Morpheos high level requirements in order to start the development of the different modules of the project. The methodology adopted to reach the goal has been focused on the definition of the project requirements based on the desiderata from the representative of creative industries involved into Morpheos, Piacenza for the fashion and clothing aspects and AIDIMME for the manufacturing and provision of furniture goods, supported by the competences of the RTD and technological partners. Requirements have been defined using the use cases approach, where business partners, expressed their expectations providing a clear story presenting the current scenarios and how Morpheos will improve processes, relations with actors and systems. Based on the As Is situation the team has elaborated how Morpheos will act on the presented processes describing the To Be scenario. Preliminary target parameters and solutions to solve perceived problems have been defined in order to make feasibility studies during the next period. In the last part of the document, Morpheos requirements have been modelled using SysML requirement diagrams presenting a preliminary list of Morpheos functionalities.

6.2. Future Activities
Based on the first version of requirements and expectations identified in this deliverable, during the next period, the team will check and evaluate the technologies to be developed to reach them. Moreover, the technological partners will evaluate the feasibility of what has been identified and will prioritize the development activities. A full list of the requirements and use case expectations will be provided in the second version of this deliverable, which is due at Month 9.