

BEYOND MASS CUSTOMISATION – MASS INDIVIDUALISATION

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ABSTRACT

For some years customers have been able to purchase mass customized garments on the Internet and “Design your own...” is very often used to attract the customer. Most of the products are standard products that the customer are allowed to change in a number of predetermined ways. Design however is something more than just choosing the colour or changing the length of the arms, it also involves changing the silhouette and the whole expression of the garment. The idea is to create the basis for a new type of design and manufacturing that allows true own design for everybody.

Key Words: Mass customisation, fashion design, knitting

1. INTRODUCTION

Today, several companies are already offering their customers mass customized products of various kinds. Pine coined the term in 1993 [1] but it was not until the beginning of the twenty-first century that business models around mass customisation emerged. The customer configures their garments by selecting modules in fixed systems to receive their own designed version. The meaning of customers design is commonly to choose from a number of modules, such as arms, bodies, fabrics or materials, colours, decorations and to adjust the measurements to the customer. Customised traditional clothes such as men’s suits and shirts are since years sold in stores and on the web. However, there is a demand to change the styles more frequently and the challenge for the future is to build a system that allows the customer to design more freely and with higher granularity. To give the garment a make-up or decoration might be sufficient for today, but tomorrow’s individualists will demand a higher level of free design which includes the core of design as silhouette, line and texture. This requires new methods to choose more freely among volumes, materials and colours etc. as well as adjust ones own designed style to own body measurements. Today’s young generation already masters different design tools, such as available in the Sims and Second Life. Many IT-natives (children born from 1981 and onwards) already create their personally designed clothes but very few of these clothes are produced, they are mostly used in the online communities. Several teenagers manage new ways of photographing by using photo-editing programs to make advanced photos. The technical evolution within photo has changed the world of photography and amateur photos are getting closer to professional photos. Will there be a similar evolution in garment creation where customers design their garments in easy-to-use software and have the garments produced professionally? One of the triggers for mass customized products is the fact that everybody with access to the Internet can be reached and interact with offered design-systems. Anderson [1] calls this the Long Tail economy, where the future of business is selling less of more. The recent years increase in bandwidth has made data transfer fast and reliable which is needed for visualisation purposes. Figure 1 illustrates a webpage and a configuration tool for purchasing customized shirts on-line.

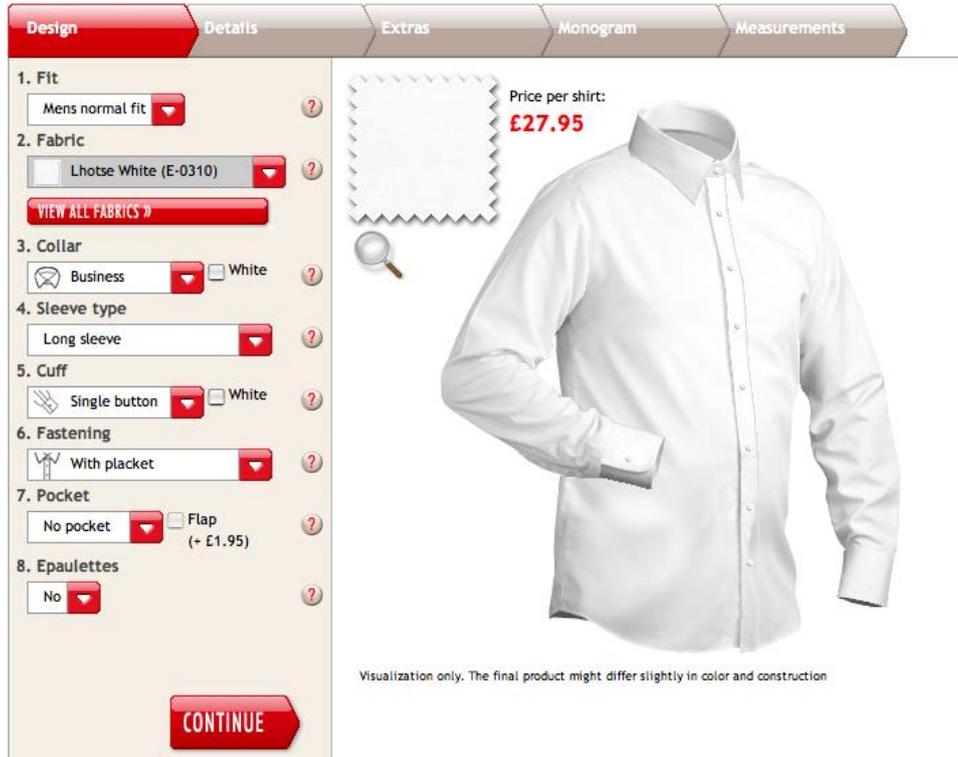


Figure 1, Configuration tool for customizing shirts

The research project Knit on Demand aims to develop a concept for producing and selling customised knitwear. The garments will be sold at a retailer in Stockholm, Sweden as well as produced in Sweden using Fully Fashion knitting technology. In the development of the design system, the focus of the project has been to create design options by using building blocks. It is of decisive importance to satisfy each individual customer. Theoretically the amount of customer's choices can be unlimited when it comes to colours and changes of details, but unspoken, the variations are restricted to standardized basic styles in settled qualities. However, the demand of high quality as well as the demand to make profit, is limiting the amount of offered free design options.

2. METHODOLOGY

This is a conceptual paper that suggests a direction of mass customisation into something that could be called mass individualisation. It has the starting point in the research project Knit on Demand. The paper is based on literature studies, interviews with companies already offering a selection of mass customised products, flat knitting machines, manufacturing companies, design- and PDM systems producers.

3. BEYOND MASS CUSTOMISATION – MASS INDIVIDUALISATION

The market already offers “Your own design”, but many times the meaning is only to change a colour or make-up to a selection of choices on a fixed product or piece of cloth. A personal photo can be printed on e.g. a t-shirt, a pillowcase or on wallpaper but it will not change the idea, the shape or function of the product itself. There is a huge market of individualists, longing to make their own truly designed items and these customers are not satisfied with only choosing from a library of fixed modules and of-the-shelf decorations. These customers want to change the garments in rather extreme ways and they want to change the core values

of the products. Most factories are focused on mass production, which means it is rather difficult for them to produce one-off garments. However, every new season, designers of clothing have developed new styles in the product development and design departments. The first trial of a new product idea is normally made as a one piece, called first samples. The knowledge from this first sample development phase can be combined with production methods for traditional garments made for masses and the combination could be a solution for producing unique garments that goes beyond mass customization: Mass individualisation. There are similarities from preparing the first samples for mass products, which might be applicable when the new generation wants to fulfil their designer dreams and buy their own designs, produced by tomorrow's professional retailers and producers. The next step is to develop a system that allows more of completely own design. Inspiration to this has been taken from the Lego Digital Designer and to translate that into clothing and garments.

4. THE CORE OF DESIGN

It can however be difficult for the customer to design their individual garment. They might have an idea of how they want the look of their particular garment but to translate that into an actual garment in a specific fabric or material requires some skills from the customer. Jones [3] describes it like this:

“The suitability of a fabric for a fashion design comes from a combination of yarn, construction, weight, texture, colour, handling and pattern or print, as well as additional performance factors as warmth, stain-resistance and ease of care. The designer must have a reasonable expectation as to how a fabric will behave; a fabric cannot be forced into a style or shape that is not compatible with its characteristics, both practically and visually.”

Many designers start by finding a nice fabric and make a suitable garment out of it but the process can also work reversed. It is a fact that the fabric sets the possibilities and the limits of the styling elements. The design elements and principles required to build up garments are described as silhouette, line and texture [3]. The meaning of silhouette is shape and volume. Line is normally the cuttings or the lines of a garment. Texture refers to the structure and the parameters of a material. When a customer gets in to a store to select a garment, the hand feel of the fabric is naturally important. When selling garments on line, the hand feel, the structure or surface, a 2D photo replaces the 3D effect. In a store, customised products can be presented as whole garments, material or fabric cuttings or whatever tools are required to ensure the quality is right. Today, some web pages also offer 3D photos, and it is possible to see the garments from any angle. But the touch of the garment as well as the weight is missing. On the web, the fabric presented with photos, have certain limits. It is difficult to communicate new, unusual qualities to the web customer. The company offering shirts on line solves this problem by sending cuts of the fabric by post. Many of the average customers do not know if their sweater is made by woven fabrics or if it is knitted. But even people within the branch have sometimes some difficulties with the classifications. Colour is another very important parameter with strong impact for garment retailing. Jones [3] claims that several design principles as repetition, rhythm, graduation, radiation, contrast, harmony, balance and proportion will affect the elements and the overall design. It is interesting to notice that Jones does not mention the colours as one of the elements or principles of design. The colours and fabrics are placed as a chapter of their own. But colour and fabrics both have to collaborate with the elements and principles to receive the intended design. Even communicating colours is difficult on the web. Plain colours on the web changes and working with structure will make it even more difficult to communicate. Still the selling of clothes on Internet is continuously increasing.

Knitted fabrics have certain characteristics as they are built of linked loops of yarn. They are usually flexible, stretches both horizontally and vertically, drape smoothly and depending on the yarn quality and gauge appear very different. Heavy wool knits can be very warm and bulky, sometimes itchy but on the other hand a very thin wool merino sweater is very soft and has ultimate climate characteristics to be worn on bare skin in summer days. When allowing design be used more freely, we need a bridge to overcome the mastering of materials and textures. To make the garment fit a specific body requires adaptation, and the size of a garment is also affected by the choice of material. It is a challenge to offer wider choices of own design, new materials in more colours still keeping safe production combined with profit.

However a bee does not know why it is flying – but it sure is flying!

5. FROM TAILORING TO MASS INDIVIDUALISATION

In mass produced clothes, all options are closed: you buy the silhouette, line, texture and colour exactly as you see the garment within the store. The sizes are fixed to a standard. Customers that have a body outside the average have a problem to find items that fits. There is always a limited range of qualities and colours as most of the clothes are the predicted result of what is supposed to be trendy the particular season.

In customised clothing, there is normally a limited selection of silhouettes. Some fixed measurements can be adjusted to your size. The shapes in general cannot be changed but you may have some options to change details, to load a print or to add embroidery or some other decoration. Still the garments look similar to mass-produced clothes. The amount of available colours, is restricted by, and connected both to the style and the selection of fabrics. In some companies the amount of fabrics are huge, but they will still be within the group of fabrics which are already used on similar mass produced garments.

In tailored items, the selection of garment type, variation of silhouette and lines are bigger. The fabrics can be more freely discussed, as the tailor will guide the client personally to make a silhouette which cooperates with the selected material. The professional skills will overcome the amateur buyer and the garment will be perfectly fitted. The designed style is limited by the tailor's network of fabrics and trimmings and his professional skills.

Both designers and amateurs would use individualised customisation, which is the utopian way to produce one-off garments. Unlimited design means the silhouette and lines can be changed, as well as the quality, structure and colour, add of images, photos, patterns or personalized design and trimmings. This garment can be adjusted to fit your body. Somehow we are back to the basics, when the designer works from a blank piece of paper and almost any garment is possible. After learning the Photoshop basics, it seems within reach, possible to create any effect of photo! Skilled Photoshop users might disagree. But is open design really possible for garments? Is the market big enough? Several of the components required to make mass individualised clothes already exists but are spread over big areas. Nobody today have all the knowledge of producing such a system of their own. But to build a puzzle from mass production, product development, tailoring and ideas from the Lego Digital Designer (figure 2) can together make a system of the future for mass individualization. Even bringing

together parts of this new design, order, production and delivery might be sufficient and open new market possibilities.

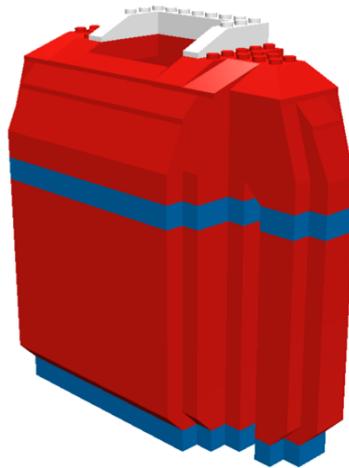


Figure 2, A Lego Rugby shirt

The illustrated garment is not very neat looking but it is not the garment that is the focus but the method it is used to design it and later on produce it. It is the interfaces between the Lego bricks that makes Lego such a success and in some way a similar interface could be used in garment design and manufacturing.

6. CONCLUSION

The word design has a wider meaning among fashion designers and product developers than for the general customer. Commonly, design among customers is about surface decorations and colours and today fixed modules mostly build customization. But the three elements of garment design are silhouette, line and texture. The word design is very often used for very simple product changes. This paper emphasize that there are several signs showing a market for producing products where the customer can actually design their garments using their own designed silhouette and lines, and not only start from a limited range of selected styles or building blocks. There is also a demand to select various materials and finally make the garment fit to an individual body professionally.

By combining production techniques for mass production with information technology, a market for mass customised products have been created and is today increasing. The next step is to take it beyond customisation and into mass individualisation where each garment is designed to fit each customer's specific individual needs and wants. It is believed that this can be achieved by taking knowledge from product development and combine these with mass production thinking.

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