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Improving design cycle time and bottom lines by using 3D visualisation technology

Apparel manufacturers and designers are pressured to deliver on two fronts, both of which are critical for their success: reducing costs, and introducing more and bigger collections. And yet, it would seem that both challenges, while equally important, are inherently at odds with each other. Each pulls manufacturers and designers in a different direction.

At the crux of this challenge is the age-old conflict of meeting consumer expectations in a way that allows a business to stay on the profitability track. With the Internet delivering instantaneous access to information, today's consumers are far more savvy - and far more price conscious - than in the past. However, life in the always-on, real-time culture of the Internet, brings with it demand for a swifter pace in real life - more options, more change, with greater frequency. If in the past manufacturers and designers delivered collections every two to four seasons, the pressure is now on to debut new collections more often, even once every two weeks. And this has an associated cost. The hitch in this new business model is that consumers are unwilling to have these costs passed on to them.

As a result, the industry as a whole has set its sights on finding new methods, technologies and even business models that will allow manufacturers and retailers to streamline their operations, meet consumer demands and remain profitable.

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Over the past several years, the industry has dedicated substantial resources toward finding solutions. Most of the effort, however, has centred on the costly manufacturing process. New tools such as fast cutters, sophisticated nesting algorithms and modular data management systems have been introduced to the trade to improve bottom lines.

Now the industry must begin to analyse the design process, which is responsible for approximately 4-6% of the total garment cost, consumes up to 12 months of the total creation cycle and dictates the quality and look of the final garment. Needless to say, this, in turn, has



a direct impact on sales volume.

Streamlining the design process is always a more formidable challenge, and this is true across the board – not just in the apparel industry.

It is a creative process and any time dedicated in the present in the quest for improvement could lead to delayed delivery, poor design and low quality in the future. And these issues are far more significant than reducing costs and cycle time by a few percentage points.

However, industry players cannot afford to ignore this process, as it will continue to become ever more costly, labour intensive and more time consuming.

After analysing the design process it becomes clear that the most costly and time-consuming element is the product development phase, of which the most significant factor is the pre-production stage. This is the stage in the design cycle in which physical samples are created and the approval process takes place.

Product development can last up to six months, with the pre-production stage consuming over 80% of the time. In parallel, the sample average adoption ratio is estimated to be as low as 20-30% for fashion products.

Thus, optimising the process means generating fewer physical samples and as a result lowering the associated cost and cycle time. Once the right technology has been implemented, meeting a target of six weeks for the entire product development cycle is not inconceivable. Moreover the sample adoption ratio can reach an average rate of 80–85%.

How can this be achieved? The solution to this challenge is to digitise the entire design process, and particularly the pre-production phase, to the greatest extent possible. The more designers and product development professionals take to computers and the less reliant they become on physical samples, the quicker decisions will be made and the greater the savings will be.

Moreover, creating virtual garments will enable designers to receive immediate feedback from consumers. They can create virtual catalogues early in the design process and present them "realistically" to focus groups, quickly closing the gap between their product offering and consumer preferences. The potential for savings is enormous as popularity of designs can be gauged early on. Thus, unpopular designs could be abandoned immediately in the virtual phase before substantial investments of time and resources have been made.

Two personal computer capabilities that have been improved dramatically in recent years are instrumental in "digitising" the design process: visualisation and communication.

Today, standard PCs can present elements in 3D that look almost true to life. Still, users cannot touch the items (nor the fabric, in this case), but can almost feel them. Add this to the power of the internet, which offers a fast, reliable, secure and reasonably inexpensive channel of communication and the possibilities are endless.

So, all the industry needs is a software



package that will allow designers to view garments in 3D along with real-life effects, such as draping, that are critical in the fashion industry. Furthermore, the solution will need to enable them to transmit views of the garments to other locations via the internet, in real time.

That's the big picture, but what features will truly ensure that this type of innovative package provides a real solution?

1. User-friendly interface - to ensure that pattern makers feel more comfortable with the software than programmers and 3D artists, and not the other way around.
2. Intuitive design - to guarantee that it rapidly becomes an integral part of the design process.
3. Real-time response - to enable real-time modifications and immediate feedback to every element that might be changed in a garment such as pattern, fabric, colour or print.
4. Seamless integration - to allow users to run the software in conjunction with all existing CAD packages and formats.
5. Adaptive - to enable designers to view garments on virtual models with different body sizes and shapes, races and ages.

Once this type of application is available, the industry will be revolutionised.

The world will truly become a global village, in which it doesn't matter if the retailer is in New York, the designer in Italy, the buyer in Ohio and the manufacturer in Bangladesh. They all will communicate easily with virtual garments for a cheaper, faster and smoother process. It is just a matter of time until this approach takes hold. Soon nobody will understand how the process was so "physical" in the past.

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The author is president of Browzwear, a company creating proprietary 3-D technology to provide e-commerce and business-to-business markets with end-to-end solutions designed for e-tailers, online shoppers and apparel designers, manufacturers and retailers. The company's two innovative tools, V-Stitcher and C-Me, are based on personalised-figure technology. The V-Stitcher is the only commercial 3D application available today in the apparel market.