



WGSN FUTURES PRESENTS

# THE VISION 2030

How technology will drive a more  
successful and sustainable creative industry

WGSN | FUTURES

# EXECUTIVE SUMMARY

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Communications are instant and constant, designers are burning out and retailers are stuck in a cycle constantly dropping new stock then dropping prices just weeks later. Nowhere in the creative industries is the pressure to deliver felt more keenly than in fashion.

Add to this heady mix a predicted boom in the world's population (predicted to hit 8.3bn by 2030 from 6bn today), who will all need to be clothed, and it becomes clear that fashion needs to find a new way of structuring itself and its supply chain to sustainably serve the customer of the future and ensure a successful future for the businesses which serve it.

It's not just a case of fashion structuring itself to meet the physical demands of new consumers but the ethical demands too. Amid the booming population there is a growing group of "aspirational" consumers who are concerned about the social and environmental impact of their purchases.

More than half (55%) of online consumers across 60 countries say they are willing to pay more for products and services provided by companies that are committed to positive social and environmental impact, says Nielsen (Global Survey on Corporate Social Responsibility 2014).

Interestingly the propensity to buy from socially responsible brands is strongest in what has become fashion's manufacturing hot-bed of Asia-Pacific (64%), closely followed by Latin America (63%) with the West lagging behind.

Moreover the growing middle class in the East, which demands more from brands than just a good product at a good price, is expected to be one of the most consumer influential voices in the coming years. In China 1bn will be classified as middle class by 2030, while in India 50 million will fall into this bracket. Their wants and needs, and indeed those of the post-Millennial Gen Z-ers (today's teens whose altruism has also led to them being dubbed "Generation Nice") are expected to be key market drivers.

*"How about the insanity of a business model that chooses to put out monthly collections and then monthly 70% off sales? What other industry is doing that?"*

Adam Derry, creative director of Ekocycle for Will.i.am and the Coca-Cola Company.

So, where does the answer lie? Recycling more product, producing fewer clothes, producing clothes nearer to the point of sale? All of those things will play a part but the one thing that will transform fashion from how it is designed, made and governed to how it is communicated and sold, is technology. Yes, the very thing has helped speed the industry up to its current break-neck speed, holds the answer to restructuring the industry for a more sustainable and successful future.

**Lauretta Roberts**  
**Director, WGSN Futures**

# CONSUMER DRIVERS

There is growing evidence that consumers, who have in the past been largely ambivalent, are becoming increasingly interested in how their clothing is sourced and manufactured and where. Fashion is no longer just seen as a form of self-expression in terms of personal style but also in terms of personal values.

According to Nielsen, 2.5 billion “aspirational” consumers are becoming increasingly interested in, and making decisions based on, the environmental and social impact of their purchases. But this move isn’t about altruism, it’s about consumers making choices that represent who they are and what they believe in.

Fifty-five percent of global online consumers across 60 countries say they are willing to pay more for products and services provided by companies that are committed to positive social and environmental impact.

The propensity to buy socially responsible brands is strongest in Asia-Pacific (64%), Latin America (63%) and Middle East/Africa (63%). The numbers for North America and Europe are 42% and 40% respectively, according to Nielsen’s Global Survey on Corporate Social Responsibility 2014.

In addition, the rising global middle class will increase the rate at which resources are being consumed, affecting the fashion industry as a whole, says EY (Ernst & Young).

EY predicts the GDP of emerging markets will overtake that of developed economies by 2020, with the middle class adding more than 1 billion consumers worldwide.

Since 1995, the remarkable growth of the emerging market economies has brought millions out of poverty, but has put far fewer people into the “global middle class”.

A significant proportion of the new Asian middle class are also expected to be at the upper end of the income bracket, with impressive spending power. Large populations and rapid economic growth mean China and India will become the powerhouses of middle class consumerism over the next two decades.

By 2030 around one billion people in China could be middle class — as much as 70% of its projected population. India’s global middle class, meanwhile, at around 50 million people, or 5% of the population, is much smaller. This is expected to grow steadily over the next decade, reaching 200 million by 2020.

But while there is growing demand for businesses to place at least equal weight on society’s interests as they do on business interests (indeed 87% believe this, according to Edelman’s goodpurpose® report 2014), less than a third of people believe businesses are performing well in this area.

## THE INCREASING ASIAN MIDDLE CLASS

Country	No. of middle class in 2030	% of population
China	1 billion	70%
India	50 million	5%

Source: Ernst & Young



# TECHNOLOGY ENABLERS

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## Technology helps promoting sustainable fashion

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Why this increase in awareness of the need for societal change? Again much of it can be attributed to technology. For not only is technology enabling more efficient production and design methods but it is also improving communication of and promotion of such issues. Danielle L Vermeer, who is the architect of Reclaimed, an initiative that upcycles garments, and The Give, a monthly curated list of social impact jobs has cited on her website **5 ways that technology can promote sustainable fashion**. They are:

**Educating consumers:** Technology can raise awareness about the global fashion industry by sharing producers' stories with consumers.

**Empower consumers:** Technology can empower consumers to make educated, conscious decisions about their purchases and to communicate their support or dissatisfaction with companies.

**Fostering connections:** Technology can more directly connect the producers and consumers of fashion.

**Promote transparency in supply chains:** Technology can collect, track, and aggregate data from global supply chains to promote transparency and accountability in supply chains (see Labor Link and Tradegood case studies).

**Reduce waste:** Crowdsourcing technology can collect data on which styles are most in demand before items are produced, thereby reducing waste from unwanted and unused garments. (WGSN has recently launched its very own crowdsourcing service to help brands validate design and buying decisions, called StyleTrial).

[www.daniellelvermeer.com](http://www.daniellelvermeer.com)



## CASE STUDY: **LABOR LINK**

Labor Link, a non-profit social enterprise, leverages the rapid spread of mobile phones to establish an anonymous two-way communication channel for workers to report on true conditions with no fear of retaliation, and for companies to receive real-time data directly from workers 365 days a year.

A few global brands, such as M&S and Patagonia, have begun to use this in their business.

So far 342,638 workers have been reached in 16 countries. There is no cost to the worker for using the technology and for a minimal sum for brands and suppliers to receive summary data.

Partners (the brand/supplier) sets 12 questions it would like to know about its suppliers and workers, by calling a local telephone number, answer the questions using their mobile phone keypad.



## CASE STUDY: **TRADEGOOD**

Tradegood is a global sourcing community for responsible buyers and trusted suppliers to get connected and get to know their supply chains. They connect compatible people, bridging the gap between buyers and suppliers to maximize supply chain visibility and minimize reputation risks. They help build and maintain deeper, lasting partnerships.

Tradegood creates buyer and supplier confidence through qualification and verification, and by simply getting to know each other better. They deliver low-cost, high-value solutions that provide better insight, transparency, verification and accountability. And better lives for people on both sides of the chain.



## Technology helps produce sustainable fashion

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The potential for technology to enhance garment production is enormous. Already in sports and activewear technology has made a huge impact to the point that it has been claimed that wearing certain technologically enhanced garments can unfairly enhance an athlete's performance in much the same way as taking performance enhancing drugs. Speedo's Fastskin swimsuit, for instance, which first appeared at the Sydney Olympics in 2000, was eventually banned in 2009 for giving its wearers an unfair advantage.

But outside of the realms of "wearable tech" which is a sector exploding with potential, technology can and does present significant opportunities for creating a more sustainable supply chain and even in improving the quality of the air we breathe.

In a recent project Dutch design visionary Daan Roosegaarde collected pollution from a public park in Beijing. He then compressed it into "smog stones" which were incorporated

into jewellery that would help suck up the city's pollution and clean the air. It's a niche case, and in terms of Beijing's mammoth pollution problem, a drop in the ocean, but it shows what is possible.

And it's not just the air that technology is helping to clean up but the water too. It is estimated that between 17% to 20% of industrial water pollution comes from textile dyeing and treatment, according to AirDye. To help alleviate this AirDye has patented a range of water-free printers that use 90% less water and cut emissions and energy use by 85% when compared to traditional print and dye methods.

AirDye uses all synthetic fibres for its materials, which can be made from recycled PET bottles, that eliminate the need for extreme heat in the drying process and the need for a further post-dyeing rinsing and dry cycle, which traditional methods require. For another example of putting plastic bottles to good use, see EKOCYCLE case study below.

### CASE STUDY: **EKOCYCLE**

Music and tech visionary Will.i.am has teamed up with the Coca-Cola Company to create EKOCYCLE, which is an initiative to inspire brands to create new things made in part at least from recycled materials – in some cases that means used Coke bottles – and to make sustainable living "cool".

Brands such as MCM, Globetrotter, ECOALF and Keds have joined the initiative and the products are sold at Harrods (instore and online).

Creative director Adam Derry says fashion needs to slow down and stop devaluing itself with constant discounting. "How about the insanity of a business model that chooses to put out monthly collections and then monthly 70% off sales. What other industry is doing that? You don't see agriculture doing that, they don't do this on a monthly basis where they intentionally go out there to devalue their own product, right before the eyes of the same consumers who are then going to be asked to pay that full price," he says.

*"It's a really interesting time and certain spaces in the luxury market, you can feel the pace of it being more slow and methodical, but still in a fast market."*

"There is an ebb and flow to the current. In my perfect world we would see this slow down. To be able to design and showcase with intent and purpose, not because it's going 100 miles an hour, but because it's going 15 miles an hour. It's a really interesting time and in certain spaces in the luxury market, you can feel the pace of it being more slow and methodical, but still in a fast market."

# 3D PRINTING – PACKED WITH POTENTIAL

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One of the most exciting potential new ways of producing apparel is, of course, 3D printing. 3D printers are capable of fabricating anything from toys to body parts to entire houses. More common 3D printing techniques use PLA, a biodegradable plastic, to build each item layer by layer with a technique called “additive manufacturing”.

Traditionally, when we have thought about sustainable fashion, we think of organic or recyclable materials, conscientious shipping, fair wages for those making the clothes, etc. And these are all important, noble pursuits, but a powerful 3D printer and an innovative mind could change all that. Designers have begun experimenting with 3D printed pieces of clothing and in doing so are exploring a new philosophy of sustainable fashion.

As it stands, the fashion industry is the third largest consumer of water, coming in just behind the likes of big oil and corporate paper producers. This is due to unsustainable cotton farming practices and constant irrigation requirements which are a serious, ongoing environmental threat and incredibly damaging.

The problem is compounded by the fact that production of clothing operates as a perpetual consumer machine; trends rise, shift, then tumble, amassing waste and ensuring endless demand for new product. The monetary and environmental cost of sourcing, manufacturing, and shipping textiles is staggering and, as people are beginning to realise, entirely unsustainable.

3D printing inherently eliminates waste. Items are created one layer at a time with extreme specificity. Fabric for clothing doesn't need to be rolled out by the metre, then cut and stitched; instead it's printed and ready to wear.

PLA is also reusable; it can be melted down and recycled as the user sees fits. It's hard not to imagine the implications. Clothing made and re-made to match current trends with zero waste. A material that is endlessly renewable with the potential to eventually negate the endless demand for ecologically damaging textile production.



However a major concern with 3D printing is the vast amount of energy it takes to keep plastic heated and malleable at high temperatures. It is noted though, that by using other materials like wood composite, power usage can be drastically decreased potentially making this type of printing “greener than any other type of manufacturing”.

But the biggest drawback for now is material. Without a way to mimic the feel and durability of natural fibres, things perhaps don't look great for 3D printing of fashion. No one is going to wear plastic clothes, especially if they cost \$10,000 to create. But new breakthroughs in filament material could help us shift what is now extreme haute couture into something more accessible.

You do have to approach this with an open mind. At this stage, 3D printed fashion would best be described as an “evolving” medium.



## 5 ways in which 3D printing is making fashion more sustainable.

### 1/ Smaller carbon footprint

3D printing allows much of the trial and error in product design to be worked out digitally before making the first sample. Deciding on the materials to be used ahead of time saves on samples. If you are a designer with your own 3D printer, producing your sample can be as hyper-local as your own studio.

### 2/ No production wastage

This eliminates the cost and wastage of excess production to meet factory minimums. It also saves the space and storage needed to handle extra inventory or returned items that customers do not fit. 3D-manufactured products only use the materials required for the product itself. This eliminates the yardage of cut fabrics or excess materials purchases.

### 3/ Recycled materials can be used

Materials currently being used for 3D-printed fashion include everything from nylon filaments, plastics, metal and silk. There are already companies like EKOCYCLE (see p5) who are marketing the Cube 3-D printer intended for home users. Its cartridges use filament processed from discarded plastic bottles.

You can also make your own supplies with recycled materials. Michigan Technological University found that you can make your own printing filament from plastic milk bottles. They realized that the DIY process for this also used less energy than traditional recycling methods. Companies like Shapeway's offer metal choices like bronze and silver for their designers. Services that recycle and reuse metal products for 3D casting should soon be a popular option.

### 4/ Biodegradable materials

Bio plastics is a category of materials that is gaining momentum. There are several sources online that instruct developers on how make their own biodegradable supplies for production. The Shapeways blog has instructions online on how to "cook" your own bio plastics from a mixture of starch, glycerine, vinegar and water. While it might be difficult to sell the idea of starch-based jewellery or clothing to fashion fans, there might be promising ideas in adapting this for beauty companies making 3D printed cosmetics.

### 5/ Extending the life of existing products

The ability to print your own replacement buttons, manufacture an extra shoe heel or add more charms to jewellery is an opportunity for a new segment in the 3D-printed fashion market.

Local printing companies can work with customers to create pieces that extend the life of existing wardrobe pieces by upcycling them with new embellishments or recreating missing parts.

Canadian company Alleles developed a stylish prosthetic limb from a 3D printed process to accessorize the fashion collection of designer label Vawk for their Autumn 2014 collection. This not only served a functional purpose, but offered a fashionable one for a customer to complement her wardrobe.

Source: Ecosalon, Marina Leung, November 2014  
[www.ecosalon.com](http://www.ecosalon.com)



# ENVIRONMENT IMPERATIVES

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The fashion industry is heavily reliant on “natural capital”, and the production of products involves high levels of GHG (greenhouse gas) emissions, large quantities of land use, waste and water. Reusing plastic bottles and employing 3D printing are far from the only ways of tackling the problem. There are many other technological solutions which aim to transform the supply chain to a “closed loop” process – turning waste material into new products and reducing the materials needed.

## Waste materials and food products will create new materials

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It's likely that you're wearing cotton or polyester, two of the fashion industry's most popular fibres. Cotton depends on large amounts of water to grow, and polyester depends on now-declining reserves of oil and gas. The idea behind sustainable materials is that they are less damaging to the environment to produce, consuming fewer natural resources and creating less pollution.

**Pinatex™** - is produced from the fibres of pineapple leaves. Piñatex™ involves a patented technology that protects both the process and the finished material. While the initial development work leading to Piñatex™ originated in the Philippines, research & development is now being undertaken

between the UK and Spain. This is specifically to enhance the finishing technology. Piñatex can be used as a leather alternative or textile in the fashion, accessory and upholstery markets.

**QMilch** - using Milk to make an eco-milk fibre. Qmilch is a company based in Germany that produces a silky fabric woven from the protein fibres in milk. Qmilch uses half a gallon of water for 2 pounds of fabric, whereas cotton uses 10,000 litres for that same amount.

**Virus base layer garments** - using recycled coffee beans for stay warm line of clothing.

## Enzyme-based dyes will improve energy efficiency and radically change the way our clothes are dyed

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Enzymes are proteins with highly specialised catalytic functions, produced by all living organisms. The use of them in the fashion industry can replace chemicals that involve a high level of toxins as well as making production more environmentally friendly. Enzymes are able to remove stains from fabrics, meaning the clothing can be washed at lower temperatures, saving energy and replacing chlorine bleach. Enzymes are biodegradable.

### CASE STUDY: NOVOZYMES

Through enzymatic innovation Novozymes has introduced alternative processes to the textile industry that greatly reduce the water consumption and contamination of plant operations. Textile operations traditionally have a large environmental footprint, and new legislation is calling for reform. Novozymes enzymatic innovation offers solutions that could have long-lasting impact.

China is one of the world's largest textile producing countries, contributing a sizable portion of the estimated 9 million tons of knitwear manufactured

globally every year. With the production of 1 ton of cotton knitwear consuming what corresponds to the daily water usage of 600–700 urban Chinese people, the Chinese government recently intervened in an attempt to improve this use of resources.

As of 2011, new legislation caps the maximum water consumption by textile plants at 100 tons of fresh water per ton of cotton knitwear. A life cycle assessment (LCA) reveals that enzymes can help manufacturers to overcome this challenge.

## CASE STUDY: **WORN AGAIN**

Worn Again began making footwear from recycled materials in 2005. It then moved on into the “upcycling” of corporate textiles, turning waste materials like end of use uniforms into desirable products such as hand bags from Virgin Atlantic airline seat covers and train manager’s bags for Eurostar’s staff.

According to founder Cyndi Rhoades, it became clear there was a better way to design out textile waste and design in “closed loop” solutions. The team is currently engaged in full time development of a circular recycling technology for the textile and clothing industry, working closely with its development partners, H&M and Puma (part of the Kering Group).

“We started out back in 2004-2005 with a vision to eradicate textile waste which over time, the vision hasn’t changed but how we’re getting there has. It’s been an evolution with existing textiles and making them into new products to sell on was only a plaster, it extended the life time, but as a business model it’s not practical or economical. If you make a new handbag out of existing products as opposed to virgin material, it’s a lot more difficult and a lot more costly,” she explains.

This realisation led Worn Again to the idea of a technology that could recycle at a fibre level and they

*“I don’t think cotton will be obsolete, but I can see it becoming a luxury item. There are so many issues around population growth etc. In the future we won’t have the capacity to produce cotton and food at the going rates.”*

realised it was about creating a technology that was able to go back to its raw material to restore is back to the virgin equivalent of that material.

Rhoades believes this is necessary given the pressure on cotton production in the future. “I don’t think cotton will be obsolete, but I can see it becoming a luxury item. There are so many issues around population growth etc. In the future we won’t have the capacity to produce cotton and food at the going rates. Our vision for the future would be to recycle everything that already exists into new clothing so we don’t need to generate any more waste.”

## Old clothes will become new clothes as we “close the loop”

Reusing old textiles creating a closed loop supply cycle will become the norm in the future. This will help replace the use of materials derived from non-renewable resources. There are a number of initiatives that look to address this issue, such as Worn Again, which began as an upcycling solution and is now focused on the development of a “circular recycling technology” for textiles and clothing.

## We will waste less as clothes repair themselves

Scientists have developed Safe@sea, waterproof work-wear made from self-repairing textiles. This increases durability and helps to reduce the waste after consumption.

# FINANCIAL FORCES

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## Rising resource costs mean changing business practises

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Consumer sentiment and pressure on the world's resources are compelling enough reasons in and of themselves to drive businesses to innovate in this area, but perhaps the most compelling of all is the realisation that it makes good business sense to do so.

Many of the materials the fashion industry depends on to produce clothes will become scarcer and more expensive as the impact of climate change are felt around the world. Agriculture is extremely vulnerable to climate change; higher temperatures and reduced water availability will eventually reduce crop yields and increase the prevalence of pests and disease. This will have significant impacts on the production and costs of cotton, for example, which while resilient to temperature changes is very sensitive to water availability.

Other natural materials like wool are also expected to be impacted with key producers like Australia expected to have to make changes both to overall productivity and quality. Rising temperatures may mean a reduction in demand for wool clothes, however it is clear that to ensure their financial sustainability, forward-looking brands will have to work out how to depend less on natural inputs or do more with less.

## Sustainability means efficiency

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Becoming a sustainability leader requires big changes, but the effort is worth it— in both environmental and economic terms. According to a 2014 McKinsey report, *Profits with Purpose: How organizing for sustainability can benefit the bottom line*, almost half the 3,344 businesses (44%) surveyed for the report cited business and growth opportunities as a reason to get started on sustainability with energy, water and waste the key focus. 97% of participants were taking action on energy efficiency, 91% on waste and 85% on water.

Non-profit organisation CDP released a report in 2014 stating that S&P 500 companies (Standard & Poor's index of some

of the large US-listed companies) that build sustainability into their core strategies are outperforming those that fail to show leadership. Specifically, corporations that are actively managing and planning for climate change secure an 18% higher return on investment (ROI) than companies that aren't – and 67% higher than companies who refuse to disclose their emissions.

Innovations in the supply chain will reduce production, manufacturing and transport costs, making a stronger business case for sustainability in the fashion industry. From there companies can see opportunities to minimize costs in a sustainable way. Improving awareness will indirectly link to financial benefits. Furthermore it's also a good marketing/brand story.

## Sustainability is becoming sexy

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Some luxury brands are investing in order to change an agenda hitherto set by mass producers. Sustainability, which was once seen as a supply chain problem is now seen as a design opportunity and a means by which brands can distinguish themselves in a packed market. Having ideas is one thing, but proving you have values is quite another and one that is more likely to resonate with the customer of the future.



## CASE STUDY: AVERY DENNISON RBIS & CHRISTOPHER RAEURN

Avery Dennison RBIS (the retail branding and information solutions arm of AD) has been collaborating with designer Christopher Raeburn for four seasons. At London Fashion Week in September 2015, they worked together on a collection featuring innovative and sustainable embellishments and branding solutions. The SARAWAK collection for SS16 featured flock designs that were heat applied and the entire collection incorporated high-definition woven labels made from recycled yarns.

RBIS worked with Raeburn to develop the collection from moodboard to design. "We're developing completely new things we wouldn't normally have done before from high-definition woven labels to different heat press techniques to core branding solutions, looking at every stage of sustainability," said Raeburn of the collaboration.

As part of its 2025 sustainability goals, RBIS works with brands like Raeburn to help minimise their environmental impact. The company, which is a world leader in apparel branding, labelling, packaging and embellishments, as well as RFID solutions, partners with a portfolio of designers to provide sustainable and technologically advanced solutions to increase consumer appeal.

Vice president of Global Branding Solutions Amy White said Raeburn was "not only excelling in the industry, but is also using sustainable materials in a completely new, unexpected and inspiring way."



*"We're developing completely new things we wouldn't normally have done before from high-definition woven labels to different heat press techniques to core branding solutions, looking at every stage of sustainability."*

One of the world's most prestigious luxury brand houses Kering made the industry sit up when it appointed Marie-Claire Daveu as head of sustainability for the group, which encompasses 22 brands, including Gucci, Stella McCartney, Puma and Bottega Veneta.

Kering blazed a trail when Puma became the first company ever to launch an Environmental Profit & Loss (EP&L) account in 2011 and by 2014 the entire Kering Group had published an EP&L, which is proudly displayed on its website.

"Sustainability is the only way to answer major issues like climate change, lack of biodiversity and scarcity of resources," says Daveu, adding "it can give a competitive advantage, because once it drives a business it stimulates the creativity and innovation that keep a brand ahead."

WGSN would like to thank Edmund Howard at Ogilvy Earth for his invaluable research.



# WGSN | FUTURES

Held over two days and attended by 300 industry leaders, this two day event will present a view on the future of the consumer, design, retail and communications to help businesses in fashion and the creative industries prepared for a more successful and sustainable future.

WGSN Futures takes place on 25-26 May 2016 and will culminate in the WGSN Futures Awards which recognise innovation and excellence in design and business.

The event will feature keynote presentations, interviews and panel with global industry experts as well as insight from WGSN's own team.

For more information and to book tickets, please visit:  
[www.wgsnfutures.com](http://www.wgsnfutures.com)

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