

TRANSPARENT

SUSTAINABLE FASHION IN THE DIGITAL ERA

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THE IDEA OF CHANGING THE TEXTILE INDUSTRY HAS MANY SUPPORTERS

Whether driven by revenue, by a genuine concern for economic and social impacts, or by a combination of the two formerly disparate fields, change seems to be the most commonly used concept in industry publications, symposiums and gatherings. Small ventures are initiating their business to develop fashion sustainably, start-ups are aiming to optimize processes within the supply chain, and large brands are rushing to avoid damage to their reputations. Or they are making use of new ideas and preparing for regulation requiring them to take responsibility for working conditions, the composition of the fibres they use and waste management within their supply chains. Rapidly growing awareness on the part of customers, about what they want to wear and how they prefer it to be produced is driving change in the industry.

One of the key principles that is shifting production practices in relation to textiles is transparency. It brings to light the social and economic impact of what what is hanging in our closet and even tells us the story of how it got there. It alters the communication between operators in supply chains as much as it causes firms to communicate differently with consumers. Transparency puts pressure on firms to be accountable. Wasteful production methods and exploitative labour practices become apparent, as do possibilities like re-inserting what was formerly dumped and discarded back into mass production. Coupled with accountability, transparency leads us to rethink what we wear, how we perceive the steps involved in its production, and what we will or will not accept.

This publication aims to provide an overview of the fashion and textile industries, asking which digital initiatives have explicitly gotten underway to force changes in production processes, even for large operations. We cover the fields of experts, CEOs and designers, profile companies offering the possibilities of integrating data, mapping supply chains and tracing materials.

These initiatives may well have an important role to play in reducing social and environmental impacts. To follow an urgent demand best expressed by Dame Ellen MacArthur: »The vision of a new textiles economy offers a chance to set the fashion industry on a new trajectory. Instead of just trying to “do less bad”, we need to change the way we make and use clothes so that their production and use builds economic, societal and natural capital rather than depleting it. It’s an invitation for the industry to explore new materials, pioneer new business models, harness and design and put technology to work.«

THE FASHION INDUSTRY IN NUMBERS

+40%



Increase in the number of garments sold in the last 20 years.

165 300



Annual turnover in the fashion industry in the EU (2016), in millions of Euros.

400



Worldwide annual production of textile fabric, in billion square meters.

60



Level of global GHG emissions originating from the global apparel and footwear industry.

330 000



Annual worldwide production of cotton in tons.

<1%

Percentage of annual worldwide production of ecological cotton.

8



Textile fabric waste from the process of cutting, in billions of square meters

20 000



Litres of water needed to grow cotton for one pair of jeans and one t-shirt.

“WE NEED TO REARRANGE THINGS DRASTICALLY!”



The soft-spoken Otto von Busch, Professor at Parsons School of Design in New York City is an avid critic of the fashion industry, but finds in the figure of the designer a crucial potential for change. Not least by changing consumer psychology, Mr. von Busch discovers ways to remodel our relationship to our clothes and their production. *Interview: Lennart Laberenz*



Professor Otto von Busch, to what degree can we actually speak of sustainability in the fashion industry? Is it a real concept that is already re-organizing garment production or is it a mere sales pitch?

Otto von Busch: The tricky part of the question is – what do we want to sustain? Too often we treat the existing way of producing and consuming fashion as a fixed form. If we then only reduce the environmental impact and pay living wages overseas, we proclaim to have an ideal system. The current concept of sustainability aims at sustaining what is already in place, at the most optimizing it a bit.

You imply that the question of sustainability does not go far enough?

We have to ask if we actually want to maintain a system of extremely cheap consumerism in which a garment costs as much as a coffee. And I probably know more about where my coffee is sourced, than about where and how my clothes are produced.

Indeed.

And even if I want to know more about my garment, should we support a system in which clothes are comparable to coffee? Should we organize a system in which I consume clothes, because I need caffeine? To a large degree, the fashion industry works like this:

I work a long day, I feel a bit exhausted and on my way home I pass by a store to buy something cheap in order to get a quick ego-boost. And I basically forget about what I even bought once I am back home.

You don't see sustainability as being at the forefront of our decisions as consumers?

Not only as consumers. We need to imagine a much richer cultural interface by which we engage with clothing. Do we want to sustain a celebrity culture, the type of elitism the system fosters, the implicit system of winners and losers? Do we want to sustain the distinction between designer, producer and consumer? Are there other ways to blur these roles, so I can have a richer

freedom in the way I engage with clothing? Ultimately it is a matter of imagination: what would a more fulfilling way of engaging with clothing look like, other than through ready-made, pre-packaged garments somebody far away has produced for me? We must rethink what it is we sustain in fashion, so we can better question and reimagine more of the fashion industry.

What would a more fulfilling way of engagement with clothing look like?

That sounds like a fundamentally different understanding of fashion and clothing!

Indeed it could be. At the moment we have a very narrow understanding of it. Asking these questions and systematically thinking about alternatives could open up a completely different way to design, produce, and engage with clothing. It could open up issues of sharing clothes and other types of circulation. How much do we want to consume? Is fashion necessarily a part of a cycle of continuous achievement and the continuous re-representation of ourselves? It is be important for companies to find out how it would be possible to serve their customers in a deeper and richer way.

So you understand the term sustainability as a form of sugar-coating of industry practices?

It is essentially the same as for air travel – we make airplanes more environmentally friendly. Fantastic! But we continuously increase our travel habits. Patching up the paradigm of travel, or simply mitigating some of the damages caused by the way we consume garments will not solve the problem. We need to take a step back and think about how to rearrange things drastically. At the moment we treat fashion like a fast food experience, leaving our engagement with clothes unsatisfying, commonplace and utterly forgettable. Similar to fast food snacks.

Sustainability then is simply about selling more clothes?

Yes. Right now the idea of sustainability means to sustain the existing business-model. A perpetual flow of ever more garments. To increase the flow we have even gotten rid of seasons. Let's imagine an ideal state of the current model, where garment production does no environmental harm. Still, the rest of the consumption that fashion is entangled with is completely unsustainable: transport, strip-malls, garment washing. The system is also currently based on the need for a customer to continuously earn more money than the person who produces the garment. Otherwise I would have to make the clothes myself. Can we not imagine other ways of arranging the relationships between production and consumption?

What would that look like? It sounds like a complete change of our consuming habits.

I think there are other ways for designers to reach and serve customers. Take for example the classic answer: we should consume less and be more frugal. For example, Vivienne Westwood postulates 'Buy fewer pieces, more valuable ones, you pay more and buy less often.' Yet Vivienne Westwood and similar brands do not offer a payment model by which I and many other people can actually access these clothes.

Like paying in instalments?

Exactly, just as I pay for a car, or other expensive products. With monthly rates I would be able to buy these fantastic, sustainable and long lasting garments. We must to seek out other types of service models, which actually sustain my lasting engagement with my garments. Just as we have certified car mechanics, we could think of repair and spare parts for everyday garments. A product service system. Otherwise we run into the trap of elitism...

... by simply blaming those who purchase low- and mid-priced products?

If we don't find alternatives to the current consumption model we end up continuously blaming poor people here for contributing to poverty overseas. By just saying that one should purchase less and more valuable garments we basically exclude a large part of the population. We need to make sustainable fashion

Without transparency we can't discuss the details of what we need to address.

accessible for people who actually need to make the fashion journey of dressing upwards. Poor people need the acknowledgement, positive attention, and social mobility fashion can help facilitate – currently the discussions around sustainability make it sound as if they are to blame for the social and environmental impacts of the fashion industry. So much of what we are talking about, when we discuss sustainability right now, is simply maintaining the status of people who already have one: it is the rich who can afford to be sustainable, yet far too few are.

Are there sharing models and other forms of making more expensive garments accessible already in place?

Some. There are brands that have been raising these questions for quite some time. I see a number of Swedish initiatives, for example Filippa K, who have their own store for their returned, second-hand garments. They also publish on their online store where and how their garments are produced, that info is just next to the details of each garment. Some brands take part of their garments back. They are not totally circular, but there are initiatives, such as shredding older garments, making new ones out of

the same fibre, so there are some starting points out there, yet I have not seen many models which more explicitly address the socio-economic conditions of how to make sustainability more accessible.

By blaming fast fashion we single out the most visible form of consumption. The production of luxurious goods functions with the same model of consumerism, only in a more exclusive form.

A student of mine just asked – isn't the problem of sustainability that poor people are buying clothes? This is one way to put it. Poorer people now have more access to the consumption habits previously reserved for the well-to-do. So we inherently discuss a social question when we talk about sustainability: who has access to what, and who deserves what? And I am not sure why we should assume that luxurious items are necessarily produced in ethical circumstances. Luxury consumption is not per se more sustainable, it is just that higher priced items are produced for people with more money, not less, necessarily.

On average people buy roughly 40 percent more garments than 20 years ago. You brought up the term transparency. This is supposed to mobilise an ethical resource, the buyer's informed decision. Do you see transparency as an asset, a driver of change in the fashion industry?

Of course, without transparency we cannot see and discuss the details of what we need to address. Transparency is a good start. At the same time we have to know and see that transparency is also a form of deception. You are usually transparent about things you are supportive of. You try to modulate the perspective which transparency produces in favourable ways for you. Transparency is usually about highlighting qualities and concepts which are introduced by different organizations for the sake of certain kinds of certifications.

Living wage, conditions of production...

Furthermore, aspects of transparency try to tick off these boxes, which are usually set by different Western agencies blanketing these kind of values in order to cover the planet. Or at least the whole supply chain. Living wages are fantastic for factory workers – and certainly something to be supported. But there are other issues, such as predictability of working hours,

child care, transport and travel, housing – extremely mundane things, but fundamental to a better life, but they don't necessarily fit into the models of transparency. So maybe a factory pays a living wage but employees work nights, impossible hours, so they have to spend half their salary on child care, transport or whatever.

What do you feel is missing in transparency efforts along the supply chains at the moment, then?

To make sure the different sorts of certifications and the ways we look at transparency actually support workers, we need to collaborate with local institutions where workers have a say. Instead of blanketing the issues with Western standards, and instead of satisfying us, making us feel better as customers by having a box ticked stating that living wages are paid, we need to do much more to make sure that working conditions respond to local issues and needs.

2018 will be the first year in which the majority of the garments sold in Europe are produced abroad. Mostly in countries with few regulations and low wages. Digital initiatives have started to collect data points to introduce workers complaints, and descriptions of conditions into the evaluation of production sites. Can these initiatives, can transparency help to change the industry?

To a certain degree I do think so. But it gets more tricky when you look at motivations. Transparency is good, but where does the leverage to push for change come from? Very often transparency is directed towards the consumer. Consumers then make choices and vote with their purchases. By what means and measures can we add to increase pressure through transparency? Is transparency used to highlight court cases, violations of workers rights? We need to add leverage in order for this information to actually have an impact beyond the little act of a consumer opening a webpage and congratulating himself on buying a product which is marginally better than another. Can transparency push towards governance and policy issues? Can it support and cause broader mobilization and interventions? There is a certain risk of delegating questions of sustainability onto the shoulders of individual consumers and their everyday habits. Instead, we need to make sure these issues are pushed upwards to the policy and governance level.

Transparency combines purchasing or maybe even planning to source garments ethically. Do you see the questions arising from choices offered by transparency as falling on a sound moral ground? Simply put, why do we not produce and buy more ethically produced garments?

There is certainly a moral imperative for people to be virtuous. But it does not help anything apparently. I know that there is a tremendous amount of suffering, badly-paid jobs, horrendous working conditions and essentially mistreated and killed animals in the meat industry. But I still eat sausages and I wear leather shoes.

The fashion Industry continously reproduces the same model.

The appeal to virtue does not help?

No, it does not. And I am afraid it produces new types of elitism, where a certain group can elevate their position, because they can afford to be virtuous and buy certain products. And it is coupled with a resentment against not only the economically marginalized, but also people, who are considered 'fashion-deplorables'. There is a certain sort of pretentiousness, which has emerged with the moral high ground eligible to some people. We have gotten extremely sensitive about that here in the US. We observe a big political conflict about everyday habits. And fashion designers need to be much more aware of that.

How can they?

By understanding what you do and for whom. If you produce business suits you might find a few people who are interested in an ecologically and socially fair garment. These suits are mostly for communicating power. Your customer most likely wants to look powerful rather than virtuous. It is a position of executive power, upholding order, maintaining prestige. As designers we have to be much more careful with what we are producing and what values we want to elevate where. At the same time, fashion is always toying with sin and virtue. It plays with the forbidden, with boundaries: part of its allure may be the signalling of something unethical. So we need to understand to what degree we allow consumers to play with danger.

What does that understanding entail?

Well, if we are looking at leather, at a leatherjacket, there is a smell to it, a texture of something animalistic. Something that tells that you are a killer; a primitive acknowledgement of something feral and raw. As designers we have to be aware of the significance of what we do as vegan leather does not lack such qualities.

We seem to have few constrains in buying products, which impose problems onto other people. We play with the livelihoods of workers far away from our decisions, we add to the ecological impact in their countries. The margins of ecologically sourced garments seem to tell me that we unscrupulous with our play, are we?

In the same way as I habitually eat meat, without the considering the suffering in the meat industry, I habitually consume garments, without considering the suffering in the garment industry. To become vegan is one way to oppose it. To become much more aware of the form of production, is another. Do I if need to eat meat every day? Must I kill the animal myself to better acknowledge the relationship to my meat? Similarly, do I need to be able to make my own garment, to see the labour that goes into it, to learn to appreciate its value? Or should I only have meat only at certain yearly rituals and holidays? In a similar way, garments are expressive, so how can we produce a sort of consciousness around the way we consume fashion?

How could we?

What if we could produce richer rituals of consumption? What if we create that for the act of consuming meat – if I would have to pay the real price of it, perhaps I would eat it a couple of times a year. Without wanting to sound cheesy, I mean a ritual by which we feel thankful in a different way. Is there a different way to ritually consume and engage with clothing? A ritual, which is essentially richer and has a more powerful homage to people actually having produced the garments? Currently we want to stay blind to the suffering involved with our meat and our garments. There are people who want to stop consuming completely. Possible, but hardly a largescale solution. But at its best, what does clothing do to you? What is the richest experience clothing can give to you? Fashion can be like freshly cut flowers...

... totally unsustainable business ...

...right, why should we do that? It is not sustainable, so it has to stop (laughs). That is surely the frugal answer. But people who understand and arrange freshly cut flowers, so they make the smell fill up the room, see these flowers as something that emanates a certain beauty, sensibility and pleasure. They celebrate life. How can we train the same kind of sensibility around clothing? To allow us to flourish sensually? And not in ways to support the sad habitual form of purchasing unsatisfying items.

When you think about these rituals, what do you think of there? What could produce a different relationship to our clothing?

We could find much more intimate interactions and personal relationships with a designer. And the act of designing. Designers get to know me, learn, what my desires are, not just pre-packaged on a mood-board. Our current model of fashion plays on a psychologically dreadful game – continuously undermining the customers self-esteem to make sure they come back for more. The double gesture of design is to devaluate garments and people to sell more. So a principal challenge must be to find out how fashion could be primarily encouraging and spiritually empowering. A fashion practice, which is primarily about building your self-confidence. How could fashion work towards a self-discovery? As a designer you are or could be much more of a therapist or a coach.

Which would stand against an industrial format of fashion ...

Absolutely. But could fashion not help you discover your desires? Just as you pay a subscription to your shrink, could fashion do something like that? At the moment we are left pretty much alone and constantly have to fight against simply buying more. So the designer, instead of catering to mass-produced identities, could support you by developing a richer form of individual engagement. This does not solve everything, but what if more designers would strive to explore a wider scope of roles a designer can have to serve people as they are forced to appear? Currently fashion industry continuously reproduces the same model, but does not ask how a richer and more meaningful interface between consumer and fashion could look like.



You are attacking mass-production, which has a powerful structure in place: shops, advertisements, celebrity culture, production facilities, jobs. And not everyone can afford a shrink...

... maybe I am trying to find a complementary part to it. Certainly not everyone can afford a shrink. Maybe we should ask if fashion designers could be more like hairdressers? I can go there with my garments, and receive a service by which garments are changed, updated, mended. But I don't necessarily need to leave with more stuff; as with a visit to the hairdresser, I leave with less hair than when I came. Yet after the visit I am transformed. There certainly needs to be a moral ground for designers to understand their role.

But aren't fashion schools like the one you work at bleeding into a market which you trying to reformulate?

Yes. That is troubling. And it is the market which limits our room for innovation. The challenge for designers is to discover what other possible revenue sources there are. Could they be hired by insurance companies or by the healthindustry, the care sector, as an alternative to the mass-consumer model? Could a fashion designer work together with people who have body dysmorphia. Can they offer an alternative for somebody who would otherwise go to psychiatrist, receive medication or do behavioural therapy? I think design could engage in the much broader field of well-being.

Is this what you would understand as sustainable design?

Yes. We are returning to the initial question – do we want to sustain industrial production or do we want to sustain the well-being of consumers? And, by default, the well-being of producers? If the industry continuously undermines people's self-esteem only to then repair it by selling more garments, even if that is circular fashion or a sustainable business model, designers should search for an alternative by offering something to sustain the consumer's well-being. This can still be done through clothing; not with the idea of just producing more, but by cultivating a richer and more meaningful interaction.

Dr. Otto von Busch

Professor for Integrated Design at Parsons School of Design, and point person for Alternative Fashion Strategies. Otto von Busch explores the emergence of a new hacktivist designer role in fashion, where designers engage participants to reform fashion from a phenomenon of dictations, anxiety and fear, into a collective experience of empowerment and liberation. Over the last few years, he has been putting forward a political realist perspective on fashion, aiming to unpack how judgements of dress affects marginalization, bullying, and violence.

TRANSPARENCY IN NUMBERS

“The fashion industry was built on secrecy and elitism; it was opaque. Transparency is disruptive – in that sense, it’s a breath of fresh air and a useful weapon for change. We want to know how our clothes are being made, wherever they are manufactured. But the fact that we want to expose and understand the whole supply chain as a system is a barrier in itself.”

Orsola de Castro, Designer, founder and creative director of Fashion Revolution

12% 

of the 150 biggest brands disclosed no information in 2018.

10 

brands scored higher than 50% on the Fashion Transparency Index 2018.

37% 

of brands publish supplier lists covering at least tier 1.

18% 

of brands publish their processing facilities, where clothes are dyed, printed and finished.

1 

brand publishes its suppliers of raw materials.

100% 

The increase in Google searches for “sustainable fashion” in 2017.

<https://www.fashionrevolution.org/2017-impact>

A \$500 BILLION OPPORTUNITY...

...for sustainable fashion. Amy Mason looks into how transparency might get the industry there.

The fashion industry is changing. No longer can brands, designers and buyers ignore the environmental and social impact of production processes in which thousands of litres of water are required to make one cotton shirt. The industry is estimated to produce between five and ten per cent of global greenhouse gas emissions. The deaths of over a thousand people in the 2013 Rana Plaza factory collapse highlighted the fact that many brands knew little about how their garments were produced. Increasingly widespread knowledge of the harm caused in production processes meant the industry had to change, and outrage from NGOs and consumers in the wake of the Rana Plaza disaster led to legislative pressure. Transparency, which serves to evaluate supply chains, became a key principle. Now that it seems to be within reach, an increasing number of initiatives are focusing on making production more sustainable. Increased transparency allows the industry to understand its negative impacts such as waste and the exploitation of workers. And this opens up opportunities, for example to create new products from waste, or ensure living wages. Transparency, therefore, is one of the key principles leading to a circular economy.

The shift towards transparency

Every year in April, the global non-profit organisation Fashion Revolution runs the #whomademyclothes

campaign. For one week millions of consumers are encouraged to publicly engage with brands and producers to ask them for information on their supply chains. And it’s working: of the 40 brands Fashion Revolution surveyed in 2016, only five published details of their tier one suppliers. In 2018, 55 of the 150 brands examined did so: an increase from 13 to 37 per cent.

Further pressure has come from initiatives like Know the Chain, which examined how 20 big brands are addressing forced labour. Indexes and league tables have not only enabled consumers to make more informed purchasing decisions, but have also increased the pressure on lower performing brands to take more decisive action.

Governments are increasingly implementing transparency: The UK’s Modern Slavery Act 2015 and the California Supply Chains Transparency Act both require large companies to publish information on their efforts to prevent modern slavery abuses in supply chains. In 2017, France went further, requiring companies to implement plans to prevent such abuses.

The wider impact of the industry is also under scrutiny, with the UK’s Environmental Audit Committee inquiring into the environmental impact of clothing throughout its life cycle.

Within the industry a number of start-ups and small brands have grown around transparency. As these companies develop further and their practices gain both economic and moral importance with customers, transparency becomes more mainstream. In turn this

means it is increasingly difficult for established brands to ignore the issue.

Already some larger brands have picked up on the issue, encouraging customers to engage in the stories of its supply chain through a range of digital content. An increase in industry-led collaboration indicates that the view that transparency would lead to a loss of competitive advantage is losing ground. The Sustainability Apparel Coalition (SAC) represents apparel, footwear, and textile industry members with combined annual revenues exceeding \$500 billion. The SAC's Higg Index enables brands and retailers to measure and score a company or product's sustainability performance and has a roadmap to achieve full transparency by 2020. The SAC now counts over 10 000 manufacturers who employ it worldwide.

Final hurdles

So despite all this, why isn't the fashion industry transparent yet? Why, over five years after the Rana Plaza accident, has only one company of the 150 surveyed by Fashion Revolution published details of their raw material suppliers?

The \$3 trillion fashion industry is fragmented and complex, with a myriad of fibres, inputs, processes and waste streams. Revenue, rapid production and high output has all too often trumped the most basic principles of sustainability. Especially after breaking up two annual seasons into as many as 100 microseasons, the sheer quantity of produced garments makes it difficult for brands to keep track of their own supply chains. Innovations have enabled exceedingly fast turnaround times from designer to store, and cheap garments for consumers. Price pressures are passed down from retailers and producers through the supply chain, leading factories to take short-cuts and, in many cases, to subcontract the work to another factory without the permission and knowledge of the brand. The world now consumes 80 billion items of clothing a year, 400% more than two decades ago.

Fortunately a great deal of innovation is tackling such hurdles. Recent technologies such as blockchain enable brands to trace their items, creating a link between goods and their digital identities.

108 #

mainstream brands responded to #whomademyclothes in 2017.

+70% 

The projected increase in CO2 emissions if 80 per cent of emerging markets achieve Western per capita consumption levels by 2025 and the fashion industry does not become sustainable.

5.2k

producer voices heard with #whomademyclothes hashtag in 2017.

75% 

The level of certified water savings with upcycled garments.

95% 

of the cotton in upcycled knitwear sweaters is recycled.

88% 

The level of certified energy savings with upcycled garments.

Theoretically this means that every time a garment changes hands, it can be recorded reliably, creating full traceability. By integrating data into one system and automatically updating it as a product moves through the chain, blockchain solves the problem of the large number of data points generated from the complex supply chain.

Innovation does not stop there. Pioneering companies are using genetic information to create a fraud-proof record of the origin and journey of a garment. This could eliminate unauthorised subcontracting, meaning much more certainty over worker well-being. Fed into a blockchain these data points would increase transparency. It appears that, if harnessed, scaled and coupled with technology already in place such initiatives could make fashion supply chains completely transparent.

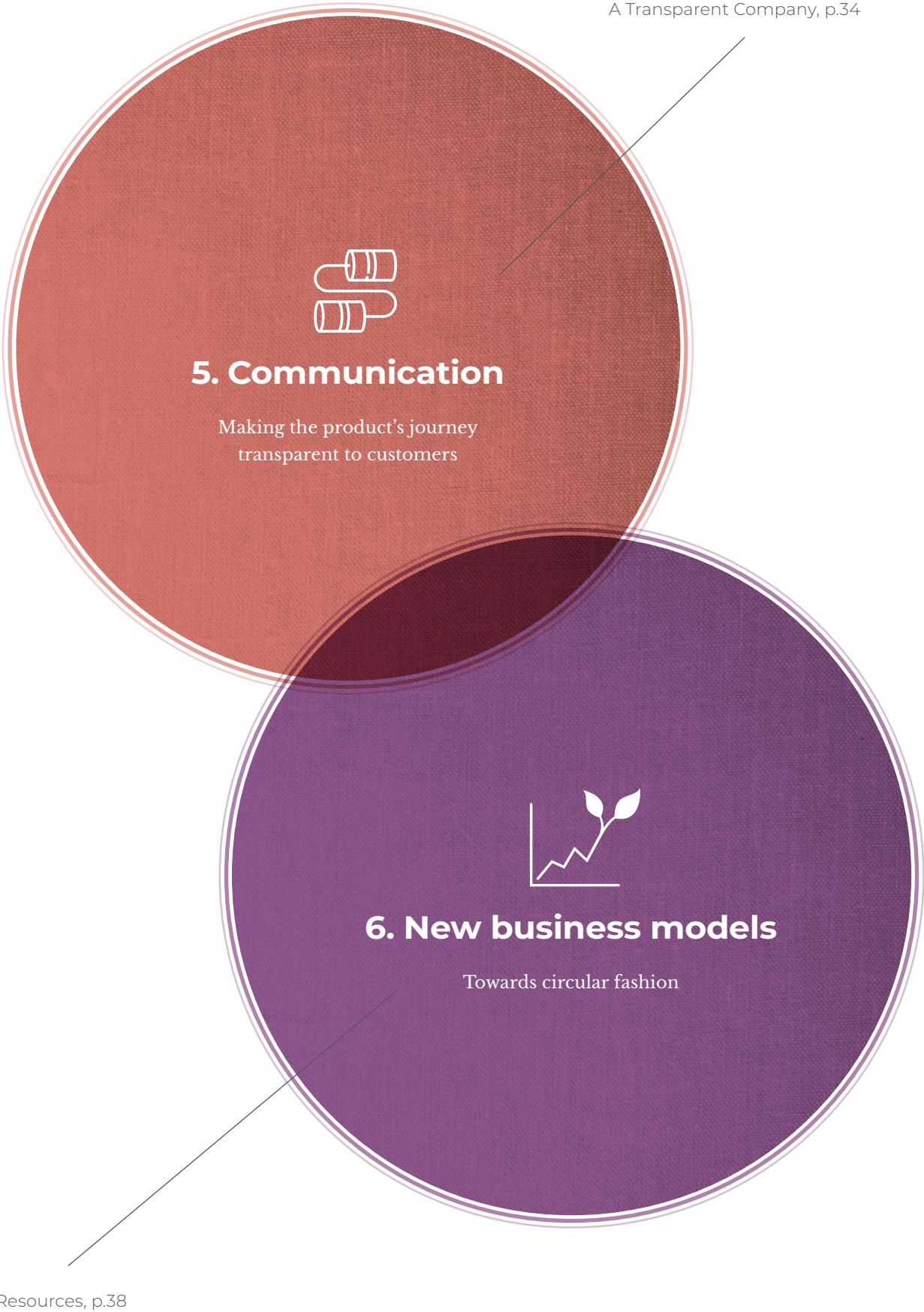
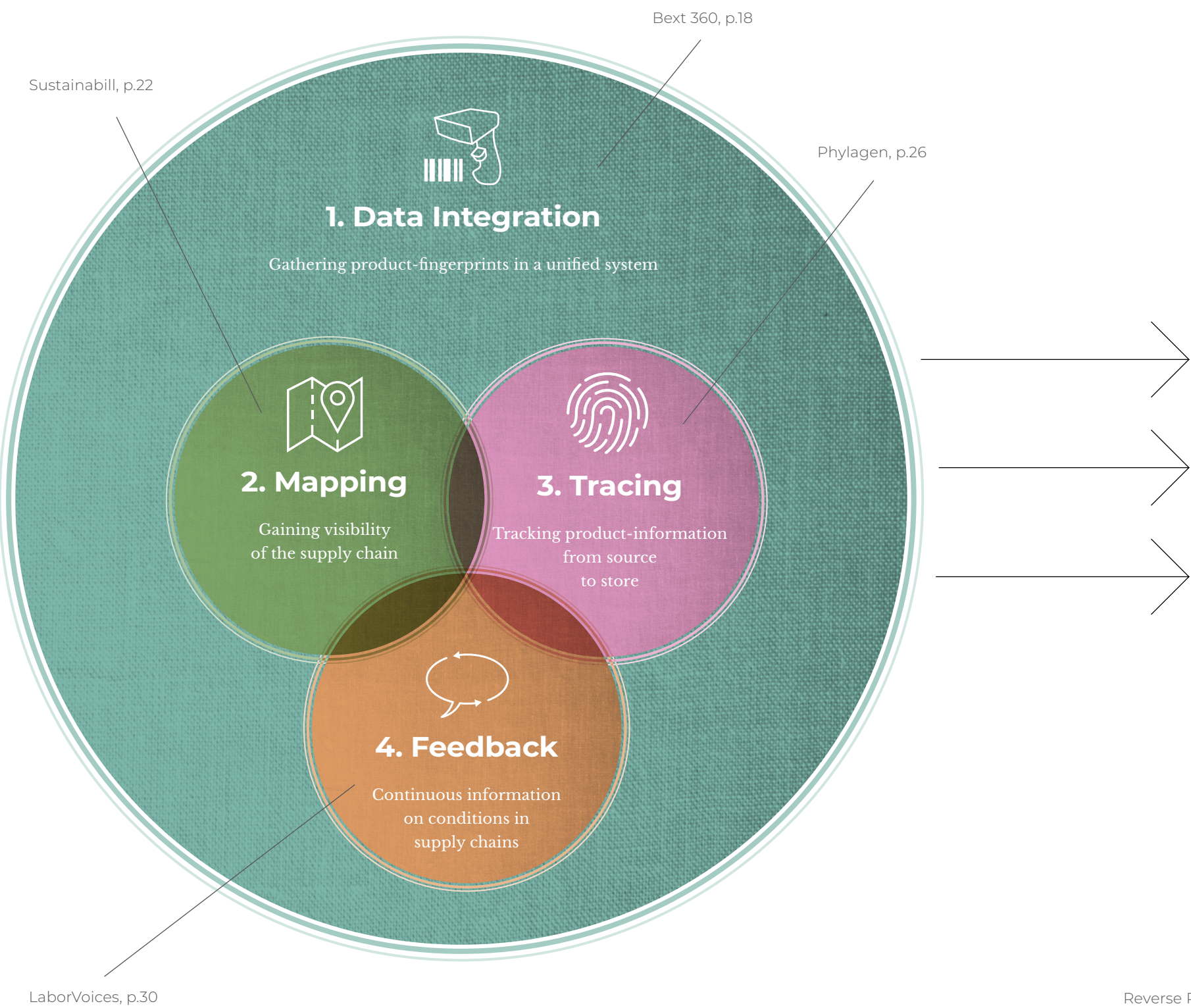
Transparency is just the beginning

What will the effects of transparency be? Most obviously, it will empower consumers to make an informed choice about their clothing. Numerous studies and shopping trend data show that 16-35 year olds in particular are very socially and environmentally conscious. These millennials are about to become the largest consumer group, so brands must change to accommodate them.

Furthermore, The Ellen MacArthur Foundation predicts a \$500 billion economic opportunity by using circular economy principles to change the way clothes are designed, sold and used. These principles are beginning to be adopted – they mean more responsible use of resources, less waste, and longerlasting clothes. In some cases, this may mean completely changing the types of materials used in our garments. Start-ups in the field are already testing alternative fibres, for example those made from mushrooms. Others are innovating around less toxic dyes and dyeing processes.

But transparency will do more than just enable greater choice. It will accelerate the shift of the whole industry. Transparency means facts about the impact of the industry will be laid out for all to see. Armed with this information, NGOs, governments, investors, consumers, designers and brands themselves will be pushing for the same thing: a fashion industry which safeguards the planet whilst providing secure, stable employment for millions.

INDEXING THE DIGITAL FIELD



**BEXT 360**www.bext360.com

TRANSACTIONS NEED DATA INTEGRATION. THE FASHION INDUSTRY HAS LONG HELD OFF ON IT AND NOW IT HAS A LOT TO CATCH UP ON.

Bext360 is a traceability platform using blockchain to provide a traceable fingerprint to track products through from producer to consumer.



Where does it all come from?

Launched in 2017, Bext360's vision is to improve the global supply chain for agricultural products, using a combination of blockchain technology and machine vision that allows for traceability and transparency. The company has successfully created the world's first blockchain-traced coffee, reporting on the whole journey of the coffee right from farmer all the way to its quality rating and the impact the coffee has in the communities in which it is harvested. Their technology is currently used for traceability in seven coffee-producing countries. On the back of this success, Bext360 has recently moved into cotton and is currently running pilots in India with tier four

suppliers. At the farm level, they will be providing tools for the farmers to mark their goods without the need for internet access. This ensures that all the information can be pulled out at the ginner and then handed on to the next step for verification. Central to this is blockchain as a capturing and recoding method. Furthermore every transaction is tracked and tokenized, meaning the value of the goods is able to be tracked as they move through the supply chain. They are also working on a circular economy project to verify the percentage of recycled material in a given garment.

“I AM IMPRESSED WITH THE GOVERNANCE AND INITIATIVES UNDERWAY.”



We were lucky to catch up with Founder and CEO DANIEL JONES during his trip to Europe to ask him about blockchain and the readiness of fashion industry to embrace supply chain transparency.

You use blockchain to track products. How does it work?

Basically there are three ways we use the blockchain, the simplest is to trace payments to farmers. Then to trace data through the supply chain, not only location history but also details about social and environmental impacts. Thirdly we can provide loans to the farmers by tokenizing working capital. We’re doing this in the coffee industry now and we hope to do the same in cotton.

Have you encountered any resistance from the fashion industry?

No, quite the opposite. We’re new to the industry and were picked for the scaling programme at Fashion for Good. We have a long way to go as the industry has ignored the issue for so long, but so far I’ve been impressed by the overall governance and the initiatives which are underway.

What’s your vision for the future of Bext360 in supply chains?

Our goal is to be the infrastructure for traceability so people can build their own networks to track their products across the supply chain. We not only ensure that the authenticity of the product is known, but also provide the ability for key sustainability data to be “attached” to the products as they progress through the supply chain. In some senses we are becoming the Salesforce for traceability and the verification of commodities. We have open APIs so that data can be pulled in and out easily. Focusing on traceability means finding ways to give incentives back to producers. For example, our technologies will ensure that the premiums for organic cotton reach the farmers who grow it.



IN NUMBERS:

80

The fraction of a company’s ethical sourcing budgets spent on auditing. (Ethical Trading Initiative)

678

The number of H&M’s published tier 1 factories in China alone.

<100

The number of voluntary schemes and green labels in the fashion industry. Mostly not synchronised.

Other initiatives focusing on data integration



Provenance

Provenance is a digital platform for the traceability and transparency of products. The blockchain-based platform allows for the collection of a range of data from across the supply chain, from farm conditions through to standard certifications.

www.provenance.org



Transparency One

Transparency One enables companies to map, analyze and monitor all suppliers, components and facilities from source to store. Their solution, in partnership with SGS, analyses aggregated data to reduce risk and improve supply chain transparency.

www.transparency-one.com



Hyperledger

Hyperledger is an open source collaborative effort hosted by The Linux Foundation that brings together individual software developers and organizations to build and advance cross-industry blockchain technologies.

www.hyperledger.org



SUSTAINABILL

www.sustainabill.io

THERE ARE ALMOST NO REASONS LEFT TO SAY YOU DID NOT KNOW

The Cologne-based start-up Sustainabill maps your supply chain, whether large or small. Then you can see for yourself how to change things for the better.



More information, please!

Reports from supply chains, descriptions of horrendous working conditions, exploitation of poverty and natural resources are as old as industrialisation itself. Movements against sweatshop facilities or protests have gained little significance. Under globalised conditions companies move on at ease to other countries with less regulation or resistance.

Sustainabill reports differently from the chain of production, gathering data points and implementing life cycle assessment practices every step along a product's journey. By mapping the chain it lets brand managers look at facilities, see connections between companies and, in a fortunate event, tell the entire story of a product from raw materials to its finished form. The Cologne-based start-up with ties to the

renowned Wuppertal Institute brings to light, in the ideal case, hidden costs, wastefulness, or malpractice. And it shows where there is room for improvement. After all, the benefits of proper supply chain mapping are obvious: small brands can place themselves in a market and consider from the very first step which materials they want to use, and which practices they might avoid. Large brands knock on Sustainabill's door to prepare for pending regulations and help their risk management avoid problems, whether current or upcoming.

It seems as if Sustainabill holds in its hands one of the answers to a growing awareness that reporting on supply chains matters these days.

“IT IS ESSENTIAL TO KNOW YOUR SUPPLIER. THEN YOU CAN CHANGE THINGS.”



The vast Kraftwerk in Berlin hosted the Ethical Fashion Show, where we met up with CHRISTOPH WIESEN. He works for Sustainabill, a supply chain mapping venture, and understands this as a key starting point for changing the industry.

What is the principle behind Sustainabill?

Basically we enable companies to discover their entire supply chain and gain profound insights into sustainability and risks.

How so?

We combine a software platform with a scientific approach to life cycle assessment. Using our platform companies can map their supply chain and collect specific data from suppliers and sub-suppliers.

Why?

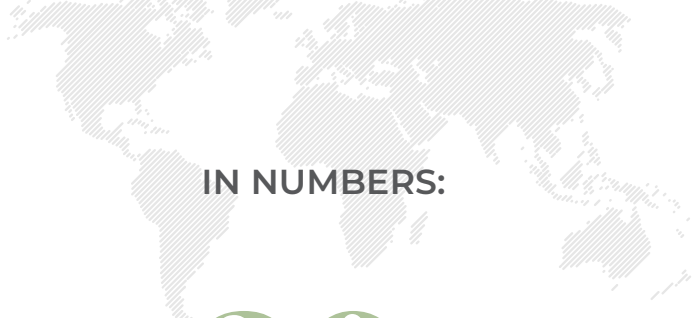
Mapping allows companies to follow product supply chains back to the source of raw materials. We can visualise relations between facilities, see where their input is coming from, and whom they deliver to. Which company is involved and how? What legal constellations are there?

How does sustainability come into the picture?

The mapping is the baseline for scientifically calculating footprints showing the impact of production from the source of raw materials to the finished products. This means we include energy use, fertilizers, emissions, and what have you.

Can optimising lead to sustainability, given the rapid acceleration of production?

Yes it can! Because we don't only help to optimize, we help companies to make the right decisions to become more sustainable. Companies can identify risks and approach them by providing training and improvement measures. We also put companies in a position to actually communicate specific scientifically-based key performance indicators showing how sustainable their products are. This means the consumer can make sustainable buying decisions, without depending on labels or marketing slogans.



IN NUMBERS:

20%

of Bangladesh's GDP was from the textile industry in 2016.

4.3%

of children aged 5-14 in Bangladesh worked in 2016.

1805

The number of suppliers to Inditex. Most likely just tier one.

Other mapping-initiatives in the field



SOURCEMAP

From data audits to mapping and and benchmarking the supply chain: Sourcemap helps brands view metrics and performance indicators on sustainability, social compliance, performance and risk. And they create customized requests for information to collect more information from sub-tiers of the supply chain.

www.sourcemap.com



MADE-BY

Whatever you want to know about your supply chain – MADE-BY can find it out. Since 2004 the nonprofit has been looking into the social and environmental issues of textile value chains. They verify production processes and even invented a tracking tool.

www.made-by.org



IMPACTT

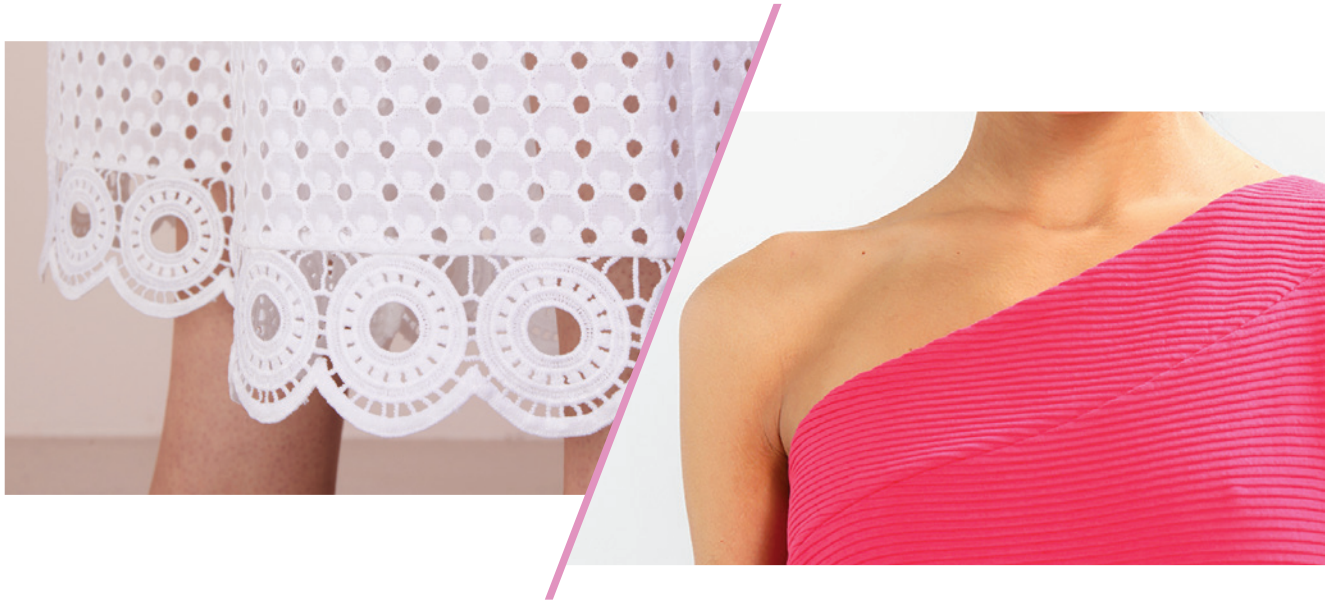
To improve the lives of 6m workers in global supply chains is the idea behind IMPACTT. An ethical trade consultancy operating since 1997, they have focused on issues like modern slavery or empowering women. Going beyond the textile industries, they founded the Supplier Ethical Data Exchange to make practices public.

www.impacttlimited.com



THERE IS ALREADY A DIFFERENTIATED TRACING TECHNOLOGY IN PLACE? WAIT, WHAT? MICROORGANISMS?

Phylagen focuses on the environmental microbiome, turning dust into data to verify the provenance of products and help make global supply chains transparent.



Differentiated, reliable, omnipresent

Phylagen, a microbiome data analytics company based in San Francisco, is harnessing the vast, unseen world of microbes to help trace products through supply chains. Their technology builds on the fact that every place on earth has a unique microbial ecosystem, made up of microorganisms such as bacteria, fungi and viruses. Phylagen extracts these unique genetic profiles to tell a story about where things come from. Once they have analysed dust samples from various locations of the supply chain, Phylagen uses artificial intelligence to gain insights into the provenance of the textile, material or product. By tracing the geographic history of the product, these insights are able to inform brands whether there has been any unauthorised subcontracting in their supply chain.

Their technology can be deployed across all the nodes of a supply chain, including verifying whether cotton is grown on an organic farm. At present, they work mainly in consumer goods, with apparel their most represented category. They have also done some work in textiles, focussing mainly on wool. They are bringing their first product to market this year. Phylagen has developed a platform technology, so there is little customisation needed for individual brands. They are currently working on optimising the technology for different product types, manufacturing environments, production processes and geographies, with an aim of ensuring the lowest possible cost for users.

“I HAVE KNOWN FOR A LONG TIME, THEY HAVE SUPERPOWERS!”



Phylagen’s CEO and Co-founder, Dr. JESSICA GREEN, got up early to speak to us. The time difference with California worked in our favour as we could prepare with a healthy meal to talk about the microbiome.

So microorganisms as indicators, how did that start?

I’ve been working with the microbiome for 20 years and I’ve known for a long time that microorganisms have superpowers. They are everywhere on earth, are very geographically specific, and they have a genetic code which contains a lot of information. I was giving a talk about the microbiome at the TED conference and my co-founder Harrison Dillon was in the audience. At the early stages of the company, while exploring numerous applications of the microbiome, a friend asked whether we could identify from factory dust whether children were working in the factory. We decided that was a very hard problem but realised that we could use microbes to tell where goods have been. So we’ve been applying the technology to detect unauthorised subcontracting, which has links to slave labour and other social and environmental issues.

How scalable is your solution?

The technology is highly scalable across geographies, across different types of goods and materials and across different nodes in the supply chain. Another exciting aspect of the technology is that it can sync with digital technologies such as blockchain. By converging these different technologies, we believe that it will garner a lot more trust about where things come from.

Will that technology spawn in the future?

The big picture vision is a global scale microbiome database with artificial intelligence for supply chain transparency. We want to shine a new light on the things we make so that no one is subject to forced labour, brands can mitigate risks associated with manufacturing, and consumers can know that their goods were produced ethically and sustainably. That’s what we’re building.



IN NUMBERS:

100

The average number of farmers, factory workers and designers who handle a pair of jeans from seed to store.

36%

The estimated level of unauthorised subcontracting from one global supply chain with over 30,000 orders.

62

Global consumption of clothes in 2015, in millions of tonnes.

Other initiatives on product traceability



Applied DNA Sciences

is working on creating DNA-verified supply chains by tagging raw materials or lots. This allows for verification at the source as well as robust tracing of the product as it moves through the supply chain.

www.adnas.com



Tailorlux

IntegriTEX® is a concealed traceability system based on the marking of fibres by inorganic security pigments (luminescent particles) and identification with optical “lock-and-key sensors”.

www.tailorlux.com



Haelixa

Haelixa tracers can be applied to any raw material or finite product. The tracers are based on unique DNA sequences and are resilient to industrial processing, distribution and storage, enabling full end-to-end supply chain control.

www.haelixa.com



LABORVOICES

—
www.laborvoices.com

THE OTHER PERSPECTIVE ON GARMENTS: WORKERS’ VOICES, LABOURERS’ VIEWS.

LaborVoices is a platform for factory workers to create and share information on their working conditions, allowing brands to detect issues in their supply chains.



Include workers perspective

In 2010, Silicon Valley analytics company LaborVoices launched its platform to gather real-time data from factory workers via voice-based mobile phone surveys. The technology enables workers to call the system whenever it is safe for them to leave free and anonymous feedback about their working conditions. This data is used by brands to detect issues in the early stages, enabling them to act before the problem escalates. Factory owners and managers can access the data on a subscription basis, giving them the opportunity to respond to aggregated, anonymised feedback. Finally, the data is used by LaborVoices to identify which factories have the best working conditions, which enables workers to make informed decisions about which jobs to take. The company describes itself as like a tripadvisor or glassdoor for

workers. LabourVoices gathers data from workers for free and the firm owns the data, meaning it is not restricted by the employer or any brand. This means that LaborVoices has the freedom to make use of the data obtained. And they do: for example, LaborVoices publically ranks factories in Bangladesh and Turkey, and have recently created the first versions of social credit reports in Turkey. LaborVoices is also in negotiations with platforms specialising in consumer-oriented data to explore how their data can be used to help inform consumers’ purchasing decisions.

LaborVoices’ user base is growing every month, their platform evaluates data from over 300 factories in the apparel sector in Turkey and Bangladesh.

“ABUSE SHOULD APPEAR ON RECORDS OF COMPANIES AND BE PUBLICLY ACESSEIBLE.”



CEO and co-founder Kohl Gill is rather busy, but managed to spare 15 minutes in his pre-holiday schedule to speak to us from his Californian base about the journey of LaborVoices.

What motivated you to start LaborVoices?

I am a scientist by training and found my way into the Human Rights Bureau of the US State Department, covering labour rights and CSR. I observed that the supply chains that I was trying to help US companies with were quite opaque. This was back in 2008. Companies were complaining that they did not have visibility. We had trade agreements with many countries and many of these agreements had labour provisions, but we had very little data. Additionally workers themselves did not know where the best jobs were, even though they all had mobile phones. That’s where the idea for LaborVoices came from. It became clear to me that there was an opportunity to build something which could benefit a lot of people and could also make some money.

What is your mission?

Our mission is to generate transparency based on worker feedback. Workers shall know where the best

jobs are. Actors in the supply chain shall know how to buy products made with integrity, without child labor, forced labor, and other kinds of abuses. We want there to be a competitive, open and transparent playing field for suppliers to compete with one another over open social metrics. We’re creating these metrics by gathering them from workers.

How will you proceed?

Every actor in the supply chain, every factory, every employer, every recruiter, should have a public reputation to defend. If they misbehave or violate worker rights, then that should appear on their reputation. Workers should be able to vote with their feet to avoid labor recruiters and employers who abuse workers. Similarly, other actors in the supply chain should be able to avoid them, whether it’s multinational companies, finance agencies or government enforcement. We should all be able to access open social credit reports.



IN NUMBERS:

24,8

million people were employed in apparel manufacturing in 2014.

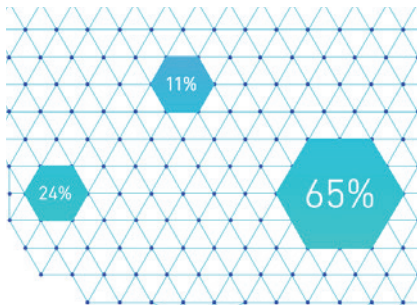
40%

The amount of suppliers where the Fair Labour Association found fake records about wages.

25%

The profitability increase for factories who participated in Better Work’s programme to improve working conditions.

Other initiatives on continuous feedback



KnowLabel

KnowLabel’s patent pending hardware collects information from factory workers, which is then analysed through their AI platform to help brands assess the full impact of their supply chain.

www.knowlabel.org



Laborlink

A mobile platform inviting factory workers to answer free and anonymous surveys. This scalable approach enables brands, retailers and suppliers to measure and improve worker sentiment in supply chains.

www.elevatelimited.com



Ecometrica

The platform’s supply chain module features both real time and near-real time monitoring of environmental impacts, such as weather events, fire risk, deforestation, water availability and flooding.

www.ecometrica.com



A TRANSPARENT COMPANY

www.atransparentcompany.com

HELP COMPANIES TO TRACK AND MAP THEIR SUPPLY CHAIN, AND RAISE THE BAR

A Transparent Company works with brands to accelerate change in the fashion industry by adopting new technology, including smart labelling, to bring the product story to life.

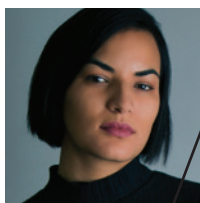


Tell your customers how things are produced!

A Transparent Company started life in 2013 as a menswear fashion label. They have now become a start-up and consultancy which aims to help brands feel confident enough about what's going on in their supply chains to want to communicate that to the consumer. They first help companies to track and map their supply chain, dealing with any problems such as a supplier's unwillingness to disclose the information. This helps ensure the supply chain is innovation-ready, meaning the building blocks are in place to use blockchain and smart labelling technology to communicate the supply chain story to the consumer at the point of sale.

A Transparent Company is demonstrating to the fashion world that transparency can be a communication tool by connecting all suppliers using blockchain technology. They have formed a partnership with Provenance to use blockchain to connect all the data points of a product's journey: how, where and by whom it has been produced. In a recent case study, A Transparent Company and Provenance collaborated with fashion designer Martine Jarlgaard to create sustainable alpaca fleece, with a fully tracked supply chain through the blockchain. The full journey of the fleece is communicated to the customer through smart labelling such as NFC (near field communication), connecting the physical item with its digital passport.

“CURRENTLY THERE IS A LOT OF ROOM FOR FRAUD, SLAVERY, CHILD LABOUR.”



After NELIANA FUENMAYOR, Founder and CEO of A Transparent Company, gave a keynote at the Fashion Innovation Forum she had a brief chat to us about transparency, blockchain and the pressure small brands can develop to change the fashion industry.

How is the shift to transparency in the fashion industry playing out? Who is leading the way?

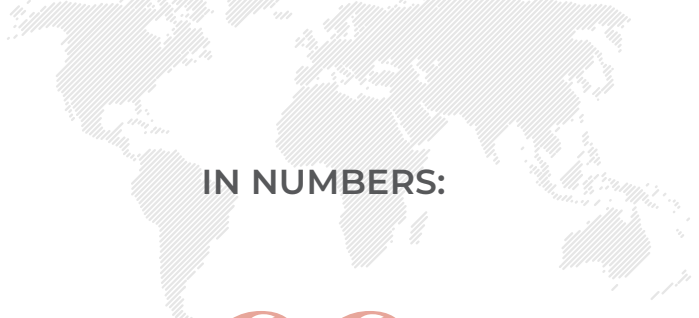
The movement toward transparency is definitely going to be led by the smaller brands and designers who have more control over their supply chain. While the big brands are still figuring out how to incorporate new technologies such as blockchain, the smaller and more agile brands are taking action.

How can technology make the fashion industry more sustainable?

Currently fashion supply chains are linear, centralised models where everything is stored in silos. Within this model there is a lot of space for fraud, counterfeiting, modern slavery, child labour. By its nature, blockchain is open and decentralised, so I think it can help transition the fashion industry to a circular economy system, which we are trying to support.

How do you want brands to view transparency in the future?

The story of the supply chain should reflect the vision, purpose and mission of the brand. Since brands are already doing work on the supply chain, why not just connect all of this and make use of that work by communicating it to the consumer? That can unlock many opportunities to engage with them after the purchase. We are building a system called “Open Mode”: Open Trace is going to be the supply chain part, Open Label is where the brand connects the story to the product, and Open App will be how consumers can interact with this information and the brand. Consumer interaction can contribute to the story of the product, through social media, through reselling or renting, and eventually recycling, because that’s how we’re going to achieve circularity.



IN NUMBERS:

66%

of global millennials are willing to spend more on brands that are sustainable.

37%

of brands included in the Fashion Transparency Index 2018 published details of their tier one suppliers.

5

The average increase in transparency achieved by the 98 brands in the Fashion Transparency Index from 2017 to 2018.

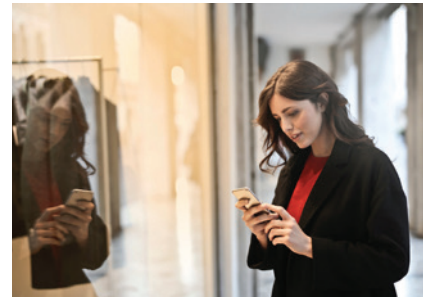
Other initiatives on transparency



Transparentem

A non-profit which uses investigative reporting and forensic methods to find out what’s really happening in supply chains. After giving brands a chance to remediate, they disclose this information to investors, regulators and journalists.

www.transparentem.com



BrightLabel

BrightLabel gives brands a platform to increase transparency and enhance customer engagement through digital labels that provide consumers with credible, in-depth product information on which to make more informed purchasing decisions.

www.mybrightlabel.com



Good on You Good

Good On You rates fashion brands on how they treat people, the planet and animals. The free app allows shoppers to check over 2000 ratings and discover more sustainable brands. Retailers use Good On You to improve their ethics and reach new markets.

www.goodonyou.eco



REVERSE RESOURCES

www.reverseresources.net

WHAT SHALL WE DO WITH MILLIONS OF TONNES OF WASTE IN TEXTILE INDUSTRY? LET'S ASK THE ESTONIANS.

Reverse Resource intends to reinsert the large amounts of textile leftovers into the production chain.



Trust leads to the sharing of information.

Closing loops towards circular economies means looking at waste such as cutting leftovers, roll-ends, and surplus garments. They are both underreported and underappreciated, says Reverse Resources after investigating textile industry complexes in China, Sri Lanka, and Bangladesh. The start-up found that roughly 25 percent of textile fibre is wasted in supply chains. That is not just a vast amount, it is also a potential resource, the Estonian initiative concluded. After doing the math, they ran a pilot project with H&M suppliers in Bangladesh and concluded that there are 400 000 tonnes of leftovers produced annually in the country, which could be turned into new products. RR developed software to help trace and track leftovers and establish solutions to ultimately prevent them from being downcycled, incinerated or dumped. Their research estimates that in a repeat-order of chinos, just by making fly facings out of roll-ends and cutting leftovers, 2 percent of

new fabric could be saved in mass-production. That means saving millions of litres of water, over 10 000 kilograms of CO2 emissions, and money. This is done with their reporting-software that brings transparency into sorting and storage, instead of giving things away in bulk. It incentivises producers to share information, step out of the shadowy leftover-deals and help smarten up inventory and logistics departments. Usually these kinds of calculations stay on paper as many projects for change run into corporate stonewalls: information on waste along the supply chain is highly classified. No wonder the biggest obstacles are brands, who have their garments produced far away and don't and don't consider anything beyond their equations about material inputs and outputs. However, after being awarded and hailed, RR is now generating revenue by being the first to push information, collaboration and ultimately trust through the supply chain.

“WE ARE TRYING TO MOVE INFORMATION ALONG THE CHAIN. AND TRUST.”



ANN RUNNEL, CEO and co-founder of Reverse Resources recently moved to the Estonian capital of Tallinn. A number of start-ups working at the interface between sustainability, fashion and digital enterprises have sprung up both here and in her hometown of Tartu.

So you are a software platform with tracing and tracking facilities and solutions for design, upcycling and other methods to avoid leftovers?

Our goal is to get information moving between factories and brands. Currently the main problem regarding waste is that factories find this a very sensitive topic and rather see it as a risk to share it. But there is a large hidden profit margin regarding waste. Our goal is a circular economy and for that we need information on these flows.

How do you do that?

By digitizing all aspects of leftovers. So we are looking for business reasons for factories to engage with their leftovers. By using our software they can log data and use it. Basically, we give them opportunities to report their leftovers in a secure way, integrated in a business model. So this is our biggest challenge, finding possibilities for savings and additional revenue within the field of leftovers.

Is there interest in pursuing that?

Yes. From four different sides. When garment factories sort their leftovers better instead selling them off in bulk, they can sell them at a better price. Secondly recyclers formerly had to buy everything from traders and rely on their estimates. Now they can get information straight from the factories. The software then indicates which factories create which scraps and it shows when it would be smart to measure their size and shape. This is then communicated to brands, who have an interest in reducing costs and waste, and in recycling, reuse and remanufacture. And brands can even double check on the flow of materials, since the incoming resource, leftovers and output are all measured. But we are not there yet.

This then would close the gap and make it circular?

Almost. But it requires trust on all sides. So far that has been an obstacle.



IN NUMBERS:

150

billion garments were produced in 2015.

1394

million tonnes of by-product were created in worldwide garment production. (2014/15)

3-5%

standard contractual surplus production on any garment order for quality control.

More new businesses in the field



Worn again

Currently less than 1 percent of non-wearable textiles are turned back into new ones. Polymers are set to help turn our old garb into pulp and PET resin. Spin and weave and new clothes can emerge.

www.wornagain.co.uk



MORAL FIBER

The interaction of textile waste, chemistry, transparent production and design could lead to interesting results. Moral Fiber proposes a t-shirt in which microbes play a role – they digest polyester, often mixed with other fibres, and convert them into raw material. There is more to come than t-shirts.

www.mrlfbr.com



IONCELL

Fashion is not fully understood, and nor is the dissolution mechanism of ionic liquids. A team in Finland brought these two things together, since ionic liquids at least can dissolve pulp and thereby reliably turn biomass into very pretty and sustainable fabric.

www.ioncell.fi

Global Organic Textile Standard (GTOS) International Working Group / Global Standard gGmbH

www.global-standard.org

To ensure environmentally friendly and socially responsible textile manufacturing, the organisations OTA, IVN, Soil Association and Joca jointly contribute to the Global Organic Textile Standard. The GTOS requires the textile and clothing industry to use organically produced raw materials throughout the entire supply chain.

Zero Discharge of Hazardous Chemicals (ZDHC) Foundation

www.roadmaptozero.com

Eliminating the use of hazardous chemicals in the textile, footwear and leather production chain is the idea behind the ZDHC Roadmap to Zero Programme. A total of 19 brands collaborate to implement preventive and precautionary approaches regarding the manufacturing restricted substances list and conformance guidance, wastewater quality, audit protocol and research.

UPMADE.org

www.upmade.org

Upmade has made it its mission to create circular economies in fashion by enabling manufacturers to apply their industrial upcycling methods. These methods ultimately reduce the amount of leftover material and do not create waste or pollution. Brands also have the opportunity to obtain certification from Upmade.

United Nations' Global Registry of Voluntary Commitments and Multi-Stakeholder Partnerships / Sustainable Development Goals

www.sustainabledevelopment.un.org/partnerships/about

In supporting the Sustainable Development Goals, the UN has created a platform that facilitates the global engagement of all stakeholders and provides space to share knowledge and expertise. While many of the SDGs can be applied to the textile industry, SDG 12 specifically addresses clothing manufacturers by committing to sustainable production cycles.

Partnership between London College of Fashion (Fashion Innovation Agency) and Microsoft

www.microsoft.com/inculture/london-college-fashion

Making use of Microsoft's cuttingedge technology like artificial intelligence and the internet of things, students at the London College of Fashion are able to find new creative possibilities for making clothes. They benefit from mentorship and receive technological assistance to develop prototypes for their futuristic fashion projects.

Fashion for Good

www.fashionforgood.com

Fashion for Good is an international innovation platform which enables good fashion practice in terms of materials, economy, energy, water and lives. It provides support, expertise, tools and funding for fashion startups helping them produce clothes in a sustainable way.

Stockholm International Water Institute (SIWI)

www.stwi.se

In order to understand the water challenges within the fashion industry and to find ways to tackle them, major Swedish textile and leather brands together with SIWI founded the Sweden Textile Water Initiative (STWI). STWI assists companies and factories in reducing the use of water, energy and chemicals in their supply chains.

Bangladesh Partnership for Cleaner Textile (PaCT)

www.textilepact.net

In partnership with other organisations, suppliers and brands, PaCT provides sustainable solutions in wastewater, chemical and energy management. It promotes best practices in manufacturing as well as environmentally sustainable buying and addresses sector transformation and policy gaps.

Sustainable Apparel Coalition

www.apparelcoalition.org/the-higg-index

The Higg Index developed by the Coalition comprises a set of facility, brand and product tools that measure environmental and social labor effects for all participants of the apparel industry. The tools point out inefficiencies, are able to resolve damaging practices and achieve transparency for consumers.

Humanity United

www.humanityunited.org

As part of The Omidyar Group, an organization with the goal of accelerating positive social impacts, Humanity United works with individuals, governments and the media to develop and support new solutions to global problems. It shifts mindsets through education and advocacy and creates tools and policies that can bring about extraordinary change.

H&M Foundation / Global ChangeAward

www.globalchangeaward.com

The ultimate goal of the Global Change Award started by the H&M Foundation is to create a circular clothing industry. How? By letting five early-stage projects be part of an innovation accelerator program that offers financial support, coaching, best practices, networking and access to the industry.

Levi Strauss Foundation

www.levistrauss.com/levi-strauss-foundation

The Levi Strauss Foundation stands for the protection of human rights and well-being of underprivileged people in areas in which the company operates. With the help of generous donations and partnerships, it fights for the improvement of HIV/AIDS awareness, worker rights, justice, employee engagement and volunteerism as well as disaster relief.

Solidaridad Network

www.solidaridadnetwork.org

As there is a growing demand for clothing, it has become more important to protect the people working in the factories. Solidaridad is a global network that works towards the sustainable production of textiles by offering technical support, skills development, capacity building and training on labour rights to factory workers.

Better Cotton Initiative (BCI)

www.bettercotton.org

The Better Cotton Standard System by BCI is a system designed to establish sustainable cotton production covering its environmental, social and economic aspects. It provides a definition of Better Cotton, capacity building, an assurance program, chain of custody, a claims framework and monitoring mechanisms to measure progress.

zIMPACT

www.corporate.zalando.com/en/corporate-responsibility/corporate-responsibility

Zalando launched zImpact to be a facilitator and enabler in the socially conscious tech landscape. zImpact is a program that offers visibility, funding, and expertise to ventures that use digital technology to increase supply chain transparency in the fashion business.

NEONYT

www.neonyt.messefrankfurt.com/berlin/en.html

Formerly treated as two separate projects, the Greenshowroom and the Ethical Fashion Show Berlin joined forces to create the wide-ranging NEONYT platform. NEONYT can be seen and used as a hub for communication, exchange, business and the creation of a revolutionized, sustainable fashion world.

“THERE ARE MANY HURDLES TO JUMP OVER.”



Even massive technical problems could not hold back Amsterdam-based expert Pim Kneepens from speaking to us and sharing his ample knowledge – which is precisely about technical innovation. In the fashion industry, we should add. *Interview: Amy Mason*



Fashion for Good is supporting digital innovations in the fashion industry, what for?

Pim Kneepkens: Currently the fashion industry is one of the most polluting industries in the world. This is going to get worse, as our consumption is estimated to grow by 65 percent over the next 12 years. If we want to reduce the ecological and social harm done by the industry, we need to redesign the supply chain. Technological innovation can help do that. It helps to identify, evaluate, support and scale sustainable innovations. This is what we want to foster through our platform. We want to make the fashion industry a force for good.

Interesting terminology, but what does this actually mean?

For us good fashion is not something which simply looks good. We need to employ materials which are safe, healthy and designed for re-use and recycling. We need to push for a growing, circular, and inclusive economy. We need to pursue renewable and clean energy, water which is clean and available to all and finally living and working conditions which are just, safe and dignified. In practice this means designing a supply chain on these principles. What is wrong with fashion supply chains now? The fashion industry operates on a global scale and continuously searches for the most cost efficient production methods. As a result, it is difficult to trace who is involved in the creation of

products from the raw material stage to the finished product. This leads to a number of negative side-effects. There is a detachment from the local communities that are impacted most by the current production processes. Basically, margin enhancement has taken such a prominent place in the supply chain that it comes at the expense of the environment and workers. We observe a constant shift in production capacity as companies relocate according to the availability of cheap labour.

How is the fashion industry doing with traceability and transparency?

In other industries, traceability and transparency are much more developed. From that perspective the fashion industry is lagging behind. At the moment we are seeing a slow shift in consumer demands and government regulation, though. Consumers are starting to ask how their products are being made through campaigns like #whomademyclothes, while governments are increasingly starting to demand that garments are produced in a sustainable and responsible way. Consequently, brands and retailers are seeing the added value of a transparent supply chain.

Consumers ask where and how their products are made.

What has been holding brands back from engaging in transparent supply chains?

One element is the brands' belief that supply chains are distinguishing factors. A lot of brands still see how and where their products are made as their competitive advantage. As a result they may be unwilling to disclose that information. Another reason would be risk - you are exposed when you publish where your products are made. Even with regular audits, certification schemes and educational programmes about environmental and social standards, manufacturers are still independently operating entities located in regions with different sets of values about right and wrong. As a result, manufacturers might be doing things which could be perceived as negative by consumers, without the brands having an influence over those actions. Finally the most important element would be the cost associated with some of the traceability solutions in the market. It is quite complicated to create a robust, cost-efficient and end-to-end traceability solution that requires minimal changes to the way factories operate. Given that some brands are operating with very narrow margins they might not have the flexibility to experiment with these solutions.

How can digital initiatives help?

I think in order to create a transparent supply chain, there are a few steps we need to take: there needs to be

an IT infrastructure which facilitates communication between companies in a uniform way. Currently each factory uses its own definitions and data parameters. Blockchain solutions have the ability to simplify the exchange of information between companies as it forces them to adopt a universal language. Subsequently, you need to map and audit your end-to-end supply chain. Companies are developing digital benchmarking tools which allow users to compare materials and products. Initiatives like the Social Labour Convergence Project are trying to simplify the social auditing process by storing the results of audits in a centralized database. After auditing, you need to verify that the products you have received are actually produced in the approved locations as subcontracting is quite prevalent in the fashion industry. We are seeing companies using isotopes, microbiomes and synthetic DNA as a means to verify where products have originated. Finally, a continuous feedback loop for worker conditions and environmental standards can strengthen the data collected through auditing, which is itself just a snapshot in time. There are companies which are offering a technological solution to allow workers on the floor to immediately provide anonymous feedback about their working conditions.

Where do you see the biggest problems at the moment?

As I mentioned, each factory uses its own definitions and data parameters which are unlikely to be



“I hope we reach a position where brands and retailers are proud of their supply chains.”



aligned. This lack of a cross-company infrastructure complicates efforts to build a transparent supply chain. The industry needs an operational solution to integrate and unify data from multiple sources, as opposed to a myriad of different systems.

How easy is it to scale these digital solutions?

There are many hurdles we need to jump over. Access to technology is crucial. If the aim is to create transparency from farm to consumer and farmers do not have access to the internet or phones, that creates a problem. As technology advances, the gap between what we need and what is available in supply chains grows. A second hurdle is that a lot of these solutions require cross-company collaboration. It requires collaboration between start-ups and incumbents to offer end-to-end traceability solutions. It requires collaboration between all the actors in the supply chain. Currently we are working hard on finding the right incentives to foster those collaborations but that is not always easy. The third hurdle is data integrity. At the moment there are very few solutions which can

Transparency and traceability are precursors to change.

efficiently ensure the provenance and authenticity of the data we use. Data management based on handwritten documents and excel sheets is still quite common, which makes it prone to errors and vulnerable to fraud. We need to put digital systems and instruments in place in order to guarantee that the data which goes into the system is correct.

Do you think that the supply chains need to be simplified before we can make progress on this?

You often hear that from supply chain professionals. I think supply chains reflect the diversity of customer demands. Brands offer large portfolios of products to capture consumer demand. We need to appreciate that diversity and organize for complexity, rather than just saying we need to simplify it.

What about fast fashion. Do you think that in itself is a barrier to sustainability?

Fast fashion puts pressure on the supply chain that, when operated at the scale we're operating at now,

causes a lot of negative side effects. And it is very hard to close Pandora's box once it is open. So we are at the point now where we need to sit back and think about how we can redesign our value chain. I believe it is actually easier for us to create supply chains which enable brands to offer the same products for the same prices in the same volumes and produce them in a completely sustainable way than it is to move consumers away from fast fashion.

Does the pressure on supply chain transparency create a bigger change in the industry?

I really believe that transparency and traceability are the precursors to change in the fashion industry. Knowledge about how and where our clothing is being produced, as well as knowledge about the impact this has on the environment and people's lives, gives us the insights we need to take action. We see start-ups emerge with subscription-based revenue models or leasing models to reduce our environmental footprint. I am also seeing an increasing interest from large brands and manufacturers in circular business and production models as our awareness of the amount of waste generated by the industry grows.

So you are quite positive about changes to the supply chain?

My hopes are that we reach a position where brands and retailers are proud of their supply chains. I think that would completely eradicate the discussion about whether we should or shouldn't build a transparent supply chain. Supply chains are assets, not risks.

Pim Kneepkens:

Pim's business is helping fashion brands to redesign their value chain through scouting and scaling innovation. With a Master of Philosophy in Business Research and a Master of Science in Business Administration, Pim Kneepkens does so as the Innovation Portfolio Manager within the innovation platform of Fashion For Good. At its core is an innovation platform, a plug and play accelerator programme, a scaling programme, and the Good Fashion Fund. With all this combined they intend to act as an agent for change. www.fashionforgood.com

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