Waya Collective

Making Africa the ideal place for producing fair and sustainable fashion.

Introducing a decentralized production system in Africa, enabled by blockchain.

White Paper by **Waya Collective**

Abstract

This paper introduces an innovative model of a decentralized production system in Africa which is taking advantage of existing structures and resources while tackling some of the most striking problems of the continent. The system could be used for any light production industry, in our case, the focus lies on the fashion industry. In the model, existing, small production facilities such as tailor shops are utilized and organized to build a flexible and scalable system which can produce any amount of clothing. The business model is B2B, targeting the European fashion market which is now rapidly turning towards fairness and sustainability. In it we do not only see a huge business case but also an opportunity to create jobs and to make the fashion industry more ethical.

Our big vision is to develop Africa to become the ideal place to produce fair and sustainable products. To make this a reality, the model uses blockchain at its heart, enabling transparency and an incorruptible system, distribution of power and of course scale. This white paper states the concept, the market, how we intend to implement it, who we are, and how to get involved.

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Motivation

Africa – a continent full of potential. Everyone who has read just one article about Africa probably did not get around the immense potential Africa is accredited to have. We believe the same, but the real question for us is: How can this potential be fulfilled? And what we ask ourselves even more: what kind of Africa do we, and Africans themselves, want to create?

We believe in an Africa where everyone has the opportunity to fulfill their personal potential, an Africa that takes charge of its destiny, that prevents the same mistakes the rest of the world has made and builds a sustainable and fair society. We believe that Africa can sustain its decentralized structures and use blockchain to build incorruptible systems that organize the continent's rich resources most effectively. We believe in a decentralized, tech-enabled and sustainability driven Africa.

Africa is home to millions of tailors who own a sewing machine, who are trained and ready to work. But they do not have access to a market since Africans themselves mainly buy cheaper second-hand clothing and since single tailors also cannot handle larger orders, their potential customer group is limited to their personal connections and their neighborhood. Yet, the labor, the skills and the machinery are there. What if these workers could be organized in a decentralized way and be connected to the global market? What if we would combine craftsmanship with international standards of fashion production and hustle culture plus available workforce with opportunity?

The Model – Rethinking (Fashion) Production

How do we implement our vision? To understand how Africa can be connected to the global fashion market, we have to understand what the current state of fashion production in the world is and where it came from.

The history of fashion production

Fashion production used to be something done in every small town or even at home. But with the industrial revolution, the production of ready-made clothing was introduced and the development of a consumer class, accompanied by a cultural change, the industry started taking off[1]. Until a couple of decades ago, most of the fashion consumed by western countries was produced in Europe or the US, but the demand grew, and producers were looking for cheaper places to produce. A race to the bottom began[23]. A chance that Asian countries such as China and Bangladesh took and modern fashion production was born. Many other Asian countries followed and nowadays, most textiles in the world are produced in Asia.

Looking at Africa, the least industrialized continent and the place with the largest population growth, light fashion production can be a way to create jobs and can support the process of industrialization by connecting Africa to the global market.

But this path has its downsides. The Asian story is not only a story of success, but also a story of exploitation, both of the environment and the people[4]. Large western companies are demanding lower prices to compete in the global market. The middleman and the production owners who depend on those companies pass these demands on to the tailors and production workers on ground[5]. Implementing this model of dependencies in Africa will harm the continent with its people and nature, more than it will help it grow. Additionally, it is difficult to implement: the African society is built on stallholders, people are taking responsibility for their own work and deciding on their terms. The so-called hustle culture

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[1] Annie Radner Linden, "An Analysis of the Fast Fashion Industry" (2016)
[2] Annie Radner Linden, "An Analysis of the Fast Fashion Industry" (2016)
[3] Oh So Ethical, "Race to the bottom" (2019)
[4] Annie Radner Linden, "An Analysis of the Fast Fashion Industry" (2016)
[5] Annie Radner Linden, "An Analysis of the Fast Fashion Industry" (2016)

causes Africans to work as hard as possible, taking on multiple jobs and side businesses to create a good living for themselves and their families[6].

Light production is a major part in building livelihood for millions of Africans entering the job market every year, but how can exploitive structures like those we see in Asia be prevented? What if we rethink fashion and light production entirely and use the in Africa already existing structures as a starting point?

A new model for Fashion production

We propose a new model in which we utilize and organize existing workforce in a decentralized fashion production network which we then connect to the global market. Existing small businesses such as tailor shops or fabric printers (we call them "collectives" as they enter the network) receive a formalized training and can get certificates to ensure every product fulfills the high production standards needed to be able to compete. The trained and certified producers then become part of the network and can apply for and receive orders. Because every collective with the same certificates has essentially the same abilities, it is possible to split up big orders to enable production from unit size to almost infinite.

Engineering   Fabric sourcing

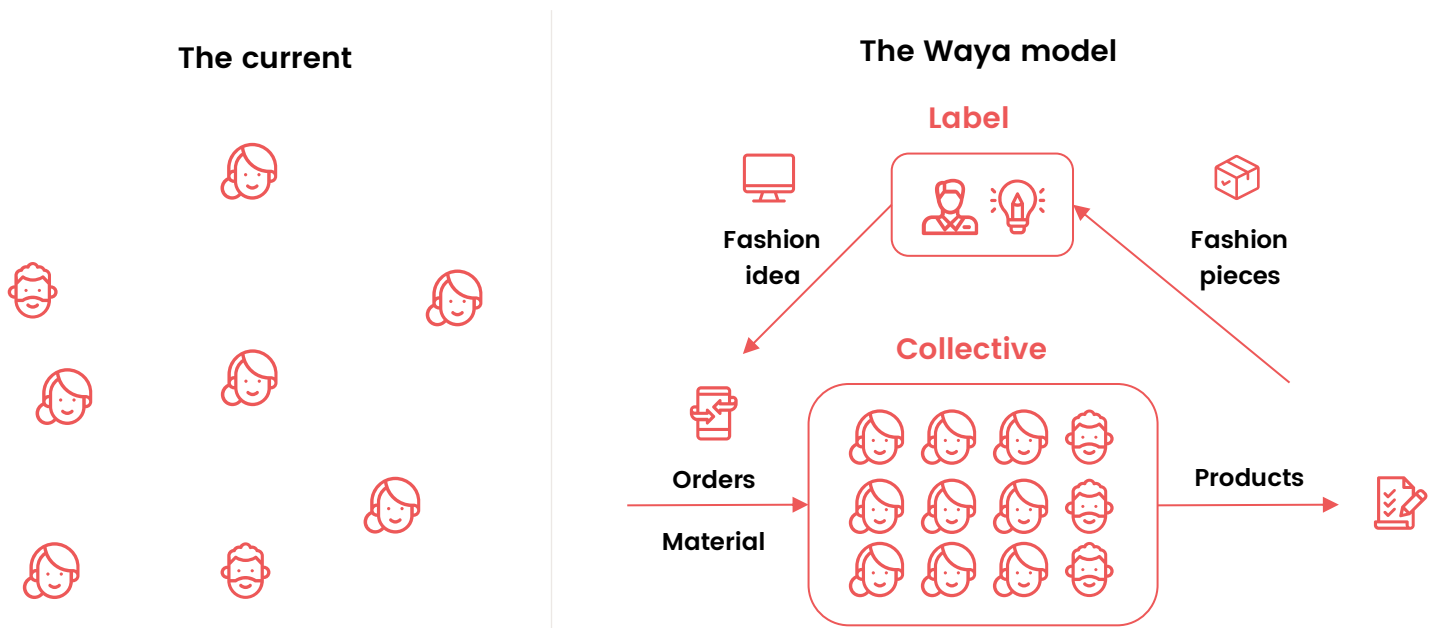Tailoring   Financing

Packaging   QA
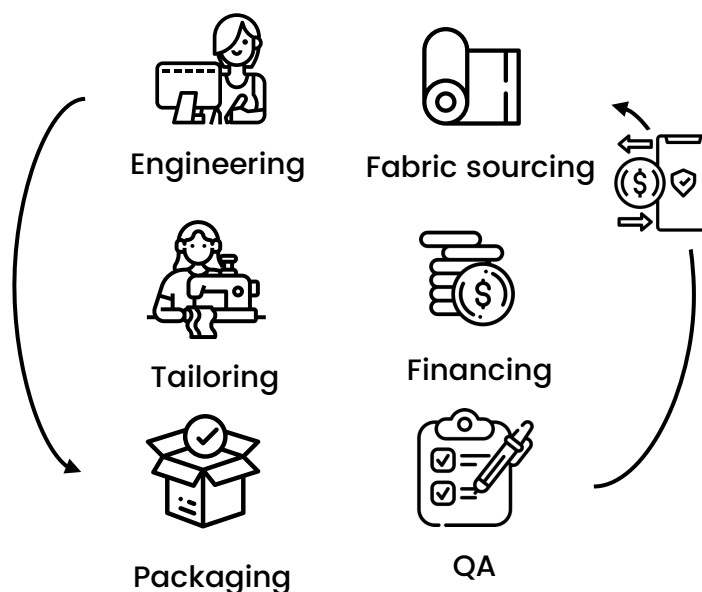
Furthermore, not just the task of tailoring, but also tasks such as pattern making, printing, storing and supplying of fabrics can be taken up by someone in the system. Therefore, the system can eventually be fully decentralized, flexible and has few fixed costs.

Which sounds like an immensely complex model is actually the organized mapping of already existing, current structures. All the above-mentioned tasks are already done by many small

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[6] Tatiana Adeline Thieme, "The hustle economy: Informality, uncertainty and the geographies of getting by" (2017)

businesses which lack access to a bigger market. What the Waya model does is standardize their services and give them access to a much bigger, global market.

The current   **The Waya model**

Label

Fashion idea   **Fashion pieces**

Collective

Orders

Material   **Products**

How do we ensure quality and how do we ensure that nobody can exploit this system?
There are two parts to answering this question. The first one is about how we set up the rules and interactions within the system and the institutions necessary to ensure them. Since it is a decentralized system, there have to be checks and balances for every actor and every possible interaction. We have created and are continuously working on our actor interactions which are described in detail in the chapter "Ideal Product". We have built this using the fundamentals of game theory to make sure everyone has an incentive to do the "right" thing (such as a rating system incentivizing high quality work).

The second part that ensures transparency and a well working system is that our system underlies blockchain technology. As described above, the network is very decentralized. Without strict rules, such decentralized structures can easily be corrupted or exploited. Our blockchain system facilitates the network and rules that we have put in place while at the same time making them efficient and competitive. This is because all interactions underly the rules stated in our smart contract and by design, all interactions are visible for everyone which makes the system incorruptible. The Waya token will furthermore facilitate easy, safe and transparent payments which solves a huge problem on a continent where financial institutions are expensive and inefficient. Furthermore, in a system built on blockchain, the power over actors and rules lies in the hands of everyone which is why no single entity, not even us, can corrupt or exploit the system or the workers. This provides a unique value proposition to international customers who are looking to produce fair products. Our clients get connected to a flexible production network which is transparent and fair by design, not just by promise.

The Waya Collective Network

Production Network

Labels

Material & Fabrics

Financing

Loans
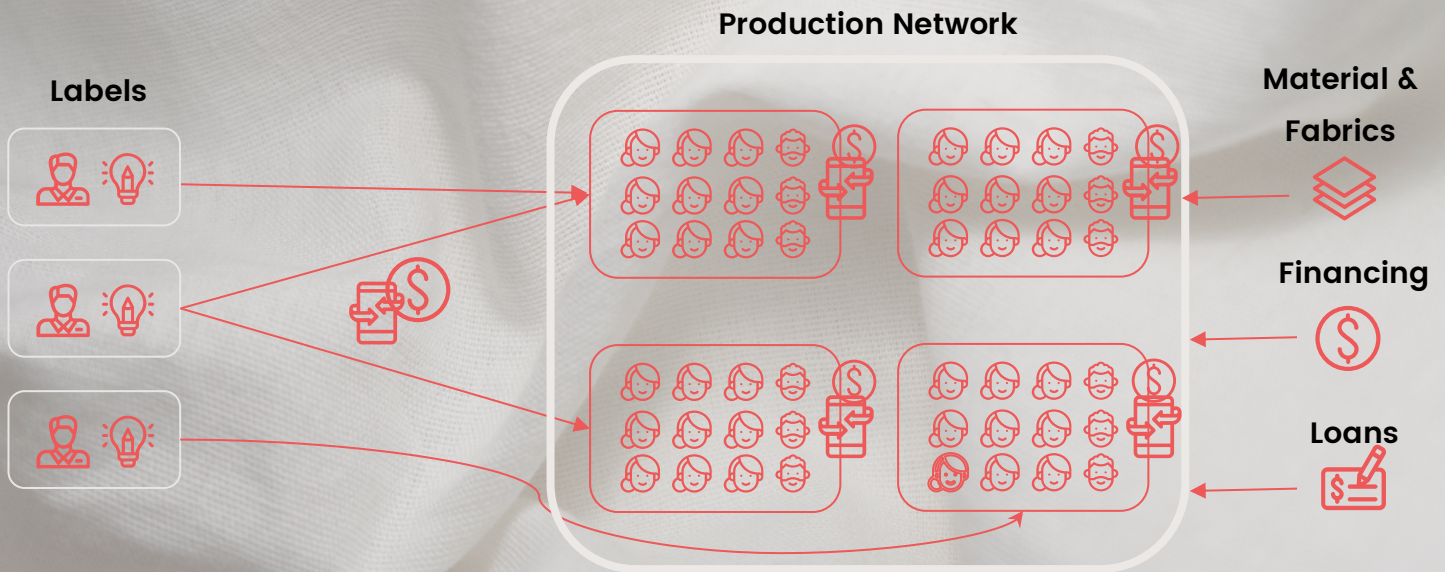
Market Analysis

In this market analysis chapter, we will start by analyzing the consumer market, how labels are reacting to it and how we help them succeed. In the end we shed light on the market size.

The consumer

Fashion. Everybody owns clothes. It is necessary to stay warm. But it is more than that. It is a decision. A decision on how one will be perceived, a decision about identity. Based on that, people make decisions on what label to buy, what material, style and quality. In the past years however, another factor became more and more relevant: how it is produced.
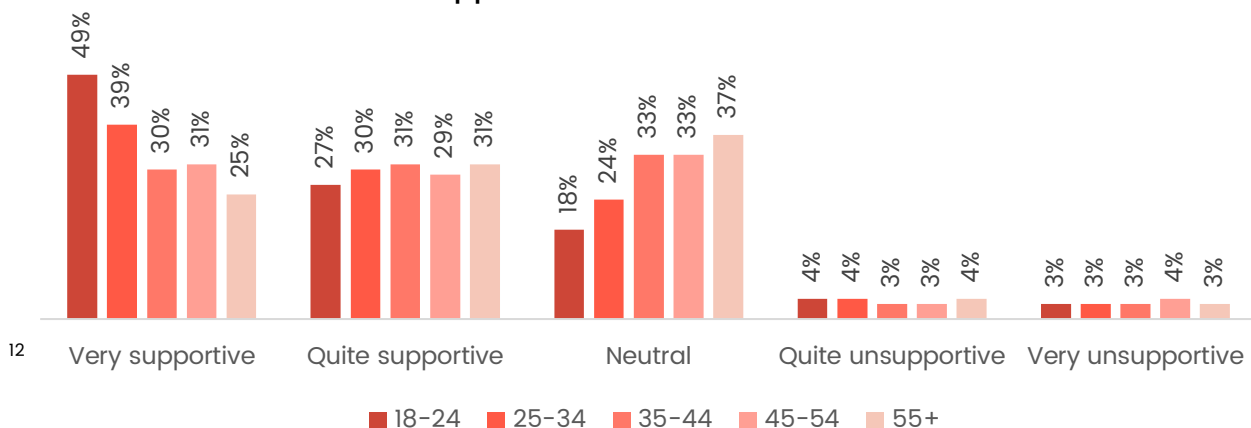
Fast fashion is based on low prices, poor quality and the availability of unlimited new styles. As it turned out over the past decades, this model goes along with inhumane working conditions and immense pollution and resource consumption. Documentations and media created awareness of the many problems.

Eliminating hidden subcontractors with full transparency

One big problem with existing structures in Asian countries are "Hidden Subcontractors"[7]. "In order to meet tight deadlines and/or to be able to complete unanticipated orders, manufacturers subcontract certain production processes to other factories and workplaces, without informing the buyer"[8]. Subcontractors are often smaller factories without an export license. The fact that buyers mostly do not know about them leads to a "deterioration of working conditions"[9]. In a system based on blockchain and therefore decentral and transparent by design, all actors are essentially smaller factories without an export license, however they have the power to be visible and be employed under fair working conditions.

Consumers are increasingly concerned about the impact their fashion consumption has. 64% of people surveyed in a global study in Europe and Asia are supportive of sustainable fashion. The level of support increases among younger consumers which emphasizes how seminal this trend is. A market study found that "Social media is playing a pivotal role in educating people about sustainable fashion as well" since it gives fashion bloggers and creators a platform to "raise awareness on ethical issues and even promote fundraiser campaigns to support the ethical fashion industry"[10]. "In response to such activism and education, in 2019, internet searches for 'sustainable fashion' increased by more than three times compared to 2016, and this trend is expected to continue in the forecast period."[11]

Support of Sustainable Fashion

	Very supportive	Quite supportive	Neutral	Quite unsupportive	Very unsupportive
18-24	49%	27%	18%	4%	3%
25-34	39%	30%	24%	4%	3%
35-44	30%	31%	33%	3%	3%
45-54	31%	29%	33%	3%	4%
55+	25%	31%	37%	4%	3%

[12]

[7] SOMO "Fact Sheet Hidden subcontracting in the garment industry" (2015)

[8] SOMO "Fact Sheet Hidden subcontracting in the garment industry" (2015)

[9] Merk, J "Production Beyond the Horizon of Consumption: Spatial Fixes and Anti sweatshop Struggles in the Global Athletic Footwear Industry." (2011)

[10] The Business Research Company, "Sustainable Fashion Market Analysis Shows The Market Progress In Attempt To Decrease Pollution In The Global Ethical Fashion Market 2020" (2020)

[11] The Business Research Company, "Sustainable Fashion Market Analysis Shows The Market Progress In Attempt To Decrease Pollution In The Global Ethical Fashion Market 2020" (2020)
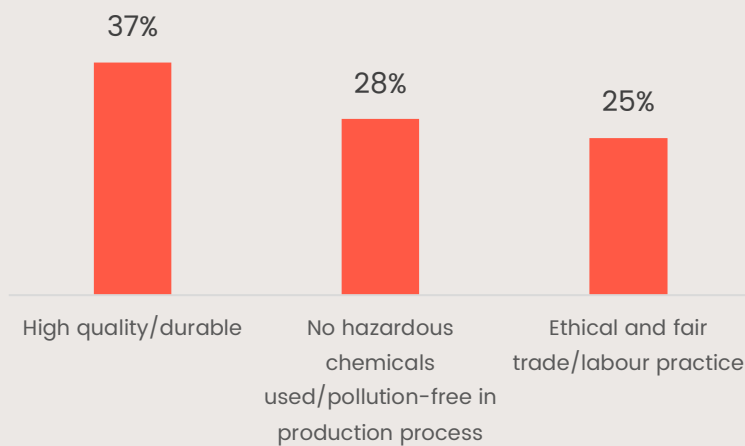
[12] KPMG, "Sustainable Fashion – A survey on global perspective" (2019)

## Turnover of Fairtrade Textiles in Germany (in Mio €)
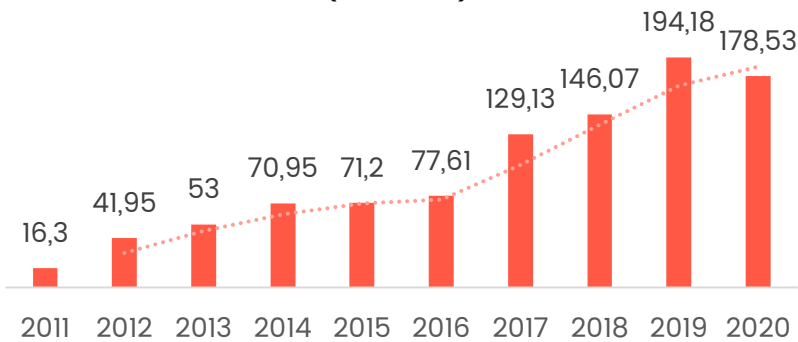
The turnover of Fairtrade certified textiles grew massively with a compound annual growth rate (CAGR) of 30% from only 16.3 Mio € in 2011 to 178.53 Mio € in 2020.[13]

Features best defining sustainable fashion

High quality/durable	No hazardous chemicals used/pollution-free in production process	Ethical and fair trade/labour practice
37%	28%	25%

But what does sustainability even mean to consumers? The three most important features named by consumers are a high quality, no use of hazardous chemicals and ethical/fair production. Fashion Labels who have decided to produce sustainable fashion therefore need to ensure that both the materials used for production and the working conditions follow certain standards.[14]

Fast Fashion Market Value Forecast (in billion US$)

2009	2019	2029
22	36	43
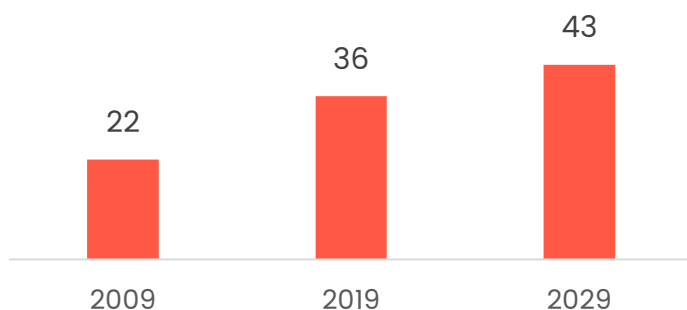
Most consumers are aware of the ways their garments are produced and the impact it has on the environment. Therefore, a majority also support sustainable alternatives. However, the fast fashion industry has been growing at an annual growth rate of 5% from 2009 to 2019 and shows no sign of slowing down with a projected further growth at an annual rate of 2% until 2029.[15]

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[13] TransFair "Jahres- und Wirkungsbericht", Page 11 (2021)

[14] KPMG, "Sustainable Fashion – A survey on global perspective" (2019)

[15] Statista (2019)

That is because the main reason for buying fashion is still identity and whereas sustainability and fairness may be a part of some consumers identity, that doesn't apply to most. Furthermore, a willingness to pay more for sustainable and fair fashion is not evident. Only 13% of consumers said they would pay more for

Reasons for not buying Fair fashion

The products are not fashionable enough	39%
The prices are too high	47%
Choices in stores is limited	59%

sustainable fashion, however 60% said they would prefer sustainable fashion if it was at the same price[16]. A survey among consumers in Germany showed that the main reasons to not buy fair fashion is that there are not enough choices, that prices are too high and that the items are not fashionable[17].[18]

Obviously, there is a massive market for fashion and a major trend in the direction of sustainability and fairness. In order to take fair and sustainable fashion to the mainstream, to shift the fashion industry, and to serve consumer needs, products need to be fashionable, high-quality, affordable and of course also fair and sustainable.[19]

Key factors when buying fashion

Price/Value	67%
	55%
Quality	54%
	41%
Convenience of purchasing	32%
	31%
Brand	24%
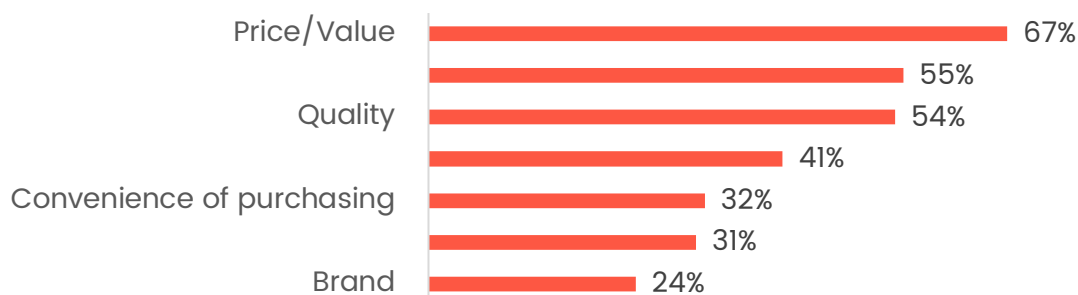
[16] KPMG, "Sustainable Fashion – A survey on global perspective" (2019)

[17] Utopia; TextilWirtschaft - Nr.16/2019, Seite 17 (2019)

[18] Utopia TextilWirtschaft (2019)

[19] KPMG, "Sustainable Fashion – A survey on global perspective" (2019)

Labels

The demand for great fair and sustainable fashion is growing but it is not well served yet. That is why large fashion brands such as H&M are trying to shift their image and are looking for ways to produce more ethically. Many smaller, impact driven labels are also coming up to serve this market. But there is one problem: it is almost impossible to produce fashion for affordable prices while also being fair and sustainable. In addition, ensuring transparency, in a system which originally thrived on producing cheap clothing at any price, seems highly difficult.

Multinational Fashion Labels

Fashion Labels such as H&M and Zara are main drivers for fast fashion, but they will not be able to escape the shift to ethical production. For larger companies like them, transparency and fairness will not only be demanded by customers, but also by law. Germany took a first step with the "Lieferkettengesetz" ("Supply Chain Law"), which requires larger companies (from 2023 companies above 3000 employees and from 2024 companies above 1000 employees) to take responsibility for violations along the entire supply chain. In other words, it is required for them to produce transparently, fairly and sustainably.

For the sake of this analysis, we will focus on smaller, sustainability-oriented labels since we see immense potential in them and also a great fit for our solution.

## Small Sustainability Oriented Fashion Labels

Technology gave individuals the opportunity to create their own content and social media provides the tool to market it to millions of people without major marketing budgets, but by building communities and telling a story. As mentioned above, fashion bloggers are major drivers of the sustainability movement and many of them take the next step and start their own sustainable fashion label. This wave of labels presents a new market for fashion production that is currently not served right.

When a smaller label wants to produce fashion, it is confronted with the seemingly impossible task to source sustainable materials, find a producer and make sure their working conditions are good, develop the products and organize shipping. Small labels do not have large order sizes which means producing in Asia is close to impossible - those factories usually take only large orders. What is left is either white label[20] products or to produce fashion in Europe which is expensive because of the high cost of living. Transparency is especially important to small labels because

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[20] Generic products without any label

they build their products with the vision of making a change in the fashion industry and their customers share that vision. Without transparent value chains it is impossible for the labels to guarantee fairness to their customers.

One way to ensure sustainability and fairness is using certificates. However, most consumers do not know, let alone trust the certificates and therefore they may not be a sufficient reason to buy. Additionally, many consumers are unsettled by the range of certificates and are even more unsettled when seeing documentaries or reading about the certificate industry and how misleading certificates can be.

Textile Certificate Popularity

■ Knowing right out of head ■ Knowing the name when shown
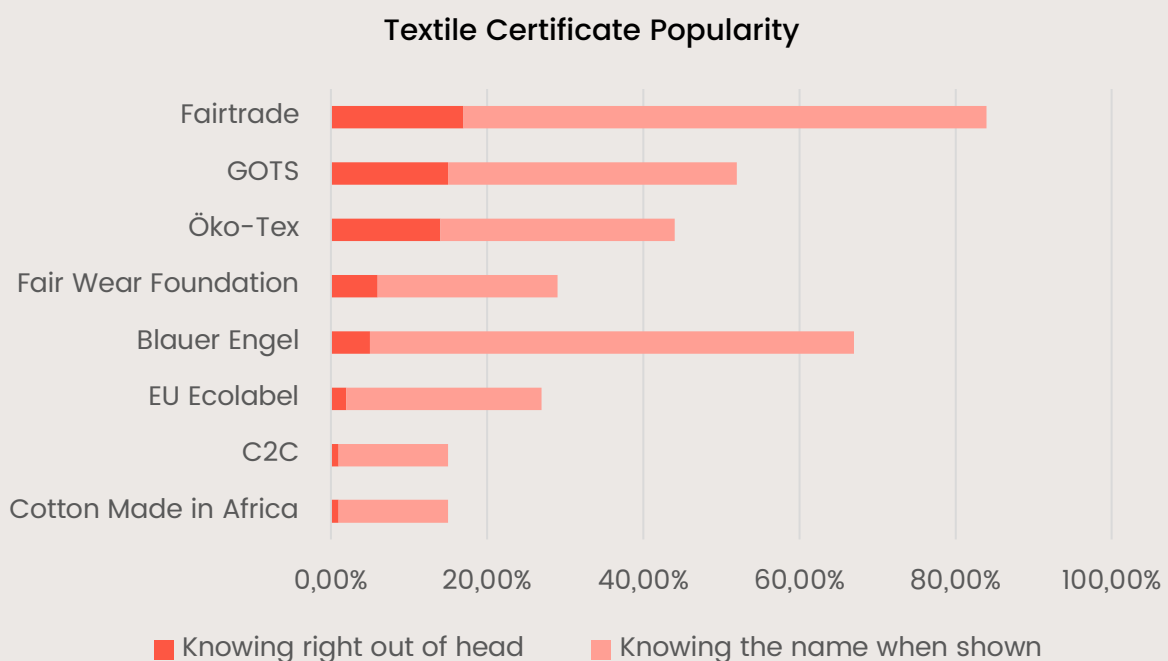
[21]

Just as the tools to easily create content were built, the tool to easily produce fashion can be built too. During user interviews with smaller fashion labels, we have identified the problems and challenges such a "tool" needs to solve. The main challenges are the following:

- Sourcing the right fabric in the right amount
- Only producing small quantities when first starting out
- Creating and producing unique designs
- Facilitating the development process of the design and product with limited information and few technical experience
- Handling logistics

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[21] Utopia "Lost in Label?" Page 16 (2019)

- Providing full transparency on working conditions and sustainability

In other words, the entire process from idea to finished product should be made transparent and easy. The label's passion is to create designs and their brand, most of them however do not want to bother with the production process, let alone with ensuring transparency.

Market Entry

In this chapter, we analyze and outline our target market and explain our strategy on how to serve them right. We believe our solution is a great fit for smaller sustainability-oriented labels. Our main geographic target market is Europe with a focus on Germany in the beginning.

Reasons to target smaller labels

Production in Africa will not be able to have a price advantage over highly industrialized productions with oppressive structures in Asia. Nevertheless, we see important competitive advantages for African fashion production compared to the Asian way.

For smaller sustainability-oriented labels, the proposed model can provide two main competitive advantages. First, the truly ethical and transparent production - primary market research showed that the idea of producing in small tailor shops in Africa is much more appealing than a large factory in Asia. Second, our flexibility and our chance to simplify the product development process. Because of the modularity of the model, it is possible to produce only very small order sizes and to also scale them up easily. Additionally, the tailors have a lot of technical expertise and can create new sewing patterns easily and cheaply. We call the model proposed for serving the market needs "Ethical fashion production as a service". It is explained in further detail in the chapter "Business model".

Another advantage in targeting upcoming labels is their own growth. Labels by influencers have a huge potential for growth because they are very close to their customers. Primary research showed that labels rarely change their producers - if we can catch those labels in the beginning and fulfill their needs, they will be incentivized to stick to us as they grow.

Reasons to target Europe as an entry market

The first reason why Europe is a good entry market is of course their near location. This provides the advantage of having lower shipping cost and pollution. Countries such as Turkey, Morocco and Portugal are already projected to gain in importance[22]. Additionally, Europe and Africa have similar time zones which makes communication much easier.

[22] McKinsey, "Africa, Europe" (2018)

Furthermore, consumers in Europe are already conscious of sustainability. For example, in a survey in Germany questioning important factors when buying fashion, 57% of respondents have replied that sustainability is important to them, just 2% less than they named the factor "price"[23].[24]

Important factors for fashion consumers in Germany

Reduction of packaging material	63%
Price	59%
Sustainability & Recycling	57%
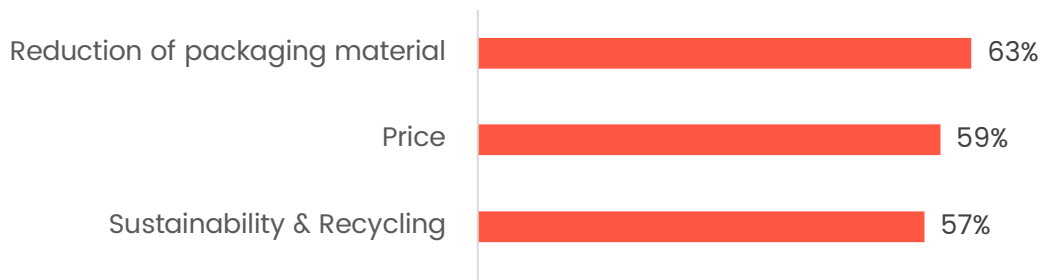
Projections also show that the Fairtrade fashion market is going to grow massively. Until from 2018 to 2025, the market revenue is supposed to grow by almost 9 times[25]. In addition, there is also a willingness to pay more for fair and sustainable fashion in Germany. In a survey in 2019, 58% responded they would pay up to 10% more for cheap clothing if the producer can ensure fair wages[26].

Quanitity and Revenue projection of Fairtrade fashion market in Germany (in Mio pieces/€)

+890%

	2018	2025
Quantity	14	84
Revenue	146	1309

■ Quantity ■ Revenue
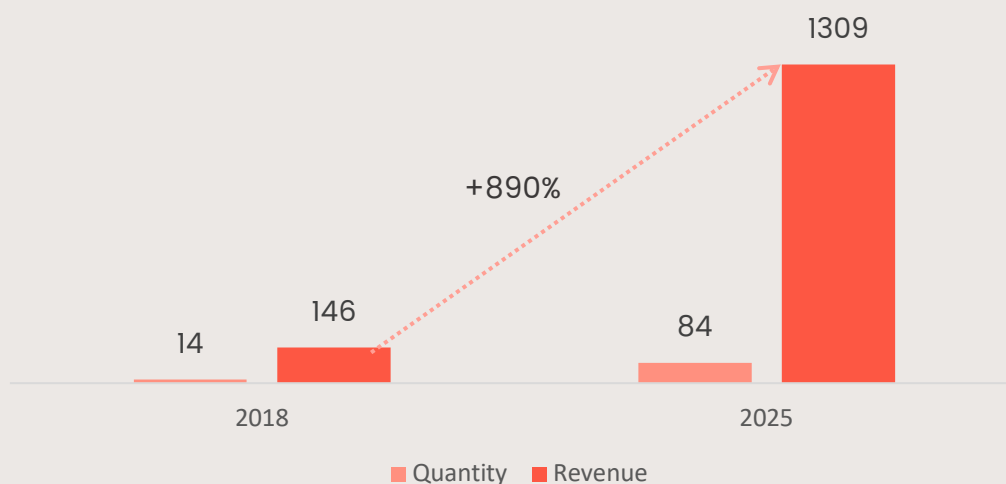
[27]

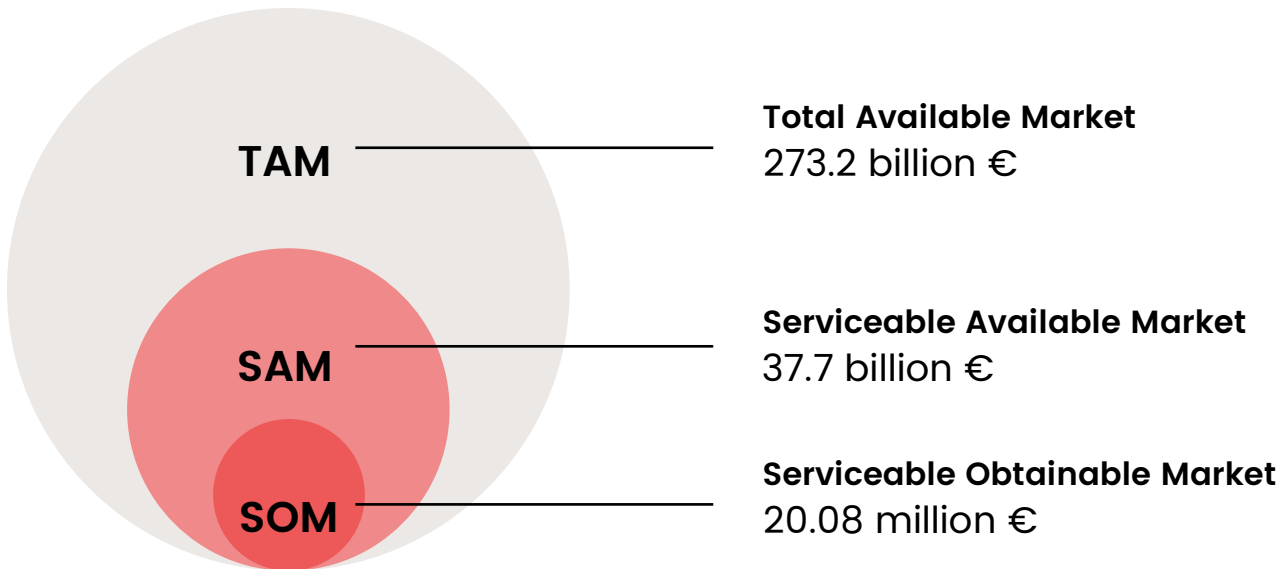[23] Mintel (2019)
[24] Mintel (2019)
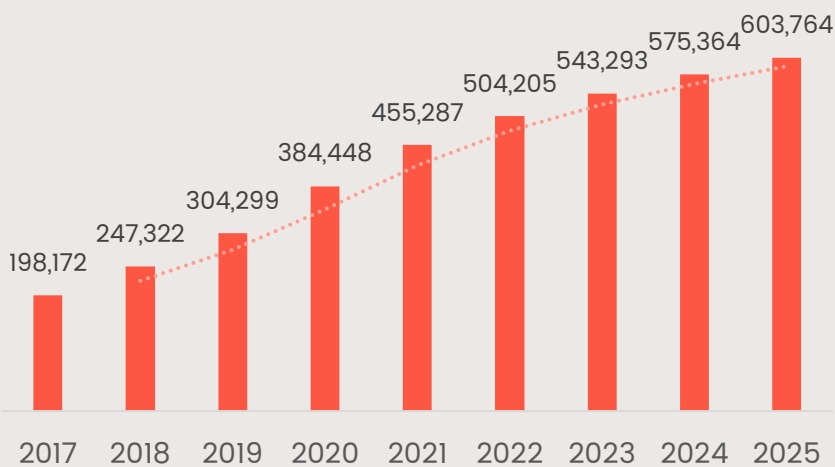[25] Statista (2018)
[26] Ipsos (2019)
[27] Statista (2018)

Market Size

In the following, we will look at how big the market is using the TAM, SAM, SOM-Model. Based on the data and calculations below, our TAM has a value of 273.2 billion € in 2021, our SAM a value of 37.7 billion € in 2021 and our SOM 20.08 million € if we capture 1% of our entry market in 3 years.

Total Available Market
273.2 billion €

Serviceable Available Market
37.7 billion €

Serviceable Obtainable Market
20.08 million €

Fashion Market Value Worldwide
(In Billion €)

Year	Value
2017	198,172
2018	247,322
2019	304,299
2020	384,448
2021	455,287
2022	504,205
2023	543,293
2024	575,364
2025	603,764

TAM

The **TAM** or **Total Available Market** is the total market demand for a product or service.

In our case, that is the **worldwide fashion production market (no competition)**. Potentially, if every clothing brand would produce with us and we had no competition we would generate these revenues. Our entry market are brands that focus mainly on producing fair and sustainable fashion.

However, the entire market is shifting towards sustainability and we could and would produce garments for any fashion company in the world. To calculate the TAM, we have to know how much of the revenue in the global fashion market we can capture. We provide not only the production, but also the product development, fabric sourcing, shipping etc. which conservatively makes up about 60% of the price for a garment. Therefore, the value of the worldwide fashion market x 0.6 is our TAM which is at a size of 273.2 billion € in 2021 and is projected to grow to 362.3 billion € in 2025[28].[29]

SAM

The **SAM** or **Serviceable Available Market** is the segment of the TAM targeted by our products and services which is within our geographical reach.

Since we will focus on the German fashion market in the beginning, this defines our geographical reach. We use the same formula for calculating our revenue (x0.6). In 2021, our SAM therefore has value of 37.7 billion € and is projected to grow to 40.2 billion € in 2022[30][31].[32]

Apparel Market Value Germany (In Billion €)

2017	2018	2019	2020	2021	2022
32,11				62,83	66,92
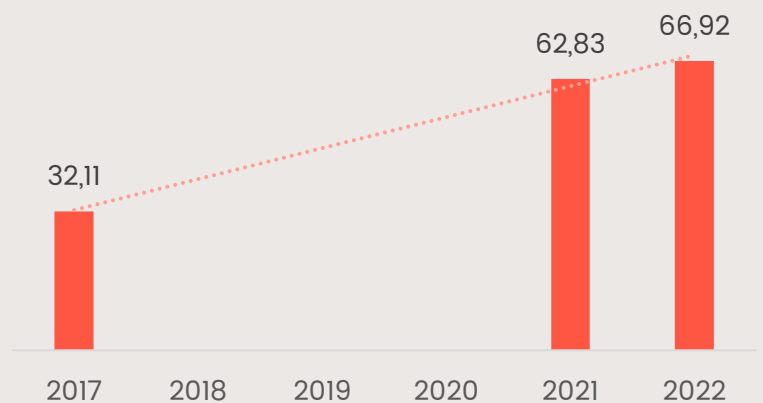
SOM

The **SOM** or **Serviceable Obtainable Market** is the portion of SAM that we can actually capture in the coming years. How much of the fashion market in Germany can we obtain?

As our entry market will primarily be small labels that have an estimated market share of 5%[33], that will be the base for our SOM. We will use the market size of 2022 as a base. If we can capture 1% of all small labels within 3 years, we will be able to generate a revenue of 40.2 billion € x 0.05 x 0.01 = 20.08 million €. This is our SOM.

[28] Statista (2020)

[29] Statista (2020)

[30] Statistisches Bundesamt (2017)
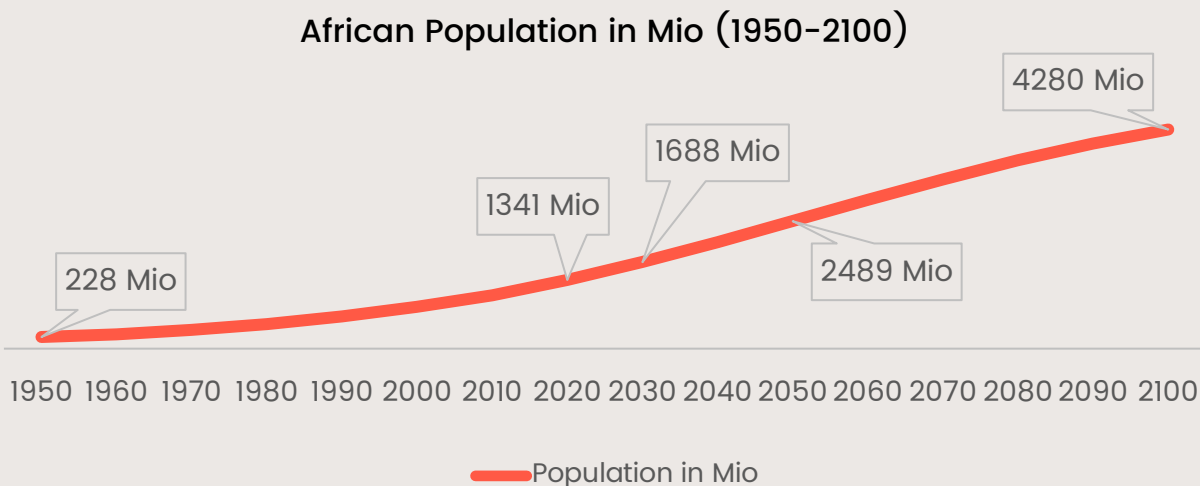
[31] Statista (2021)

[32] Statista (2021)

[33] Statista (2020)

Why Africa?

Why does it make sense to produce fashion in Africa and why use this model? Africa has many unused potentials and multiple corresponding advantages when it comes to the development of light manufacturing. It was found that sourcing textiles and garments from Africa underlies a strong negative bias which cannot be explained by governance or country characteristics and suggests that a form of concerted action is needed to change that picture[34]. For the following reasons, we believe that Africa holds great conditions for a growing textile industry.

The people

It is no secret that Africa has a fast-growing population. With currently just above 1.3 billion people, the population is projected to double in the next 30 years and grow to almost 2.5 billion in 2050 which will then make up more than 25% of the world population[35]. This is an opportunity and a threat at the same time. If Africa will not be connected to the world market and no jobs are being created, a massive and very young population will look for a prospective elsewhere which might cause conflicts and migration waves to Europe[36].

African Population in Mio (1950-2100)

4280 Mio
1688 Mio
1341 Mio
2489 Mio
228 Mio

1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

[37]

━━━ Population in Mio

But let us look at the opportunity on the other hand. All these people can be employed and become the engine of a growing economy.

Large initiatives, prominently in Ethiopia, have copied the Asian model to drive the growth of light manufacturing. In that process, large industry parks have been built, with mainly Asian

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[34] Paul Brenton, "Clothing and export Diversification: Still a route to growth for Low-Income countries?" (2007)
[35] United Nations, World Population Prospects (2019)
[36] Ruth Gurth-Adam & Livia Benkova, " The impact of demographic developments in Africa on Europe" (2016)
[37] Macrotrends, "Africa Population 1950-2021" (2021)

companies simply looking for cheap labor[38]. Whereas the ambitious plans of Ethiopia are a good example for what African countries can do, the required working conditions are foreign to Ethiopian workers. Operational companies have had problems in achieving a good level of productivity and the fluctuation in workers is high. In many parks, there have been strikes by workers who complained "lack of faith; loyalty, efficiency and diligence"[39]. On the other hand, the independence of people, their thrive to achieve and the already existing resources could be used and accelerated to build a more productive, more scalable, and more flexible model.

Furthermore, there are a few countries that supply the conditions needed for this kind of a model. "Relative to comparator countries at comparable income levels, industrial labor is more costly for firms that are located in Sub-Saharan Africa"[40]. Therefore, in order to industrialize, labor cannot be the main or only competitive advantage, there needs to be a "balanced strategy"[41].

Truly fair

Fashion labels are nowadays not only looking for cheap labor, but fair and transparent working conditions[42].

Africa is known for fair-trade products, mainly in primary products such as coffee, chocolate and cotton[43]. The concept has been highly criticized for romanticizing "images of commodified agricultural and artisanal producers", and continuing the ghost of colonialism[44]. However, the continent can leverage this image through offering not just agricultural, but manufactured products that meet international standards in terms of cost, quality and sustainability. This way, "Made in Africa" could become a mark for fair-trade, sustainable, affordable and high-quality products.

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[38] United Nations, "Industrial Park Development in Ethiopia – Case Study Report" (2018)

[39] United Nations, "Industrial Park Development in Ethiopia – Case Study Report" (2018)

[40] Alan Gelb et. al, "Can Sub-Saharan Africa Be a Manufacturing Destination? Labor Costs, Price Levels, and the Role of Industrial Policy" (2020)

[41] Alan Gelb et. al, "Can Sub-Saharan Africa Be a Manufacturing Destination? Labor Costs, Price Levels, and the Role of Industrial Policy" (2020)

[42] Intrado Global Newswire, " Sustainable Fashion Market Analysis Shows The Market Progress In Attempt To Decrease Pollution In The Global Ethicalfashion Market 2020" (2020)

[43] Michael Barratt Brown, "'Fair Trade' with Africa" (2007)

[44] Matthias Zick Varul, " Consuming the Campesino Fair Trade Marketing between Recognition and Romantic Commodification" (2008)

Sustainability from within

A main competitive advantage for light manufacturing in Africa, recognized by the World Bank, is the abundance of natural resources in Africa[46]. This includes large amounts of fertile land for agribusiness and an abundance of natural energy resources[47]. But it is not just the availability of resources, Africa's resources are also still very raw. This might be seen as a disadvantage because developing a stable supply of them is still a challenge. On the other hand, it provides the ideal environment to produce sustainable materials.

Let us take the example of cotton. Cotton in Africa is almost exclusively grown by smallholder farmers[48]. These farmers still use traditional agriculture and harvesting methods which are more environmentally friendly and sustainable. For example, the crop is rotated which means cotton is grown alternately with other crops. This reduces leaching from the soil and the occurrence of pests[49]. Instead of machines, which takes the entire plants when going over the field, African farmers usually pick the cotton by hand. This has multiple benefits: first, pickers only harvest fully matured cotton balls and second, the cotton is cleaner since, different to machines, no dirt is picked[50]. Abundance of sun, paired with the rainy seasons in Africa also suit the production of cotton. Last but not least is the absence of genetically modified (GM) cotton. GM cotton is currently only allowed to use in seven of 53 African countries. Evidence from India and other GM cotton using Countries shows, it comes with an economic and social risk and in some cases, even an increased

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[45] Picture from Cotton Made in Africa (2021)

[46] World Bank, "Light Manufacturing in Africa" (2013)

[47] World Bank, "Light Manufacturing in Africa" (2013)

[48] Cotton Made In Africa, "African Cotton" (2021)

[49] Cotton Made In Africa, "African Cotton" (2021)

[50] Cotton Made In Africa, "African Cotton" (2021)

use of pesticides[51][52]. With the rising demand of organic cotton, Africa has a clear advantage when utilizing its resources and systems in place. The certificate "Cotton made in Africa" verifies producers who work with small-scale farmers, where cotton is rain-fed, non-GM and hand-picked, among other criteria[53].

Sourcing cotton and other textiles which show similar production conditions in Africa will make products, which are then fully "Made in Africa" not just fair, but also sustainable. Africa is starting from a greener field than Asia which can be used as a competitive advantage.

The right use of technology in Africa

Technology has changed how the world works in unimaginable ways, only in a few decades. As smartphone adoption and internet connectivity starts accelerating, technology will eventually turn around Africa as well. In 2019, 45% of the population owned a mobile phone of which 44% were smartphones[54]. In the same year, 26% had access to the internet, this number however is supposed to grow to 39% in 2025 with an annual growth rate of almost 10%[55]. With courage to find problem focused innovation, the potential opportunities are endless. The best example for this is Mobile Money, which has been introduced first in Kenya and revolutionized banking for millions of Africans. With the immense growth of internet users, it is fair to say that the next decade will be a turning point for Africa.

Why and how we intend to use technology to solve challenges and create a productive and transparent system is presented in the Chapter "Technology".

The Pan-African dream

Who has ever traveled in different African countries knows, the continent is full of diversity. Still, many Africans feel attached to the concept of an African identity[56] and also, politically, with the introduction of the African Continental Free Trade Agreement (AfCFTA), this tendency is being acknowledged. African countries show similar structures and patterns such as a large agriculture and informal sector, a low median age and rapid population growth[57] [58]. The Pan-African dream is

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[51] Cotton Made In Africa, "African Cotton" (2021)

[52] Textile Exchange, "Cotton in Africa: Sustainability at Crossroads" (2020)

[53] Cotton Made In Africa, "African Cotton" (2021)

[54] GSMA, "The Mobile Economy Sub-Saharan Africa" (2020)

[55] GSMA, "The Mobile Economy Sub-Saharan Africa" (2020)

[56] Open.edu, "Pan Africanism Then and Now" (2021)

[57] The Guardian, "Africa in numbers – how ist nations compare" (2015)

[58] Britannica, "Africa - Cultural Patterns" (2021)

specifically an opportunity for technology businesses which can potentially scale their concept to a massive amount of people.

An example of this is the company Flutterwave, which provides payments solutions for businesses, integrating a wide range of payment options from Mobile Money to credit cards. The company was founded in 2016 and now operates in 13 African countries[59]. Flutterwave solves a problem that can be found in many African countries – reliable, digital and easy payments fitted to African consumers.

Member countries of the AfFCTA

Signed and ratified
Signed
Not signed
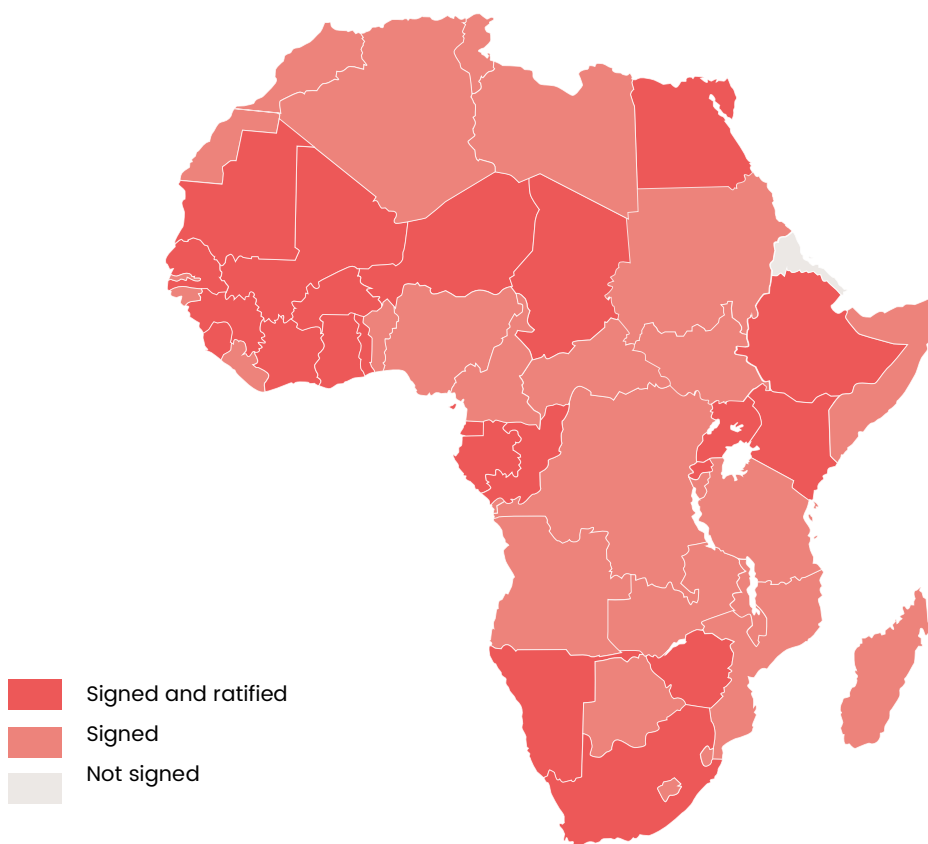
The African Continental Free Trade Agreement (AfCFTA) is a major step towards supporting Pan-African businesses dealing with services and physical goods. The agreement, which was commenced on January 1st, 2021, is signed by 54 of 55 African countries and opens the markets to duty free trade of services and physical goods between countries[60]. In January, 32 countries had also ratified the agreement and are in position to trade 81% of products on preferential terms. There is still a long road to fulfilling the full potential of the agreement since many infrastructure-needs are yet to be

implement[61]. However, it is a huge milestone and shows the willingness and ability of African countries to work together.

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[59] Flutterwave, flutterwave.com (2021)

[60] Africa Renewal, "Africa's free trade area opens for business" (2021)

[61] Africa Renewal, "Africa's free trade area opens for business" (2021)

Business Model

Our business model can be summarized as "ethical fashion as a service". The advantage compared to other producers is that we take care of the whole production process, from the technical design, sourcing of materials, custom clearance to the guaranteed fairness of the production. The label only has to focus on its idea and the sales to the end consumer.

Our production system modular and therefore flexible. For that reason, we do not have high initial costs and are able to react fast to changing requirements. In addition to the modularity, the system is built in a decentralized manner, using blockchain to implement a highly scalable and transparent model. That does not only help us to ensure transparency and fairness but also is very efficient to manage and maintain. This healthy, fair and complete system is very valuable to labels and in particular, it justifies the fees.

In the following, we will present our approach in the format of the business model canvas.

#1 Key partners

a. **Tailors & SME's:** The core of our business, the producers. We are already partnering with multiple small factories that fulfill our criteria for fair working conditions and quality. However, we are growing our network with tailors constantly and aim to get more capacity on board.

b. **Textile producers:** The second core part of our business is sourcing the fabrics. We currently work together with East African fabric producers. We aim to widen our portfolio of textiles and look for more producers on the continent.

c. **Customers:** In order to produce, we need customers. We acquired our first paying customers already and together with them, we learn how to fulfill their needs perfectly.

d. **Advisors and support system:** Every startup need early supporters and the right networks to flourish and grow. We are currently building our advisory board.

e. **International organizations:** In order to ensure a quality, trainings for tailors and the collectives are needed. There are already many organizations on ground providing trainings and we are aiming to work with them.

f. **Financial infrastructure:** To fulfill orders, collectives need sewing machines, funds to buy material etc. One part of the model is to build a service that enables them to get loans for such investments. There are already many financial service and microfinance companies on ground which we are aiming to work with.

#2 Key activities

What are the key steps to move ahead to our customers? We see three main activities:

a. **Marketing:** Our first approach, to supply our current network is very successful at the moment and growing through recommendations is a great path to go. Parallel, we are building our brand on social media, because after all, end consumers have to trust in us too. Depending on how successful this strategy is, we will

additionally rely on traditional B2B sales activities.

b. **Values:** We believe that our key to success will be to stick to our values and to quantify them. As one our main USP is transparency enabled by tech, we will provide regular updates and insights to customers.

c. **Universities:** We will also be present at fashion design universities, because our first customers are, as already mentioned in the market analysis, new labels. This includes Non-African, as well as African universities.

#3 Key resources

First of all, we need resources to produce a great fashion product. Those are:

a. Technical knowledge about fashion production,
b. effective trainings for the collectives,
c. high quality and sustainable materials,
d. working capital.

To scale, we will need a tech product and infrastructure running on a blockchain. We are planning on building our system on the Cardano blockchain. For that, we will need additional capital and software developers.

#4 Key propositions

The question here is: how will we make our customers life easier?

Our business model consists of two components:

a. **Fashion production as a service:** We will not have a price advantage compared to our competition in Asia. However, we see a lot of steps in the whole development and production process which we can make more convenient and, in the end, cheaper for the label. We will optimize the product development process taking care of the technical design, sourcing the materials, providing samples etc. Additionally, we provide a flexible production system that makes it possible to order small amounts too.

b. **Fairness and sustainability:** For a label it is difficult to see through the whole production processes. With us, the label can understand exactly where everything is coming from and who was involved in that production. In addition, we present those facts on our website and on social media so that even the end customers of the label can check it themselves. To labels, that kind of transparency means a lot because they do want to produce fashion, but they do not want to risk being a part of an exploitative system. We open that door for them.

#5 Customer relationships

We will accompany the labels through the whole process. It is important that we are always available for questions, since we hold a lot of responsibility for a label's product. To improve and control our system it is essential for us to get feedback after the order is fulfilled. As mentioned earlier, labels usually stick to one producer, so following up on them after a finished order is crucial.

#6 Channels

Our main channels include:

a. Our own network and recommendations
b. Social media, mainly Instagram
c. Design universities
d. Fashion label consultancies
e. Our website

#7 Customer segments

We see three different segments of customers.

a. **Upcoming labels:** Labels that have almost no experience with fashion production and want the full service.
b. **Companies:** "Shirtmaker-websites" as well as companies that want to print their logo or other design on T-shirts for the employees.
c. **Existing labels:** those are not our key customer segment at the moment but will be important when we are established.

#8 Cost Structures

Our initial costs are much lower than those of conventional production companies since we will not be building a large factory; however, we will build a software which will also require investment at some point in the journey.

The following shows a breakdown of our costs:

1. Fixed initial costs
   a. Building the tech platform based on blockchain
   b. Building training and certificate programs
   c. Getting more collectives on board
   d. Auditing new collectives
   e. Auditing textile producers
   f. Building a partnership with a microfinance company
   g. Marketing

2. Order processing costs (directly connected to orders)
   a. **Steps and costs during customer journey:**
      a. Making the sewing pattern (done by collectives)
      b. Produce sample(s)
      c. Produce order (we charge per piece, we give quantity discount, price will be determined through value pricing model)
   b. **Occurring costs:**
      a. Material (fabrics, buttons, …), tags
      b. Salary for the tailors (per piece)
      c. Salary for the customer service and techpack creation
      d. Washing, Ironing, etc.
      e. Quality assurance
      f. Transaction fees on the blockchain
      g. Packaging
      h. Transportation and shipping
      i. Taxes

3. How and when is everything paid?
   a. The payment process takes place on the blockchain.
   b. With the order, labels buy tokens worth their order which get frozen.
   c. Collectives apply for the order and the most suitable collective gets the order. The collective buys the fabric and gets it delivered from the fabric producer (in beginning from us). They can be financed with microloans to ensure the necessary liquidity.
   d. After the order is fulfilled: the tokens of the label get unfrozen and sent to the collective.

#9 Revenue Streams

a. Labels pay for the product development and material sourcing
b. Labels pay for the samples
c. Labels pay for shipping and logistics
d. Labels pay per piece for the produced garments

Social Impact and Sustainability

Social Impact

Social entrepreneurship and social enterprises can act as a lever in economic and social transformation in Sub-Saharan Africa[62]. While there is a growing economy in Africa, it is also still facing numerous social challenges. According to the International Monetary Fund (IMF) 21 out of the 25 poorest countries in the world are located on the African continent[63]. Nevertheless, the economic potential in Africa is significant. *"Africa has become the fastest urbanizing region of the world…"* [64]. The support in infrastructure projects in Africa has rapidly increased in the last years, laying the foundation of foreign investments and industrialization[65].

Social Impact can be defined as "a significant, positive change that addresses a pressing social challenge."[66]. Waya Collective addresses the social challenges by fostering sustainable economic growth in the textile industry. Tailor shops around the African continent shall be able to act as small businesses but at the same time, to be connected to the global market. Additionally, Waya Collective is working with local suppliers to buy eco-sustainable fabrics and material. By purchasing directly in Africa from African producers we do not only support their export business, but also develop Africa's value chain.

One of our main goals is to foster and support independent entrepreneurship throughout the African continent to have a social impact in challenging socio-economic areas. This goal is built on three major pillars.

Female entrepreneurship

[67]Female entrepreneurship has a long tradition in Africa. Africa has the highest number of female entrepreneurs in the world - still women are facing greater obstacles when entering the market and

[62] British Council, "Global Social Enterprise - Social enterprise and job creation Sub-Saharan Africa" (2020/L027)

[63] IMF, "GDP per capita, current prices" (2021)

[64] Forbes, "What China Is Really Up To In Africa" (2019)

[65] Forbes, "What China Is Really Up To In Africa" (2019)

[66] University of Michigan, "What is Social Impact" (2021)

[67] Picture by Omotayo Kofoworola on Unsplash

running their businesses. The lack of capital and knowledge, as well as the choice of the business sector are major factors[68]. The textile industry in Africa is still traditionally dominated by women. As Waya Collective we want to support women in better scaling their already existing tailor shops or to newly found them. Tailor shops in Africa are often aimed to be purely B2C shops. By transforming them into B2B business, business owners can gain more profits an expand their businesses.

Independent and region-authentic entrepreneurship

Poverty, informality, colonial history, and ethnic group identity in sub-Saharan Africa acutely influence the self-perception of social entrepreneurship and its chosen activities[69]. Africa is characterized with the highest number of different ethnic groups throughout the continent, compared to the rest of the world. Strong ethnic identities can influence business activities and decisions. Waya Collective aims to keep and respect ethnical and cultural conditions when it comes to form partnerships with local business owners. By acting as independent tailor shops with their own decision-making authority, business owners are keeping their profits and can use it in expanding their businesses. Fair and transparent business opportunities also come with fair value creation - this is what Waya Collective stands for.

Collective social entrepreneurship

Another important pillar is collective social entrepreneurship. We want to create an environment of collaborative and supporting collectives in different African countries. This at one hand leads to a culture of trust and knowledge transfer across the tailor shops and on the other hand allows to fulfill larger orders in a scaled manner. Waya Collective will create opportunities for small tailor shops to widen their network between the regions to gain education possibilities and to take part at the international trade industry at the same time. We believe that collectives will be able to work more effectively on existing social issues in their regions to have a larger social impact in their societies[70].

Sustainability

According to the Journal of Cleaner Production, "Sustainable production is defined as the continuous application of an integrated preventive environmental strategy applied to processes,

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[68] World Bank, "Female Entrepreneurs: the Future of the African Continent" (2018)

[69] Rivera et al., Social Entrepreneurship in Sub-Saharan Africa (2015)

[70] Montgomery et al., "Collective Social Entrepreneurship Collaboratively Shaping Social Good" (2012)

products and services to increase eco-efficiency and reduce risks to humans and the environment"[71]. The fashion industry contributes largely to environmental pollution and social harm. We are aware that by joining this industry and generally contributing to the production of new products, we have the responsibility to question our decision in terms of their sustainability. Sustainability is a process; however, we will take the following actions to ensure sustainability.

Shipping

Most African countries import more than they export which has one striking effect: there are more containers shipped to Africa than that going away from Africa. For example, there were 2x the number of full containers landing in South Africa than those leaving for multiple years in a row[72]. Another study in Cote D'Ivoire showed that more than 1/3 of the containers left the ports empty[73]. This imbalance costs the global container shipping industry US$ 20 Mio per year, about 40% of the total handling costs[74]. This problem however, is an opportunity for us: next to improving the trade imbalance, we contribute filling these containers and ship our products essentially climate neutral. This strategy also saves shipping costs.

Fabric and Material

We will focus on sourcing fabrics and materials from Africa. As explained in the chapter "Why Africa", these materials are produced in more sustainable ways than in highly industrialized economies[75]. Additionally, this will limit shipping costs.

Investing in great quality

One main reason why the fast fashion industry is unsustainable, is that pieces are made to be thrown away. It is built on fast changing trends and cheaply produced pieces which should not and cannot be worn many times. "The volume of clothing Americans throw away each year has doubled in the last 20 years, from 7 million to 14 million tons"[76]. We cannot control how much consumers will throw away; however, we can focus on making high quality clothing which consumers simply don't want to throw away. Eventually we are giving more people access to ethical, long-lasting fashion.

[71] Journal of Cleaner Production, https://www.sciencedirect.com/topics/engineering/sustainable-production (2018)

[72] Al-Rikabi, " Empty Containers Repositioning in South African Seaports" (2014)

[73] Paterson Simons, "Do West Africa's Ports have an Empty Container Crisis?" (2019)

[74] Paterson Simons, "Do West Africa's Ports have an Empty Container Crisis?" (2019)

[75] Textile Exchange, "Cotton in Africa: Sustainability at Crossroads" (2020)

[76] Roadrunner, "The environmental Crisis Caused by Textile Waste" (2021)

- Code of Ethics and Business Conduct -

Independence & Responsibility

We thrive to form partnerships with independent and self-responsible tailor shops and business owners. Business owners will stay independent throughout the whole value creation process. Waya Collective will provide the necessary environment for businesses to gain knowledge, be leaders and be their own decision makers.

Fairness & Transparency

Promoting fairness and transparency within business relationships in Africa is a huge step towards equality and a common strategy to face the challenges in Sub-Saharan Africa. The African continent has what it takes to become wealthy economical stable by using is richness of resources. But oppression and exploitation are still hindering this development. As Waya Collective we want to create fair chances for businesses where our partners and all individuals involved in the business are treated with equal respect humanly and economically.

Community – Collectives

"It takes a whole village to raise a child" – Ancient African Proverb. Building communities with likeminded people having the same goal and vision fosters relationships and facilitates communication. Waya collective is meant to be a place full of motivated and diverse people. A culture where all business owners come together and exchange thoughts, ideas, experiences and knowledge. Waya Collective will be a community where people will become one by working together as partners and mentors at the same time.

High-Quality Standards

High Quality "Made in Africa" - Waya Collective is aiming to include Africa into the textile industry. Big and small fashion brands shall associate African manufactures with high-quality production standards. Within Waya Collective the client needs, and satisfaction is the key success measurement throughout the whole value chain. We want to achieve that by a common understanding of quality and production standards that needs to be complied to by every collective / tailor shop.

Corporate Social Responsibility

Waya Collective empowers and fosters all its partners to include social, cultural, and environmental responsibilities in their business decisions. Human rights and equality are core aspects of our cooperation. Waya Collective also wants to operate in an efficient manner to meet economic and financial demands of his stakeholders and shareholders. The aim is to run a business that equally has a social impact in Sub-Saharan Africa, while being financially and economically profitable. People are a key aspect to change. Social responsibility does not only include people but also the environment in which we are living. Next to equality we want to set an exemplary footprint when it comes to our environment and our climate. By choosing climate friendly logistic options and using sustainable fabrics, we want to make a change in the textile industry.

Identity & Authenticity

Culture and Identity play a crucial role when doing business in other parts of the world. The African continent is rich in cultural diversity. Culture determines the way people interact with each other and their behavior. Waya Collective wants to preserve the authenticity of the African people by building long lasting partnerships with African Business partners based on appreciation and equality. Our business partners shall be able to identify with their products and the business ethics.

Technology

The "ideal system", which will be fully decentralized and automated, running on a blockchain is what we strive for. It is explained in its principles and purpose below.

Blockchain

Note: In the following we will use "blockchain" as a symbol for the wider area of decentralized computing to ease the strain on unfamiliar readers.

We have decided to use blockchain to build the system. A Blockchain is a system which tracks all records of transactions in a chain of "blocks" which cannot be edited after transactions have been added there. Everyone who is part of the system can view the transactions which makes the system fully transparent and incorruptible. The code which specifies the rules transactions follow is written down in a "smart contract" which is initially created by the initiators of the chain. Once submitted, the code for the "smart contract" can only be changed with the consent of the majority of members. The data in the blockchain is furthermore not stored on a centralized server, but on many servers in a decentralized manner. The applications run on the blockchain can therefore not be taken down or changed by a single entity.

Why Blockchain

While we welcome any trust placed in us, we do not believe a single entity can live up to the task of ensuring transparency and fairness. Rather, one should design systems in a fashion that trust becomes not necessary - hence, we decided that from the beginning we need to orient ourselves towards giving power away as fast as prudently possible; this works best when utilizing blockchain technology, which has the lack of central points of control already built-in as a core USP. If we were to run centralized servers indefinitely, it would be too easy for us or others to appropriate the project at a later stage. If we were not set out from the beginning to rely on blockchain, a later switch would be increasingly hard; and since the proportional power placed in the creators of a project rises steeply once a critical point is reached, the incentive to switch at an indeterminate later time from centralized to decentralized technology simply look unfeasible.

Blockchain in Africa

Technology needs to be implemented and fitted to the environment it lives in, but if it is, it opens unlimited opportunities. Therefore, technology needs to be interpreted in new ways and

the right solutions for complex problems need to be found. Because of its design, blockchain holds a lot of potential for Africa and the same is true for this model. The following describes structures on ground, challenges we might face and how those can be solved using blockchain.

Decentralization and Scale

The proposed model of a decentralized production system requires the organization of n production units in an efficient and flexible way. It requires to know the current capacity of the units, handling logistics, allocating orders to suitable collectives, payments etc. Generally, these tasks can be solved with a common database plus applications and channels for the organization of the different task on top of it. This however would create a single point of failure and would not provide any transparency. Blockchain provides a framework which is more suitable for the task. As mentioned above, Africa is decentralized in terms of its workforce. Many people own a small business such as in this case, a tailoring workshop, for which they are fully responsible for. The premise of the proposed model is to use the existing structures and resources to build a functioning and productive system. The existing tailor workshops including the responsibility business owners hold is a resource which can be used. Blockchain is by definition decentralized and gives all the power to its members, in this case the collectives, who can act as market participants. This is one reason why blockchain is a great fit for a decentralized production system, but we will come across its benefits in further points.

Transparency and Trust

Using existing structures on ground is the first step for building a fair model. However, that alone will not ensure fairness since with more participants and smaller units, more opportunities for exploitation by some participants arise. For example, a manager of one collective could start exploiting their workers and since there are many collectives, it would be very difficult to detect these ones. Blockchain provides full transparency of all transactions taking place in the system. This ensures transparency for all parties; customers who want a guarantee that the products have been produced under fair working conditions, workers and collectives who want to be sure they have been paid accordingly and for the risk-taking parties who need security that no one is corrupting the system.

Another big challenge in the African context is trust, security and overcoming corruption. The legal and political systems on ground cannot yet provide full stability which makes a common company very vulnerable to such insecurities. Blockchain enables to build a new, closed system which deploys new, incorruptible rules all stakeholders involved need to follow. This security also includes security of the currency since the goods and service within the system would be independent of the national currency and therefore immune against a high inflation. Overall, blockchain implements a secure system in a place where this does not yet exist. This provides a clear advantage for all players involved.

Supply Chain and Quality Assurance

A well working supply chain and high standards of quality are essential in any production, but very difficult to ensure in a decentralized production system. Specifically in Africa, where most small-scale business owners such as tailors never worked in an industrial setting and not all have received the same education, it is extremely important to implement high standards and to have an effective system of tracking them. Blockchain provides the basis to implement an effective and transparent quality control system which is also decentralized. A single point of quality checking could be eliminated which saves resources and avoids the creation of a bottleneck in the supply chain.

Why Cardano

In our view, Cardano currently is among the best in the world of programmable general-purpose blockchain technologies as well as the most fitting for our use case in particular. We give the following reasons:

- As a proof-of-stake-technology it does not cause the tremendous damage most proof-of-work-based systems do. Also, it misses the added incentive for centralization given by ASIC-vulnerable chains, which includes the most popular ones.
- One of the founding principles of Cardano was "do it right or don't do it at all". Now, many years later, we reap the benefits: The state-of-the-art algorithms developed by professional, full-time researchers and made accessible to the public in a number of peer-reviewed publications approaching triple digits not only are - by a wide margin - without equal. Even other competing projects like Ethereum or Polkadot intend to adopt its results. We also believe the inceptors of a technology are best suited to implement it. Further, the scientific rigor extends to implementation: The codebase is formally verified, that is, software automatically checks that the algorithms are implemented correctly.
- While Cardano will offer a plethora of programming languages for its smart contracts with IELE, the native language Plutus is based on Haskell, which in our view is despite its popularity a vastly underrated technology for fast and correct development. Purely functional programming eliminates whole classes of errors, allows for fast adjustments to new circumstances and of course enables formal verification.
- In-built on-chain-governance and a self-updating-mechanism ensures new developments can be easily integrated into the system, increasing its expected longevity.

Agile development

We intend to proceed in an agile way, treating all out designs and assumptions as hypotheses to be tested. This implies that everything written herein might and even should be subject to change; while we use phrases like "ideal product" this is not to imply an unshakeable, platonic truth but rather to discriminate against the intermediary states leading up to it. In this sense this

document is to be read as our strategy at this point in time - while we tried to plan ahead as far as feasible, we retain constant awareness of new developments and will adjust accordingly.

Ideal Model

Herein we will describe what our current ideal product looks like. As will be repeated below, this is firstly meant rather as a strategy than a holy writ, secondly it omits some exciting ideas that were deemed non-crucial given the already large scope; thirdly, we are aware that this will not be built at once, so in the next but one chapter we outline our intended sequence of putting it all into place.

Design principles

Satisfy and balance all stakeholders (labels, investors, workers)
- We as service providers
- pluralism
- quality assurance

Opacity
- franchise/uniform product
- easy defense against "gaming the system"
- fairness

Second-loop-learning
- updatability
- mechanisms to incentivize knowledge contribution from everyone
- explorative evolutionary behavior inherent in the concept of many small collectives which spawn new ones

Culture and integration, appreciation, empowerment of workers
- empowerment as psychological feedback loop, opposite of learned helplessness
- empowerment as actively pushing skills towards workers
- we believe an organization can only function and functions better when it is supported by its employees. Case in point: work-to-rule-protests.

Antifragility
- gaining from disorder
- holography: Every part of the system bears the seeds for the whole
- many largely independent cells not only make it less fragile but allow for rapid adaption

Redundancy and Piling
- redundancy on collective-level and worker-role-level to increase robustness and encourage evolution

- encouragement of combination of multiple collective- or worker-role-types in the same collective/worker to enhance flexibility and integration of knowledge

Collectives as fundamental organizational unit

The fundamental unit of our organization is the collective. This can be a singular person or even another corporation, DApp or piece of software; in general, we imagine it as a team of people working on a specific task.

In line with the principles outlined in the Chapter "Redundancy and piling" we expect and encourage collectives to train for and execute multiple roles; only for the sake of modularity do we split them up herein.

Actors which are not integrated parts of our federated system do not count as collectives, like labels or suppliers.

Federal actor types

Clients

Our customer base. They will interact directly with the blockchain, place and rate orders and - if necessary - request and gain refunds.

Engineering-Collectives

They translate customer's requests into design-patterns and instructions for producer-collectives.

Producer-Collectives

Small teams who get assigned partial or whole orders for processing goods.

Storage-Collectives

For storing supplies and intermediate goods.

Suppliers

They provide the raw materials for production.

Federal-level-Investors

People buying our token as a means of investment into the whole system rather than individual collectives (see below). This is the low-effort-low-risk way to partake financially.

Collective-level-Investors

In order to prevent people gaming the system by registering false or insufficient collectives the latter need to post a certain amount of stake as an insurance. Also, starting out requires a certain amount of capital for machinery etc.

Since not everyone will be able or willing to take this risk, we allow external investors to invest in individual collectives. This needs to be separated from above system-wide investors to prevent a

tragedy of the commons - here, the people investing in a particular collective bear the risk and responsibility to ensure they are credible and committed. In that way, they are both incentivized to do so to the best of their ability and isolate the risk from the remaining federation.

This investment works like an amalgam of stocks and credit - it shares with the former that the interest payment is only applied to profits (implying an investor failing to do due diligence will receive less returns than one that does).

The Investment works like a credit in two ways. First, the investor has no formal say in the operations of the collective in order to insure against exploitation. Second, if the collective desires to repay the loan, they are free to do so, although they might have to pay additional interest in that case. This in turn reduces the expected opportunity cost of the investor, of which more will be hopefully attracted by this scheme, driving the price for credit down again.

Finally, we will explore collaborations with local microcredit-firms to also serve this need.

Certifiers

To ensure a high qualitative standard of product we need to certify collectives before they start producing. If this is omitted, we risk orders failing at quality assurance or worse, getting returned, thus harming the whole system's reputation.

Therefore, we created the role of "certifier". Those individuals or collective's tasks is to pledge for the skills of a collective. If a collective confirms that a certifier indeed evaluated them, the latter provides an opaque rating for said collective to the system. This opacity is crucial to insure against corruption; to achieve the same goal, the certifier is able to secretly change the rating for a certain time too.

The incentive to provide correct ratings is given by a reward scheme that pays certifiers in proportion to the quality of their predictions - actual performance of collective being measured by the ratings labels give for completed orders, etc. If a certifier's performance in turn sinks too low, they might become prohibited from continuing unless they add stake, similarly to the scheme applied to the collectives themselves. To further incentivize professionalism, we require a minimum stake here too.

Trainers

This role specializes in transmitting skills to new collectives. Standardizing both training and production methods eases this task.

To facilitate uniformity of product and ease of collective set-up we provide a range of instruction templates for most jobs, most notably the procedures for certification, training, quality assurance, reshipping and of course clothing production.

Reshippers

Larger orders will likely be split over multiple collectives. In order to ship the resulting product across the globe it is prudent to re-package; at the same time, this gives us opportunity to defend against dishonest actors shipping not what they claim to ship (existing repackaging firms already offer the service of taking pictures of the goods) as well as further quality assurance.

The latter can safely be applied in a random fashion; due to the opacity of the system it does not seem prudent to try and predict which order will be checked and which will not; the collectives do not know if their shipment is part of a larger order. Therefore, it makes sense to always uphold the qualitative standards, and those actors trying to get ahead relative to their more diligent colleagues will in time lose out.

Note that the splitting of orders naturally provides graceful degradation; compared to a fragile factory it is far more unlikely that the whole order (or even a significant fraction) will arrive late or with subpar quality.

Storage

Especially for order of raw material, bulk orders confer advantages. Since however they will normally not be consumed in full right away, this type is tasked with storing the material and shipping it out if needed.

It can also be deployed for storage of intermediate product if necessary. Overlaps with other collective types are possible of course; for example, producers can store their own supplies (as well as supply others with them), or reshippers can use their warehousing facilities for that purpose also.
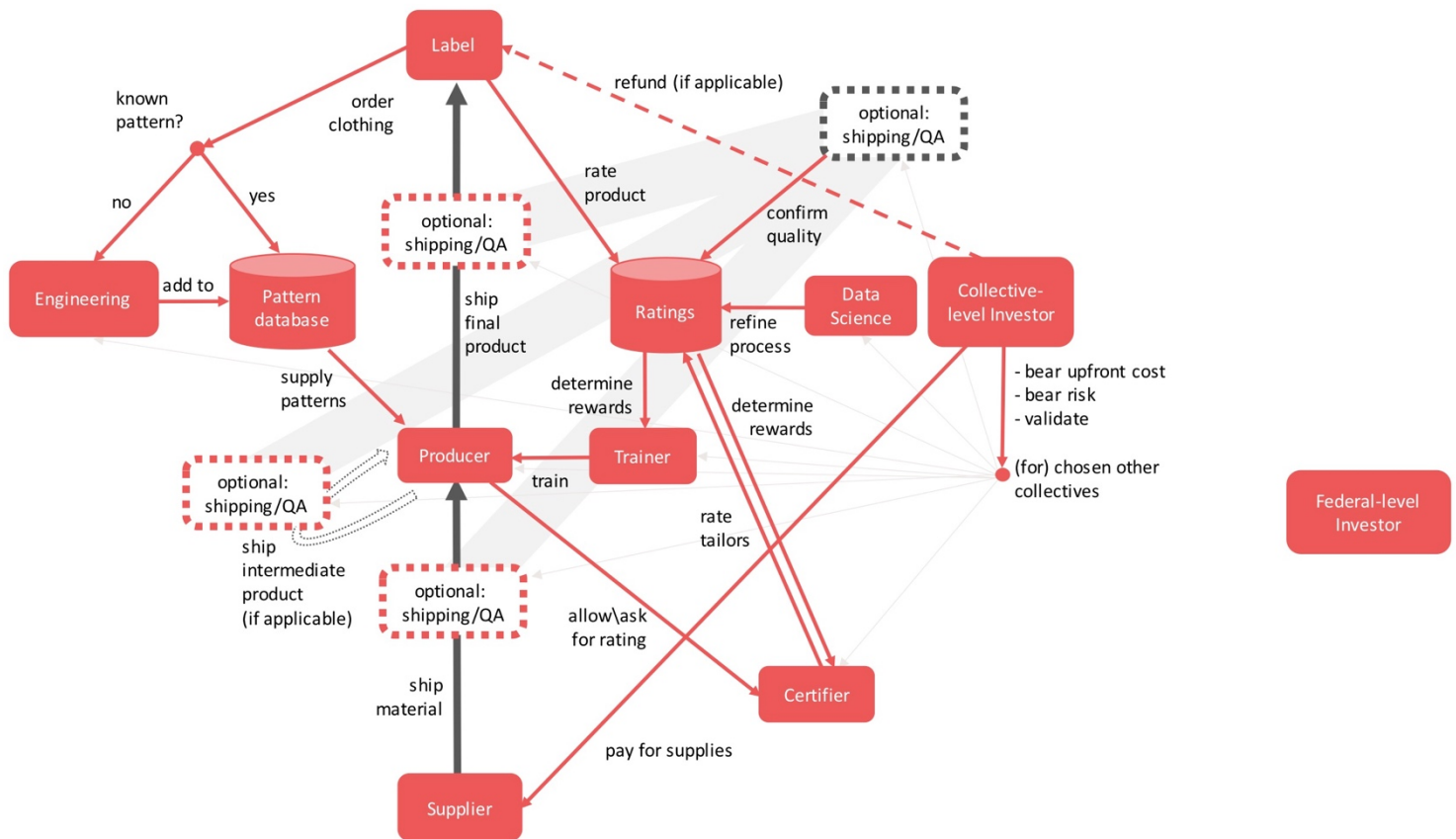
Other types of collectives

There is a lot more work to do, each job type warranting the according collective type. For brevity's as well as flexibility's sake we will only list them here for now. Interest, experience and feedback will aid in fleshing out how to implement them.

- The founding and holding companies
- Culture-collectives
- Growth-collectives
- Data-science/business-intelligence-collectives
- Marketing-collectives
- Software-collectives
- Identity-verifiers (see chapter "Identity")

Interaction between federal actor types

The central types of collectives interact as follows, orchestrated by the DApp:

Note that the role of collective-level investor can be filled by the other collectives too, so they do not depend on it.

Workers' roles within collectives

We propose the following roles within collectives. As with redundancy and piling of collective roles we likewise encourage redundancy and piling of job roles. In the latter case there is however a distinction being made between role occupancy and ability: Smooth operation is rather facilitated by a singular product owner for each of the jobs to be done (with the exception of execution of course).

- **strategic management** fells high-level planning decisions
- **operational management** oversees the smooth operation of day-to-day business
- **execution** constitutes the core workforce
- **communication** is self-explanatory

Ratings and stake

There is a certain paradox of trust: In order to gain it, one needs a track record, which requires interaction, which requires trust. To solve this, we require collectives starting out to post stake (the

resulting paradox of "in order to earn money you need to have money" is solved by collective-level investors as described above).

In detail, we compute a collective's trust score as *(spent stake + open stake) * f(ratings, QA)* with the following definitions:

- *f(ratings, QA)* is a function of the ratings the collectives gained for its orders as well as our own sporadic quality assurance. It is a nontrivial function, since in turn the labels' ratings are adjusted according to their quality - i.e., a new label rating a lot of older, otherwise historically well-performing collectives badly is to be considered far less trustworthy than a number of older, otherwise satisfied labels all rating a new collective badly. Additionally, we need monitor what will actually happen to this scheme in production and adjust it accordingly.

  Adding our own *QA*-data here improves the system vastly, since it allows filtering established actors turned bad with an external measure. This incentive to rate honestly in turn reduces the need for exhaustive *QA* on our side.

- Spent stake is stake being used to reimburse unsatisfied labels and pay for trainings and certifications.

- Open stake represents the capital the collective posted to increase their total stake.

A lower trust score will result in less orders being assigned to the collective and can even result in being banned from the federation altogether. However, in case of simple bad luck one can increase their trust rating by posting more stake.

Open stake cannot be withdrawn if *f(ratings)* is too low. This is needed to make scamming economically infeasible.

Note that a "cashing out" of a trust score higher resulting in more orders than can be processed, i.e., by trading quality of product for speed of production, is infeasible for two reasons. First, there is no way to learn that your trust score is higher than required. Second, even if one would attempt to slowly adjust quality downwards until orders start to stutter there would always be the risk of data scientists monitoring the reward data, uncovering such schemes and updating f accordingly, thus demolishing the dishonest actors' scores retroactively. We assume that the risk of such a ruination of business combined with the locking of stake in case of that event will serve as a sufficient incentive against "gaming the system". If that were not to suffice there is also the option of not only assigning more orders to higher-rated collectives but also increase their pay. Finally, in synergy with our expressed effort to build an enthralling culture the idea of gaining social status, to be considered exceptionally productive workers on the one hand or to be a working part of a system carrying emotional significance might suffice already.

Certificates and QA

To mitigate frustration and loss of reputation on the side of customers we cannot rely on above rating-scheme alone; it is essential to certify the ability of collectives to produce high-quality

clothing before a label has the chance to be disappointed with us. This requirement can be split into the subtasks of certification and quality assurance.

Certification

This crucial task entails ensuring collectives know what they are doing. To achieve this, we create the role of certification-collective (which, again, can well be a singular person). Their core proceedings are as follows:

- When a collective wanting produce requests certification, it is assigned a random available certifier nearby. In line with our principle of opacity the latter has to commit beforehand to their availability.
- The certifier evaluates the collective in question and shares the rating with the blockchain. Here also opacity is essential as is the ability to change their decision within a certain timeframe of the last chance to make bribery less feasible. In order to prevent extortion, the collective likewise has the option to report the certifier (also opaquely of course).
- In the future the certifier receives rewards proportional to how well they predicted the performance of the collective, measured by QA and ratings. Those rewards are tailored in a way to make irresponsible certification economically unfeasible.

In addition, after certification, a small "exam-order" for the certified clothing type is automatically generated; the exam-piece differs from regular order in three ways. Firstly, it is paid for by the collective itself. Secondly, it is routed through QA with a probability of 100%. Thirdly, the delivery is made back to the collective which produced it. This mechanism further protects against disappointing customers by expose to unfit productions.

In order to prevent negative feedback for certifiers who, doing their job well yet by rating unfit collectives accordingly, we repeat the above process multiple times before a verdict is reached. Due to the opacity of the process, it is therefore not possible to assign responsibility for failed certifications to certain certifiers. The redundancy and thus higher reliability of certifications is an added bonus.

In order to minimize cost of entry and increase flexibility, our certification-system is modular. For example, a collective starting out might want to certify their ability to produce t-shirts before they tackle suits; but if they already possess a long-running suit-crafting operation and now simply want to join our federation, they might want to certify suits but not t-shirts.

The flexibility does not only apply to the collectives' ability to grow their capacities gradually; it also entails the ability to update certificates once new learnings arrive, which, as elaborated above, we very much do.

Note that this process happens in addition to the training; also, absolution of the base-training-course is mandatory, as are the courses for some lines of clothing (foremost the flagship "Waya-shirt"). Naturally, cost in time and money of those trainings have to be kept to a minimum.

Quality assurance

While upfront certification is essential, degradation of product quality during production can happen due to a multitude of reasons, for example changes in personnel, supplied material, experimental production processes or harmful cost cutting "innovations". Therefore, we additionally require a way to continuously monitor the quality of produced clothing.

This job is filled by the reshippers, which we require in any case as discussed above. Not only will they take pictures of the goods to sign their mere existence, they will stochastically test deliveries in detail according to provided templates. This stochasticity can be further parameterized by a plethora of parameters derived from labels and collectives involved in the order, like age, rating or number of successful or failed past orders.

Due to the opacity of the system, it is infeasible to adapt performance to whether the order is going to pass through QA or not, since that information is simply not available.

Should it become necessary to QA the QA, reshippers could be chained opaquely and their results compared. To save costs, this again can be applied stochastically; collusion between chained QA-reshippers can prevented by further schemes. However, we highly doubt it will ever come to this and will thusly leave it open until real-world data of operations is available.

Growth

Individual growth

For a multitude of reasons, we will encourage a multitude of career options - an empowered and integrated workforce will produce better products (case in point: protest by work-to-rule) and a rift between on-the-ground forces and technology and management breeds certain well-known failure cases, to name two. We predict that by simply offering relevant trainings, a certain type of personality will be attracted to consuming it.

We identified the following to begin with:

- **Technology training**. It is crucial that at least a certain percentage of the workforce be knowledgeable in the workings of the tech stack; not only does this break down the power monopoly we hold (thus making the whole project more attractive to everyone else involved) but mitigates the feeling of reification such platforms might carry with them. If each collective has at least one "fan" who can explain with passion the reasoning and workings of the system others might understand it more easily - and far more importantly, they will be able to contribute both in logic and code. Lastly, enabling spin-off-projects with people we trained ourselves without dire need to do so can birth powerful children, further increasing wealth, exploration and robustness.

- **Learning more roles**. Not only will this make the individual collective more robust and demonstrate personal growth right away and without the immediate economic need for it, it synergizes greatly with the following two.
- **Become a teacher or certifier**. We cannot stress enough how the Metis of having actually worked in a collective is essential to teach the abstract Techne of our templates. History is ripe with examples of grand designers failing horribly in their hubris; if, however those designers spawn from the workers they are supposed to teach this failure is far less likely.
- **Create your own collective**. One central, organic way for our federation to grow would be for workers steeped in the operations of their collective and trained in redundant role types to leave in order to found their own collective, possibly in collaboration with others from the same or different collectives as well as the dedicated training-collectives. We are excited to see what the people will come up with.
- **Grow the collectives.** The producing collectives are part of the Waya network, but they are also independent businesses with the aim to grow. Besides opening a new collective, it might be even more effective to grow existing ones. Those could take bigger orders and use economics of scale to be more productive.

Federal growth

To summarize what has been written in the chapters above, we see the following ways to grow our whole system:
- Workers breaking off their collective to create their own
- Outsiders wanting to join our federation of their own accord by creating their own collective from the ground
- Training-collectives actively recruiting people to create new collectives
- Growth of collectives

Organizational learning from the roots

We believe it is essential for a modern corporation and especially a startup to put much emphasis on learning and prompt adjustment. Since we have learned from various Taylorism failings of the past, we are aware that learning must engage all employees of the firm. We offer the following formalized methods to achieve this. Depending on feedback and data we will decide which ones to test and implement.
- **Social media**. Africa is a highly social continent. It would be a waste not to tap this potential. Therefore, we will offer one or several (depending on requirements, feedback and data) platforms to facilitate this. For example, chat groups might fit the human psyche better, but a reddit-style forum might be more organized.
  This relies on the assumption that people will want to share knowledge naturally and

do not require added financial incentive; on the contrary, some might even be put off by the mere suggestion.

- **Anonymous analyses**. The above approach has certain drawbacks. Firstly, people (or at least certain personality types) might intuitively not want to share insights publicly for fear of criticism; others may want to withhold sharing with what they perceive their direct competition. This might become especially insidious if some member of a collective wants to share insights with the whole federation. If others have a less altruistic approach, this could cause either silencing the sharing or create an undesired social conflict. To mitigate this, we have the option of a separate, anonymous sharing platform. Curation can be done by a reddit-style voting system.
- **Proportional rewarding according to crowd's appreciation**. Building on the above there is also the option of dedicating a certain percentage of federal income to "tipping" the most insightful posters, thus providing further incentive for effortful analysis. Those tips would be awarded proportionally to voting result; a slightly enhanced version would reward voters too for predicting voter turnout. The benefit of this approach is that it allows hobbyist analysis and disperses with the need for a priori valuation of knowledge workers; also, it prevents entrenchment of the latter by only judging the work's quality instead of the person.
- **Dedicated business-intelligence and data-science-collectives.** Those decentralized, in-house organs are tasked by the whole federation with analyzing the various aspects of the organization as well as environment. The quality of their analysis is to be rated by their peers as well as the system as a whole; in this evaluation, a balance has to be struck between representation of stakeholders' interests and pure technical expertise.
- We conceived various further schemes as well as variants of the above; those listed shall serve as corners for the possibility space for now.

Areas to monitor

To demonstrate the importance as well as scope of the task, we give a brief (of course non-exhaustive) outline of subjects which the organization should keep an eye on:

- External environment
  - competition
  - customer-base
  - cultural developments
  - technological and socio-technological innovations
  - political developments
  - availability and quality of suppliers

- The organization itself
  - Employee's mindsets and feedback
  - finances
  - investors' sentiment
  - technology state
  - ratings given by various labels to various collectives (this is particularly important to ensure our rating-scheme is neither being exploited nor punishes good actors unfairly)
  - other kinds of data we produce

Culture

We think the frustration with capitalism in the western world comes in part from some toxic cultural assumptions we make - "professionalism" means you have to be boring and bland to be taken seriously, work and quality of life need be strictly separated (if you are not frowning that might be read as admitting you do not have enough work to do).

Therefore, we intend to drop those assumptions instead of infecting Africa with them. To the contrary, we actively build a human organizational culture. We believe that game theory and sometimes unintuitive systems serve an important purpose of channeling the human chaos, but it should never be taken for a complete solution lest one intends to reproduce aforementioned dysfunctionalities. In that light we apologize in advance for potentially crossing certain human aspects with our intended design; again, we strongly intend to work with our workers instead of against them. I hope they will recognize still the importance of a certain structure, not at least for their own self-interest, and help us improve upon it.

Besides avoiding the negative, we intend to cultivate the positive. As students of culture, we are pitching the following tools to create a community out of this abstract rules-construct and the people living within it:

- Parties and festivals constitute important rituals for extasis, the great feeling of temporarily dissolving in a group free of any kind of adversity. Those we intend to hold both locally on a smaller scale and with higher frequency as well as in a yearly pan-African gathering. Of course, the latter will attract more customers for our clothing too (both end-consumer and labels) and will in turn strengthen our brand (see the following subchapter).
- Our own informal social media platforms will make sure everyone can always freely discuss whatever is on their mind, having business- and leisure-topics right next to each other.
- Making excellence visible provides well-earned status to trailblazers big and small instead of just currency. Being seen, they also serve as important role models and symbols of empowerment, showing what can be done.
- Due to the complexity of implementation and required base success we don't want to commit to this right away, but still it should be mentioned that we are eager to implement

various social support nets, like day cares for our workers, maybe even combined with in-built schooling opportunities. E-learning already lowers the barrier here and we are sure to find other institutions willing to work with us on that.

The Waya-Brand

Our strong focus on culture up to the holding of festivals –until now unheard-of for production companies –links perfectly with another intention we have: To market our logo as exclusively available for labels who produce with us, to be added to their clothing free of additional charge should they so desire. As we develop our brand and the image on Africa as the ideal place to make fair and sustainable clothing, the Waya label will act like a certificate for this kind of production. Therefore, even though we are a b2b company, it will be advantageous to become known by end consumers as well who will reward fashion labels that produce with us with more sales.

Identity

An essential aspect for our socially conscious aspirations is identity of workers - in order to stifle exploitation, it would be optimal to have the system pay the workers directly instead of some intermediary owner of the collective in question, thus again creating undesired centralized points of control and incentive for corruption.

While the detailed process is not yet fully fledged-out, we can at this point the following goals and current design choices:

- Workers need to be able to restore their accounts from anywhere with a piece of information that cannot be stolen. The best candidate for this piece of information right now seems to be their face; with active verification (meaning, someone wanting to restore their wallet is first asked to show a certain posture, gesture or expression before taking their picture) we prevent simple reuse of appropriated images.

- Similarly, all decisions - like votes given or money withdrawn - need to be reversible for a certain timeframe after their last edit. This also has to happen as opaquely as possible. The reasoning behind this is also to combat exploitation.

- A further safeguard - although we believe and hope this not to be necessary from the outset - would be to implement a multi-signature-scheme where another predetermined person has the task to confirm the action in question was indeed taken by the owner of the wallet.

- Identification too needs to happen in a decentralized fashion; our current approach is to play a shelling game of multiple (human or AI, subject to the owner of the service) verifiers who get rewarded if they correctly predict the ruling of the majority of assigned jurors. There is much more to be said here but omitted for brevity. (Citations: kleros, chainlink, shelling-games). Since those verifiers are very likely locally very far from the verifying persons' locations and our system is designed with opacity in mind, we

assume this miniscule infringement on privacy might be bearable. If not, we have sprouts of further refinements of this scheme which take on the issue.

Governance

Since the system is intended to continuously improve but also be not in centralized control, we require a mechanism of governance. The challenge here results from recognizing the multitude of stakeholders listed below; luckily, each of those correspond to a separate concern we need to have.

- **Federal investors** care for performance of the system as a whole.
- **Collective investors** care for performance of the essential productive unit, the collective.
- **Workers** represent themselves and thus the long-term health and ethics of the project.

As of now, we intend to assign each of those groups an equal share of voting power; but there is a catch: Each block's total votes scale with diminishing returns in a fashion which disables the option of two blocks colluding against the third.

Note that with the scheme described below actual workers will not exclusively be represented in the "worker"-block but also in the "collective investors" block. Also, no one explicitly prevents them to be in this category from the onset by providing their own funding.

Incentives for long-term interest alignment

There are several potential failure cases with such governance schemes, all boiling down to voters' short-term interest overriding the long-term interest of the whole, because they don't intend to be part of it later on.

For example, federal investors might be looking for a quick financial gain after which they intend to sell their shares in the project or even just purchase the necessary shares to affect the vote in their favor, only to dump them again right after.

Workers might look at it as a short-term job and drain the coffins by voting for harmful minimum wages.

We solve both with the following.

- We make workers into investors by locking part of their salary in our custom token. This might also provide easy protection against demanding friends and family juxtaposing workers' social and financial wellbeing. Besides aligning interests this enables workers to pay off the credit they took to start out (if they did so) which not only serves to empower them further but also makes their investors happy, who in turn now are free to help funding new collectives.
- Investors have the option to stake their investment too, meaning they forfeit the right to sell it for a predetermined amount of time. Not only does this scale the proportional return of investment they receive but also their voting power - the longer you commit to bearing

the consequences of your votes, the more you have to say. This might necessitate a scheme to prevent the simple shifting of trade from on-chain transactions to trading of wallets; although this alone constitutes an added difficulty (i.e. you can't use public or on-chain exchanges but must rely on the black market) we have various further schemes in development to tackle this.

Potential further avenues

With simplicity in mind, we omit the following from the ideal core. Nevertheless, we would like to mention the following potential future developments, not least in order to display abilities to pivot in case of unexpected data as well as ample opportunities for future growth even after the ideal state was achieved.

Schools and daycares

An African entrepreneur once told us "The sole reason many African families work is so that they can put their kids through college". Since we expect a lot of our tailors to be female, which in turn tend to have the added burden of having to care for small children, we cannot await the day we are able to provide daycares and integrated schooling.

Platform for designers

If the reader is familiar with services like Redbubble or Shirtinator they already have an idea of what we have in mind, although this goes even further.

The gist of it is this: Instead of relying on labels for customers - which need to unite both fashion and business acumen, thus losing a lot of market pull coming from the end customer - we would love to provide the option for anyone interested in fashion to simply publish their designs on our platform, which then can be purchased by the end consumer, creating an order for Waya and providing the designer with provision.

We stress that this model is more than just a "Redbubble/Shirtinator hooked up to Waya"; due to our production model of many small collectives, each of which will already be experienced in translating fashion designs into concrete patterns and promptly producing them we enable a platform encapsulating every conceivable kind of clothing, irrespective of fabric, cut, or decorations.

Mobile infrastructure

Everyone involved will interact with the blockchain system via mobile application; it goes without saying that this has to be designed in a maximally user-friendly way.

All actors will have access to the network on a DApp, a decentralized mobile app. To users, this functions like a normal app in which they can receive order, instructions and payments. This is especially important in Africa, where owning a mobile phone is more common than owning and using a laptop. That is why only with this mobile approach, we can reach the number of workers

we need on the platform. Since the systems runs on a blockchain, all transactions will be recorded, visible to everyone and therefore fully transparent.

Integration of other services

It should be pointed out that of course other service providers can and will be integrated into the system. For example

- Existing logistics-operations
- Providers of design patterns, either companies or platforms like Etsy or Fiverr
- Institutional investors
- Consultants

and potentially many more.

ADA to Mobile Money

Since payments in cryptocurrency only does not fit well with the current reality of the African economy, we will have to conceive a way for both to interface. Luckily, Africa is in already quite advanced when it comes to digital payment systems: Mobile Money is the common way to do business for many people there and requires only a phone. There is already a solution being developed by ADD.xyz.

Outlook: Other continents and industries

Of course, this model can just as well apply both to other continents as well as potentially each industry eligible for light production. Nevertheless, we consider it prudent to start out with fashion made in Africa. We proceed analogously to the (admittedly made-up but nevertheless amusing) quote "First sell books online, then, it's 'welcome to your Prime-home, valued Prime-citizen'".

Journey to the Ideal Model

The franchise

Before the system can be fully decentralized, a more centralized, manual system will be set in place. That is to identify the circumstances on ground, motivations and incentives of the stakeholders clearly which later will be needed as a base for the technical implementation.

Otherwise, an ill-functioning program might be created which does not meet the real-world requirements.

The first system on ground will be comparable to a "franchise model" where people can build collectives according to our model and can then receive orders. This model is described in the following.

Building the Archetype of Collectives

In the very beginning, our first collective needs to be built. The goal of this step is to figure out which processes, technical requirements, incentives, salaries and so on need to be in place to build the most productive and most reliable collective. Here, we also take into consideration that the final product is supposed to be a system, not a single production unit, so the collective needs to be multipliable and must also be able to work in collaboration with other collectives. The following guidelines and processes, among others, need to be put in place:

- Technical requirements
- Roles and responsibilities
- Quality requirements
- Input order information
- Production process
- Sample production and improvement process
- The creation of sewing patterns
- Fabric sourcing strategy
- Form and amount of payment

The Training Program

To become a collective and to receive certification, a training program needs to be in place. The training program covers a Waya-specific part that is mandatory for every collective, and other trainings covering general tailoring skills, which can be taken elsewhere. The training program will be designed alongside and with the learnings from developing the collective archetype. The goal of the training program is that in the end, all participating collectives are able and ready to produce products in the quality and speed required to meet international standards. Since only the best suited collectives can be part of the model, the program will be competitive and exclusive to potential collectives who meet certain criteria. This also incentivizes participating collectives to take the program serious and to be part of the Waya community.

There are already many skill programs on ground, many initiated by international aid programs and local NGOs. We see a strong potential for partnerships in that direction since we complement their program by providing the participants access to market and a clear employment path for participants.

The Basic Patterns

Our end goal for the system is to be able to produce any design possible, however, in the short- and medium-term, we will focus on basic patterns and materials, which can be customized. This will improve the quality and we will be able to perfect the production process for these patterns. When choosing these patterns, we will do market research and focus on the pieces which have the highest demand, and which are best realizable with the machinery and materials on ground.

Material Sourcing

The sourcing of materials is a crucial part in the production of any product. In this case, we will be mainly sourcing fabrics, yarn, additional materials such as buttons, zippers, pearls and anything needed to produce garments. In order to take advantage of the rich resources in Africa and to keep production cost and environmental impact low, we will focus on material mainly with African origin. In terms of the ideal model, a fully decentralized solution for material sourcing would be desirable. However, to ensure the compliance with our standards, we will build relationships with fabric suppliers which can then supply the collectives. This has the advantage that we can assess the quality, working conditions and sustainability of the materials. By using proven and known suppliers, we can also take advantage of economy of scale and buy materials in bulk for a reduced price. Further on, sourcing and distribution can be digitized and decentralized as well.
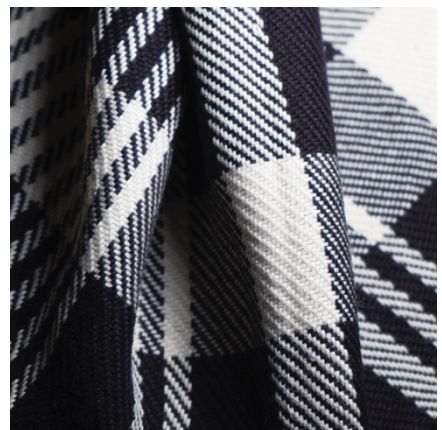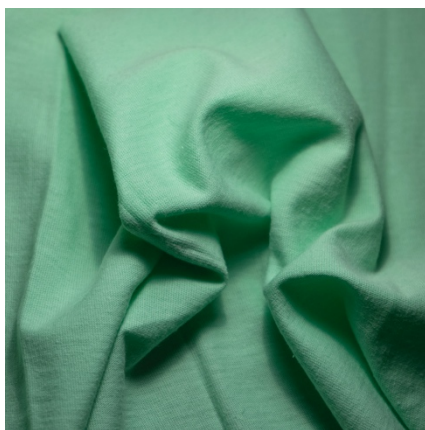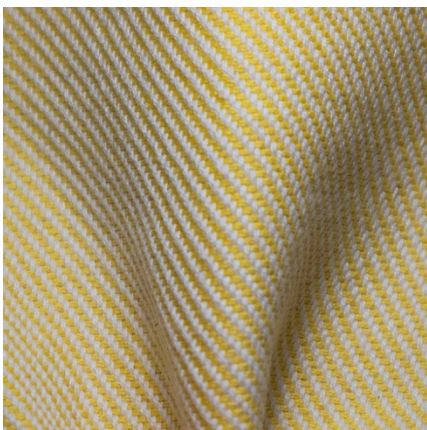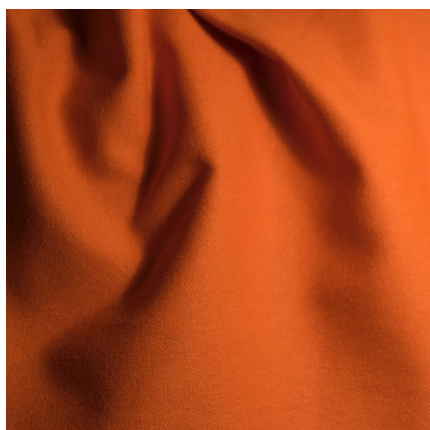
Starting point: Uganda

We believe this solution can be established in many African countries, however, there needs to be a starting point. For this, we chose Uganda. Why? There are a couple of reasons why Uganda is a great place to start this venture.

- **Entrepreneurial culture:** In 2015, Uganda was awarded to be the "most entrepreneurial country" by the Entrepreneurship monitor. That is because Uganda has the largest number of small-scale entrepreneurs, mainly driven by necessity instead of opportunity. Uganda has one of the highest population growth rates and has one of the youngest populations on earth. An estimated amount of 40,000 people graduate university each year in Uganda, with only 8,000 available jobs[77]. Opening a small business is therefore the way to go for most people.
- **Craftsmanship:** Many Ugandans, mainly women, turn to craftsmanship and tailoring as an opportunity to make a living. There are many skill trainings and courses available in that regard. Since most of them enter the local Ugandan market, there are limited growth opportunities. Those workers would however fit perfectly in the Waya Collective system.
- **Friendliness and openness:** Who ever stepped a foot into Uganda knows that people are very friendly and open to new ideas. Waya Collective will be confronting people with a new opportunity, but it is not necessarily a given that they will trust it. The chance to find early adopters is quite high in Uganda.
- **Language and Tech adoption:** Uganda's national language is English and Swahili. Especially in cities, most people speak English well and it is the most accepted business language, which solves many communication problems. Additionally, the adoption of new technologies is evident in Uganda which is an example of the openness. This has the advantage that most people in cities will already have a smartphone and access to internet, and they will be much more trusting and comfortable of the digital solution.

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[77] The Guardian, "Uganda's unemployed graduates held back by skills gap" (2014)