Bombyx:

LOVE WHO YOU WEAR

BOMBYX

TOKEN WHITE PAPER

CONTENTS

"[The U.S.] doesn't have people who need [clothes] on the scale at which we are producing."[3A]

-Pietra Rivoli, Economics, Georgia University

EXECUTIVE SUMMARY

Bombyx is a Blockchain-based token that rewards fashion consumers with brand-sponsored experiences.

Participants earn tokens through actions that prolong the lifespan of their garments. This system incentivizes participants to make the effort to reduce the environmental impact of their fashion choices.

THE PROBLEM

Consumers no longer value their garments.

This is the result of lower pricing brought on by the fast-fashion industry. These Prices have conditioned consumers to believe that clothing is disposable, and something to be constantly purchased. This pricing system has cultivated a throwaway culture of clothing, in which many consumers can afford to buy clothing on a weekly basis if so they choose.

"Between 2000 and 2015, global clothing production doubled, while the average number of times that a garment was worn before disposal declined by 36 per cent. In China, it declined by 70 per cent."
5A

Make no mistake - the pricing set by the fast fashion industry is meant to recondition consumers. This mis-education has contributed to human rights abuses, exorbitant resource extraction, contribution to global warming, and the speeding of the fashion system to the point that it is on the verge of collapse.

"Already, the apparel industry accounts for 10 per cent of global carbon emissions; as recycling markets break down, its contribution could soar" 5B

Ending the passé creation and destruction of clothing will contribute towards a healthier planet, and better working conditions for those in the fashion industry. Producers and consumers of clothing (hey, that's everyone!) must work together to guarantee a better chance of survival for humanity.

A SOLUTION

Despite all of the problems that fast fashion has caused, eliminating it isn't the solution; there are some consumers that **can't** afford to pay any more than the cost of fast fashion for their garments.

One possible solution to the problem sounds simple: get people to care more about their clothes. Yet doing this without driving up the cost of clothing or clothing-adjacent services (tailoring, dry cleaning, storage, etc.) has been extremely difficult.

Enter Blockchain:

This revolutionary digital ledger-keeping technology , first introduced in January of 2009, has proven impossible to hack.
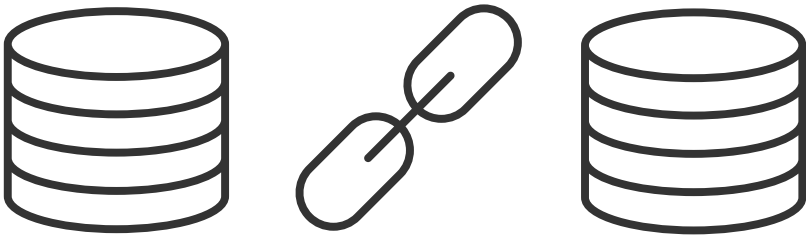
Blockchains are capable of hypothetically tracking millions of transactions per minute. This was previously impossible with digital ledger technologies, as credit card companies are built to process roughly 10,000 transactions per second. Furthermore, transaction fees on these networks can be any size set by the program. As such, Blockchain can be used to track individual garments and reward users for actions taken with those garments. Bombyx is a system designed to incentivize consumers to love their clothing.

BOMBYX MORI

WHAT'S IN A NAME:

The token on which the garment loyalty system will work is called Bombyx. Bombyx Mori is the Latin name for the silkworm. Silkworms are significant players in the economy of fashion as they are often killed for a small amount of filament that humans enjoy. Through new practices, researches have figured out how to harvest silk without killing the insect that produces it. If these silkworms survive, they will enter the moth phase of their life. Thus the token's primary motif symbolizes the new hope this system provides for all stakeholders in the fashion economy, and the return to a fashion cycle that is closer in line with natural processes and expectations.

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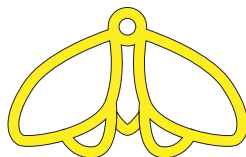
The Bombyx system's slogan is meant to remind users that their garments were not created on an anonymous robotic assembly line, but by the hands of many skilled human workers. This is a fact that many consumers have forgotten since as clothing production has global-ized, moving the processes and products of the fashion industry further from the consumer's home. Reminding users that there is a human cost to what they wear, in addition to an environmental one, will go a long way in reducing over-consumption.

As existing technologies become more **accessible**, it's possible that users will even be able to use the Bombyx system to follow the supply chain of their garment, watching it be created, or messaging with the pattern-makers, cutters, and seamstresses that made their garments. This direct connection would likely create a sense of empathy that would make the injustices that many of these workers face hit closer to home.

LOVE WHO YOU WEAR:

BENEFITS

"If something requires a large investment of time—or looks like it will—it's less likely to be used."[8A]

Steve Krug

OF A

Blockchains have a few distinct features that make them unique from existing digital ledger systems.

The first is a specific type of Blockchain, on which "smart contracts" can be built. These smart contracts can automatically check for the completion of certain requirements and, upon completion they can complete the transaction. Because of the simplicity of smart con- tracts, users won't quit the Bombyx system out of pure laziness.

Blockchains are also irrefutable, with transaction history that is available to any curious member of the network. Unlike existing digi- tal ledgers, anybody can download this data and audit the Blockchain to ensure it is fair and balanced.

BLOCKCHAIN

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BENEFITS OF A BLOCKCHAIN

Blockchains are also superior to existing digital ledger systems in that they can have extremely low transaction fees, sometimes as low as fractions of a penny. This doesn't even compare to credit cards, which often have standard fees of $.25 + 3% per transaction. Furthermore, because of the decentralized nature of the Blockchain, these fees simply go to paying the cost of running computers to confirm transactions.

The Bombyx system features a token that is not a brand-specific loyalty token, but a token that rewards users for taking care of their garments and prolonging their life (If you're wondering why brands should participate in a loyalty program that isn't necessarily about loyalty to their brand, flip to page 18). This means that consumers can get rewarded for the actions they perform every day, without putting effort into the system itself. All consumers have to do is sign up initially; using the hardware integrated in each garment described on page 16, Bombyx will measure what choices the consumer is making and how it is impacting the environment.

Finally, due to the secure nature of the Blockchain, the consumer's data is entirely under their own control, as they're the only one with the power to decrypt it. While this may not seem revolutionary, this right to privacy is not coded into other digital ledger platforms.

System

Balance

Incentives:

The Bombyx network grants incentives for actions it detects that are beneficial for the lifespan of a garment. These incentive actions, and their corresponding number of tokens are as follows:

+.02 token per use/wear of the garment.

+.05 token for sending the garment to a dry cleaner or other cleaning professional

+.1 token for repairing or mending the garment.

+1 token for bringing a garment to a responsible recycling facility.

+2 tokens for redesigning or customizing the garment in a significant way that suggests an investment in the future of the product.

Rewards:

The Bombyx network takes tokens away from participants in exchange for branded experiences, or as a penalty incurred with the purchase of new clothes. This is intended make users "Buy less, choose well and make it last"[10A]. Thanks, Viv.

-25 tokens whenever a wearer purchases a new garment

-X tokens for a branded experience, depending on what the brand wishes to charge for the experience.

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WAVES

PLATFORM

A Blockchain platform for decentralized applications

Waves is a decentralized Blockchain that allows users to build their own tokens on top of it. The strength of such a platform is in its existing number of users. These existing users guarantee a certain level of security for any Blockchain built on the waves platform. Furthermore, by being a part of the Waves platform, it's possible for Bombyx users to see other tokens, and explore other use cases for the Blockchain.

51%:

ONE GENUINE CONCERN IN ANY BLOCKCHAIN DESIGN IS WHAT'S KNOWN AS A 51% ATTACK;

By controlling 51% of the computing power on a network, a miner could simply rewrite the history of the ledger and have a majority of computers (nodes) support the change[12A].

This is one major reason to issue the Bombyx token on an existing Blockchain. By issuing the token on an existing Blockchain with plenty of miners already, the possibility of a 51% attack early on in the project is reduced. One of the most difficult marketing efforts in the world of technology is overcoming the network effect. Fewer users means less utility means less of a chance new users will adopt the technology. By issuing Bombyx on an existing platform, it's possible to disregard this issue entirely.

HOW MANY TOKENS?

2,400,000,000,000

Yes, that's right. There are 2.4 trillion Bombyx token.

Or 2.4 X 10^{12}, if you prefer

Ideally, the system would contain one token for each garment, with a rewards system structured such that participants are only fully rewarded when they've squeezed the maximum utility out of their garment.

Unfortunately, data on the number of garments in existence is hard to come by, especially since this number is always changing. As a result of this, tokens on the platform are **reissuable.** This means that those operating the system can add or remove tokens from the platform to better adjust the platform in response to fundamental shifts in the fashion industry.

Given the lack of available data on existing garments in the world, the system contains one Bombyx token for every dollar the fashion industry was estimated to be worth in 2016.[13A] Ideally, this quantity will be adjusted when better data on garments becomes available.

A PROOF OF

Bombyx is built on a "proof-of-stake" Blockchain. This varies from the common alternative, known as "proof-of-work"

Proof-of-Work, the method of confirming Bitcoin transaction has a few drawbacks that makes it unsuitable for this project. First and foremost, proof-of-work Blockchains force the competition of a huge amount of computing power.

This in and of itself is not a problem, but considering the carbon emissions of such a structure, relying on proof-of-work for Bombyx would counteract one of the core purposes of Bombyx: to reduce carbon emissions. The possibility of this risk is proven by the fact that "each Bitcoin transaction requires the same amount of energy used to power nine homes in the US for one day"[14A]. Such levels of energy consumption would be difficult to justify for the Bombyx system.

This said, there are legitimate criticisms of proof-of-stake Blockchains that suggest the future may be in some sort of mixed proof of stake/proof of work system. One issue with proof-of-stake Blockchains is that they begin to favor those that are wealthiest in their respective tokens. However, seeing as many people will be earning Bombyx at standardized daily rates, this token accumulation threat does not seem like a huge problem.

STAKE SYSTEM

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RANDOMIZED
CONFIRMATIONS

Several times in a day the sensor mechanisms embedded in a garment will check temperature and touch interaction. This data will be stored in Bombyx token, noting that consumers are making good use of their clothing.

These checks will happen a few random times throughout the day. The randomized nature of these checks also helps to protect the network against fraud and false positives. The randomized confirmations also ensure the system has a grasp on what was worn and when. Furthermore, the system will note significant data at the time, including time, temperature, zip code, what else a garment was worn with, which labels constitute the entire look of the consumer, and other biometric health data that the consumer might be interested in knowing.
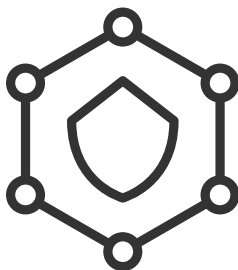
Privacy is obviously a huge concern when it comes to the personal data of participants, but the reward structure of the network is meant to guarantee that participants only share the data they feel comfortable sharing.

RANDOMIZED CONFIRMATIONS

The data collected in these confirmations would be available on an imagined trend-line for consumers to access at all times. These data could be of interest to "quantified-self" technologists, professional athletes, fashion and product designers, or even curious consumers.

The randomized confirmations would need to be limited, in order to prolong the battery life of the product, which could last an estimated 2 years factoring for use of technologies that are already on the market.

As a consumer builds up a good reputation in which they do not attempt to thwart the Bombyx system, the system could learn to perform randomized confirmations much less frequently. This would further prolong the lifespan of the battery.

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GARMENT

INTEGRATION

The types of data the system is interested in gathering calls for certain types of hardware to gather it. Due to the miniaturization of hardware that resulted from the popularity of the smart phone, it's possible to comfortably integrate this hardware into most garments already, though some individual components may need to wait until future release:

- Lithium Ion battery
- Bluetooth Low energy
- Qwiic Human Presence Sensor
- GPS Chip
- Accelerometer
- Lilypad Temperature Sensor
- Lilypad Light Sensor

This is not an exhaustive or comprehensive list. For example, athleticwear manufacturers may include a sweat sensor to provide consumers with data on their daily activity. The only essential components on the list are the first three.

The Bombyx hardware system is modular, allowing manufacturers to include those components that they deem important.

*Please note that the above is a theoretical hardware specification based on existing technologies. As these technologies improve, shrink and become cheaper, it's likely that even better hardware will be available for use with this system.

POTENTIAL SYSTEM BENEFITS

List of possible brand-sponsored experiences for participants in the Bombyx network could include (but are not limited to):

- Invitations to the brand's latest runway show or presentation
- The option to shop Exclusive Collections
- Behind the scenes tours of the brand's offices or headquarters.
- Meeting the brand's celebrity ambassadors
- Concerts or nightlife events
- Small dinner events
- Guided tours of exhibitions of the brand's work
- 1 on 1 shopping time with a stylist
- Custom designs for the wearer from the design team
- Custom fragrance from the brand's beauty line
- Private gallery or museum tours sponsored by the brand
- VR/AR experiences sponsored by the brand.
- Discounts on new purchases

None of these suggested experiences are particularly new in the world of fashion marketing. That's not the point of the Bombyx platform. The purpose is simply to foster a better connection between brands and consumers, and let the relationship take off from there.

Bombyx Love Who You Wear

BRINGING IN BRANDS

"Data is the new gold."[19A]

One concern that brands participating in the Bombyx network may express is that the token is not brand specific.

That the token isn't brand specific is better for consumers and for the brands. Consumers don't have to keep track of various loyalty programs, while brands will receive data on their own product and the product of their competitors. Anytime a brand collects tokens as a form of payment, they will get all the data that the consumer chooses to include with those tokens.

If a brand finds that a particular consumer isn't choosing to provide enough useful data, they can choose not to work with that consumer. In this, the system respects the autonomy of both participants in the network, allowing consumers to prioritize their privacy, but rewarding them for being less private.

Another great aspect of the token not being brand specific is that it can be traded on the open market. If a brand is looking for data on clothing that gets worn in the rain, consumers can buy that data in the form of other Bombyx token on the open market. Consumers can then sell this data to a brand in aggregate for access to whatever that brand is offering at the time that piques the consumer's interest.

A NEW HOPE

At the end of the day, Bombyx is simply a fashion tech platform that attempts to reduce the strain the fashion industry puts on the climate and its workers.

As a software product, it is important to imagine ways in which the product could end up impacting the world apart from the ways in which it set out to do. Some exciting hypotheticals are listed below, but these are only a few of the possibilities:

Could consumers also share data from wearable health applications with brands?

Can companies utilize Blockchainized data on their garments to better understand product life-cycle?

Could companies use machine learning to observe correlations in data from their garments that designers never would have noticed?

Which brands are styled together the most?

Which surprising styling combinations were engaged with most on social media?

How will a consumer's knowledge of their clothing history shape their future behavior?

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CREDIT WHERE IT'S DUE:

Image Sources: (These are hyperlinks)

Vector Files; Vecteezy.com
Waves Icon; Wavesplatform.com
Garment Integration Hardware Images; Sparkfun.com

Text Sources, by page number: (also hyperlinks)

3A: Fast Fashion is Creating an Environmental Crisis
5A: No One Wants Your Used Clothes Anymore
5B: No one wants your used clothes anymore as fast fashion floods the bins
8A: Don't Make Me Think
10A: Vivienne Westwood: Everyone buys too many clothes
12A: Bitcoin: A Peer-to-Peer Electronic Cash System
13A: The State of Fashion 2017
19A: Data is the new gold - development players mine a new seam

SAVE THE TREES:

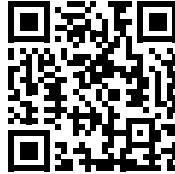Please consider downloading the Bombyx whitepaper in digital form from:

https://www.brianswift.com/bombyx

This version of the whitepaper will be kept up to date, unlike any existing hard copies. Alternatively, scan the following QR code:


BLOCKCHAIN DESIGNER:

Brian Swift is a New York City based menswear designer and photographer. His techno-optimistic universe is garish, glamorous, and unnavigable without color. He can most frequently be spotted taking selfies while making snide remarks on the internet.

You can keep up with him and his work on brianswift.com

BOMBYX AIRDROP

To receive your **free** Bombyx tokens as an introduction to the system, please follow the directions below:
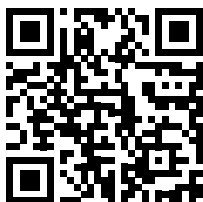
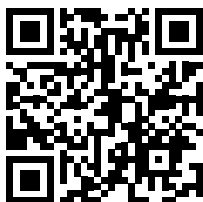First, create a new wallet on the Waves platform at:
https://beta.wavesplatform.com/

Or, use the QR code to the left.

Click to copy "Your Address"

Visit:

https://brianswift.com/bombyx-airdrop

Or, use the QR code to the left.

Fill out the contact form on the left side of the page. Be sure to include your name and the address you copied in the prior step!