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Blockchain And Its Relevance In Fashion Industry

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Abstract:
'Blockchain' the term which is fascinating everyone in current scenario. We are in the era of Web 3.0 and blockchain is taking over every industry worldwide. Fashion Industry is one of the largest industries globally which is evolving day by day. The rapidly growing industry also comes with rapidly growing risks and threats. Blockchain emerge as a single solution to many threats like security, transparency, traceability and many more. Blockchain technology is reshaping all over the fashion industry including production details, supply chain, authenticity etc. Blockchain is helping to generate trust between the brand and its consumers. Everything is transparent and traceable in blockchain which makes monitoring and verification very easier. All in all, Blockchain is helping fashion industry to enhance sustainability and consumer experience.

Keywords: Blockchain, fashion industry,

1: Introduction:

Blockchain Technology is emerging as a one of the fastest growing technologies which is disruptively transforming for about every industry globally. The security, transparency and trackability are some of the various key reasons of adaptation of this technology at a very large scale. This technology has helped almost every industry to revolutionise and step up a notch. Blockchain is aggressively changing the way traditional methods use to work and setting up the new ways to grow securely and sustainability.

1.1: Blockchain Technology- What is it?

Blockchain technology, the one of the rapidly growing technologies to store and manage data on internet. Data is stored in the form of blocks and these blocks altogether creates a chain forming

blockchain. In these chain of blocks data is stored in such a way that it creates a digital ledger which is hard to modify or hack by any unintended user. Whenever a transaction or action is initiated on a blockchain a record of that action is added to the digital ledger of every participant in the network, which needs to get verified before saving it to the blockchain. Every Block that a user in the network wants to add has its own encrypted information like the data to be added, time stamp to check exactly when the block was initiated or added, hash of previous block in the chain. These all things also need to be verified before adding a block to the blockchain.

Blockchain uses a distributed ledger technology through which a decentralised database is managed by many different participants of the network. The data is stored with high security and transparency on a blockchain. People can see the data but cannot modify it. If a hacker wants to break into a blockchain system, then he has to modify and change each and every block on the block chain on every distributed version. To make the transaction more secure a cryptographic signature called hash is used to record each and every transaction.

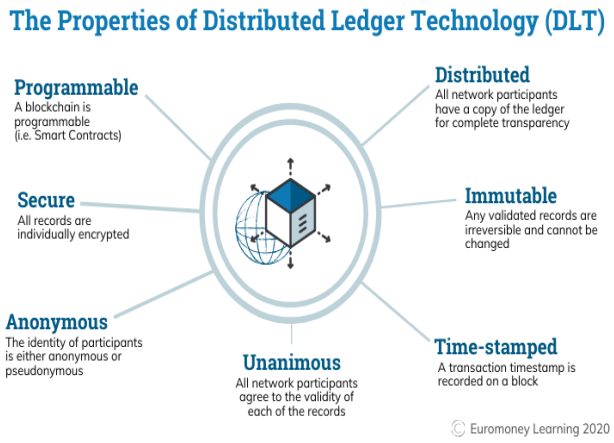

Figure 1: Properties of Distributed ledger

1.2: Blockchain consists of:

1) Distributed Ledger Technology (DLT): Everyone present on the network has the access to the distributed ledger and its immutable data. Which also helps in reducing the redundancy of data.
2) Immutable Data: The data stored in the blockchain can never be modified by any user, hence helps in securing the original data. Which also helps in keeping the record of all the action since the beginning.
3) Smart Contracts: For increasing the speed of transaction a set of code called smart contract is written. Smart Contracts defines all the scenario and condition that is performed on the blockchain.

2: How Blockchain Works:

Every time a transaction is completed, or action is done a new block is created on the blockchain network. Every block contains data of any kind which we want our block to store. Once blocks are created the relate to other blocks from front and back, creating a blockchain network. Each block added to the network strengthen the verification process of the blockchain.

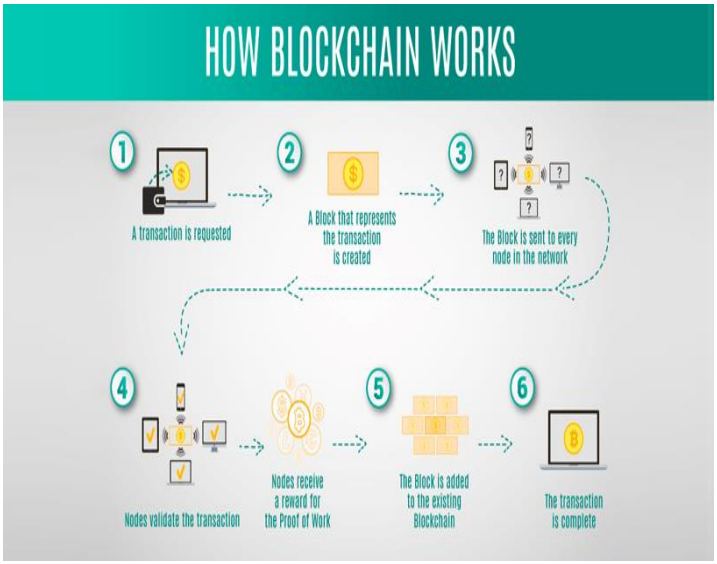

Image Credits: Zignuts.com

2.1: Types of blockchains:

1) Public Blockchain:
   These type of blockchains are open for all and anyone can join and participate in the transactions on this kind of blockchain example includes bitcoin, Ethereum etc.
2) Private Blockchain:
   These kind of blockchains are mainly governs by an organization, the organization manages the participants and also maintain the distributed ledger example include Hyperledger fabric.
3) Permissioned Blockchain:
   Usually, the organizations having private blockchain creates a permissioned blocked in which if a user wants to join had to have some permission or an invite.
4) Consortium Blockchain:
   This also a type of private blockchain which is combinedly managed by multiple organizations. All the organization participated have the shared responsibility to maintain the blockchain.

2.2: Benefits of Blockchain:

Blockchain technology is said to be one of the most secure ways to store data on internet. The data stored on the blockchain is collected as a form of digital ledger which is immutable enhancing the security aspects of the blockchain. Blockchain also provides transparency of data and also it provides proper availability of data to the user of the same network timely with full accuracy. The transparency of data, traceability of data and security of data helps blockchain to gain more trust of the user and the people. We can append the blockchain in our day-to-day life products to check its authenticity and originality. The combination of smart labels, QR code, Radio Frequency Identification (RFID) tags can help the user to get every detail on its reading device probably smartphones, by which user can gain more trust over the brand and the products.

3: Application of Blockchain in fashion industry:

Blockchain Technology is emerging as a one of the fastest growing technologies which is disruptively transforming for about every industry globally. The security, transparency and trackability are some of the various key reasons of adaptation of this technology at a very large scale. This technology has helped almost every industry to revolutionise and step up a notch. Blockchain is aggressively changing the way traditional methods use to work and setting up the new ways to grow securely and sustainability.

Blockchain technology can set up its aptness in fashion industry by substituting the way things are working currently. Blockchain can help in setting up a new way how the supply chain works, how the ownership and authenticity of the product is proved and how can we reduce the counterfeiting of various branded apparels. Various ways through which blockchain can enhance things in Fashion Industries includes:

3.1: Remoulding Supply chain:

Blockchain technology is providing a great solution in the area of supply chain of various industries globally. Blockchain provides transparency and trackability of each and every step in a supply chain network. In the current scenario different databases are created at each and every step of the supply chain for every product. If we want to trace or track the transit of a product, we have to checkout different databases and entries but in a block supply chain a block is created for the product which gets updated at every stage in transit which helps in proper traceability of a product. It reduces the various charges and efforts in maintaining different audits and databases at every step. A single block is containing all the details of a product since its origin to the final product and its delivery to the consumer's doorsill.

Blockchain helps in creating a substantial progress of data amongst different steps in the whole supply process, creating an immutable digital ledger. The digital ledger of the products records all the data from its origin to every step and stage which is transparently available on the block chain. This creates a sense of security and credence amongst the consumers about the product, its origin and authenticity. This transparency and traceability help both consumer and the industry or makers to get easily aware about their products and materials.

Various giant companies and industries are using blockchain as supply chain providing authenticity and gaining reliability of their consumers. Abu Dhabi National Oil company with IBM in oil supply, Walmart, JD.com, IBM in food supply, origintrail, TagltSmart in wine supply are some of the examples globally that are showing the application of blockchain as an integral part of their supply chain to provide more transparency and reliability to their consumers.

Image credit: medium.com

The consumer now is more aware and advanced, they know about the wrong practices a supplier can do that can affect them, giving them a transparent and trackable system can help them being reliable and confident about the things they are consuming from any supplier.

3.2: Reducing Forging of items:

Preserving brand's legitimacy is one of the major agenda when it comes to brand value and consumer satisfaction. Forging or counterfeiting of apparel can lead in reducing costumer trust on quality and origin of the product, which becomes brand's responsibility to reassure consumer's faith that they are receiving the genuine product.

Blockchain technology combined with brand tags or labels can help to keep track of the real product and its whole fabrication process. Differentiating RFIDs, QRs can help to check the authenticity of the product. The products which lack these Identifications can be separated and marked as fake and as all the transit is recorded on blockchain it would be easier to understand and lookout the origin of the inclusion of counterfeit items.

Counterfeiting of these apparels or products have adverse effect not only on the brand or the company but also to the economy of the country as various countries in world has a good share of economy from the textile business transactions. Italy a country famous for its natural Italian silk has invested a large chunk on blockchain technology to stop counterfeiting of its 'made In Italy' products which cost their economy in billions.

Image credit: madeinitaly.org

This can help the local producers to business at global level with their desired products with the original material with more customer reliability and ceasing the forging of various apparels.

3.3: Proprietorship on blockchain:

Blockchain also helps in maintaining the ownership on different products and items. Designers and brands can claim their proprietorship on their designs and products if is registered on immutable digital ledger (blockchain). NFT is one of the hottest topics in past one or two years. NFT is an application of blockchain technology which allows the proprietorship of data, intellectual or any physical belongings which can also help in proving their authenticity. In case of new owner, it can be easily updated on the blockchain and that's how we can also keep an history of the owners on the blockchain for verification.

Ownership of all the apparel designs including sneakers is also now stored as assets in blockchain. Arianee blockchain with Satoshi studios are making it easier to transfer of your proprietorship or ownership to others using smart contracts into your own Arianee wallet. Ownership of digital items is one of the trending topics in current scenario and for artists and designer it is a sort of bliss to be valued for their designs.

3.4: Warranties and Coupons:

Currently the warranties provided on a product is checked and claimed with the help of receipts provided at the time of the purchase, but it seems difficult to maintain and store that receipt for longer time. With the help of Blockchain technology we can store the details directly in the digital ledger which makes the warranty reclamation task easy for both consumer and retailer.

Keeping records of the user and its rewards/coupons also becomes easy for both consumer and retailer. With everything going online these online receipts and offers with security can help in expanding and focus on large audience with less efforts. This helps not only in expanding customer base but also is both time and cost efficient.

3.5: Reduction in Operational Cost:

Blockchain technology provides better and easy way to data management, changes in the supply chain, reduces the risk of counterfeiting or forging can indirectly help in reducing the operational cost.

3.6: Monitor Deliveries:

Blockchain technology is making everything transparent and traceable for everyone. Everything can be monitored by anyone in the blockchain network. It can help to check the real origin of the raw material and the exact time of delivery with proper traceability of the actions.

Many big retailers have done really great jobs in the fired of delivery of different products to any part of the planet but waiting for your package to arrive can reduce your productivity. With proper mapping of your package can help to be free minded. By recording every stage of the product from the origin can improve consumer experience. This can also help in reduction of unnecessary charges put on the products and it can also reduce the chances of getting defective or fake items every time they reach the consumers.

3.7: Consumers or retailers' Data:

It has been seen many times not only in fashion industry but also in various other industries that the consumer data are taken without even their proper consult. But if all the data is stored in a blockchain, one cannot share any of the consumer or retailers' data without their permission. With the proper usage of blockchain technology any data stored throughout the process can be secured from data breach.

On internet no data is secure and can be easily accessed and falsified by anyone without any consult. Data stored in blockchain can't be accessed by anyone and cannot be modified by any unauthorised user. So the data of both consumer and retailer even that of the producer is safe on blockchain.

4: Blockchain Applications so far in the fashion industry:

We have seen various applications of blockchain technology in fashion industry be it the tracking of products or proving their authenticity and quality, there is a very high possibility that blockchain can radically alter the current fashion industry. There are various companies globally which have moved forward to adapt blockchain technology to enhance their presence in the industry, some of them includes:

1. In 2015 Greats and Beast mode 2.0 Royale Chukka together produced sneakers with smart labels and QR that contains information that are stored on blockchain containing digital information with limited edition number.
2. At Copenhagen Fashion Summit 2017 London designer Martin Jarlgaard introduced apparels that have smart tags integrated with blockchain containing all the data from the origin of the raw material to the customer and track each step on blockchain.
3. In may 2019, LVMH with Microsoft and blockchain company ConsenSys launched a platform called Aura providing the trackability and authenticity of production process from raw material to sales to the consumer.

Image Credit: auraluxuryblockchain.com

4. Arianee Protocol was also developed as a kind of product authentication and certification mode in between both brand and the consumer, in this every piece receives a blockchain based certificate which can help in verification of the product.

5: Conclusion:

There seem many motives for anticipating blockchain enactment in the fashion industry. It can take over the fashion industry completely. Blockchain helps in keeping the records of every stage from the production of raw material to the final product at the doorsteps of consumer at one place. Blockchain helps in providing transparency and trackability which reduces the risk of counterfeiting of apparels and can help in identifying the source of forging and false methods. Verification of authenticity of products becomes more easier even whole history of the product can also be easily accessible. The data stored on the blockchain is immutable, hence false data can not be altered to the real one. Whole transparent and trackable structure of the supply chain on the blockchain enhances the consumer and brand relationships. As a designer blockchain can help in claiming proprietorship on its designs as NFTs. Eventually, Blockchain is emerging as a great progressive initiative for each and every one involved in the fashion industry from worker to brand or to the end consumer and stakeholders.

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