THE

NO FAKE TODAY

WHITE PAPER

(draft)

NoFakeToday | A real tomorrow

Abstract

Fake and counterfeit goods have a major impact on legitimate industry.
No Fake Today is a disrupter of the counterfeited goods industry.
The simple elegant approach backed by highly sophisticated technologies such as anti-counterfeit algorithm based on Cryptography, Blockchain, Big Data, Machine Learning challenges the very basis of forgery, fake goods and counterfeiting. No Fake Today is a leap forward in tackling counterfeiting.

Table of Contents

The Problem and Challenges

It has been estimated that counterfeiting worldwide costs companies US$ 1,77 trillion (that is $1,770,000,000,000 USD) every year. There is no industry where counterfeiting does not take place and at every level of price, quality and market segment and at every point in the supply chain. If there is an advantage to be gained by using other people's product names, processes, logos, concepts or models somebody will copy the item, idea, process or product. Counterfeiters pay no costs in product research and development, market and customer research, product testing and approval processes. They do not need to come up with original ideas or refine and develop those ideas into a working product.

In most cases counterfeiters use poor quality material, low quality labor with little or no quality control. However, in recent years the nature of counterfeiting, in some areas, has changed significantly with counterfeiters producing products which are in many cases indistinguishable from the original in the quality of both the materials used and the skills applied to the production processes. These counterfeiters still bear none of the cost paid by the product developer or IP owner. The counterfeiter is still able to make significant income where the original producer bears all the overheads of developing the ideas and turning them into an artefact and then maintaining the products brand and market visibility as well as the cost of any enhancements and developments.

Counterfeiting is simply theft by another name. The counterfeiter not only steals the intellectual property (IP) of the original owner, but also steals their customers, their reputation, their market share, profitability and future opportunities. Counterfeiting also impacts consumer confidence in the brand, undermines its credibility and reduces its value. More generally counterfeiting also reduces confidence in the supply chain through which products reach the consumer and impact adversely on the product's image and acceptance.

More broadly counterfeiting damages the domestic and international economy. Often the products are made in low cost economic areas and are unlawfully imported or introduced to the mainstream economy. So while counterfeiting is a criminal activity in itself - illegal copying of a product - it is furthermore an activity that reduces legitimate income to the state from taxation, supports criminal networks and undermines companies in their lawful activity whilst funding criminality and criminal activity.

A further issue posed by counterfeit products is the threat to human health, welfare and safety as well as to animal welfare and environmental degradation. Many chemical products including medicinal drugs and pharmaceuticals items are copied. Because these products are counterfeited there is no oversight by appropriate authorities or official bodies, little or no quality control and no certainty of the safety or effectiveness of the product. The provenance of the products is indeterminate and the efficacy and safety of them likely to be significantly reduced with many of the medicinal drugs produced by counterfeiters being either toxic or ineffective. These toxic or ineffective counterfeit drugs are thought to be responsible for up to a million deaths a year.

Food products are subject to being copied raising similar issues with the subsequent impact on health and safety. There have been many examples of situations in which counterfeiting has had adverse affects not just on the legitimate producers but also on the health, safety and well-being of consumers. For example, the sale of horse meat as beef used in beef burgers, ineffective counterfeit patent drugs being used to treat illness in humans or being used for recreational purposes where the purity of the product is unknown and with catastrophic consequences.

Counterfeited products are also produced in a wide range of engineering industries where the consequences of poor quality control or indeterminate provenance can have detrimental impact on product safety for example counterfeited brake linings used in safety critical aircraft or car components.

Types of counterfeiting

A range of types of counterfeiting has been identified as shown in the table below (Adapted from (Spink, 2009b , Spink, 2007)):

Term	Definition
Adulterate	A component of the legitimate finished product is fraudulent
Tamper	Legitimate product and package are used in a fraudulent way
Over-run	Legitimate product is made in excess of production agreements
Theft	Legitimate product is stolen and passed off as legitimately procured
Diversion	The sale or distribution of legitimate product outside of intended markets
Simulation	Illegitimate product is designed to look like but not exactly copy the legitimate product
Counterfeit	All aspects of the fraudulent product and package are fully replicated

The impact

Counterfeiting adversely affects the whole of society at all levels.
It has a corrosive impact on business and industry. Counterfeiting can:

- Damage company's reputation
- Cost jobs, growth and potential sales
- Lose customers and customer confidence
- Lose income and profit
- Support crime and crime syndicates
- Fund international terrorist groups and subversive governments
- Adversely affect human health and wellbeing

Current unsuccessful approaches

There are many existing methods that attempt to prevent, detect and counter fake products.

These include a wide range of production processes such as special printing using coding and printing technology on the product, the use of nano-materials, forensic markers, tamper evidence, QR coding of items all of which can be included as overt or covert features, security labels and special packaging design.

Some companies employ post production approaches such as providing 800 toll free numbers, on line reporting or checking of product serial numbers or holograms, that allow consumers to check the product's authenticity. These are usually only available after the product has been purchased.

Another approach is to use Track and Trace technology that allows a full life history of the product to be maintained using for example RFID. This however is expensive to implement and requires full supply chain access.

Many companies pay service providers to detect on-line sales of counterfeit goods and to intercept and take down the web sites. This may force the vendors of fake goods to abandon the sale of counterfeited goods but more often results in the vendor changing their identity and moving to an alternative website.

Governments and law enforcement agencies work with producers to identify shipments of counterfeited goods. This may result in the interception of imported goods and can result in the confiscation of counterfeit items. These are expensive and time-consuming processes.

As an illustration of the challenges of counterfeiting, governments now employ an extensive range of anti-counterfeiting techniques on banknotes some of which are familiar these include; special paper, tactile facility using embossing and raised lettering, magnetic strips, holograms, fault printing, micro lettering, UV visible printing and so on. In spite of all these very sophisticated and advanced processes there is still a lucrative market in counterfeit banknotes as it is not always completely possible to ensure the authenticity of the notes without an expert opinion.

Most if not all of these approaches are very expensive to implement, difficult for consumers to use or can themselves be vulnerable to being counterfeited. For example, a certificate of authenticity with holographic security can itself be copied, or serial numbers can be copied and added to a product.

The Solution

Any solution must meet the 4 C's

- Certainty of source
- Clear line of production and delivery
- Confidence of all participants, such producers, logistics and consumers
- Convenience of use

Any solution has to ensure that the customer knows that the item they buy is the real, genuine product. Also the producer needs to be confident that if their products are copied it will be obvious to the customer that the copies are fake.

What needs to be achieved to counter counterfeiting:

1. Consumers need to know if their purchases are genuine
2. Producers want to ensure their customers buy the genuine article
3. Producers should be able to interact with their real customers to provide better product information

No Fake Today has produced a workable solution, that is powered by the latest developments in cryptography using Blockchain as its backbone and applies advanced technologies including React JS, peer to peer networking and computer graphic techniques. The core technology is the same technology that has been used in Bitcoin to protect a capital market of 30+ billion US dollars. This is a technology that uses an unbreakable encryption mechanism that maintains a public account of all transactions that have taken place. The records are kept in chronological order and every computer connected to the network can validate the transactions. Any attempt to change or alter records can be detected. In fact, it is not possible to change the block once the transaction has been recorded. Thus, the mechanism itself cannot be counterfeited and the product can be uniquely identified.

As part of the No Fake Today, we have already developed a system to provide a manufacturer with a QR code for products that can be attached to the product and uniquely identifies the producer and the product - it cannot be copied or counterfeited. Using a QR scanner the consumer or intermediary can check the authenticity of the item. Once the product has been purchased the items's ownership is registered world-wide and at any time in the future the authenticity can be verified.

Blockchain is the key and core of No Fake Today to counter counterfeiting. It provides the consumer and producer with a trusted system that does not rely on a third party not even No Fake Today itself. All the transactions are public and once they are recorded on the Blockchain they cannot be altered. Furthermore, all the transactions written to the Blockchain are traceable to source that is the address from which the transaction was executed. This means that the identity of users is never compromised but the address of the transaction can be traced. Blockchain also time stamps every transaction so the exact time of the activity is recorded. This means that all transactions made on the Blockchain can be trusted.

If No Fake Today were to be added to this array of counterfeit prevention techniques, it would be possible to authenticate each item for example every bottom of wine simply by using a smartphone app.

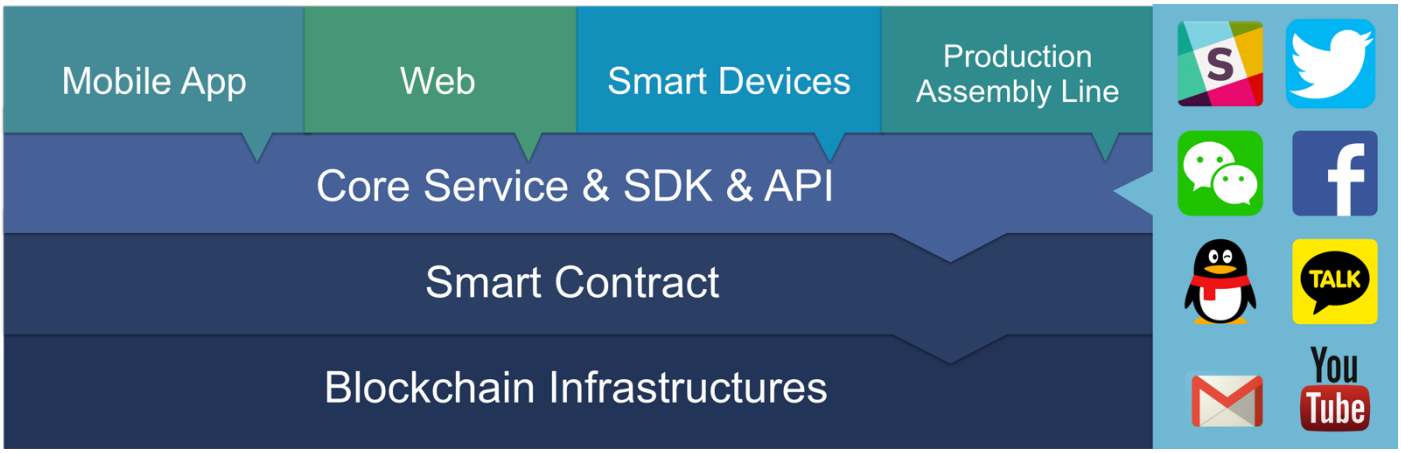
The Requirement

Blockchain is employed as the infrastructure as it supports the following key items:

- Can record all the data needs to be recorded
- Immutable
- 365/24/7 accessible
- Open source
- Cuts out the middle-man
- Efficiency
- Ease of access
- Equal and independent partners, there is no dependency on any third party
- Open API
- Wide support for programming language (Java, JavaScript, Python, C++, Go etc.)

The Architecture

The infrastructures are built on existing Blockchain (Ethereum) technologies. This infrastructure ensures that all the benefits mentioned above are achieved. The Smart Contract layer keeps the business logic, and all the pre-defined business rules are kept within this layer. Many core services are provided to support the business including big data, machine learning, location based services, and these services are accessed via SDK & API for application layer. The application layer will not only support web and mobile phone platform, but also support smart devices and production assembly line processes.



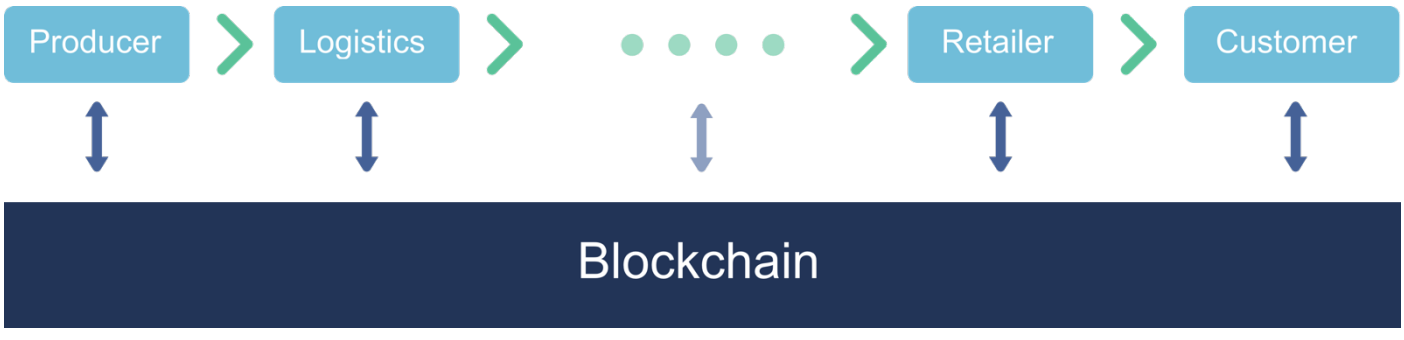
This means that existing producers have only to make minor changes to benefit from these new approaches. Given that it is very hard to ask users to download and install new applications, the services provided by this approach will integrate with all existing popular social media applications. This means that consumers, customers, users as well as producers can not only

trace and verify every single purchase, but also be able to share their views on the product.

The Flow

What is required to counter counterfeiting is a mechanism that can uniquely identify a product and cannot itself be reproduced or modified or changed in any way. It needs to be an end-to-end, affordable and secure solution.

From below flow, you can see all participants are connected, and they put all required information into the lifecycle of a product. Due to the nature of the openness, the system supports any number of participants to join, such as custom, bank, inspection etc. and this brings lots of possibilities such as supply chain management, loyalty points programs, market promotion etc.



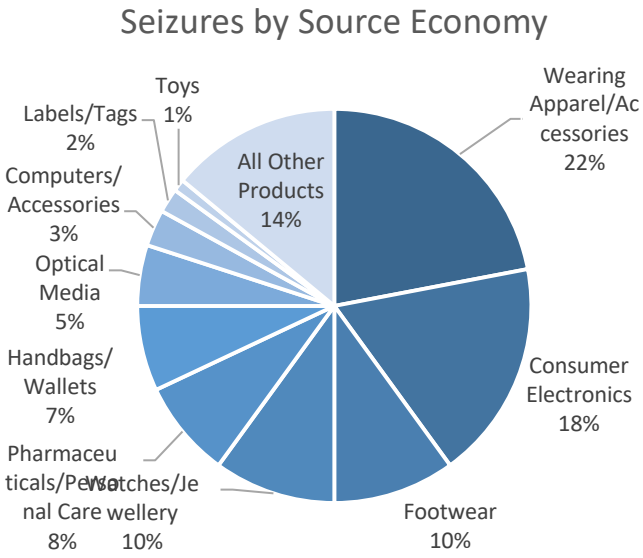
An unbreakable and connected ecosystem.

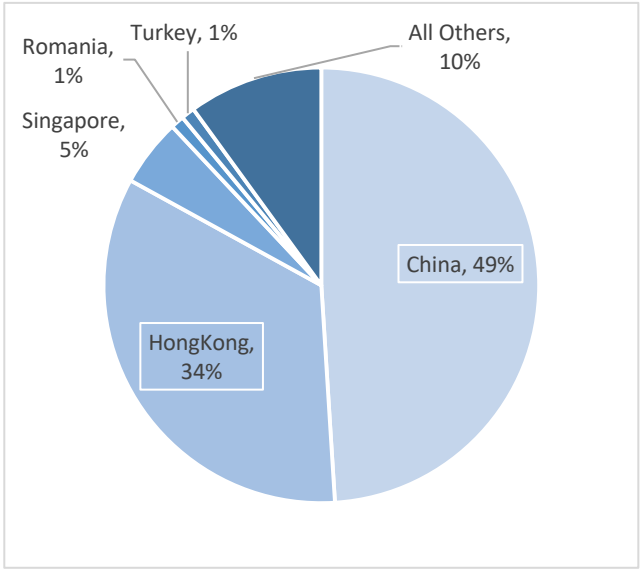
Where it can be used

There is no industrial or commercial sector where No Fake Today product cannot be used to authenticate the product and the producer. This will challenge counterfeiting, confirm the authenticity of the producer and provide the consumer with confidence in the product.

Products that are most often counterfeited are:

- Labels/Tags
- Computers/Accessories
- Footwear
- Pharmaceuticals/Personal Care
- Wearing Apparel/Accessories
- Consumer Electronics/Parts
- Watches/Jewellery
- Handbags/Wallets





And it is in these areas that the greatest gains can be achieved in tackling counterfeiting.

However, this approach can be used in any industry and will provide great benefit to producer and consumer alike to protect the products and provide consumer confidence.

Other areas where the product can be used includes:

Customer loyalty program

Electronics

Supply chain

Automotive industry

Pharmaceutical products

Certificates (such as university degrees, licenses and permits etc)

Food and beverage

Customer loyalty program

How it can be used

QR codes are generated by the producers locally, then attached to the product. Ideally the code is attached to the product during the production process. The code can be affixed to the product using a tag or label or is incorporated into the product by being embossed or stamped onto the product. After registering the product, the product's uniqueness will be represented in will be in a Blockchain and allows consumers to check the authenticity of the product by using a smartphone with a QR scanner and web access. This is now a simple, everyday occurrence familiar to every smartphone user.

A further refinement allows the incorporation of a record of the production and supply chain process. The product history can be recorded to include:

- Manufacturer/ producer details
- Photograph / image of product
- Date of manufacture
- Date of dispatch from manufacturer
- Wholesaler details - date of purchase/ date of storage in warehouse / date of dispatch etc
- Retailer details
- Date of purchase / purchaser details

The purchaser is then able to check the details by scanning the QR code. On purchase the details are locked to the purchaser until they release the product.
A range of businesses, industries and investors have already engage with us and applying the technology in their products:

- Honey producers - New Zealand
- Milk powder producers - New Zealand
- Health supplement producers - Australia
- Wine distributor - China (which sells 10% of all imported wine in China)
- Educational service provider – Beijing, China
- Cosmetic company – Guangzhou, China
- Bag designer and producer – Fujian, China
- Health supplement producers - Malaysia

Not only have they shown an interest in supporting the development of the technology and associated systems but also in investing in the product and in buying our token.

The Future

Once it has been established that a product's authenticity and provenance can be determined without challenge, simply by scanning its associated QR code which is unique, unalterable and itself not possible to counterfeit, it is then possible for consumers to reassure themselves that the products they purchase are the real items. This opens endless possibilities to challenge counterfeiting.

Consumers can purchase with confidence, manufacturer and distributors can guarantee the authenticity of their goods. Consumers can determine if their friends or associates purchases are real, producers can offer incentives to check the authenticity of goods for example:

- Wow I see you have a ….LoVe … bag just like mine, let's see if it's the real deal. Just scan the QR code with your smart phone.
- What a great pair of shoes, are they real …Jimmy's..? let's have a quick snap.
- I would love a shot of Macallan "M" whisky, let me just see if it's authentic. let me scan the bottle's QR code.

Token and Sale

DESIGN OF THE TOKEN

No Fake Coin (NFC) will be introduced for the participants who want to use the services in our ecosystem. This token is purely a utility token for now and in the future, and it strictly doesn't have any investment, asset or security attributes. It doesn't imply these attributes, either. Besides, it is not a payment tokens. That is, it is not designed to be treated as a means of payment for acquiring services or as a means of money or value transfer.

This token is an open sourced cryptographic token on Ethereum Blockchain platform with 18 decimals places. The total supply is fixed to 450 million. With more and more participants joining, the velocity of NFC circulation will increase, its scarcity will increase as well.

As a utility token, it will be used for future potential developments, such as supply chain management, loyalty point programmes, promotion campaign and many other possibilities.

The token has also been designed to be secure, transferable and tradable. This technical implementation will enable it in the cryptocurrency exchanges where its price will be determined by the market.

The token follows the Ethereum ERC20 standards, and its source code will be open to the public on our GitHub website, and it will be registered in the well-known Blockchain Explorer sites such as EtherScan.io for better

security and popularity as well.

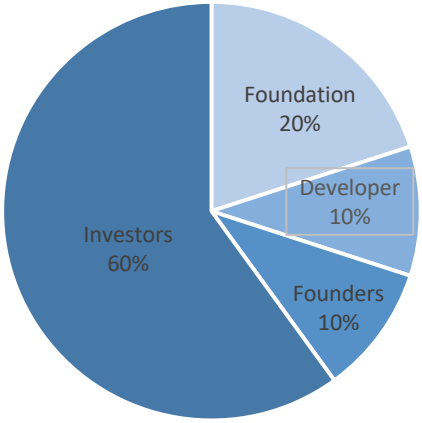
Token Sales

Depending on the participation time, the NFC/USD rate will vary, phase one investors will enjoy a 20% bonus, and the phase two investors will enjoy a 5% bonus. We only support ETH, so investors holding other tokens such Bitcoin, ETC, LiteCoin can convert them into ETH before purchase. Please note the ETH/USD price will be determined by the markets. That is, we will use ETH/USD close price of the transaction date from CoinMarketCap (https://coinmarketcap.com/currencies/ethereum/historical-data/)

Phase	Rate	Note
I: Angel Investor	12 NFC per USD	20% bonus
II: Early Bird	10.5 NFC per USD	5% bonus
III: Main Sale	10 NFC per USD	Standard rate

In total, there will be 270 million NFC to be issued to the public.

The foundation will keep 20% of the total tokens, and these tokens will be used to prompt the ecosystem, encouraging more participants to join. For example, our reward program will reward the producers whose customers reaches 1 thousand, 10 thousand, 100 thousand respectively etc.; Tokens will be available to be given to non-profits organizations who want to join our ecosystem. These organizations can be independent researchers, product quality inspectors or product standardization organizations.

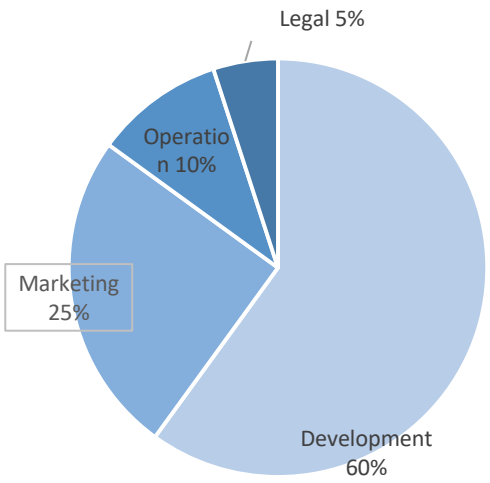


The tokens pre-allocated for founders and developers are subject to a long-term vesting schedule.

After the token sale period, all the unsold tokens will be given to the foundation.

	Amount	**Note**
Total NFC	450,000,000	450 Million
NFC Foundation	90,000,000	20%
Developer	45,000,000	10%
Founders	45,000,000	10%
Investors	270,000,000	60%

Fund allocation



60% of total fund to be reserved to support further development of our platform and services. These developments are not only based on our existing plan but will also be based on the market feedback received from our customers. For instance, one of the feedback/suggestions received was to enable the service via a WeChat mini program to satisfy 889 million active users of WeChat, (see Ref).

On the other hand, we will also need to spend a significant amount of the fund on marketing and sales. Given that this technology and service are still very new to the market and to many producers the processes are quite revolutionary comparing to traditional approaches, this will require some market education and the market will need time to understand the technology and adopt it.

	Item	Value
Fund Allocation	Development	60%
	Marketing	25%
	Operation	10%
	Legal	5%

Roadmap

The following roadmap currently focuses mainly on the technology side of the roadmap. As the dedicated marketing and sales team grows, we will publish more details on the market side. As always, we will continue to use our communication channels such as our website, Slack, Twitter, Facebook, WeChat official account etc. to keep followers up to date and current with our progress.

Initial Phase	
December 16	Alibaba was put back to U.S. Government's 'Notorious Markets' list prompting our determination to fight counterfeiting and fake goods
January 2017	Initial design produced and refined
March 2017	Release of crypto-currency wallet on mobile devices
April 2017	Integration of No Fake Today - NFC application into the wallet
May 2017	Engaged with pioneer / early adopter producers and manufacturers
May - August 2017	Enhancements made to the application based on industry and consumer feedback
September 2017	Whitepaper published
December 2017	Initial Coin Offering (ICO)

Enhancement Phase

January 2018	Further extend the technology to major markets and identify product enhancement strategies from consumer feedback and application
March 2018	Create WeChat mini program to test product in the Chinese market. Parallel development of system to run on other similar platforms
June 2018	Provide SDK/API to encourage third party development

Maturation

September 2018	Enable application on different platforms to provide seamless ubiquitous engagement
December 2018	Enable Big Data and Machine Learning Services to refine producer targeting
June 2019	Further refinement of the existing Blockchain to improve the efficiency and capacity to meet anticipated growing demand

Conclusion

No Fake Today is a solution that is a leap forward in the fight against counterfeiting. It is already in use and will evolve over the next few years to be a market leader in providing consumer confidence and producer opportunity in the battle against counterfeiting. It will:

- Reduce counterfeiting / copying and thus loss of those sales
- Increase customer confidence
- Challenge counterfeiting competition
- Increase sales / market
- Increased data on sales and customer base

References

- http://www.prweek.com/article/1369510/brand-attack-defendself-against-global-counterfeit-trade#TUmRjvz9Gom0G4v6.99
- http://www.prweek.com/article/1369510/brand-attack-defendself-against-global-counterfeit-trade
- 9 most counterfeited products in the USA
- Counterfeit Goods Cost the U.S. $600 Billion a Year
- Toll of counterfeiting and piracy predicted to top $2.3 trillion
- Official website of No Fake Today
- 25 Remarkable Counterfeit Goods Statistics
- Anti-Counterfeit Packaging Market By Usage Feature Analysis
- Alibaba Lands on U.S. Government's 'Notorious Markets' List for Fakes
- ERC 20 standards
- 889 Million WeChat active users (as of Q4 2016)

Appendix - Use Cases

Bag manufacturer

An own label designer bag manufacturer producing their own design bags that are high end consumer products which are high value selling to small lucrative markets. The high value of these products makes them attractive to counterfeiting. The products can be advertised and sold online in direct competition with the owner of the label.

The counterfeiting of the products can be countered by using No Fake Today - QR code either on the product label tag or printed discreetly on the bag for example on the inside pocket.

This manufacturer only sells through their own outlets - no secondary sales, no franchise etc. At point of sales the sales assistant register the sale using the QR code. Anyone purchasing the item can use a smartphone to check that the bag is a genuine article. Once the sale is registered it is not possible to reuse the QR tag on another item and the authenticity can be verified via the QR code.

Purchaser and owners of the bags can check the originality of their own or other bags simply by using smart phone QR scanner.

As part of the marketing and sales strategy the bag manufacturer can encourage owner or purchasers of the item to check the originality of the bag.

Certificate of Authenticity or Guarantee

Currently certificates of authenticity can be copied easily even if they include anti-fraud characteristics for example holograms, micro printing … By including a QR code on the certificate the product authenticity can be checked by scanning with a smart phone to see the details of the manufacturer and the product. At the point of purchase the customer is given a certificate with a QR code with a scratch off surface. If this has been tampered with they are advised not to purchase the item. This allows them to check the authenticity and to register the sale of the product and at the same time registers them for the guarantee. A simple signup process is followed to include registration of phone number, name, zip (post) code. Once the details are recorded the Blockchain securely holds the data in a form is tamper proof but readily accessible via a smartphone scan of the QR code.

Powdered Milk Manufacturer

Baby milk manufacturer produces boxes of baby milk powder formula. These are packed in 1kg cardboard boxes. Each box carries a QR code that identifies the product and the manufacturers details. This is accessible via a smartphone scan of the QR code. A QR code is accessible once the product packaging is opened and by scanning this the sale is recorded and the product identity authenticated.

Wine Production

The vineyard is provided with two QR codes one that is publicly available to allow tracking of the product and a second one that is utilized at purchase for verification purposes. Using the tracking ID it is possible to determine each point in the supply chain i.e. production, dispatch, storage, warehouse, wholesaler, retailer. Using the private QR code the customer can be certain of the product by verifying its authenticity using a smartphone.

In every case the manufacturer's details can be verified and those details cannot be altered by a third party. At the point of sale (purchase) the customer can authenticate the product and satisfy themselves that it is a genuine product.

No other system can provide this level of assurance.