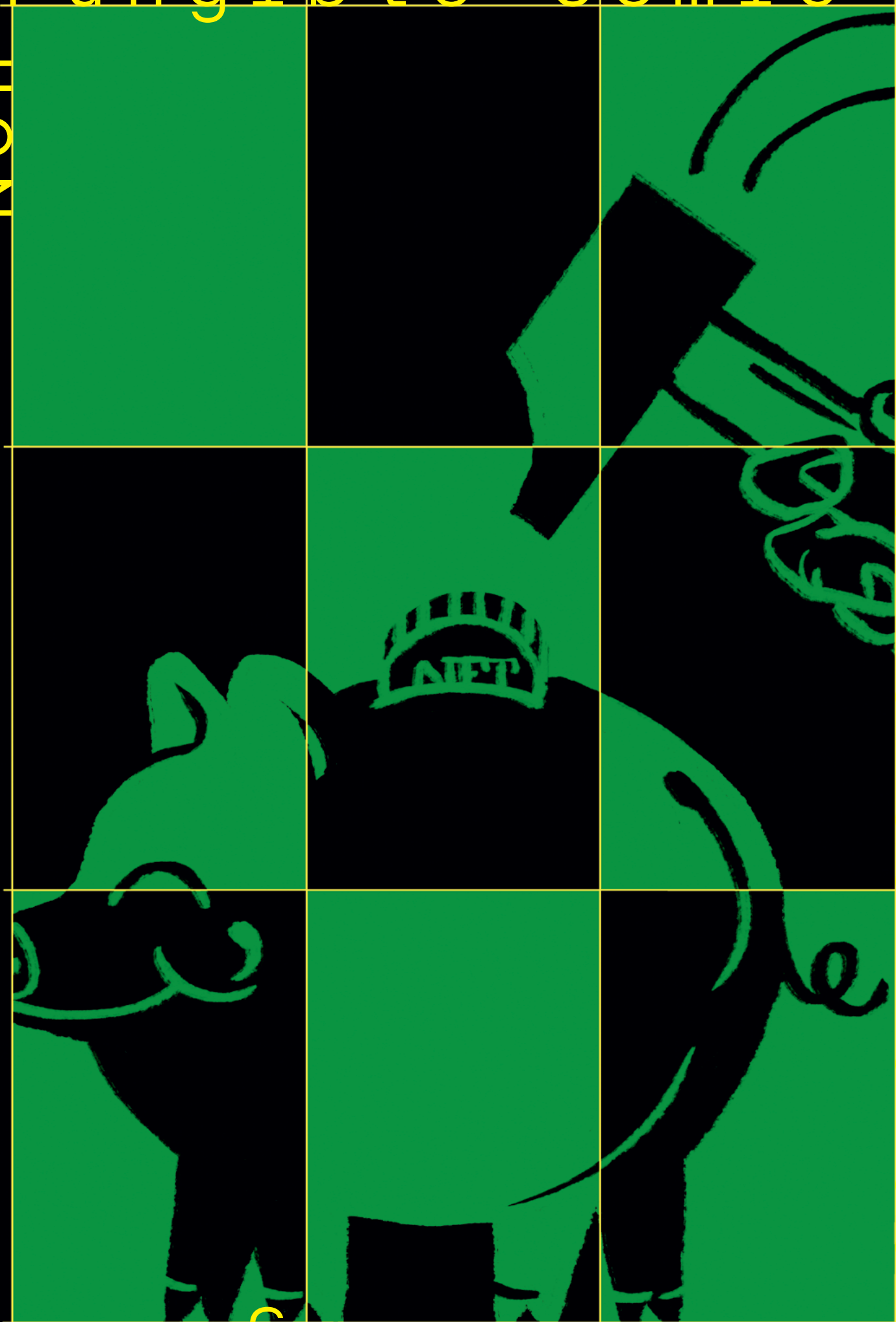


Non-Fungible Comic



Dr. Julia Schneider

Noëlle Kröger

Pdf version 1.0.

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Confusion



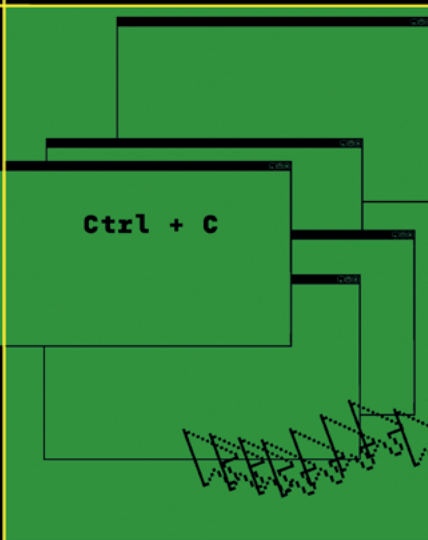
Many of us are confused, in or out of the art world.



Non-fungible tokens (NFTs) seem to be a thing - and not just for venture capitalists.



The emperor's new clothes or an expression of a digital revolution?



Previously, we could not both own and share digital images at the same time.



Thus, no asset. (Of an asset, we must believe that it is a) desired by many and b) rare.)



And now: Artworks traded online and existing purely digitally?



Inscribed on blockchains, paid for with cryptocurrency?

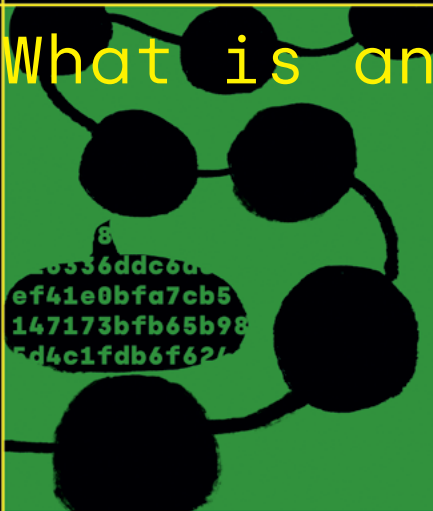


Traded on specialized websites? For absurd sums of money?

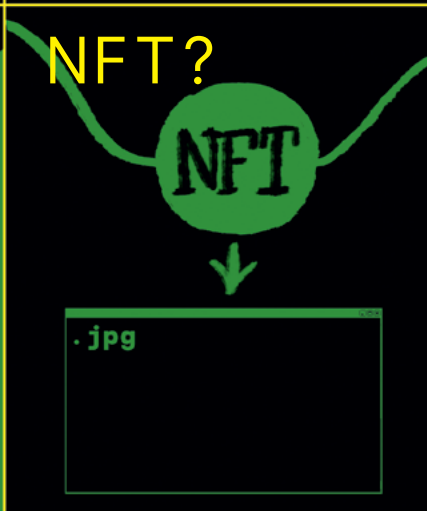


Are NFTs really here to stay?

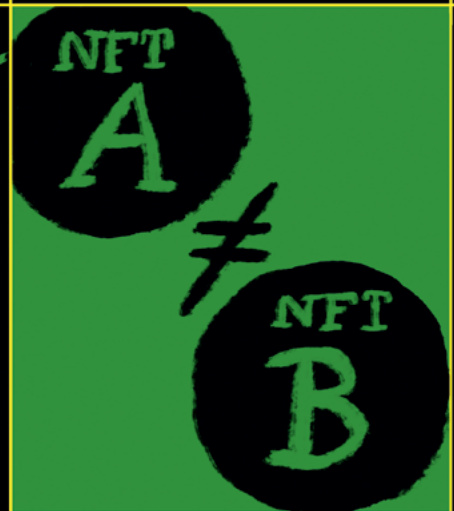
What is an NFT?



A Non-Fungible Token (NFT) is a string of characters, stored and authenticated on a blockchain. Like Bitcoins.



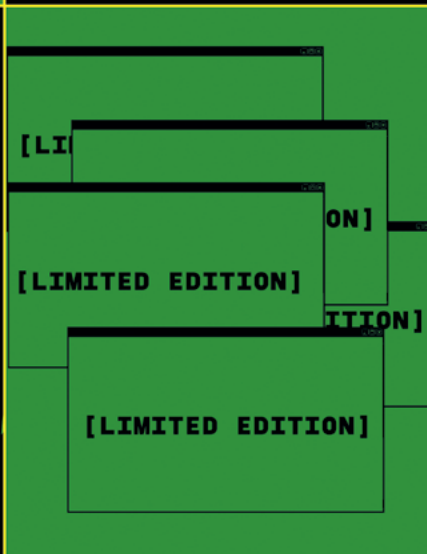
The string is linked to a reference object - most often, digital artwork, or digital collectibles like trading cards.



But unlike bitcoins, they are not exchangeable.



NFTs certify ownership or specific usage rights to the reference object.



Artificial scarcity of digital things that can be copied for free.



People buy NFTs for a variety of reasons.



To speculate, to collect, to show off, to belong, to have a say, to support creators, or play.



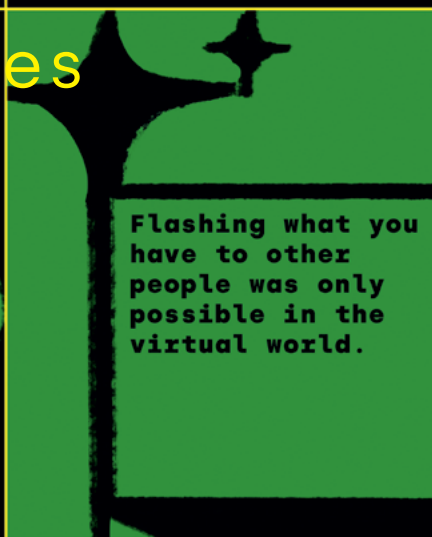
And a few people got rich on NFTs.*



Artist Joanie Lemerrier is trying hard to reduce his studio's electricity consumption every year, and it turns out his NFT release consumed in 10 seconds more than his entire studio over one and a half years.

Right now, NFTs are unthinkable without block-chains, which are often very energy hungry.

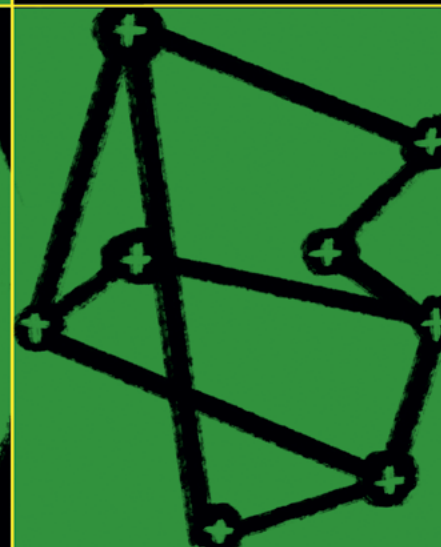
Record Sales



NFTs are nothing new. The 2014 animation "Quantum" is considered the first NFT artwork.

But in the spring of 2020 - during global coronavirus lockdowns - online interest exploded.

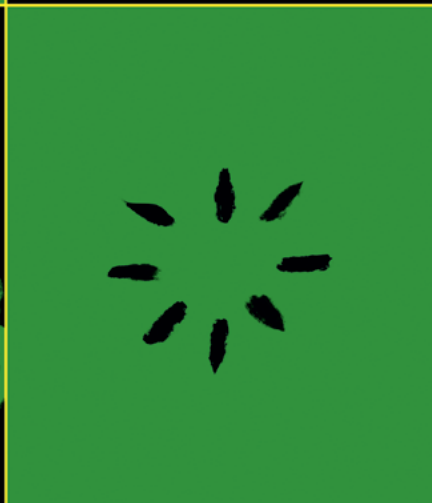
One year later, the prestigious auction house, Christie's, sold an all-digital NFT for the first time.



Very few living artists achieve such auction results.

And never before has Christie's taken payment in a cryptocurrency.

The artist Beeple is not even represented by a gallery, but he is followed on social networks.

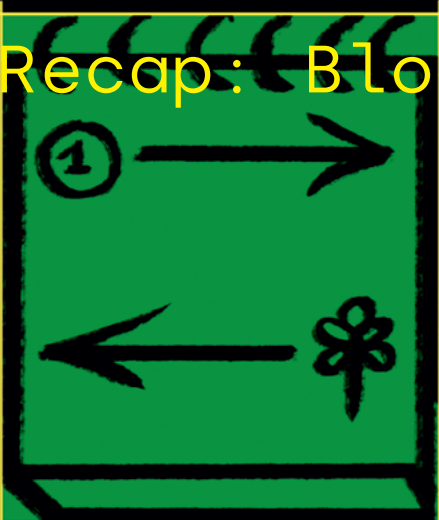



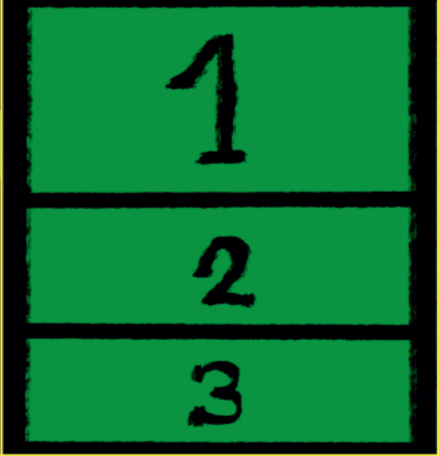

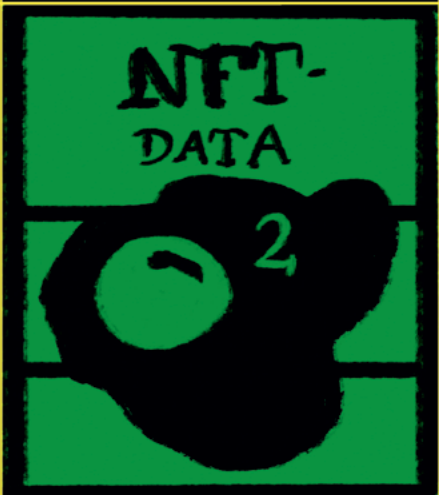

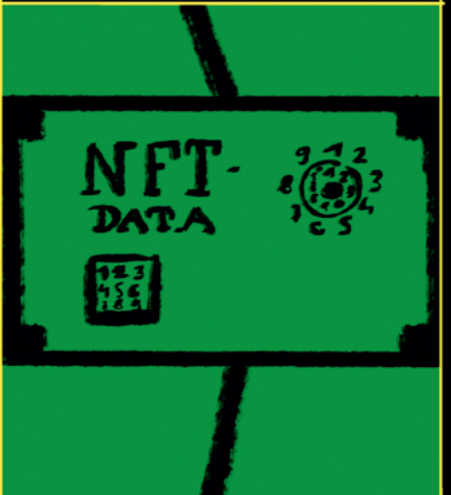


And the established art trade is struggling to attract younger, tech-savvy generations with money.

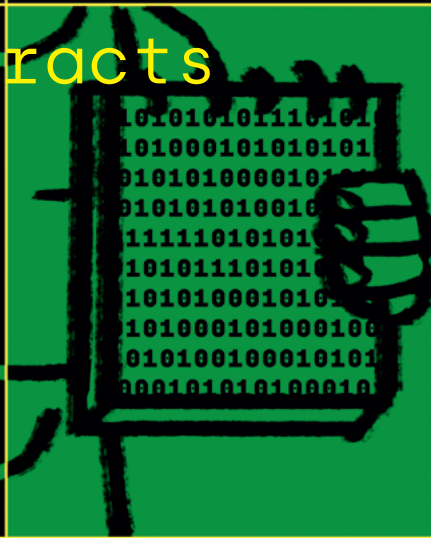
Plus: The "lack of objecthood" of NFTs means there are no costs associated with storing, handling, and insuring a physical artwork.

Pretty compelling from an art trade perspective.

Recap: Blockchains

		
<p>Imagine a notepad where parties write down their agreed transactions, stored, and administered across many computers.</p>	<p>New transactions are recorded and executed only if a majority of the peers in the network judge them to be correct.</p>	<p>In this case, the transcript is digitally linked to the previous transcripts and those that follow.</p>
		
<p>This ensures that the transcripts are documented forever, can be viewed, and cannot be changed.</p>	<p>In a blockchain, each transcript, i.e. block, contains three elements: first, data.</p>	<p>1. Its agreements, in other words, its data. In the case of NFT, its ID, the blockchain address, often the link to the reference object, the creator's wallet address, or royalties and rights.</p>
		
<p>2. A hash, the result of a non-reversible encryption of the data. Like a fried egg: once a raw egg is cracked, we can't put it back together.</p>	<p>3. The hash from the previous block.</p>	<p>NFTs are quite well protected since the blocks are documented „forever“, and can hardly be changed.</p>

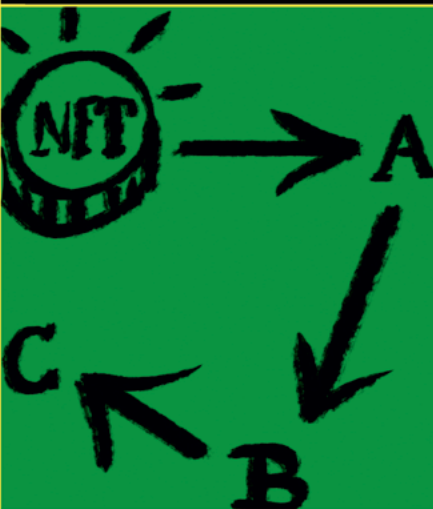
Smart contracts



NFTs are powered by smart contracts.

A smart contract is not a "contract" but a small computer program, stored on a blockchain.

Mostly on the Ethereum blockchain (NFT-standard ERC-721).



We can create ("mint") an NFT with an ERC-721 smart contract, assign it to an owner and sell it later again.

The code determines: "If X (e.g. the terms of the contract) happens, then do Y (e.g. pay)."

In that case, it is automatically (not smartly!) executed by all blockchain computers.



Without intermediaries and human intervention.

Virtually unchangeable. For better or for worse.

In the end it is code. Written by humans. Who are sometimes sloppy. Or greedy.

Wallets and Keys



To participate in a blockchain-based system, we need an access software called a "Wallet".



It is based on a key pair consisting of a private and a public key.



The public key is visible to everyone.



Our seed phrase - a string of words, like a master password - gives us access to the secret, private key in our wallet.



With it, only we can access our wallet and sign every transaction or movement within the blockchain.



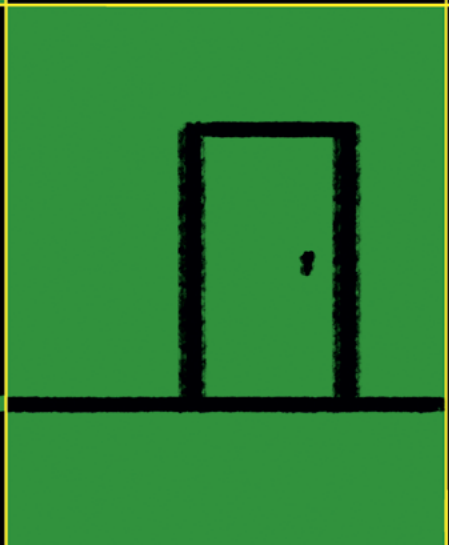
Without a signature, the transaction is invalid.



If we buy an NFT, our public key is hardwired to the NFT.



But only we can use our private key to transmit the NFT to others.

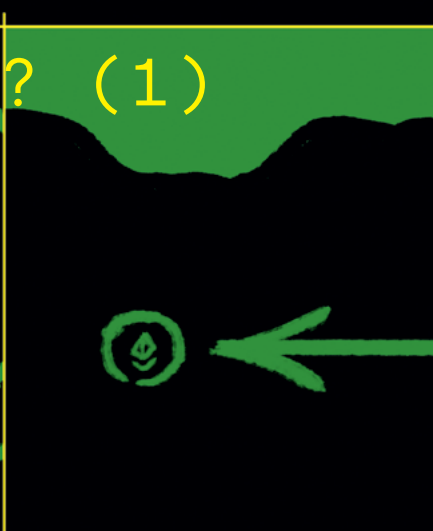


If we lose our seed phrase or private key, we can no longer trade with the NFT.

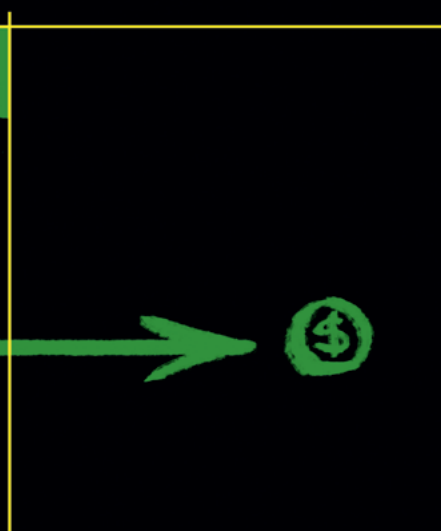
How to NFT? (1)



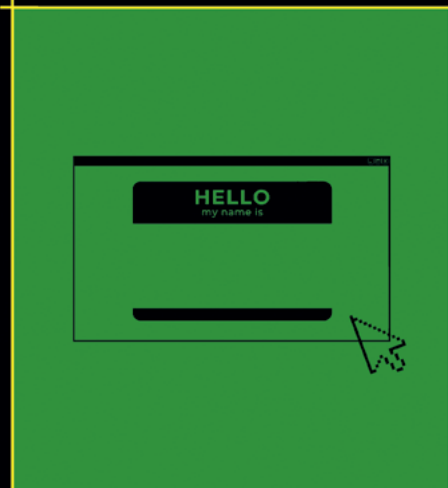
For creating, selling, and sending NFTs, we need cryptocurrency.



Either we do crypto mining ourselves.



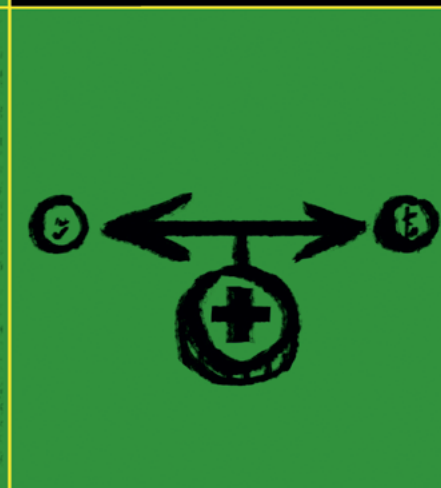
Or we exchange "fiat currency", like EUR or USD, for cryptocurrency at a crypto exchange (like Binance, e.g.).



At the crypto exchange, we need to create an account.



For this, we must verify ourselves with our bank account, real name, and ID (due to the Know-Your-Customer-law against money laundering).



We change our money into cryptos, and pay additional fees for exchange and transaction of the blockchain (much more for ETH than for XTZ).



Next, we need a crypto wallet – holding proofs of our digital tokens like cryptocurrency and NFTs.



A crypto wallet also allows us to send and receive NFTs.



And to interact with specialized NFT marketplaces (like Open Sea).

How to NFT? (2)



Most people choose NFT marketplaces that provide the technical infrastructure for NFT creation and trading.



So we probably make an account at a NFT marketplace and connect our crypto wallet to it.



However, we can also upload and host the required files ourselves.



In both cases, we will usually first upload a file containing our digital creation.



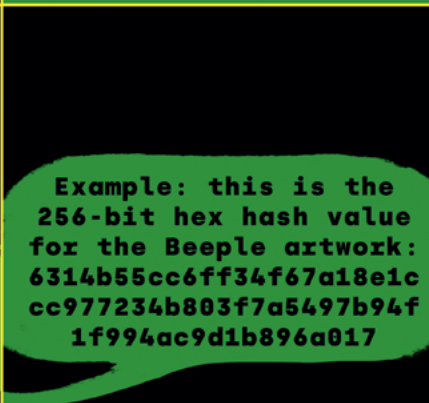
Such files are usually too large to be stored on the limited storage space of a blockchain (making the process too expensive as well).



Therefore, we store them either on one of the many designated platforms, or on any other storage (e.g., IPFS).



Next, we use a cryptographic hash algorithm to create an individual hash of the file containing the artwork.



Example: this is the 256-bit hex hash value for the Beeple artwork:
6314b55cc6ff34f67a18e1c
cc977234b803f7a5497b94f
1f994ac9d1b896a017

Once this hash value is generated, we create an accompanying metadata file for the artwork.



Here we record, for example, the name and title of the artwork, our name, a description of the artwork - as well as the hash of the artwork file and an exact hyperlink to the hosting area that contains the artwork file.

How to NFT? (3)



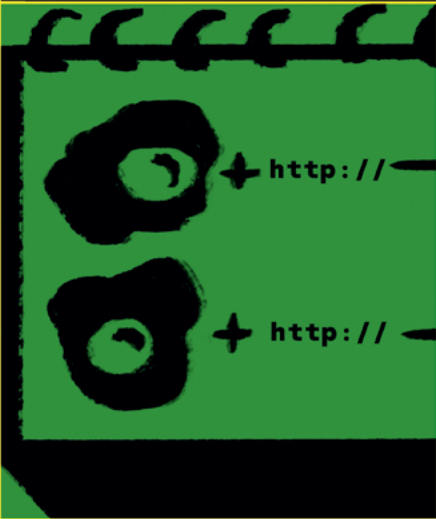
```
0101010101010100010
1101010001010100001
010100111101010101
110101010010001001
11110101010001010
000000101000101111
```



Finally, we upload and encrypt this metadata file.

To create an NFT, we use various functions programmed in the smart contract, the hash of the metadata file, and an exact hyperlink to the hosting area that hosts the metadata file.

Furthermore, we designate ourselves as the "creator" and "owner" of the NFT and assign an ID to the NFT.



The NFT is the record that will eventually be written to the blockchain.

A chain of references: hash + link → metadata → hash + link → digital artwork.

Since the hash chain can't be broken without altering the respective hashes, the references are pretty well protected.



To sell the NFT, we execute the transfer() method of the smart contract using the private password of our wallet.

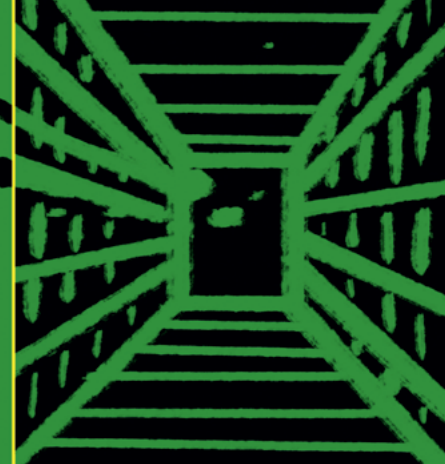
This changes the value in "owner" with the value of another wallet's address, i.e., the buyer's.

Whether we have also sold ownership or other rights to use the artwork that the NFT represents? An entirely different question.

Communication

		
<p>Where to go to enter the NFT world?</p>	<p>1. To Twitter: on Twitter we exchange short messages, "tweets," with users of our own choosing.</p>	<p>If NFT were a town, Twitter would be Main Street.</p>
		
<p>New #NFT artworks? New platforms to try out? New opportunities to sell? Twitter sees it first.</p>	<p>2. To Discord: Discord is a group chat platform, divided into servers, each with its own members, topics, rules, and channels.</p>	<p>Discord servers are used to hold discussions on NFT, broadcast events, promote projects, solve problems.</p>
		
<p>There are also "airdrops" where creators of a NFT collection send free tokens to users to create buzz.</p>	<p>3. Into shared, permanent virtual worlds, where NFT collectors and creators display collections or run virtual venues.</p>	<p>Everywhere, a somewhat feverish atmosphere: Don't miss out on the next big thing!</p>

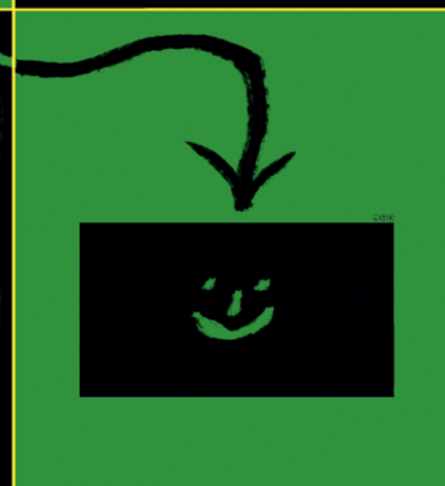
The Link to Art



Artworks are usually too large to be stored in the blockchain.

Instead, a "tokenURL" in the code links the artwork to the NFT.

Usually, the link leads to a file stored on centralized, large server farms.



Prone to data loss, security breaches, and termination of accounts.

A solution used for Beeple's expensive art: a decentralized computer network to store files by content, the InterPlanetary File System (IPFS).

To download a file, the computer asks the IPFS if anyone has a particular file and simply downloads the hash-verified file from a node on the network.



Another solution: to store the artwork on a physical medium, such as a USB flash drive. (Also facilitating ownership rights). Or to store files on-chain.

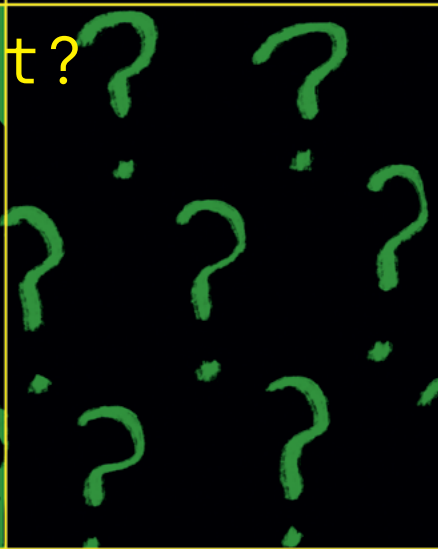
Some NFT offer additional digital content, such as a video file, that is unlocked exclusively after the purchase.

And some give something tangible in addition = a picture frame showing the digital artwork, e.g., or a real "twin artwork".

Is that Art?



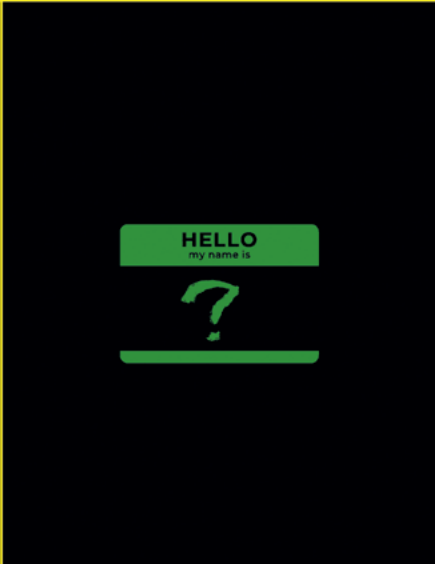
Can a monkey animation really be put on a par with a Renaissance painting? With memes? GIFs?



In the art world, NFTs are still quite unknown.



Most NFTs are offered on rather new online marketplaces.



Hardly anyone knows the artists who are represented there either.



A confusing abundance of graphics, pixel collages and animations.



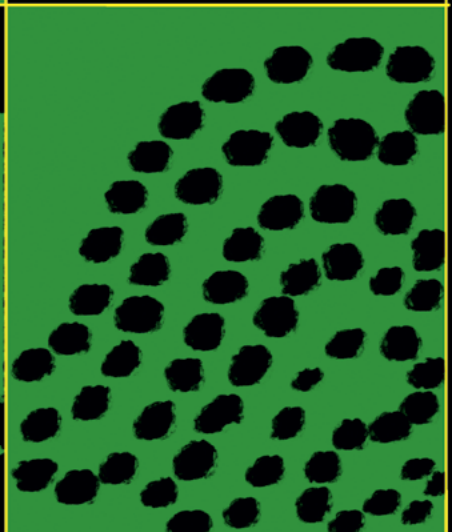
Contributing to the prejudice that NFT art is of low quality.



On the other hand, many fans of the digital world are hardly interested in this discourse.



And exhibitions in established galleries or on curated platforms hint at the potential.



Just recently, people queued for hours to see artist Refik Anadol's immersive NFT works in Berlin.

Predecessors



Immaterial artworks existed even before NFTs.



One example: *La Zone de Sensibilité Picturale Immatérielle* by French artist Yves Klein, in 1959.



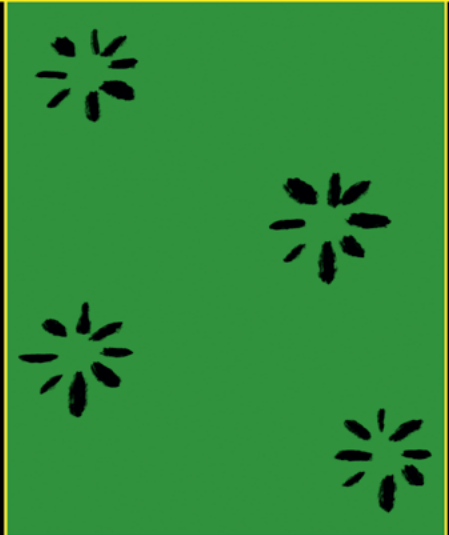
The work involved the sale of a proof of ownership of an empty - immaterial - space in the form of a receipt in exchange for gold.



Followed by a ritual where the buyer burned the receipt and Klein threw half the gold into the Seine.



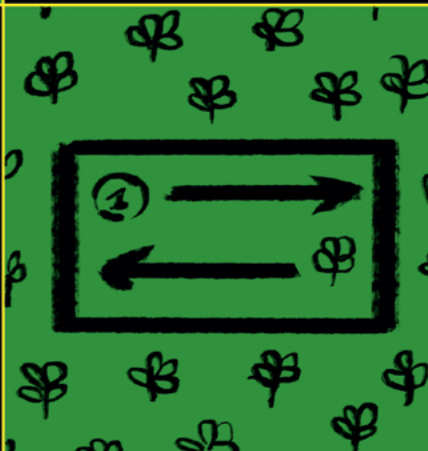
Important: the presence of witnesses, including one art critic/dealer and one museum director.



Since then, there have been a number of invisible works of art.



What unites them is that no one can actually own the artwork, but the true "owner" receives a certificate.

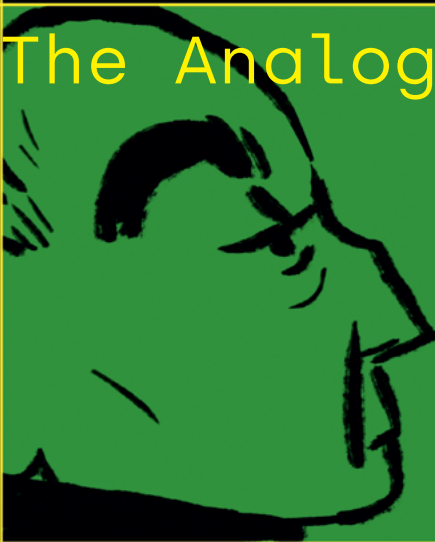


With NFTs, anyone can have the artwork instead, but again only the true "owner" receives a certificate.



Both "the zones" and NFTs refute Walter Benjamin's thesis that modern mass production can emancipate the work of art "from its parasitic dependence on ritual."

The Analog Art Market



And is the analog art market so much better than the NFT art market?



Here, too, everything revolves around provenance.



Barriers to entry are high. A lot of habitus, prior knowledge and cultivated relationships are required.



An elitist wind blows in galleries and through art magazines.



Often, expensive artworks are never touched.



Instead, they lie isolated in storage rooms, and only the storage key - a token - changes hands.



Just as often, art simply serves as an object of speculation, to show off, to collect, to belong.



A tool to get something else.



Familiar?

Lunatic?



New art is often criticized at first. Too strange and different from what we are used to.



Impressionist used to be a synonym for "lunatic" - before it defined an entire art historical style. Will this also be the case with NFTs?



NFTs allow new forms of artistic and media theoretical explorations and experiences.



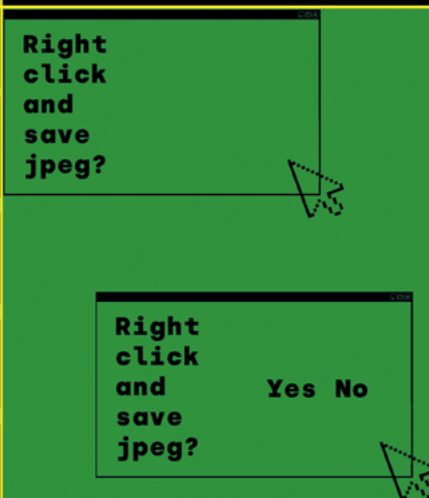
One of many exciting projects is telenft.art. Partly pre-drawn by hand, partly created by artificial intelligence, but always programmed for the TV-information-dinosaur teletext...



... works of 15 artists deal with the role of technological progress in the context of crises...



... while exploring the limitations and possibilities of NFTs and teletext.



They did not have much space: 78 by 69 pixels. Nor color, because teletext only allows six colors plus black and white.

The exhibition is sold as NFTs - and shown on German teletext (SAT.1 pp.480) and two museums.



© Max Haarich

One work, Urinal, refers to Marcel Duchamp's object Fountain, which sparked a fierce argument about what was actually art. In 1917.

Art Market



For digital artists, the art market has long been a difficult place.



Thanks to NFTs, that's changing.



After Beeple sold one NFT for the incredible sum of 63 million dollars, a real buzz broke out.



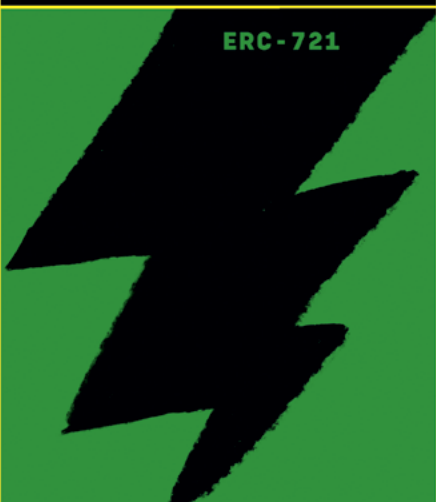
Since then, NFTs have entered auctions, major art fairs, and galleries.



Museums included NFTs in their collections. Seattle even established its own NFT museum.



Famous artists like Damien Hirst are now making NFTs as well.



And in 2021, the prestigious Art Review magazine even named the Ethereum NFT standard as the most influential force in contemporary art.



More and more museums and exhibition houses are digitizing analog masterpieces to offer them as NFTs.



Art or Merch?

A Way out of Precarity?



And who could blame artists for wanting to earn money with their work?



All the gatekeepers, intermediaries, the subordination, the required privileges, and expertise to get funding...



To then not be able to live from one's own art, but only with the lifelong "side job" or in financial dependence.



We all know this since Van Gogh.



But since web 2.0, it's not just managers, record companies or publishers who have been skimming off most of artists' income.



Now also the big players of the platform economy.



Plus: as a small artist we can't just sue everyone who violates our copyright.



NFT or no NFT...



We need solutions to the problem that artists, too, need money to live.

Stealing



One of the biggest promises of NFTs: artists can make more money from their work.



Currently, many artists rather suffer from the NFT-hype.



Because others steal work from artists' websites or social media, make an NFT out of it and sell it.



Digital art theft has skyrocketed due to NFT - and is often already automated, via bots.



Again and again, major NFT marketplaces had to freeze NFT transactions because nearly all were plagiarized, fake collections and spam were offered (according to OpenSea, more than 80% of tokens in 01/2022).



Still: It seems to pay off.



Artists, on the other hand, spend ages reporting copyright infringement and removing their artwork from websites.



NFTs mean less time, money, visibility for many artists. Not more.



The marketplaces are thinking about controls... centralized ones.

Thank you: Kim Parker.

25

No Riches



Most NFTs creators got no Lamborghini.



Some not even a bottle of Martini.



Artist Kimberly Parker showed with sales data of OpenSea's that only 1.8% of all NFTs sold for \$800 or more.*



And more than 1 in 3 NFTs sold for \$100 or less.



These artists actually made a loss - after fees.



And that was at the height of the NFT hype, shortly after Beeple's record sale in March 2021.



(Is that why NFT marketplaces don't like to disclose their sales figures?)



If you want to sell or buy NFTs, do it with innovative projects you enjoy, on sustainable blockchains.



Better leave the speculative market to investors who can afford to lose.

*thatkimparker.medium.com

Connection



Since forever, many of us have wanted to share in the life, work, and fame of our favorite artists.



We could, of course, identify as a true fan and collector.



We could - already a bit more personal - become groupie, carry the DJ's bag, or pre-roll joints.



Being a muse was a possibility. Stalking.



But that was about it.



NFTs connect us with artists in a different way than before.



Artists often have personal contact with NFT collectors and even count some as their friends.

NFT collectors also often tell artists what they feel when they experience their artwork.



A blessing? Or too much?

One-Stop-Shop



NFTs promise to eliminate intermediaries.



Artists are supposed to have more control over the distribution and sale of their works.



Problem: Intermediaries also do a job that we don't have to do.



Hence, the demands on artists increase without intermediaries.



In addition to being an artist, musician, or author...



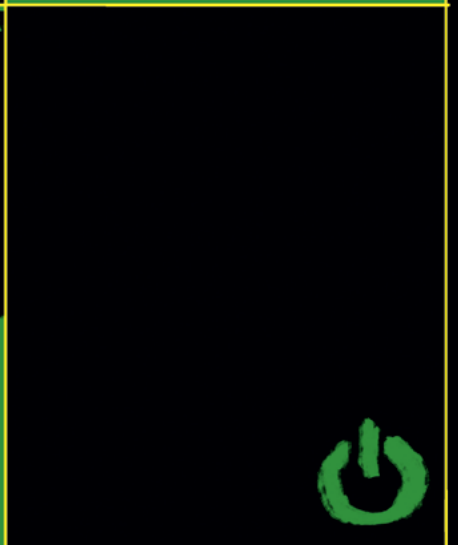
...we become not only a marketing professional, social media influencer, distribution professional, printer, website specialist, lawyer, and secretary...



...but also a NFT specialist, programmer, and crypto trader.



What happens if we are just a really good artist and not able to learn all that?



Are we then lost to the world?

Games



Video games are often seen as a Trojan horse for new technologies.



Indeed, NFTs have also made waves in the gaming scene.



Many well-known companies have already offered or planned NFT content.



This creates two camps that hold opposing views:



Those who like to buy, win, use, or trade NFTs in games: Play-to-earn.



And those who reject NFTs because they influence a game too much towards gambling or create unfair advantages over the non-paying community.



Companies also fear losing money if they allow decentralization, interoperability and NFT trading.



In any case, NFT-games are not really mature yet.



They already exist, but in a special niche.

Gamification



NFT and crypto trading are closely related to investment apps.



Graphic and social elements increase the fun factor of trading assets.



Online forums provide a strong sense of community.



Influencers, some as young as 14, offer trading advice to their millions of followers.



Investment apps combine the old siblings money and status with gamification strategies. And the promise to switch to the winning side.



When we succeed, we feel a sense of happiness - and a sense of power. We've made a lot of money in a short time with our own strategy.



If, on the other hand, the value falls, we can immediately try to bet on a new product to restore that positive feeling.



This is how gamblers feel when they gamble. Not the most rational investors.



In the end, the casino always wins.

What's Gone is Gone



Time and again, NFT projects turn out to be a so-called "rug pull".



No sooner are the NFTs sold than the developers make off with their millions.



There is also a lot of fraud from simple hacker attacks, e.g. on wallets on which expensive NFTs are stored.



Since blockchain transactions are anonymous and final...



...there is little hope to get it back.



Recently, however, authorities have had success recovering stolen crypto assets.



Forensic companies now specialize in analyzing transactions on the Blockchain - which are, after all, public.



And tracing the path of the stolen goods.

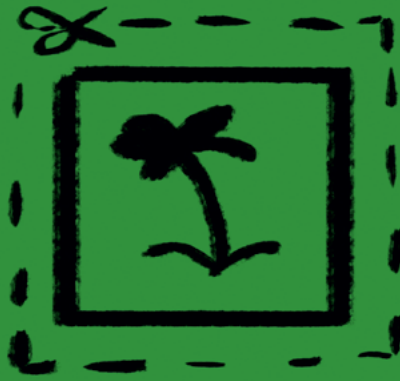


Whether it's worth pursuing the matter legally? Depends on the value of the token.

Non-fungible Fakes



Where millions are shuttled back and forth, there are fraudsters.



Many of the NFTs on offer are actually counterfeits or plagiarisms.



The figure is said to be as high as 80 percent.



But wait a minute.



NFTs are non-fungible, yes - as long as you get the right NFT.



We all can "mint" an NFT with a few clicks and freely determine what that NFT should stand for.



Since there is no central authority in the blockchain, it is possible to mint a Picasso, a Banksy graffito or the works of another NFT artist.



At the moment, the NFT market is still relatively small and the community often regulates fraud quite well among itself.



But what happens when it becomes a mass market?

Non-fungible Trust



The data of the digital reference object is usually not stored in the NFT.

Instead, it is only referenced via a link.

So the data may be stored on another server.



And if someone then has access to exactly these servers, as Signal chief Marlinspike showed...

...the objects can be manipulated and exchanged at will.

You don't even have to be the owner of an NFT to do this.



More secure is storage in a decentralized network. But will that still exist in 100 years?

The structural problem is that „trustless“ NFTs suddenly require trust in a provider again.

Trust that the providers and their servers will never break. Or be broken.

Metaverse

		
<p>To date, NFTs have had the greatest impact on the art market, reaching a trading peak of \$774 million in September 2021.</p>	<p>Collectibles and games have also had successful NFTs for some time, each with their own qualities and community.</p>	<p>Not to forget, real estate speculation in virtual reality spaces.</p>
		
<p>Meanwhile, brands are using NFTs to promote new products. Or to show consumers they're keeping up with digital trends.</p>	<p>Particularly successful: blended reality applications that combine NFT possession in virtual reality spaces with analog experiences.</p>	<p>In September 2021, Dolce & Gabbana made \$5.65 million with a hybrid physical/NFT collection.</p>
		
<p>It consisted of nine real pieces and their animated digital version...</p>	<p>...instantly transferred to the metaverse of choice, upon request.</p>	<p>The high-fashion clientele was thrilled.</p>

Bodies



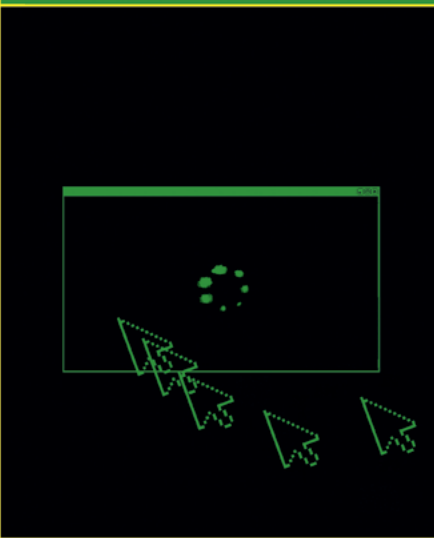
To the museum, to the club, or to the concert of our favorite artist.



Since the Corona lockdowns, at the latest, we've been able to do all that from home somehow.



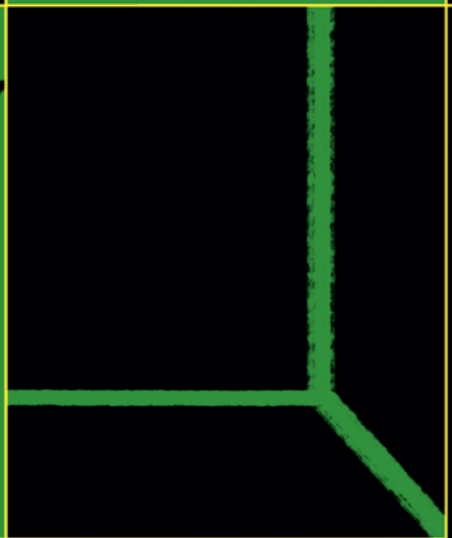
Because we're streaming, digitizing, and virtualizing.



And also the NFTs we enjoy digitally, on screens, or in virtual worlds.



A lot of exciting, novel art - and cultural experience and self-empowerment in a new form.



But something is missing:



Smell and taste.



Textures and weight.



That thing that happens between our bodies when the bass kicks in.

NFTs Against Colonialism



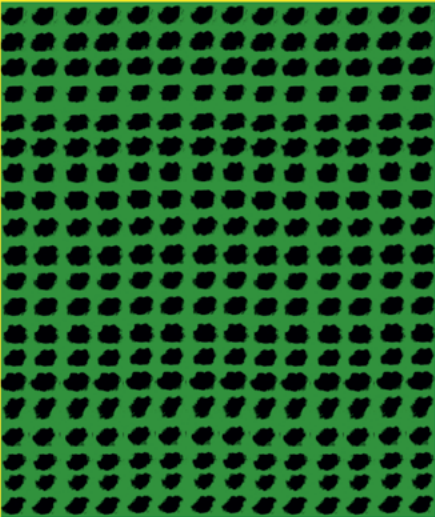
In 1911, the Belgian Kingdom granted Unilever (then: Lever Brothers) a monopoly on palm oil in the Congo.



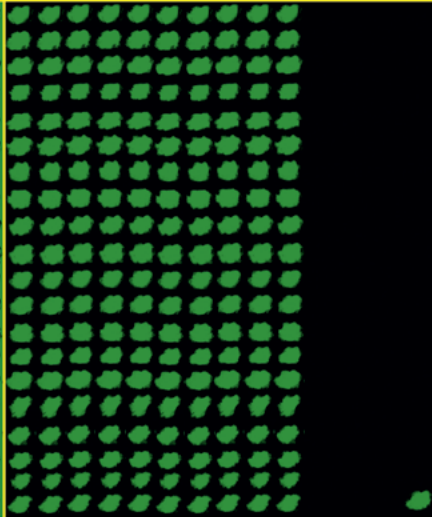
This expropriation and the company's brutal recruitment methods provoked resistance from the population.



In 1931, the Pende people were paid even less, and colonial taxes were increased.



This led to an uprising that cost the lives of at least 500 Pende.



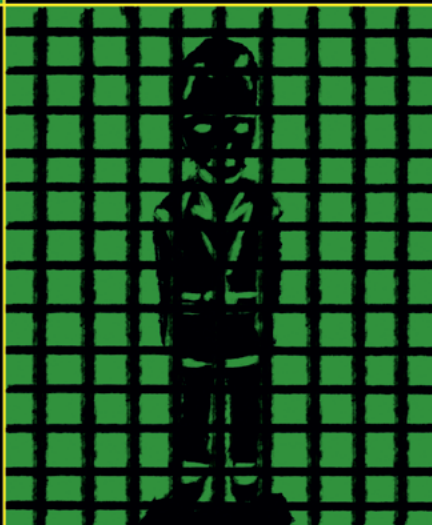
On the Belgian side, one colonial officer died. The Pende, following tradition, made a statue of the dead man.



It is now in the Virginia Museum of Fine Arts (VMFA) in Richmond, USA.



The Art League of Congolese Plantation Workers has found a way to bring back their land and their art:



They split the photo of the statue into 300 parts and sell the parts as NFT.



The VMFA claims this violated copyright laws.



Usually not.

Do we acquire ownership or other rights to use the reference object when we buy an NFT?



Hmmm.



HMMMMMM . . .



HMMMMMMMMMMMMMM .

How can I reverse transactions if I have made a mistake?



```
...there is no complete
certainty about the
provenance of an NFT artwork.
```

Legal Security (2)



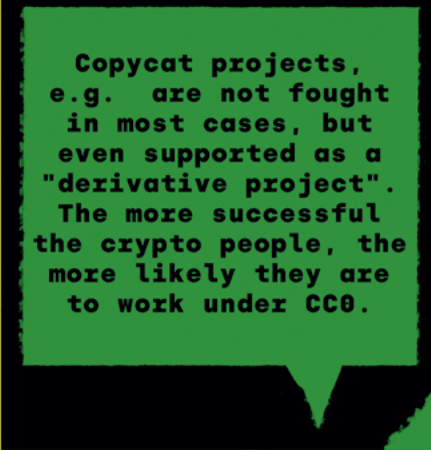
This may well be different in cases where the NFT is sold in a prominent place.



For lesser-known artists, there is virtually no way to effectively protect their digital art from being stolen and transferred to NFTs.



On the other hand, NFT artists are pleased with the outpouring of support in the community.



Problems are handled quite well among the community itself.



Pro tip: Do your own research, always.



Better check the wallet address 10 times, never "just click" on something, check your transaction partner's wallet/identity (blue checkmark on Twitter and NFT platforms?).



And don't get too greedy. There are no huge wins without huge risks. And you're not more incredibly clever than anyone else.



Plus, a simple truth: 100% security is not possible in the technical field, anywhere, ever.



In 2021, the EU Commission started discussions to regulate NFTs. Their main concern: money laundering and terrorist financing.

Environment (1)



Is blockchain - and therefore NFTs - bad for the environment?



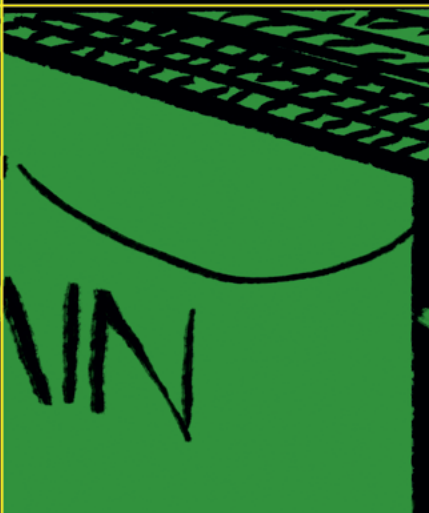
The simple answer is yes.



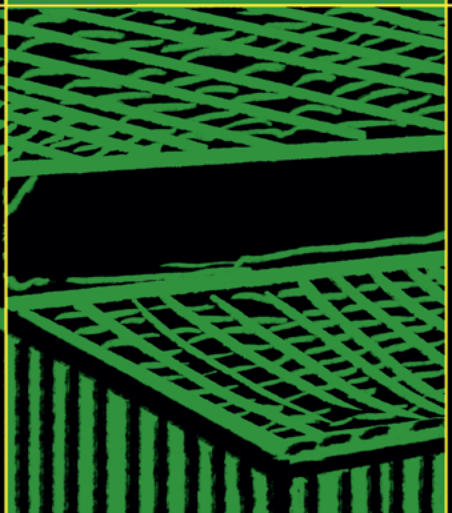
Trading NFTs is not a one-time thing, but consists of several steps that all consume lots of electricity.



The creation, the bidding, the withdrawal of a bid, the sale, the transfer and the resale of an NFT...



...all interactions require transactions in the respective blockchain.



And blockchain transactions consume so much power because by design, there is no central authority to verify them.



The first blockchain, Bitcoin, uses as verification method a hardware- and energy-intensive guessing game between network participants (miners): Proof-of-Work.



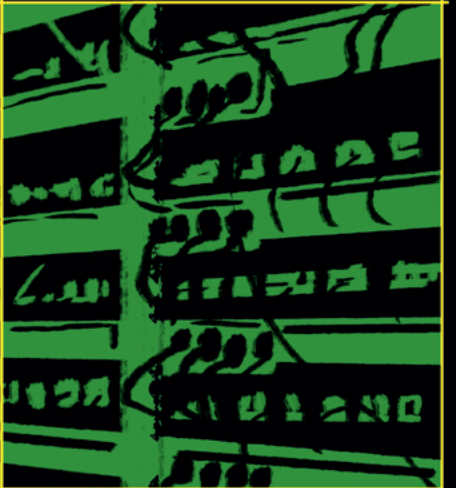



The first miner to correctly guess, verifies transactions in the blockchain and wins new coins.

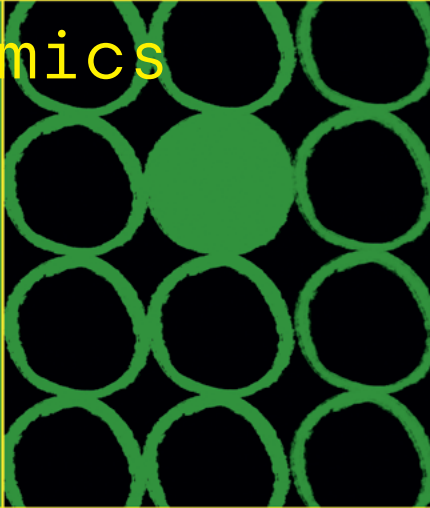


The PoW-guessing game requires incredible amounts of power (Bitcoin's carbon footprint equals that of New Zealand's).

Environment (2)

		
<p>Meanwhile, these guesses are produced primarily by huge, highly specialized server farms, therefore re-centralizing verification.</p>	<p>In 2022, the main platform for NFTs, Ethereum, plans to rely on a different consensus mechanism: Proof-of-Stake (PoS).</p>	<p>With PoS, an algorithm selects from a pool of validators who have staked a relatively large crypto deposit.</p>
		
<p>Selection probability rises with stakes, re-centralizing validation, again. Those who stake the most money make the most money - and have the largest influence.</p>	<p>Though staking is not as directly damaging to the planet as warehouses full of servers, each PoS-transaction uses electricity.</p>	<p>The question is, will blockchains enable us to create a sustainable world?</p>
		
<p>There are more and more crypto companies, and they want to grow - which means more energy consumption.</p>	<p>And, as a side effect, a huge amount of e-waste because of the hardware used.</p>	<p>As is common with rapidly emerging technology, the world is left playing catch-up.</p>

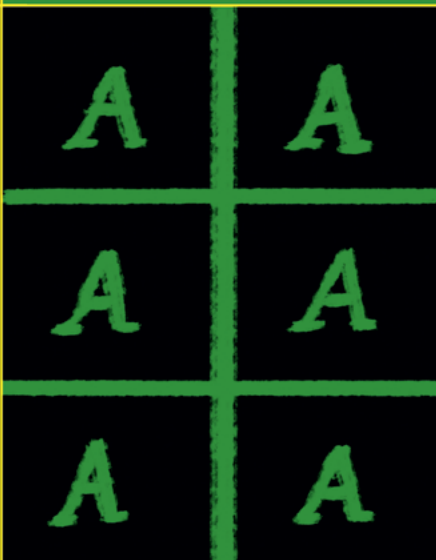
Clan Economics



A look at recent history shows that when state structures disappear, subsystems fill the vacuum.

These subsystems - ethnic or ideological groups, clans or syndicates - build up their own structures of violence and control.

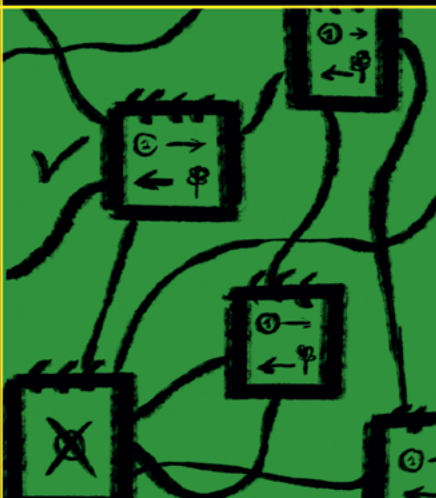
Democratic legitimacy and separation of powers usually play no role in this process.



The result is therefore almost always the same.

The members of the new elite expand their freedoms at the expense of the majority.

And usually make extensive use of them. Held together by greed and the will to power.



Even if we do away with central commands and hierarchical control in the new communication technologies...

...this does not automatically lead to the disappearance of control as such.

Nor to the flourishing of individual freedom.

Bros and Whales



NFTs come with cryptocurrency, which are used to create and trade NFTs.

And where cryptocurrency are, crypto bros are not far.

"A person with weak understanding of cryptocurrency/blockchain applications, but very strong opinions about the best ones."*



They are often observed showing off their investment in cryptocurrency...

...and arguing with other crypto bros.

This marks them as part of an exclusive community. A brotherhood, precisely.

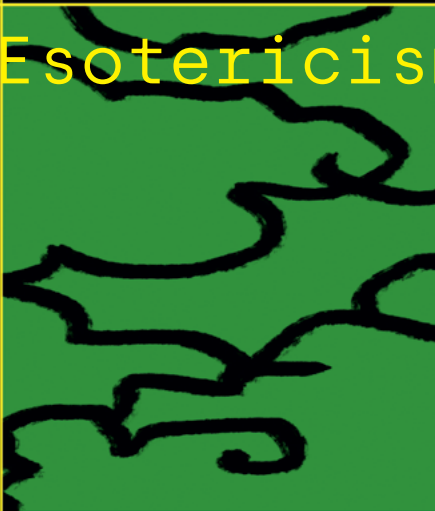


But not even the bros are equal. Like the cryptocurrency market, the NFT market is dominated by a few players.

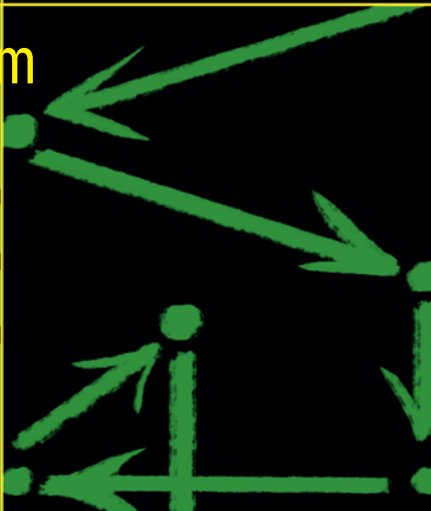
Between Feb. and Nov. 21, there were 360,000 NFT holders who collectively held 2.7 million NFTs.

Of these, about 9% - or 32,400 wallets - held 80% of the market value.**

Esotericism



Doesn't the controversy about NFTs sometimes seem almost esoteric?



Believers who insist on simplified causal relationships in complex situations?



Who use special vocabulary to exchange ideas with like-minded people and shake their heads at the unteachable?



Esoteric ways of thinking have always existed in historical situations of upheaval with loss of control.



It corresponds to our need for understanding, security, status, ability to act - and to belong.



It becomes problematic when we endanger ourselves or, above all, others - and when the whole thing becomes a model for explaining the world.



Since global crises are likely to increase rather than decrease in the coming decades...



... this mindset may expand.



To be on the safe side, let's put a diamond in our drinking water: for more mental clarity.

Madness



Hypothetical profit opportunities through technical innovations? Always ideal breeding ground for speculative bubbles.



As an NFT investor (vs. collector), you ultimately just hope that someone else will spend more money on the NFT later.



How long will this be the case?



The cause for a bubble to emerge and burst has been the same for centuries.



First curiosity and imagination. Then greed, euphoria. Finally panic. All reinforced by overconfidence, herd behavior and lobbyism.



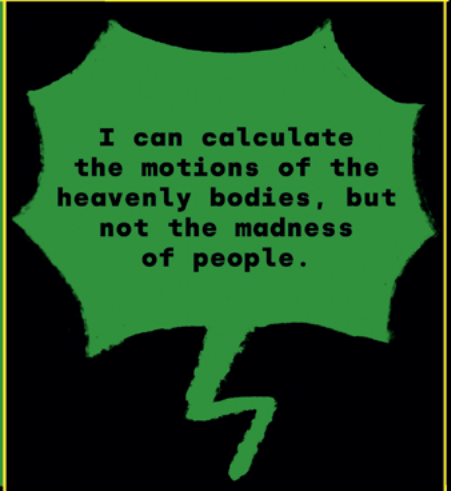
But we are in good company.



300 years ago, Isaac Newton invested early during the so-called "South Sea Bubble".



Initially, he got out in time and made 100% profit.



However, as prices continued to advance, he invested again at the peak... and lost most of his fortune in the crash that followed.

Thank you: Timo Daum.

44

Digital Hinterland



Full-scale financialization of users: Do we call that empowerment?



Freedom In Transactions – our highest good?



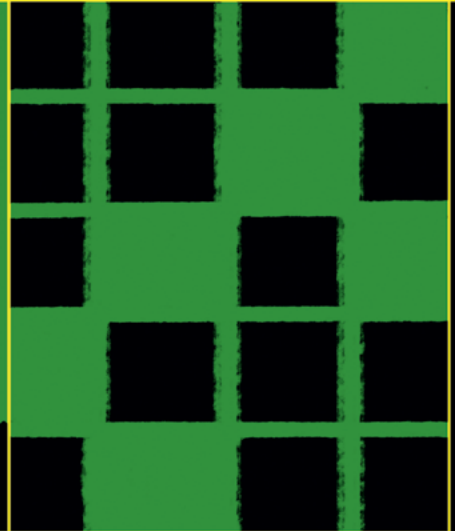
Many web3 versions consider the user above all as an owner of digital currency or value of some sort.



Defining and securing ownership in new digital settings is also at the core of NFTs.



In doing so, they extend the boundaries of private property secured by law to the digital hinterland.



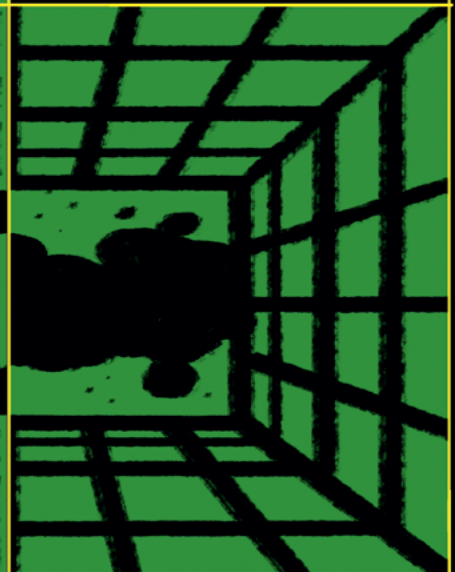
To pixels, bits and bytes.



And they join the old history of Capital.

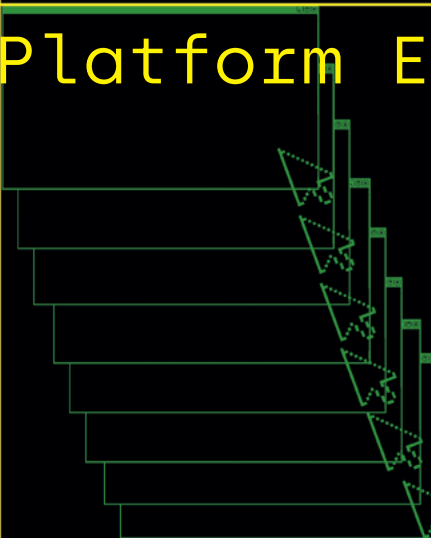


To conquer ever new horizons.



On earth, in space, in cyberspace.

Platform Economy



The beauty of the Internet: we don't reduce others' ability to use it when we use it ourselves.

But Web 2.0 is characterized by monopoly-like, for-profit platform companies.

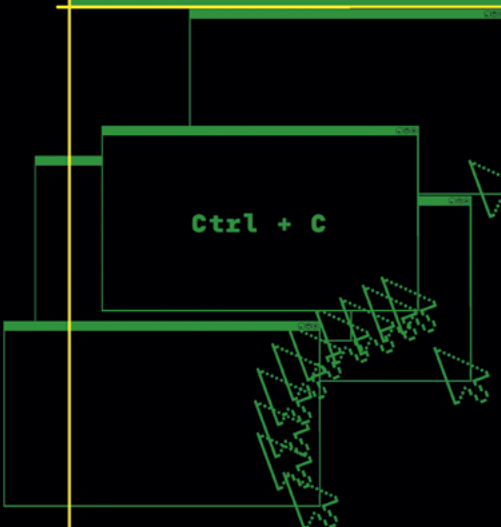
If we don't pay, accept advertising, or give up our data, we are excluded from using it.



The platforms deliver content, but without strong "codes of conduct", unlike established media houses.

And as long as most things cost money, many content providers like writers and artists have a problem.

The promise of quick fame through distribution on the platforms is offset by the difficulty of making money from one's digital creations.



Anyone can simply right-click on their work and save, modify or redistribute it without paying the creator.

And thanks to the monopoly, the platforms are in a much better negotiating position with most artists.

Can NFTs give artists back control of their digital products?

Thank you: Markus Beckedahl.

46

Censorship and Control



Back in the 1990s, the digital world was still beautiful.



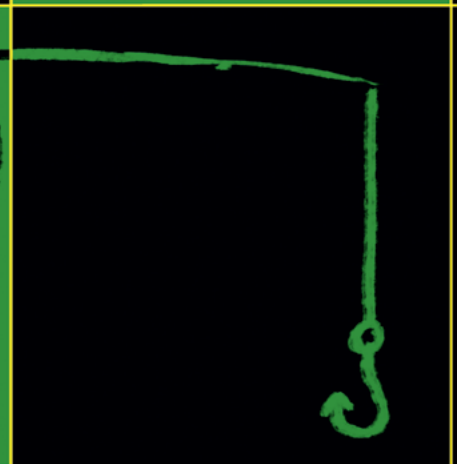
We believed that global networking through the Internet would lead to more freedom, openness, and decentralization.



Censorship would no longer be possible because the Net would always find other ways around it.



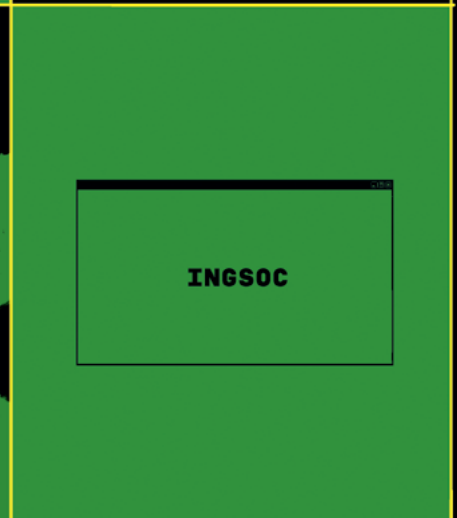
BTW: Political censorship is not the same as deleting criminal content.



All that changed in the mid-noughties, when authoritarian regimes began to centralize digital infrastructures and use digital tools to exert more control.

Control over how people inform themselves.

Because the supposed freedom tools have a catch.



It is often just a configuration file on a server that decides whether information flows or not.

And whoever controls the central servers determines the rules for how information can be communicated.

This turns a free Internet with free data traffic into a censorship and control system.

Thank you: Eric Eitel.

47

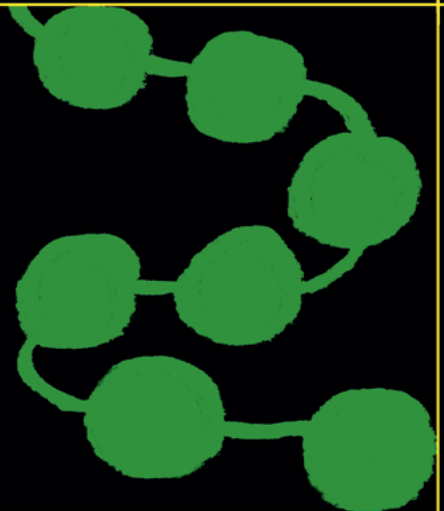
DAOs



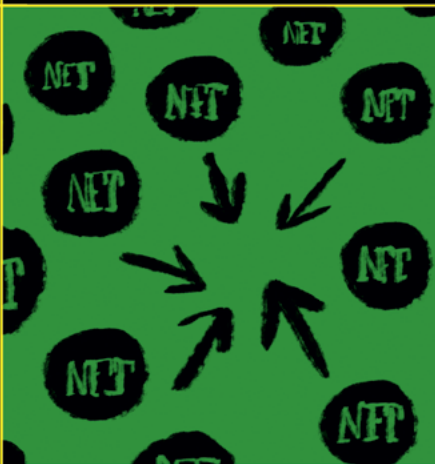
It takes a lot of energy to found and run grassroots, legally secure cooperatives.



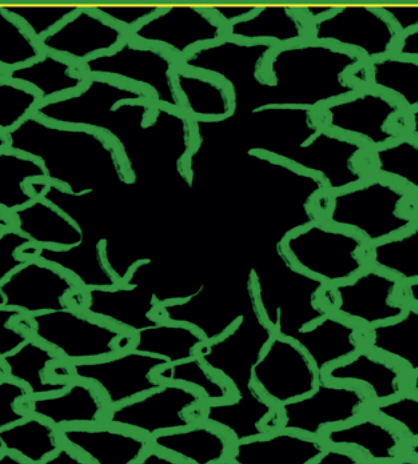
Are decentralized autonomous organizations (or DAOs) a more rewarding alternative?



A DAO is an organization ruled by smart contracts written on blockchains and controlled by members - no leader required.



Similar to a Cooperative Business in the US or a German "Genossenschaft", members must make a contribution. DAOs use tokens or NFTs that grant voting powers.



Downside: A DAO's smart contract is visible to all but hard to repair, thus leaving known security holes open to exploitation.



Nevertheless, there is great interest in DAOs.



Many people long for unbureaucratic, democratic solutions to implement sustainable projects together.



Sustainable? Every blockchain transaction costs energy.



As do bureaucracy and endless discussions. And now the synthesis please.

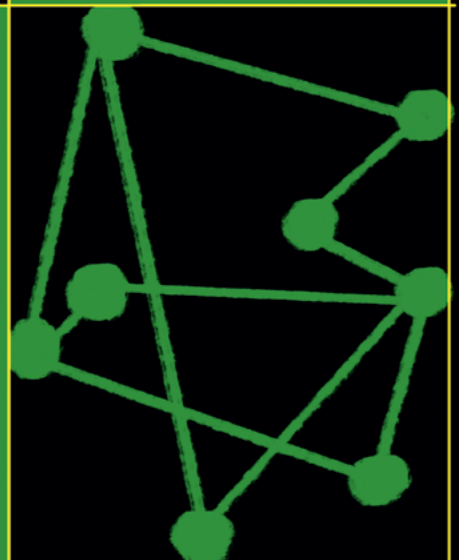
Web3?



Is the idea of a web3 more than hype around crypto and NFT?

Many of its supporters want "the Internet" to be what it was originally intended to be.

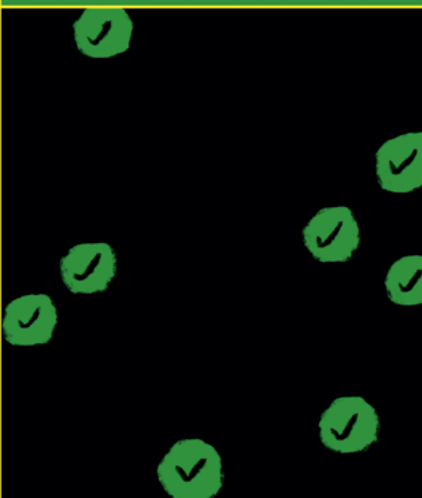
Indeed, hate, fake news, and dependence on monopolistic tech corporations characterize our Web 2.0.



Instead of free information exchange and data sovereignty for us all.

All over the world, there seems to be demand for a better internet.

Digital infrastructure has also greatly improved in the wake of Corona.



And yet: web3 and its promise for a decentralized, better digital society are still vague.

Can you imagine a good healthcare system run as a DAO, operated by private players and without public oversight?

What will really help us and what will end up on the dustbin of history?

Dead Machinery



It's not just NFTs that promise to make life easier with a lot of technology and electricity.

For every preparation process that could be done easily with an existing kitchen utensil, there is an electrified equivalent.

Father's Birthday, Mother's Day, Christmas...



If you don't know what to do, you can spend the money on electric citrus juicers.

Or electric egg stoves, can openers or onion choppers, foil sealers, plate warmers, or, of course, electric chocolate fountains.

The recipient will use it for two days out of sheer joy, and then put it in the basement.



Next to the rowing machine and the ab trainer.

We are talking, if you will pardon the expression, about dead machinery.

Will NFTs soon become part of this team?

50 Outlook: Errare Humanum Est.

In the field of NFTs, we are currently in the trial-and-error stage.

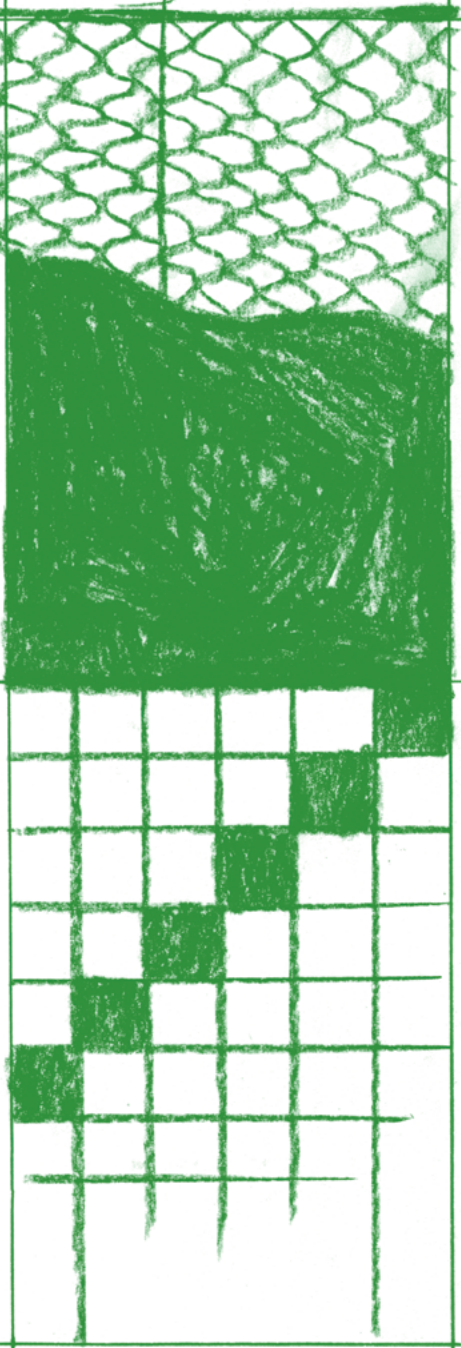
Essentially, they unfortunately call into question a great digital achievement: that digital goods are not scarce, that we can enjoy a text, a performance, a piece of art, a tutorial, or a piece of music, and not take anything away from anyone else in the process.

However, virtual worlds will become more important to us: no matter what they are called.

Then, when there is money and scarcity and no universal basic income, we will need things that we can trade digitally to make money.

And already many people benefit from NFTs: artists or museums who experiment with the format and can market themselves through it without intermediaries, curious collectors, auction houses that have no transaction costs, or big financial players for whom the hype silverizes their stake.

At the same time, lesser-known artists suffer through theft of their art or because they are left sitting on their initial investments - as does the environment. To date, blockchains consume way too much energy and hardware. Governance and usability of NFT trading are also nasty for non-insiders. Plus: fans of NFTs often seem socio-psychologically naive: they think that once you have perfectly solved everything technically (which alone no one ever manages to do, e.g. non-hackable), then the social/human side will work out without problems, i.e. people won't make mistakes then.



And that's unrealistic, because we all make mistakes, all the time. And our brains all have similar functional deficiencies - like overconfidence or confirmation bias, for example. Lawyers all over the world are currently racking their brains as to what an appropriate legal framework for NFT should look like.

In a few years, we'll look back and surely be disillusioned.

Our guess: some of the hype will remain - and there will be regulation.

Digital sovereignty - however we define it - is also driven by the zeitgeist, and it is getting more and more difficult for all-encompassing data corporations to grab content and data without compensation. The fact that "Likes" don't pay the rent and artists often scrape by on the poverty line, is a problem that shouldn't be explained away.

Cooperative alternatives have great potential.

If NFTs are to bring benefits to society as a whole, we need to combine a technical and legal framework focused on sustainability with other sciences that deal with individual and group behavior, such as social psychology, economics, and sociology - and art to go beyond the scope.

And then we're talking.

Index

Confusion	7
What is an NFT?	8
Record Sales	9
Recap: Blockchains	10
Smart Contracts	11
Wallets and Keys	12
How to NFT?	13
Communication	16
The Link to Art	17
Is that Art?	18
Predecessors	19
The Analog Art Market	20
Lunatic?	21
Art Market	22
A Way out of Precarity?	23
Stealing	24
No Riches	25
Connection	26
One-Stop-Shop	27
Games	28
Gamification	29
What's Gone is Gone	30
Non-fungible Fakes	31
Non-fungible Trust	32
Metaverse	33
Bodies	34
NFTs Against Colonialism	35
Legal Security	36
Environment	38
Clan Economics	40
Bros and Whales	41
Esotericism	42
Madness	43
Digital Hinterland	44
Platform Economy	45
Censorship and Control	46
DAOs	47
Web3?	48
Dead Machinery	49
Outlook: Errare Humanum Est.	50

Thanks

Julia thanks Daiyi! (Chris), Elisa Lindinger, Eric Eitel, Helge Dauchert, Jörn Eichler, Julia Kloiber, Karina Filusch, Kim Parker, Markus Beckedahl, Max Haarich, Miriam Beblo, Paolina Wandruszka, Sylvester Tremmel, Till Wittwer, Timo Daum, Wolfgang Kerler - and Noëlle for the great cooperation.

Noëlle thanks Julia for the idea and great partnership and, as always, the secret comic club.



Julia Schneider aka docjsnyder is a Berlin-based comic essayist and PhD in economics. With her work she wants to inspire people to form their own positions on complex issues - building a bridge between intellect and intuition. Her last two comics deal with artificial intelligence ("We Need to Talk, AI" with Lena Kadriye Ziyal, available in English, German, Russian, Spanish, Turkish and Slovenian and as an Open Online Course) and money ("Money Matters" with Pauline Cremer and Miriam Beblo).

After her well-paid jobs in science and data science, Julia is still regularly shocked by how little money many artists have to get by with, and thinks that

sustainable, social solutions are needed. Whether that really lies in blockchains and the current shape of capitalism? She's not so sure. What else does she like about NFTs? The art - and the desire to try things out.

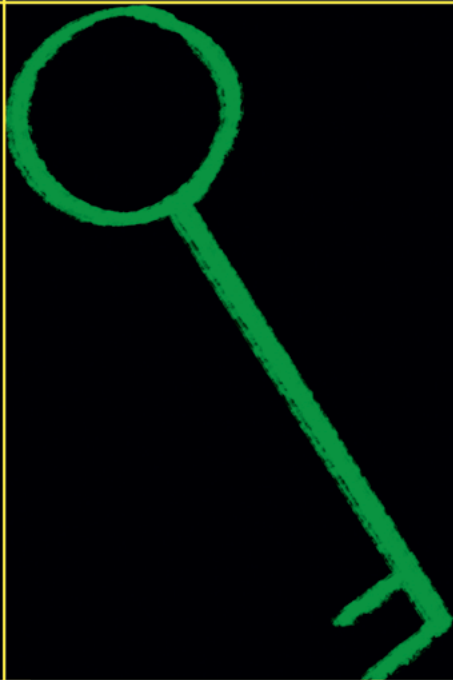
> www.docjsnyder.net
> @docjsnyder



Noëlle Kröger (he/she) lives and works as a comic artist and illustrator in Hamburg, Germany. She studied graphic storytelling at the HAW Hamburg. Her stories often feature queer perspectives, performances and animals.

While Noëlle has a lot of sympathy for the artists jumping on the NFT train with the hope to escape precarity, he believes it's not even close to being a solution. The environmental cost alone is enough to be weary, but the speculative nature of the market make NFTs even more of a risk. The end result is once more capitalism exploiting artists.

> noellekroeger.com



What are NFTs? Do I really have to know?

In this book, comic essayist Julia Schneider aka docjsnyder and artist Noëlle Kröger pointedly explain the economic and technological foundations of non-fungible tokens (NFTs for short), present some NFT projects anecdotally, and trace social discourses, often very critically, but also affectionately humorously.

For both the hype and the bashing surrounding NFTs are emblematic of the narrative "culture war" over who gets to interpret and shape a new decentralized Internet ("web3") - and with what goal.

