



Master in Planning and
Management of Tourism Systems



Blockchain & Web 3.0

Nicola Cortesi

BLOCKCHAIN

Blockchain changes
the way information is
shared between
people

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The advantage of Blockchain is that it removes all intermediaries, shifting the trust from organizations to algorithms



Blockchain algorithm is safe from any financial bankruptcy, social revolutions, hackers, wars, and even from atomics

While in the **physical world** the best way to protect an object is to hide it or keep inside a safe, in the **digital world** you can try a similar approach, by encrypting data and keeping it behind firewalls, but this isn't the optimal solution



The best way to protect data may seem at first the opposite of common sense: it consists in copying it and distributing it to as many people as possible

The hardware part of a blockchain is any peer to peer network (P2P): a network where each computer (node) is both a client and a server (e.g: BitTorrent)



The **software** of blockchain is the **algorithm** used to store and share the data in the blockchain network. The main difference from a normal storage system is that data is stored in **blocks** of **1 MB** each



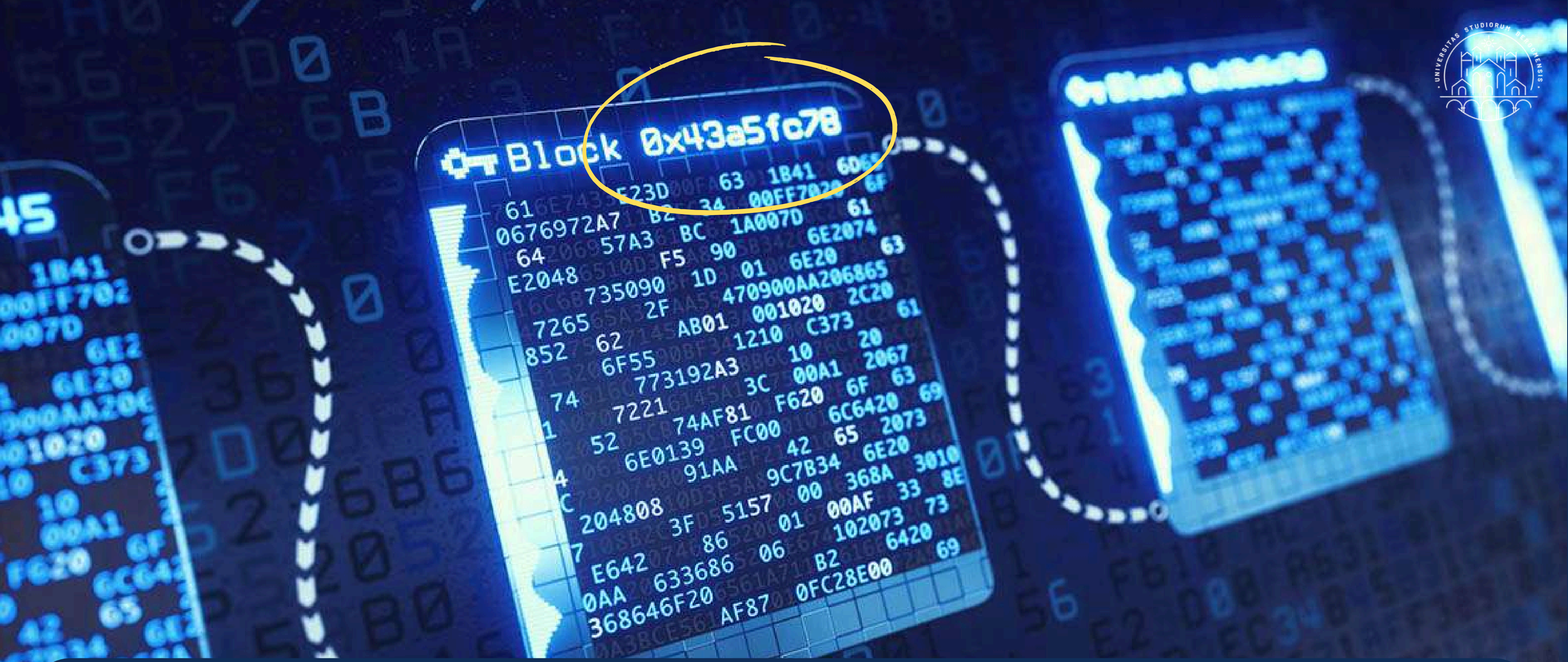
Every **node** of the network has a **copy** of **all** data blocks. In this way, there can be **no single owner** of the data: not even a multinational or a government can own all nodes



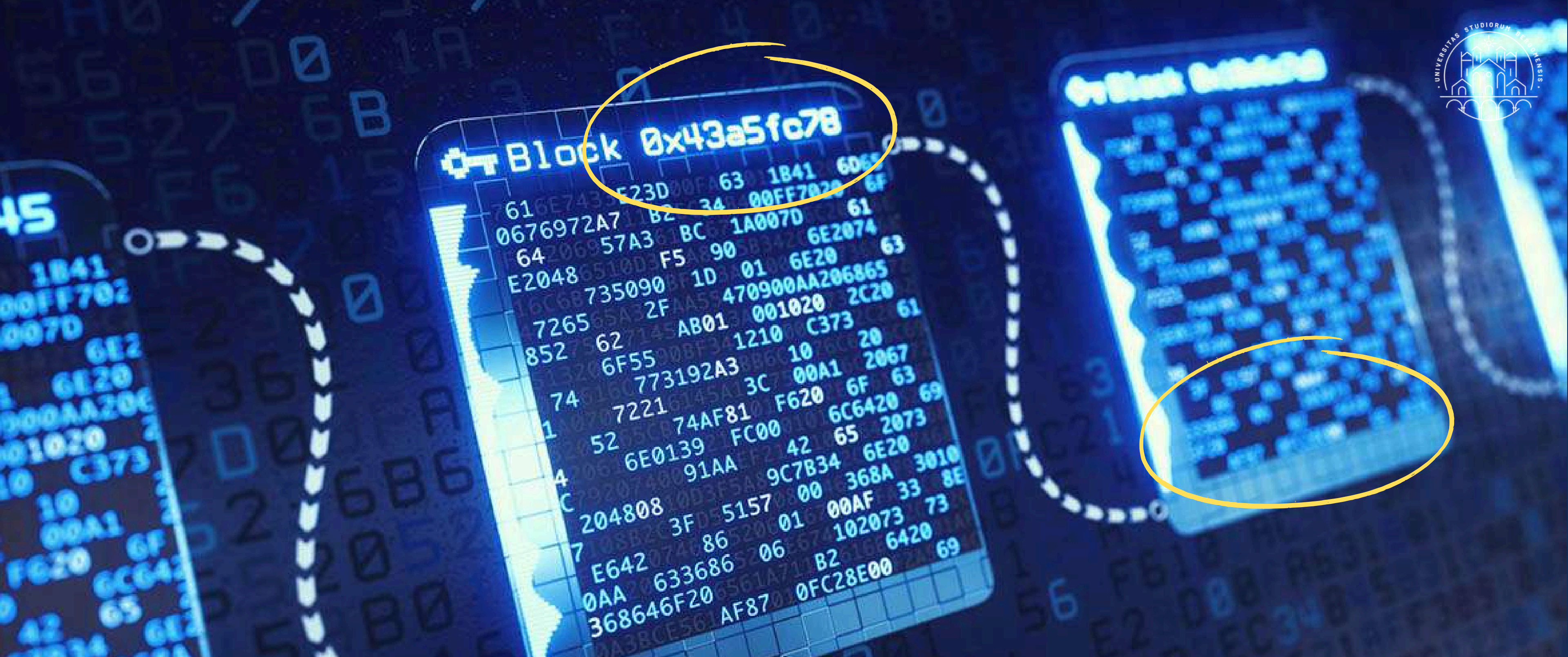
Each block is identified by a unique alphanumeric number called **hash**



Each block also store the hash of the previous block, that's how form a sequence of blocks, or chain



If an hacker try to manipulate or corrupt the data inside a block, also its hash changes



The new hash is now **different** from the hash in the next block that refers to the hash of the previous block



The chain is broken. The only way an hacker has to "repair" it would be to replace that reference with the hash of the previous block



However, any change to a block modifies its hash, so the chain **breaks again** and the hacker has to modify **all the hashes** of all following blocks of the chain to repair it

And he must also repair the blocks of all the other nodes of the network. All these operations takes forever (modifying a single block takes about 10 minutes due to cryptography). This is why Blockchain technology is so secure

For example, **bitcoins** are a type of blockchain that stores **digital currency**. It is worth **800 billion dollars** and no one has been able to steal a **single cent** until now.

If you install on your smartphone an app to use **bitcoins** or another cryptocurrency, you become a **new node** of the bitcoin network, and you receive a **full copy** of its blockchain (its data)

Any time you do an operation with the app (e.g: buy bitcoins, make a payment), a **new block** is created and sent not only to your node but also to **all the other nodes** of the bitcoin network.

Other nodes verify that your version of the blockchain is the same they have. If yes, then each node adds the new block to its blockchain, else the new block is rejected by the nodes

The first blockchain was that of the **bitcoin**, created in 2009 thanks to paper of **Satoshi Nakamoto**, an unknown inventor named as a legendary **japanese hero** that fought against tyrannical regimes.

BANK

It is also free of charge: imagine what could it mean for millions of families the possibility to open a bank account for free, and accessing financial services also for free



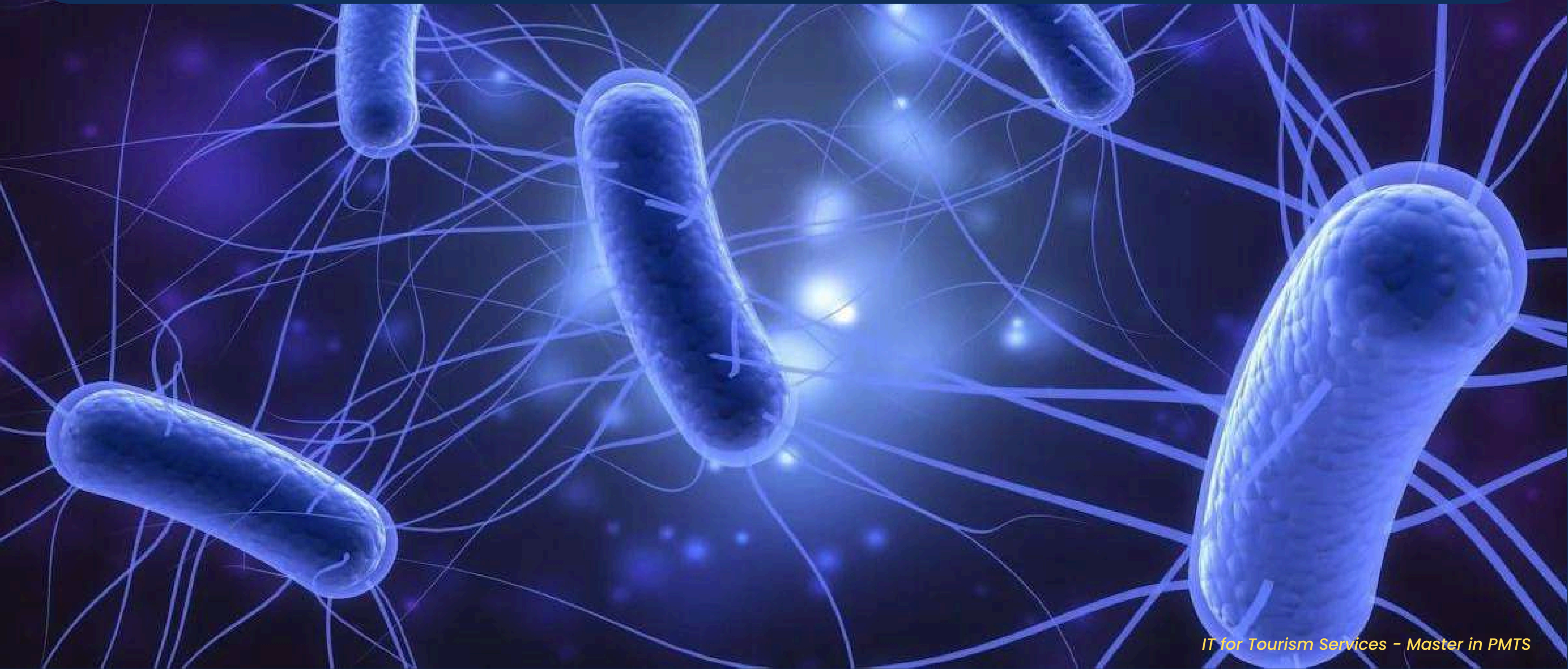
Thanks to blockchain our smartphones could become the **only bank** we need. And a totally free bank, as it is now the calendar app or the clock app

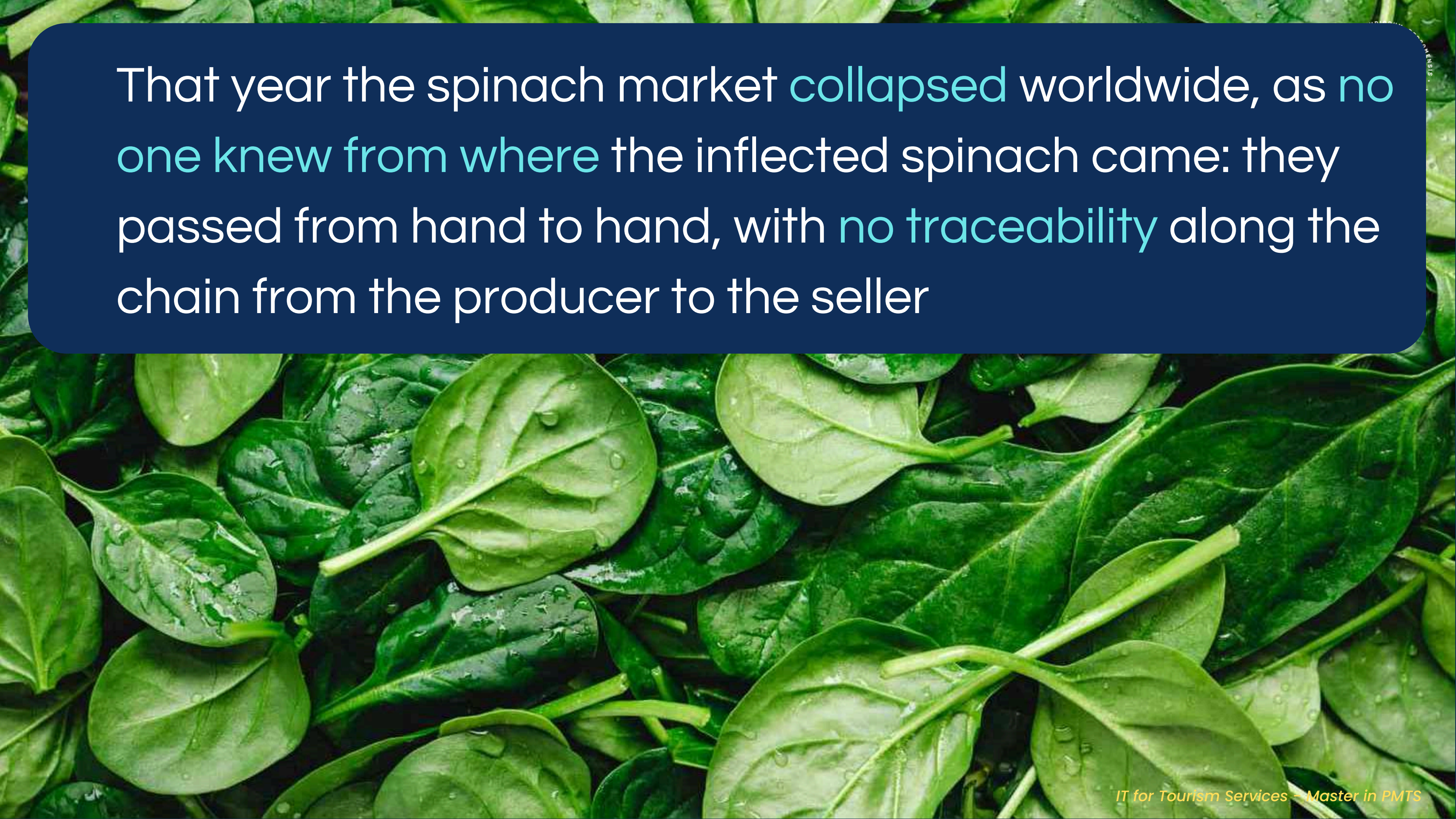


Or imagine what it means for billions of tourists to book accommodations without paying commissions to online travel agencies, or for users of social media to be free from the monopoly of Meta

The **blocking** of the bank account, withdrawal limitations, the **crack of Argentina** in 2001 and of **Greece** in 2007... all these crisis would have never happened with Blockchain

In 2006 in USA there was an epidemic of the bacteria
Eschericia Coli, caused by some infected spinach





That year the spinach market collapsed worldwide, as no one knew from where the inflected spinach came: they passed from hand to hand, with no traceability along the chain from the producer to the seller

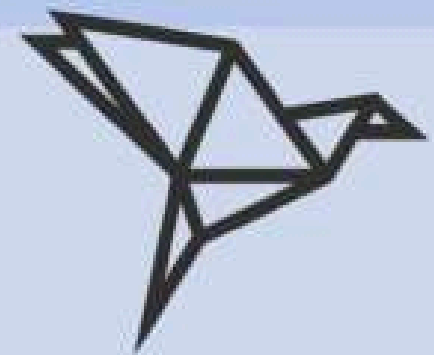
Using a blockchain, all passages would have been well documented, transparent and of public access, going back to the farmer that produced the inflected spinach



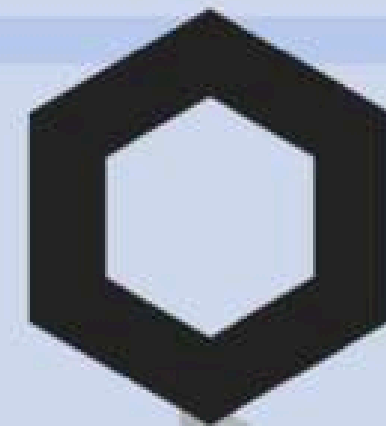


As AI and automation will destroy most non-creative jobs, blockchain will free us from many intermediaries and monopolists

Ethereum is the name of a blockchain platform employed for Smart Contracts: contracts that bypass the intervention and fees of notaries, banks and insurance companies



ETHERISC



Chainlink

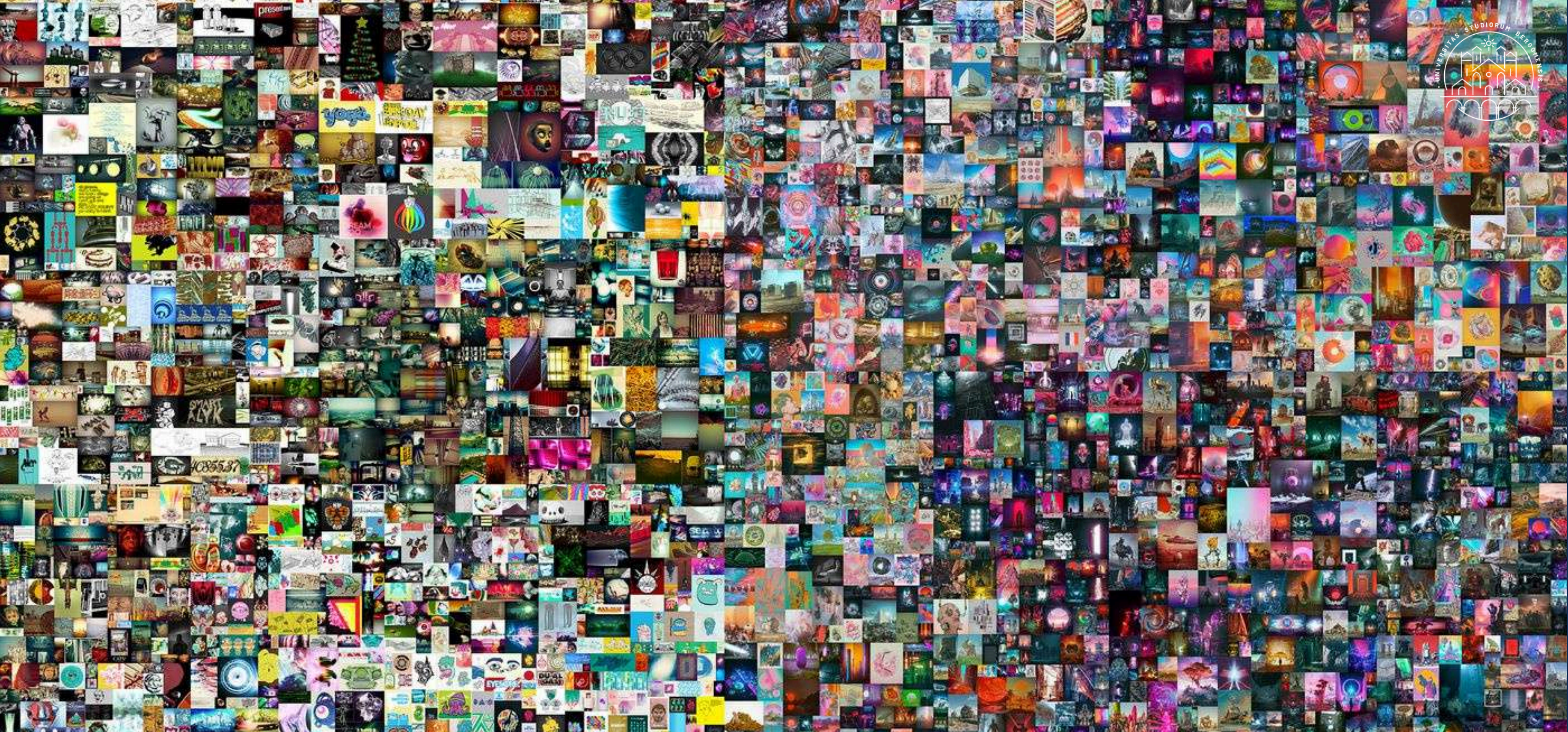
Etherisc is an blockchain insurance for flight travels. If your flight lands with two hours of delay, instead of getting angry, the blockchain immediately send you a message with the reimbursement already paid



Another popular type of smart contracts is called **NFT** (non-fungible token). It is an unique digital identifier stored in a blockchain (so it cannot be copied or substituted)



It is used to certify authenticity and ownership of real-world objects like artworks, collections, music registers, articles, but also digital objects like gif images and software



Artist Beeple sold the NFT of this digital artwork for 69M \$

Blockchain improves the accuracy of luggage tracking across the entire travel, as luggage changes hands from one flight operator to the other



You would no longer need to exchange currency when you travel to another country or fear credit cards thefts if you can pay with cryptocurrencies too (e.g: bitcoins)



Governments of heavily touristic countries are supporting the use of cryptocurrencies and even considering creating their own cryptocurrencies





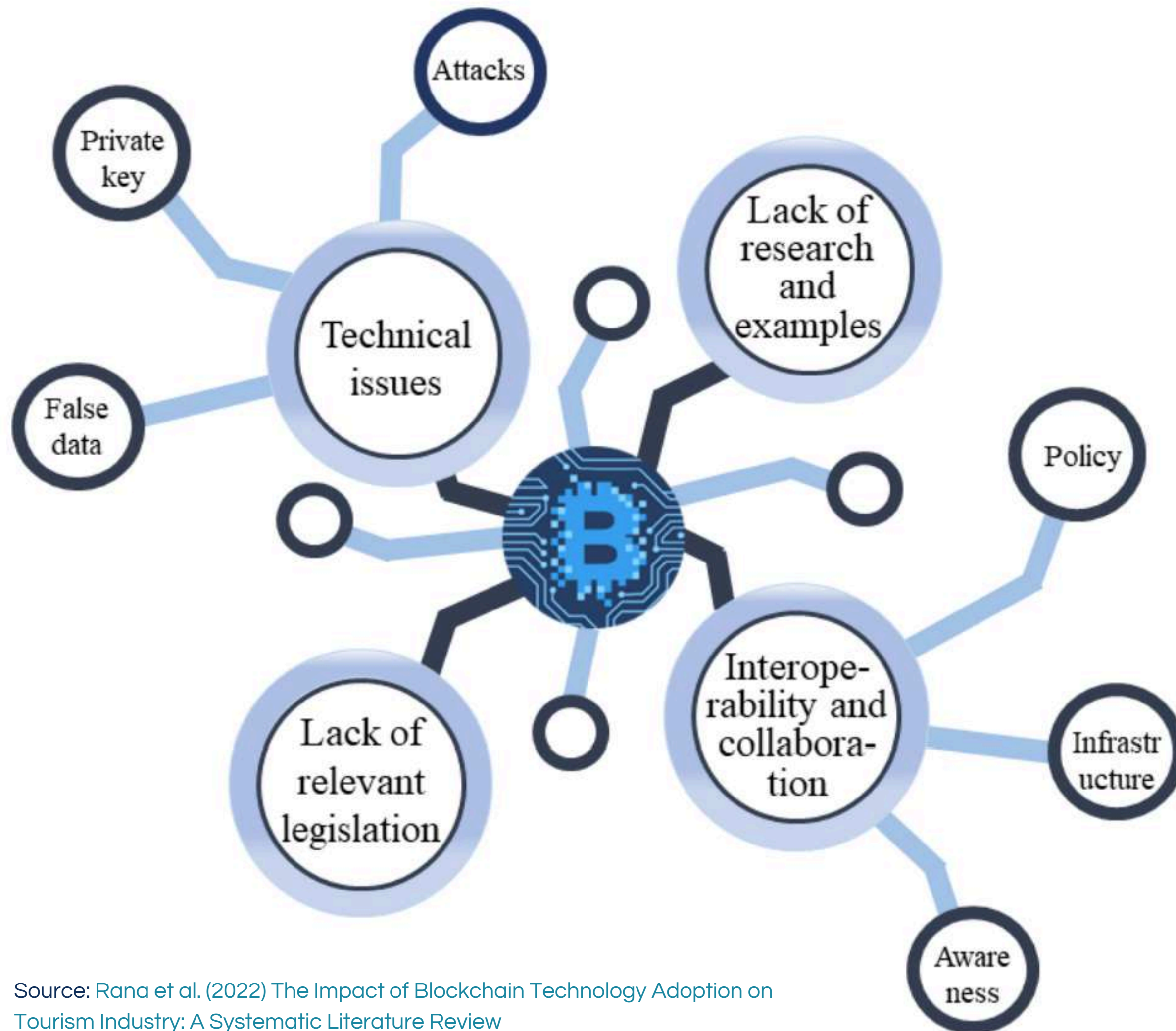
User reviews of travel destinations will be more truthful because blockchain guarantees that only reviews from verified profiles are taken into account, achieving better transparency and increasing consumer trust



Medical records, identity cards, passports, driving licences, birth certificates too may be saved in a blockchain



If a user loses its **private key** to access a blockchain, there is no central entity that can give back his/her access back: the access is **lost forever**



In case of the **tourism industry**, there are also some other **challenges** to implement blockchain

In summary, blockchain may revolutionize all sectors where data are shared, **de-centralizing** them and making them fully **transparent** and almost without commissions

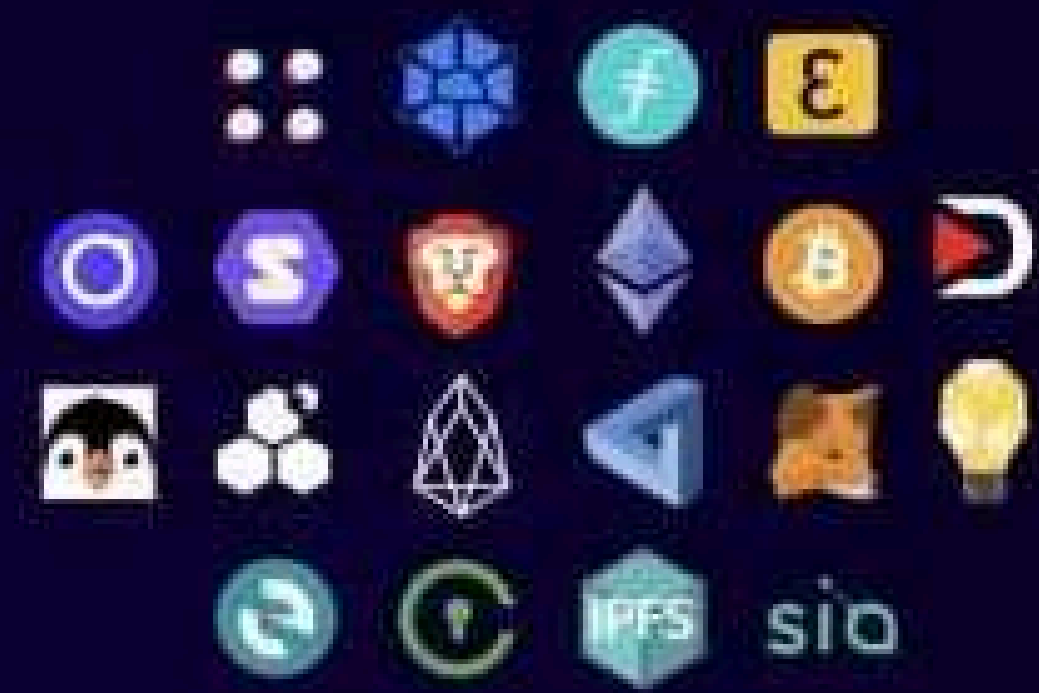
Its widespread adoptions will not be limited by the technology but by the **resistance** of the multinationals and institutions in adopting it



Web 3.0 is the next evolution of the Web, and it is based on blockchain

2015-present

1991-2014



Web 3

No Intermediaries,
Decentralized



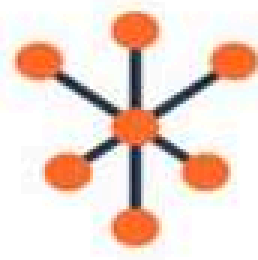
Web 2.0

Participatory,
Centralized



Web 1.0

"Read Only",
Decentralized



WEB 2.0 APPS



WEB 3.0 DAPPS



BROWSER



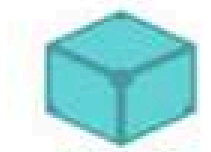
Brave



STORAGE



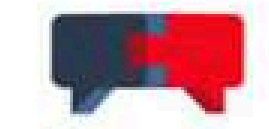
Storj



IPFS



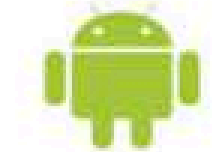
VIDEO AND AUDIO CALLS



Experty



OPERATING SYSTEM



Essentia.one



EOS



SOCIAL NETWORK



Steemit



Akasha

There will be a **blockchain equivalent** of each app and service we employ today: "Dapps" (decentralized apps)

DAO Operating Systems

ARAGON DaoStack DaoHaus
COLONY Syndicate Orca CW

Investment DAOs

MetaCartel theLAO Flamingo
Komorebi UdacityFund BitDAO
Free Company Duck DAO

Grants DAO

MetaCartel Ventures MolochDAO
Audius Grants Uniswap Grants
Mint Fund Sevens Foundation
Compound Grants Aave Grants

Protocol DAOs

MAKER Compound UNISWAP AAVE Yearn Sushi
SYNTHETIX Curve Index Coop PieDAO tornado GITCOIN
LIDO pool KeeperDAO Badger RaribleDAO Olympus
hDAO Rari Capital Balancer Cream Finance AUDIUS
Universe inverse finance Aavegotchi INSTADAPP OceanDAO

Service DAOs

RAIP GUILD DXdao PartyDAO
MetaFactory Fire Eyes DeepDAO
Reverie NeptuneDAO Llama
MetaverseDAO LexDAO dOrg
DaoHaus VitaDAO ShinyDAO
OPOLIS DoinGud DEEP WORK YGG

Social DAOs

FWB s/c Seed Club
Radicle FiatLuxDAO
Metafam KrausHaus
ProsperDAO Bright Moments
Meta Gamma Delta
SongCamp CabinDAO

Each Dapp is managed not by intermediaries but by
Decentralized Autonomous Organization (DAO)

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Social DAOs

FWB s/c Seed Club
Radicle FiatLuxDAO

DAOs are digital platforms that are co-owned and governed by the same users of the dapps. DAOs don't have a commercial interest and all of what they build is open-source.

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Radicle FiatLuxDAO
Metafam KrausHaus

Third parties who need personal data of the users won't pay intermediaries like Meta anymore: they will pay the users of the DAOs instead. Thus, you will earn bitcoins by installing and using dapps

web 2.0

web 3.0



We'll probably assist to the **co-existence** of Web 2.0 and Web 3.0, due to the opposition of the **big tech** companies

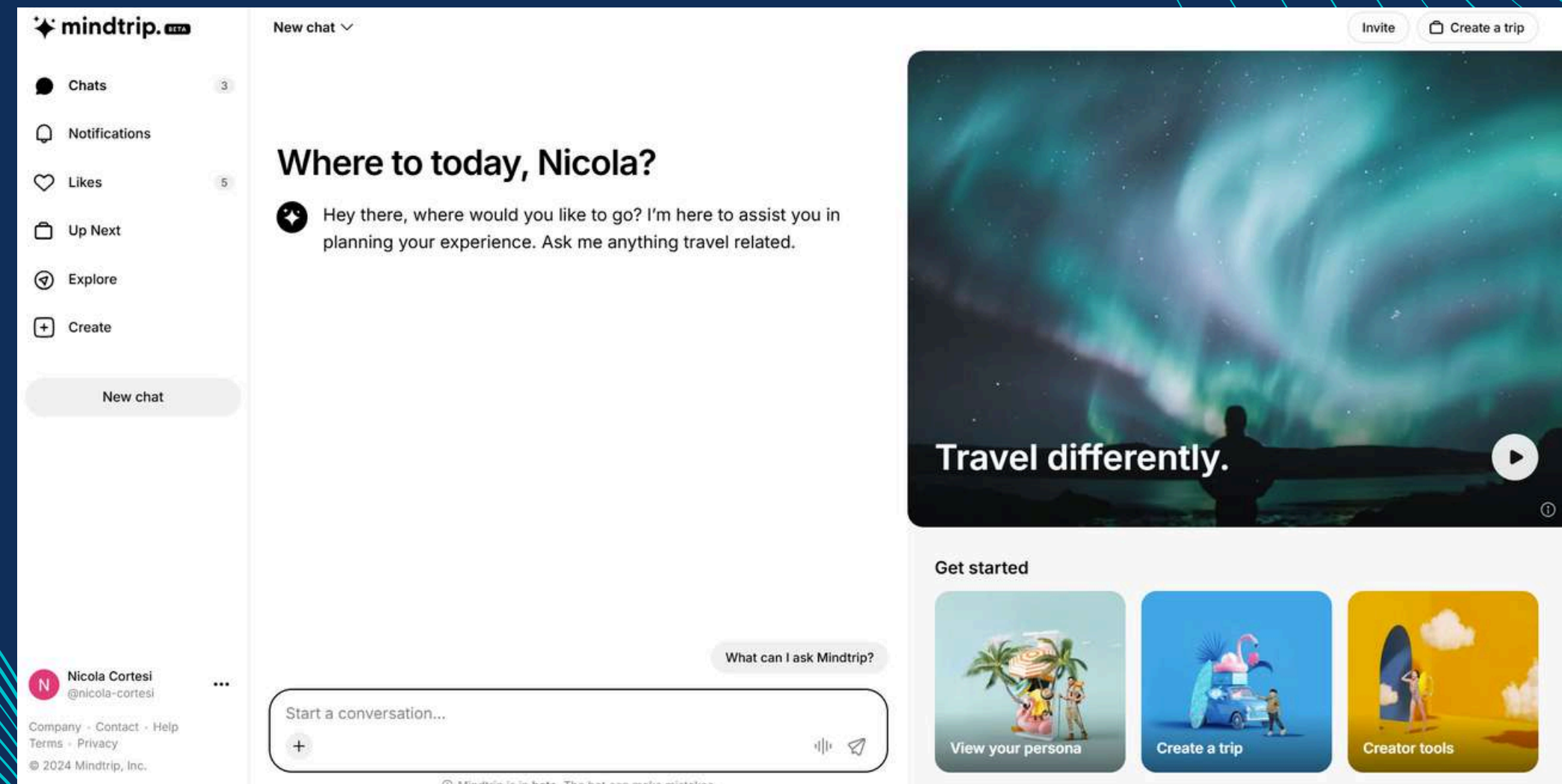
REFERENCES

In the Moodle there are three articles on Blockchain and Tourism:

- Nakamoto (2008): Bitcoin: a peer-to-peer Network Cash System
- Rana et al. (2022): The Impact of Blockchain Technology Adoption on Tourism Industry: A Systematic Literature Review
- Balasubramanian et al. (2022): An enabling Framework for Blockchain in Tourism

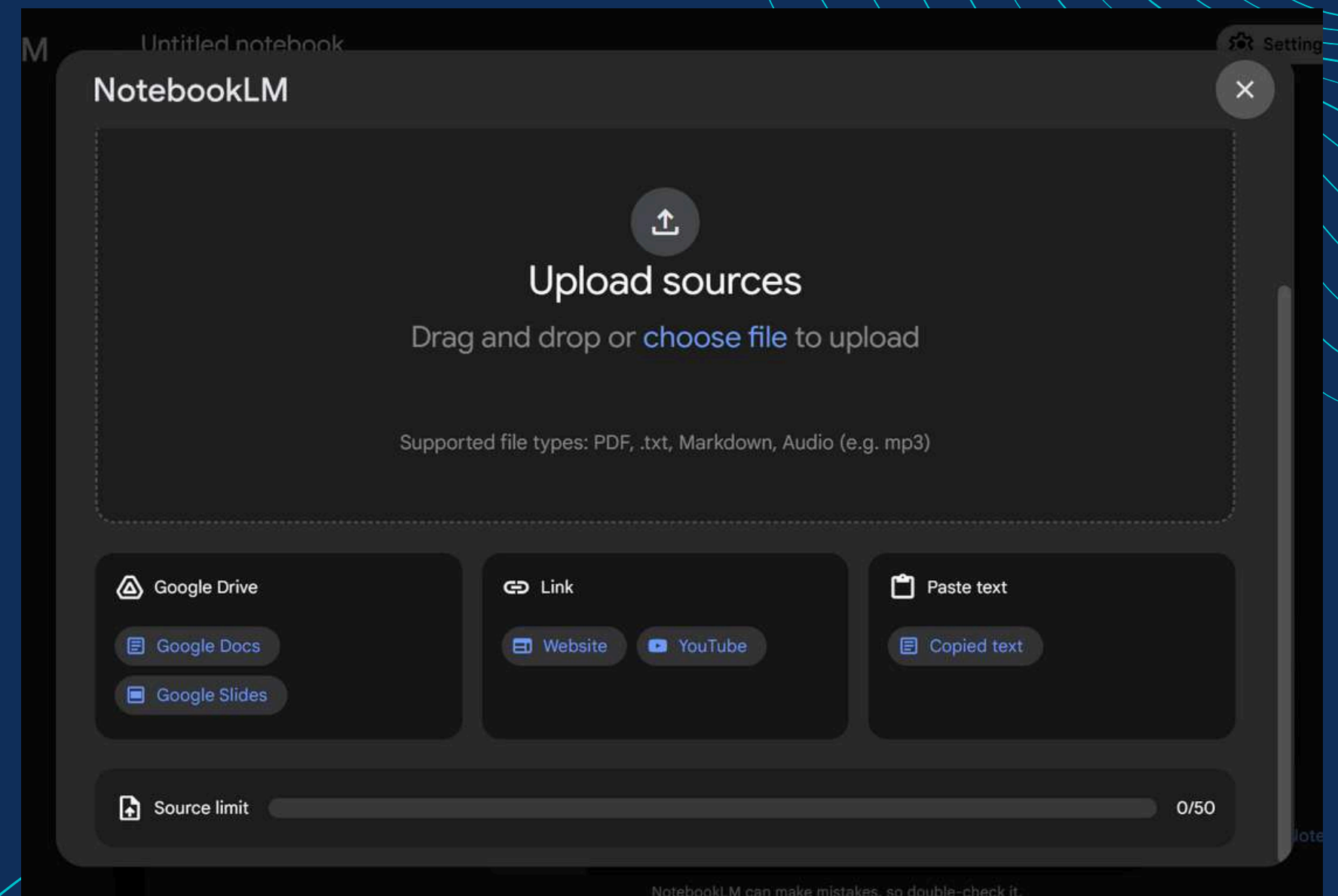
MINDTRIP: THE FIRST FREE AI-BASED TRAVEL APP

<https://mindtrip.ai/>



GOOGLE NOTEBOOKLM

<https://notebooklm.google.com/>



EXAM

There are 7 dates for the written exams in 2025, the first two are:

- Thursday 9th of January from 17.00 to 18.00 in Room 1 Via Salvecchio
- Friday 7th of February from 15.00 to 16.00 in Room 3 Via Salvecchio

Bring your ID card and a pencil

The written test has a total of 20 questions. In order to be approved, 12 or more right answers are needed. There are no grades, only approved or not approved

TASKS LEFT FOR PROJECT WORK #1

- Every week, every one should post a question in the travel community of “Naples for Beginners”
- Every week, each admin should publish a new post or poll
- Every week, each admin should ask a question in the travel community immediately after his/her group
- Every week, every group should publish a welcome post
- Admin should always answer all questions of their members

TASKS LEFT FOR PROJECT WORK #2

- Send me an email when you finish your Canva project
- Join the two TikTok channels of the Time Travelers:
<https://www.tiktok.com/@time.travelers.official>
<https://www.tiktok.com/@timetravelers.it>
- Join the YouTube channel:
<https://www.youtube.com/@time.travelers.official>
- Join the Instagram channel:
<https://www.instagram.com/time.travelers.official>