Master in Planning and Management of Tourism Systems

Blockchain, Bitcoins & Web 3.0

Nicola Cortesi

BLOCKCHAIN

Blockchain is important because it changes the way information is shared between people: it de-centralizes it by removing all intermediaries and monopolists

Today most human activities are centralized: they are run by banks, institutions, private companies, multinationals, agencies. We need them to guarantee that the information sharing is properly handled

However, we also need to trust these companies, and to pay them for their service, as there are no free alternatives to them

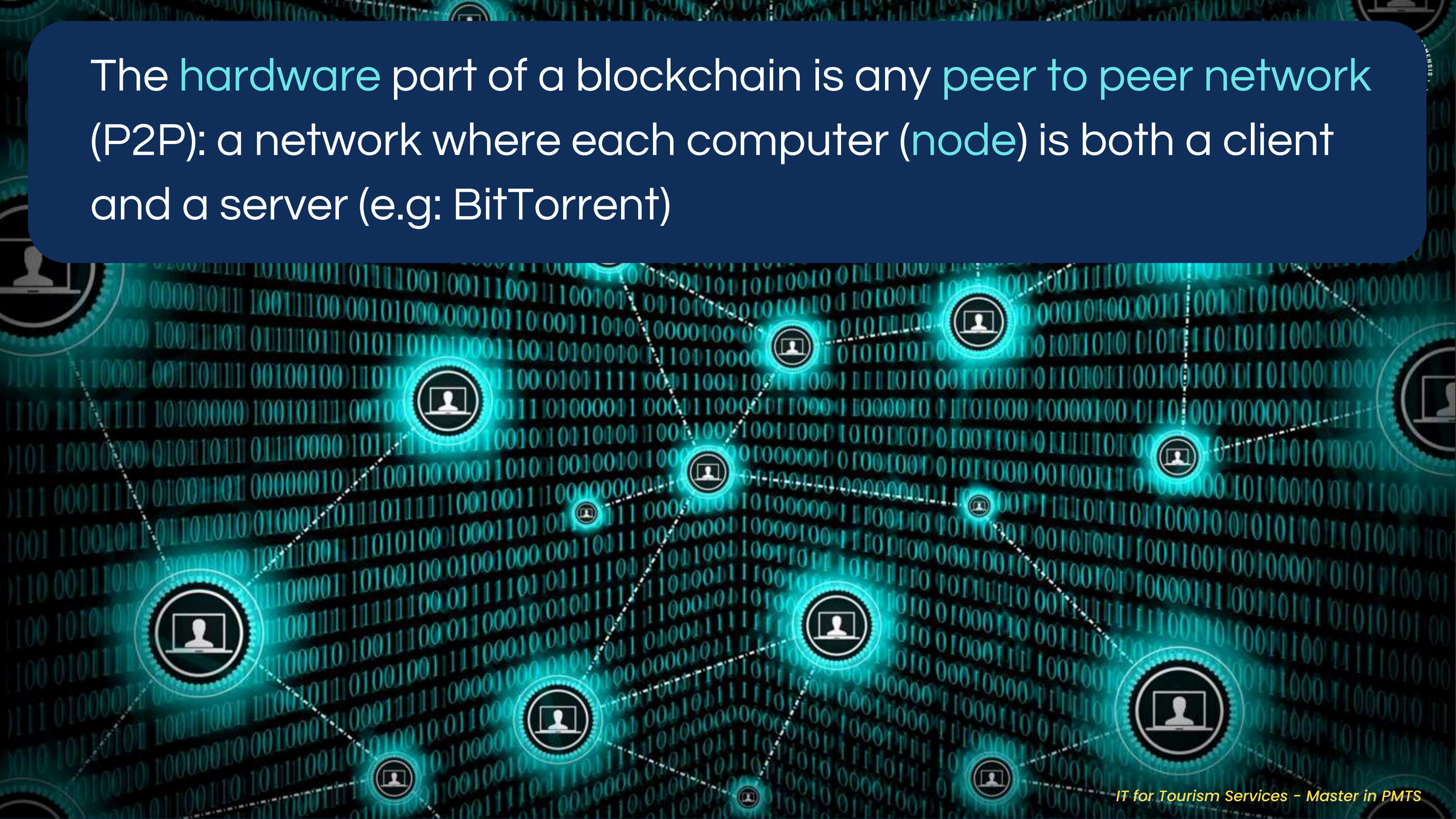
Blockchain remove these limitations, shifting the trust from human organizations to an algorithm based on math, so it cannot fail

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 best 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, so anyone has a copy of your data

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)

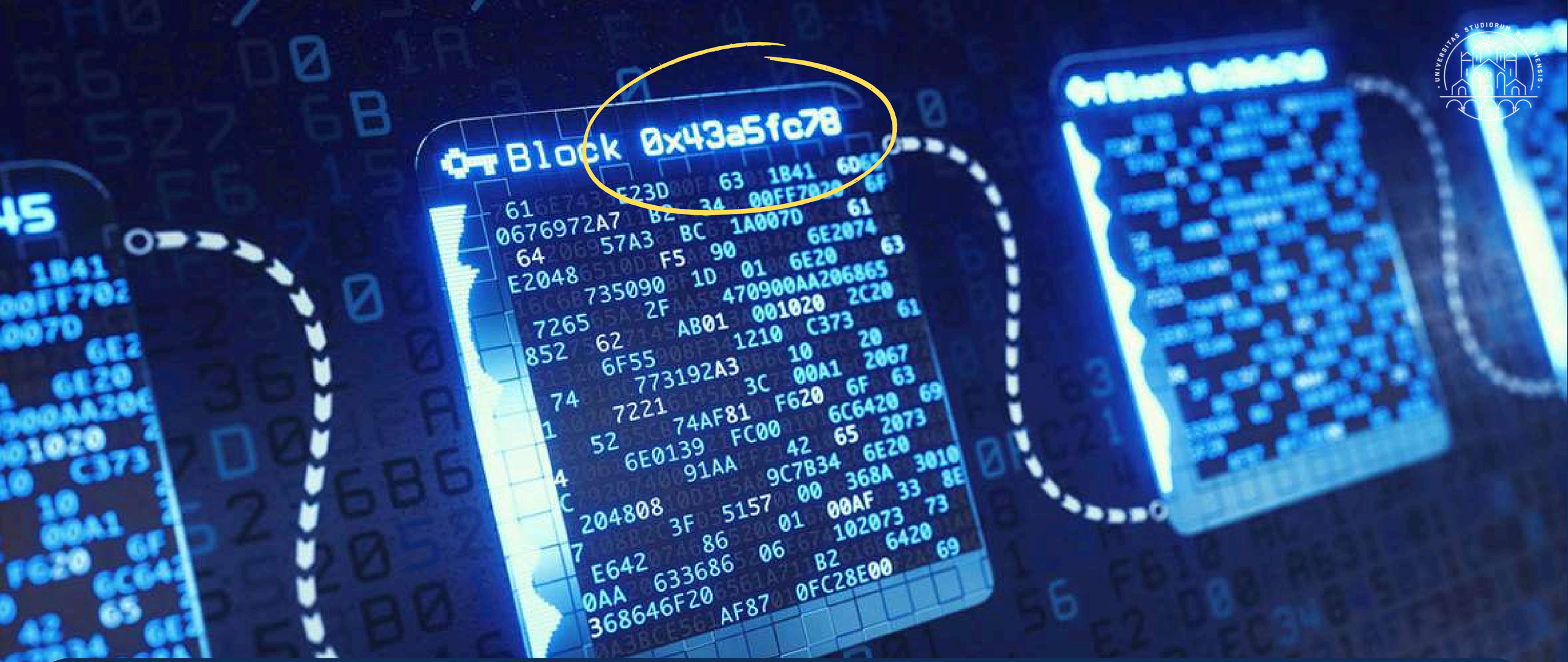


The software of blockchain is the algorithm used to store and share the data in the blockchain network. The main difference from a normal storage system is that data is stored in blocks of 1 MB each

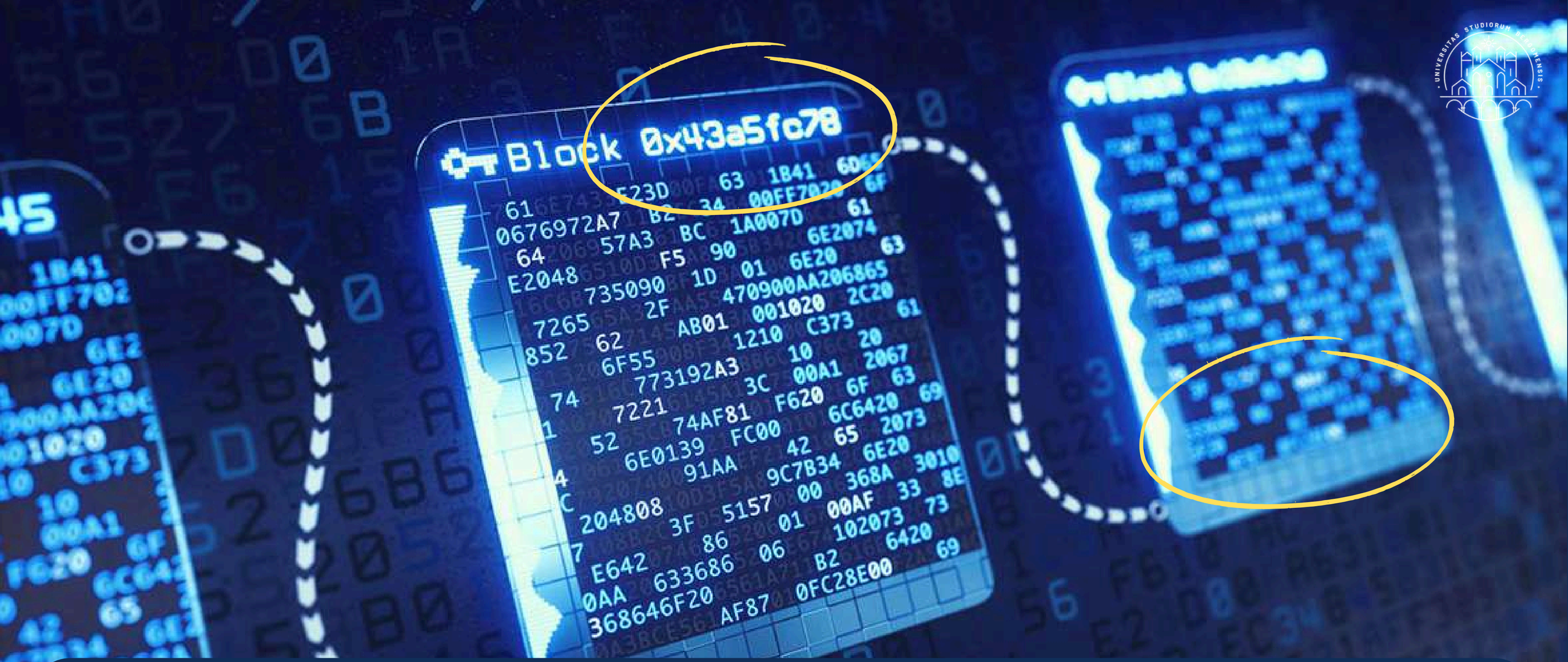
Every node of the network has a copy of all data blocks. In this way, there can be no single owner of the data: not even a multinational or a government can own all nodes

Each 1 MB block is identified by a unique alphanumeric number called hash

Each block also store the hash of the previous block, in this way they form a sequence of blocks, called blockchain



If an hacker tries 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, as any change to a block modifies its hash, the chain breaks again and the hacker has to modify all the hashes of all following blocks of the chain to repair it

Hacking a single block takes about 10 minutes, as each block is encrypted. But the hacker must also modify all the other blocks of the blockchain to fix it (e.g: to fix 1000 blocks, he'd need a few weeks)

He also need to modify all blocks of all the millions of blockchains in the other nodes of the network, in order for its modified blockchain to be recognized as valid, as the true blockchain. All these modifications take millions of years. This is why Blockchain technology is so secure

For example, bitcoins are a type of blockchain that stores digital currency. At present, bitcoins are worth 2.3 trilion dollars and no one has been able to steal a single cent until now.

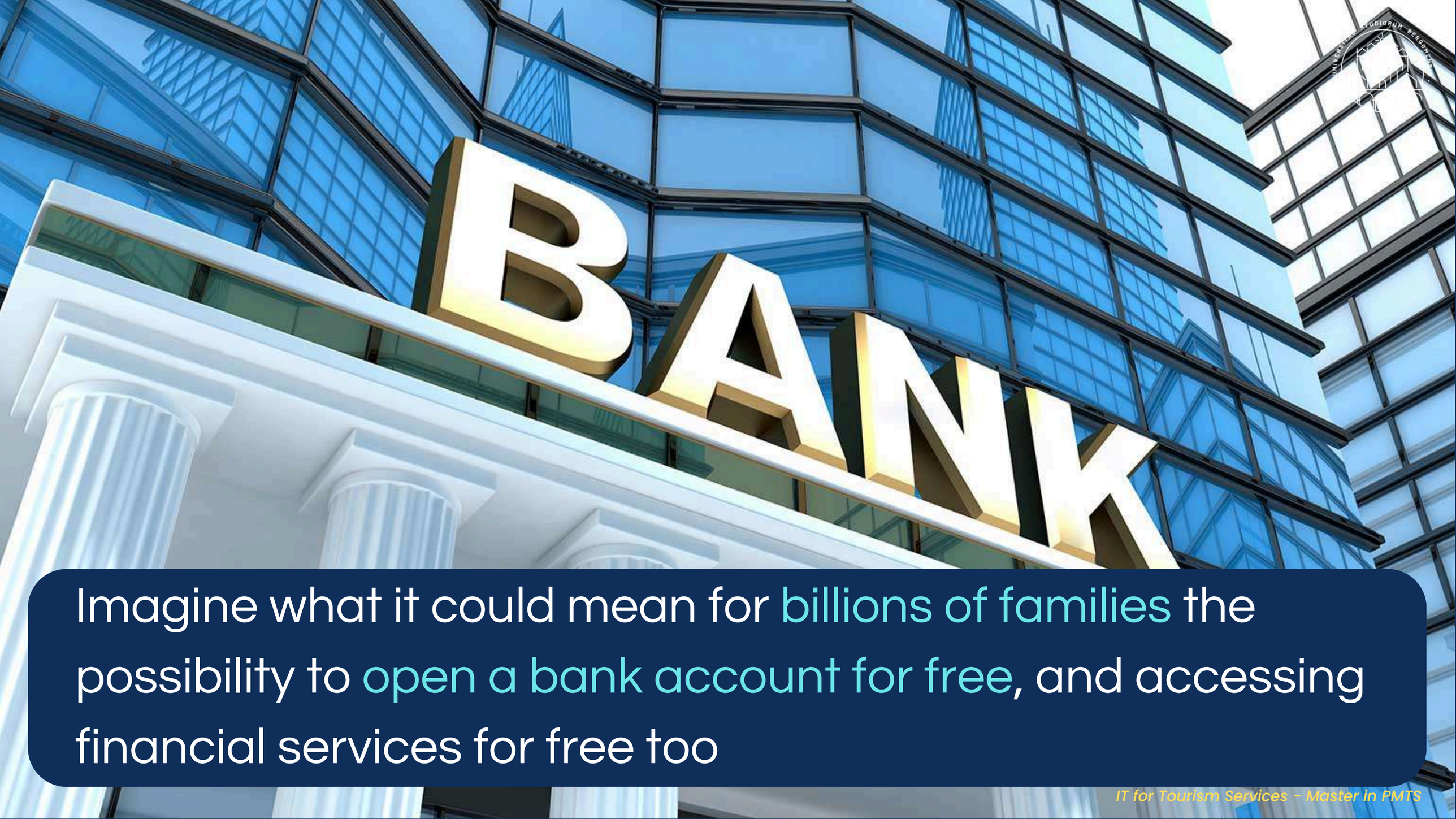
If you install on your smartphone an app to use bitcoins or another cryptocurrency, it becomes a new node of the bitcoin network, and you receive a copy of its blockchain with the data of all users

Any time you do an operation with the app (e.g: buy bitcoins, make a payment), a new block is created in your smartphone and to all the other nodes of the bitcoin network.

The other nodes verify that your version of the blockchain is exactly the same they have, with no modification. In this case, 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 bitcoins, invented in 2009 by Satoshi Nakamoto, an unknown inventor named as a legendary japanese hero that fought against tyrannical regimes.

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



Imagine what it could mean for billions of families the possibility to open a bank account for free, and accessing financial services for free too

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

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

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

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 reimboursement already paid

Blockchain improves the accuracy of luggage tracking across the entire travel, as luggage changes hands from one flight operator to the other: all passages are well documented, transparent and of public access

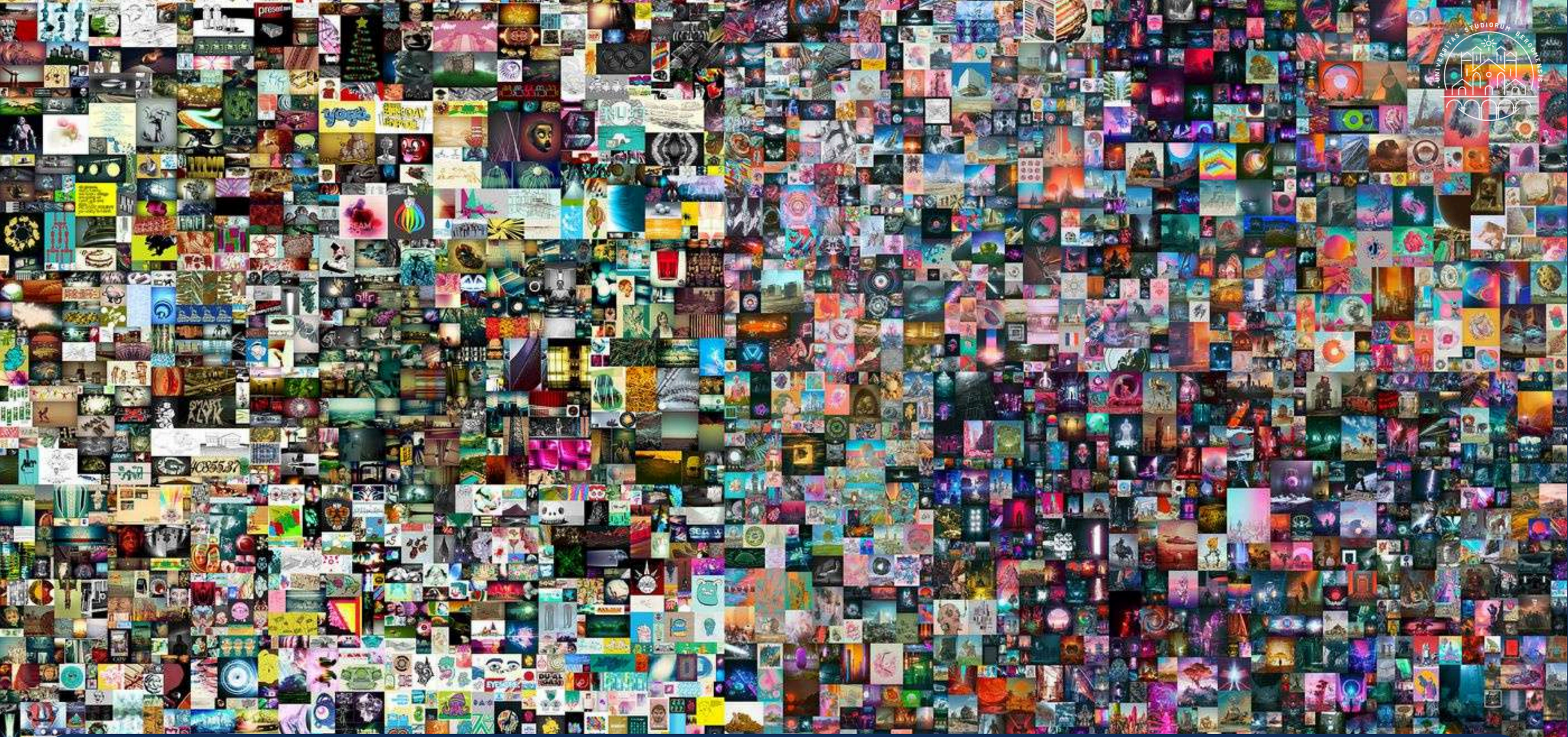
You would no longer need to exchange currency when you travel to another country or fear credit cards thefts if you can pay with cryptocurrencies too (e.g: bitcoins)

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

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

A 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)

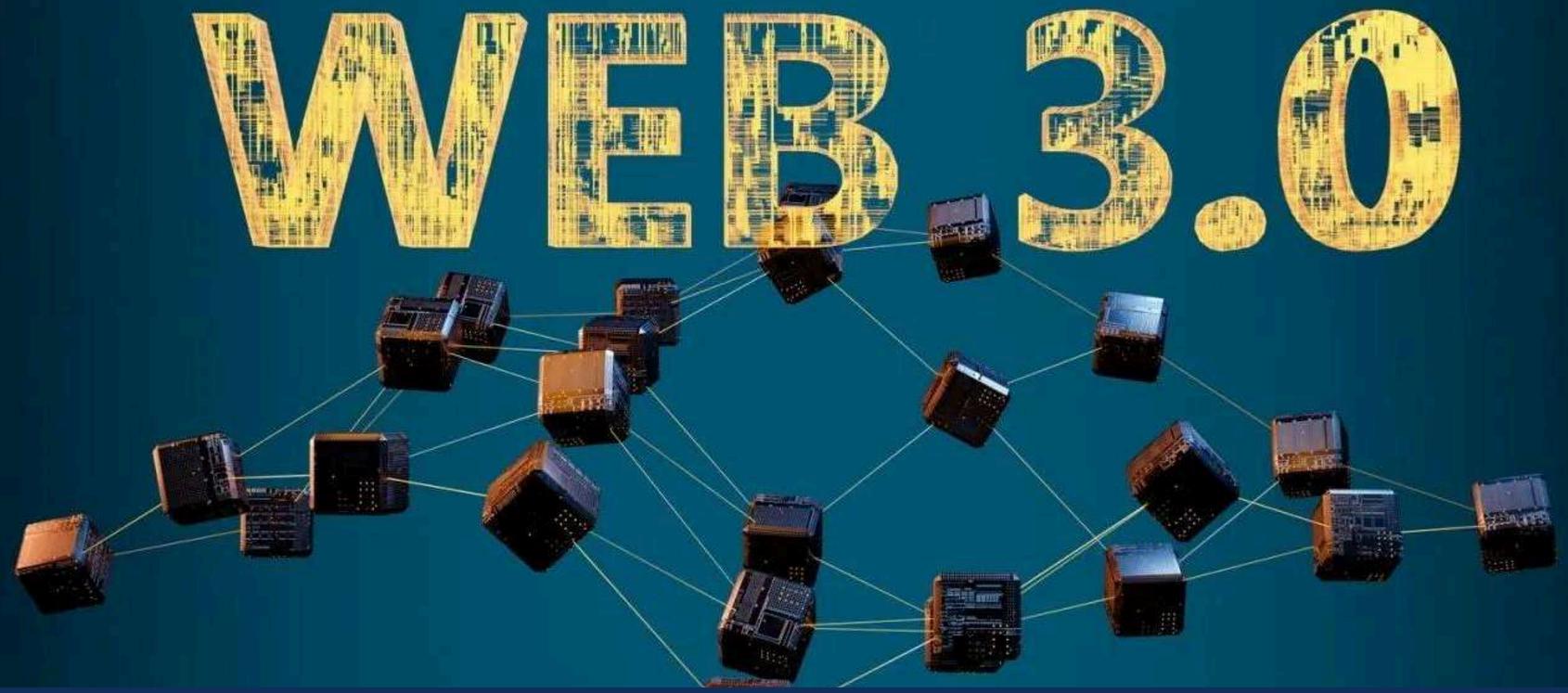
It is used to certify authenticity and ownership of real-world objects like artworks, collections, music registers, articles, but also digital objects like gif images and software



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

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

If a user looses 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



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

1991- 2014

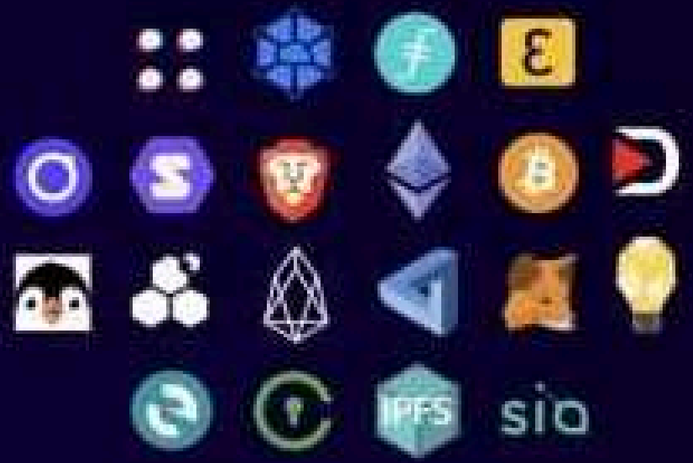
Web 1.0

"Read Only",
Decentralized

2015-present

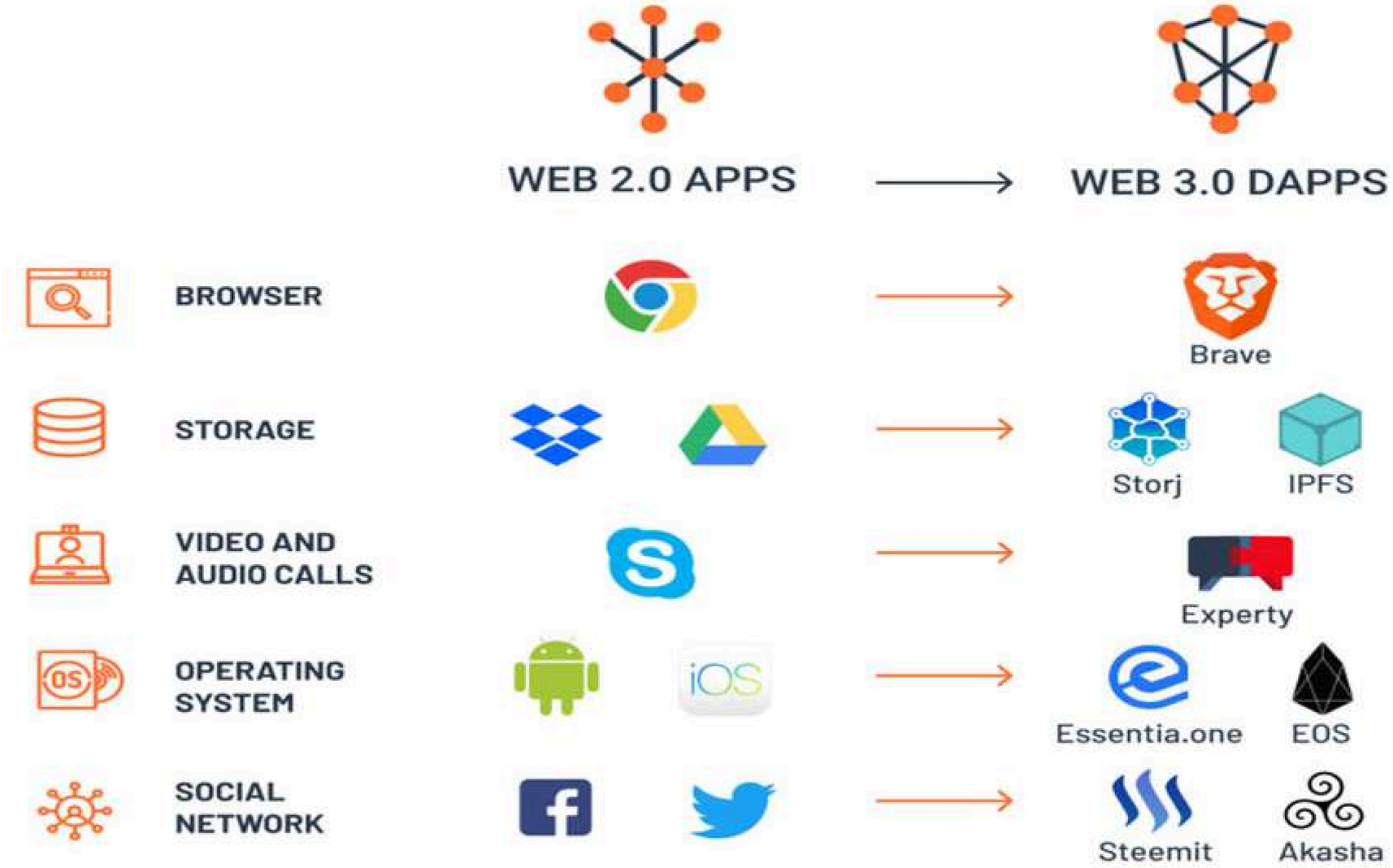
Web 2.0

Participatory,
Centralized

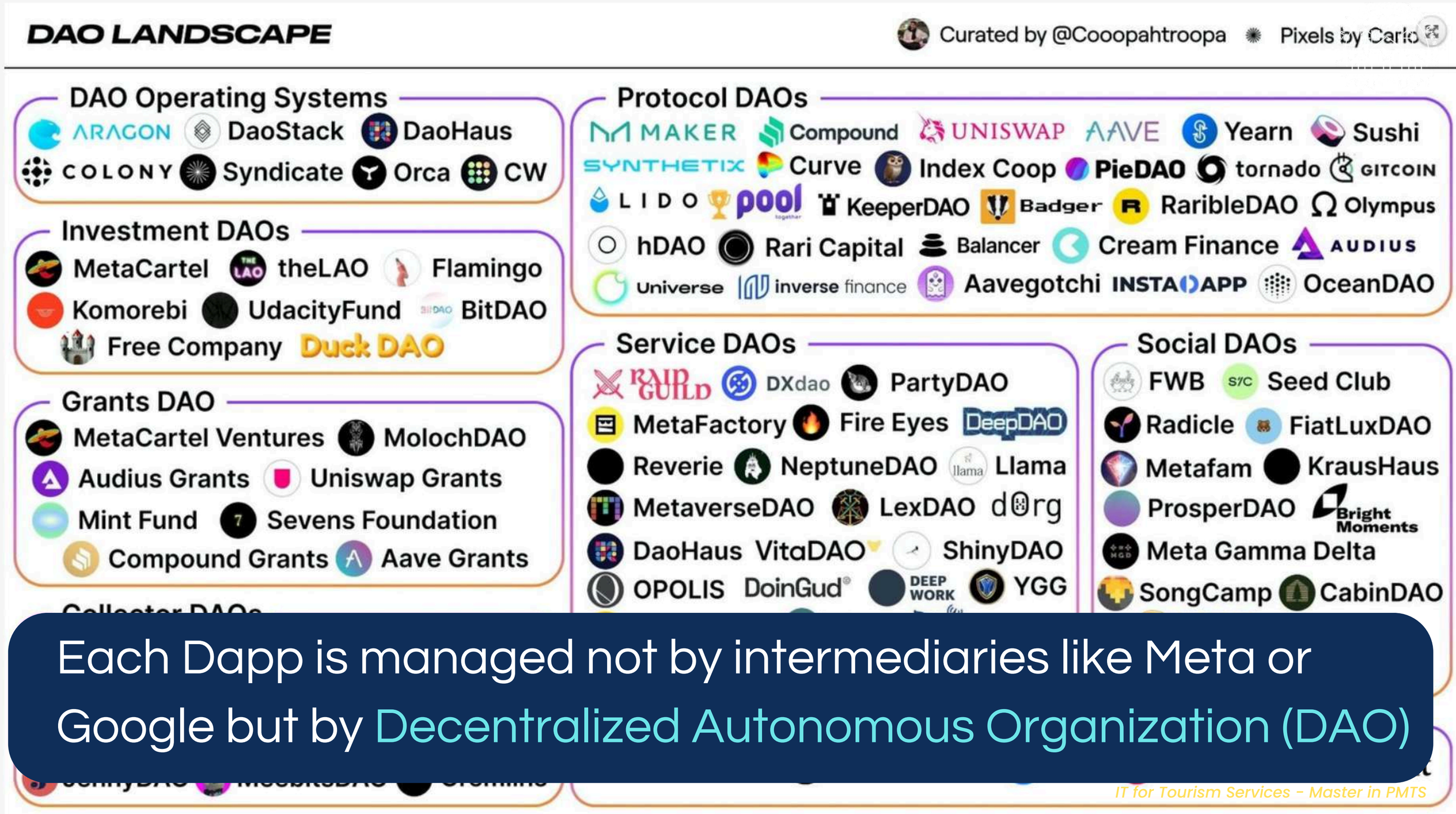


Web 3

No Intermediaries,
Decentralized



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


DAO LANDSCAPE
Curated by @Cooopahtroopa
Pixels by Carlo
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
RAID GUILD
DXdao
PartyDAO
MetaFactory
Fire Eyes
DeepDAO
Reverie
NeptuneDAO
Llama
MetaverseDAO
LexDAO
dOrg
DaoHaus
VitaDAO
ShinyDAO
OPOLIS
DoinGud
DEEP WORK
YGG
Social DAOs
FWB
Seed Club
Radicle
FiatLuxDAO
Metafam
KrausHaus
ProsperDAO
Bright Moments
Meta Gamma Delta
SongCamp
CabinDAO
Each Dapp is managed not by intermediaries like Meta or Google but by Decentralized Autonomous Organization (DAO)

DAO LANDSCAPE

Curated by @Cooopahtroopa · Pixels by Carlo

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

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

RAID GUILD · DXdao · PartyDAO · MetaFactory · Fire Eyes · DeepDAO · Reverie · NeptuneDAO · Llama · MetaverseDAO · LexDAO · dOrg

Social DAOs

FWB · Seed Club · Radicle · FiatLuxDAO · Metafam · KrausHaus · ProsperDAO · Bright Moments

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.

REFERENCES

In the Moodle there are three new 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

PROJECT WORKS

WEEKLY UPDATE

- First project work:

  Alps for Beginners in one week has doubled again its members!
- Second project work:
  - New column P with link to one of your canva folder with all your videos. Share it with me and give me editing permission
  - Check if every group is using whatsapp
  - New entries in the Japanese group:
    - Elisa Caldana: admin of the Italian channel
    - Elisa Enrica Sandri: admin of the second Italian channel
    - Mouhamadou Ben A. Sylla: join the french group
  - Update on tools alternative to Buffer that allow a queue of posts longer than 10. The group that will find a tool alternative to Buffer that allow to queue more than 10 videos for free will gain a bonus of +2 points at the exam
  - By now all groups should have the selfies taken on the stairs of Bergamo. If you want, you can convert your selfies in full videos using HeyGen, but before to have to sign the Media Release form in the Moodle to authorize the University to use your selfies (send me by email)

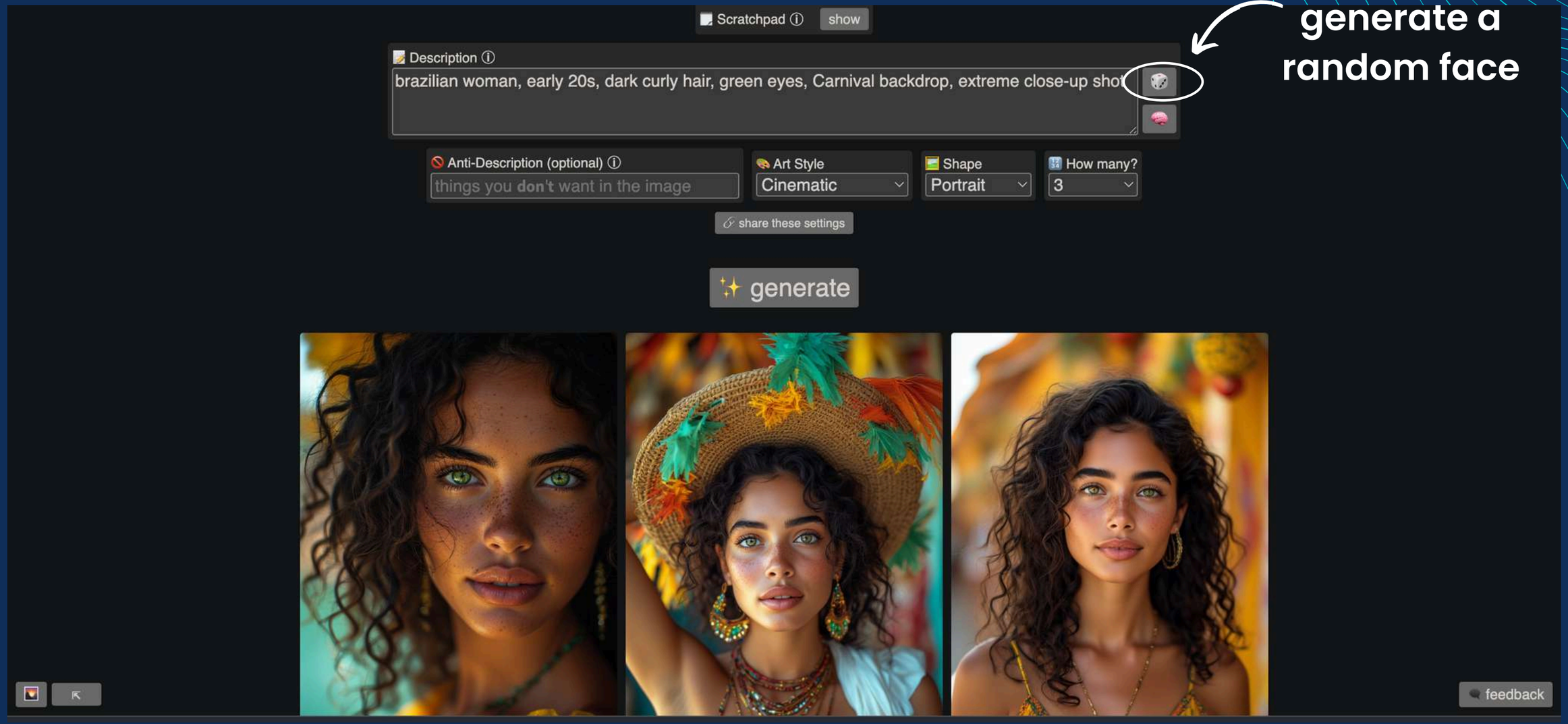
HOW TO INCREASE TIKTOK VISUALIZATIONS

- Use more than one template (e.g: French group utilises 6). Easiest strategy and highly recommended to all channels: this is a winning strategy and very simple to introduce, so from now on all videos you make should alternate at least between 2 different templates
- Open more TikTok channels, even in languages already employed (up to a maximum of 1 TikTok channel per student). E.g: open 7 spanish channel instead of 1, etc. Only useful once all videos are ready, so we will introduce this strategy in the next semester
- Share your videos in more than one social media type (e.g: Instagram, YouTube, LinkedIn, etc.). Only useful once we find a way to publish more than 10 videos automatically using AI
- The Turkish group reported that the number of views increased when posting from TikTok instead of Buffer, without scheduling; however, this solution is not very practical, as it would require to wake up at 6.00 every morning to publish the first video of the day
- Thanks to you, we were already able to devise a strategy to increase the number of visualizations from 4 to 20 millions per year, with some new templates and new channels
- Now our priority is to reduce the time you spend to upload videos. We already know that there are solutions for Premium users of Buffer, but in this course you will never have to pay for any tool, It is important for you to know that everything two do must be done wthout spending a single euro

HOW TO INCREASE TIKTOK VISUALIZATIONS

- Mootions AI (https://storyteller.mootion.com/): nice, but only useful to create visual stories, while our travel citations are too short to convert them in a visual story
- Post avatar videos generated by HeyGen instead of normal textual videos.
  Main limitation: many short citations are so short that it only takes 2-3 seconds for the avatar to finish pronouncing them, so this type of video is better for long citations (8+ second). Moreover, HeyGen avatars are well known by the algorithm, so it may penalize their videos; the solution is to use randomly generated avatars with the AI-face-generator tool (https://perchance.org/ai-face-generator)

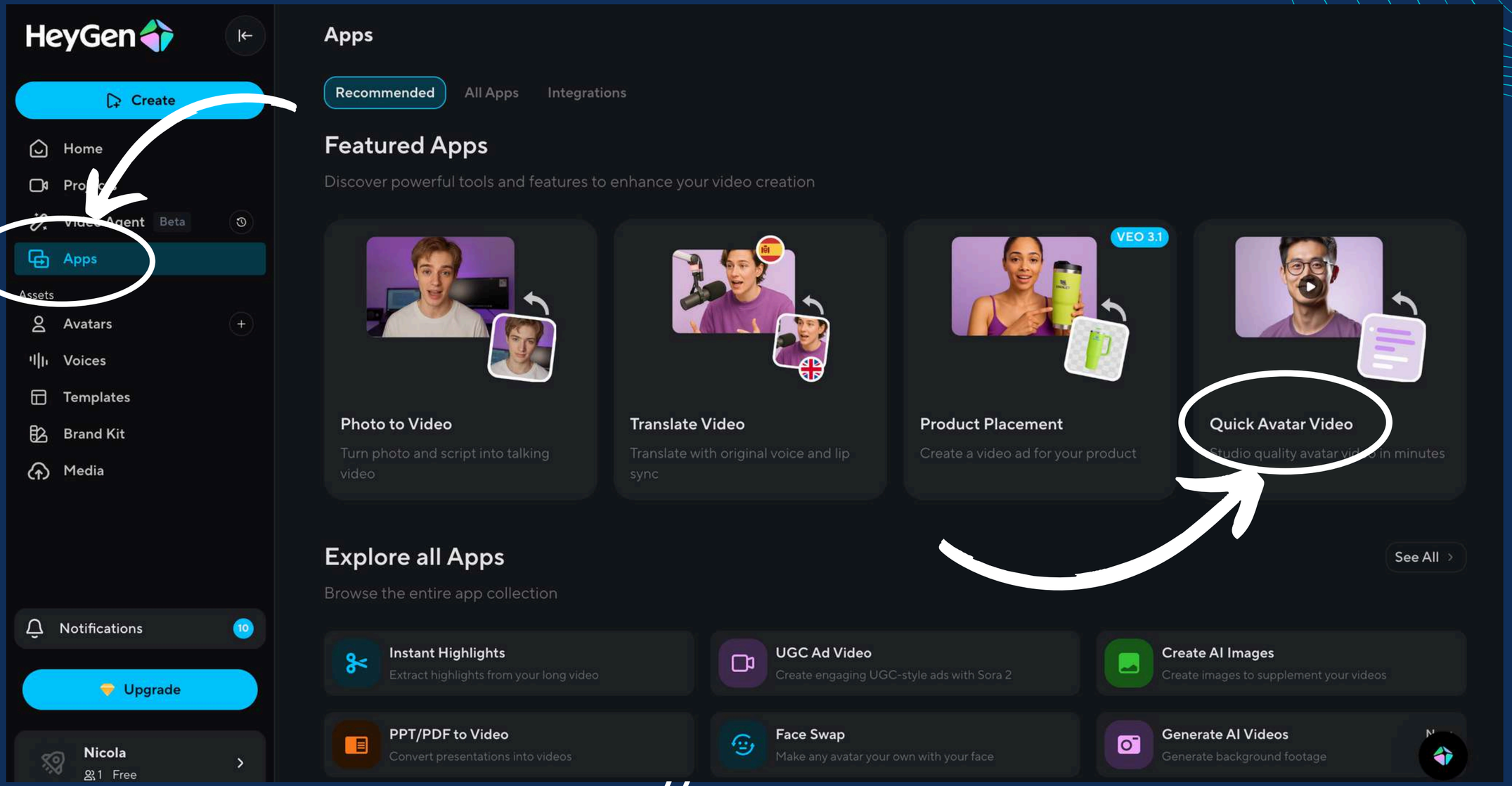
FIRST: GENERATE A RANDOM FACE



generate a random face

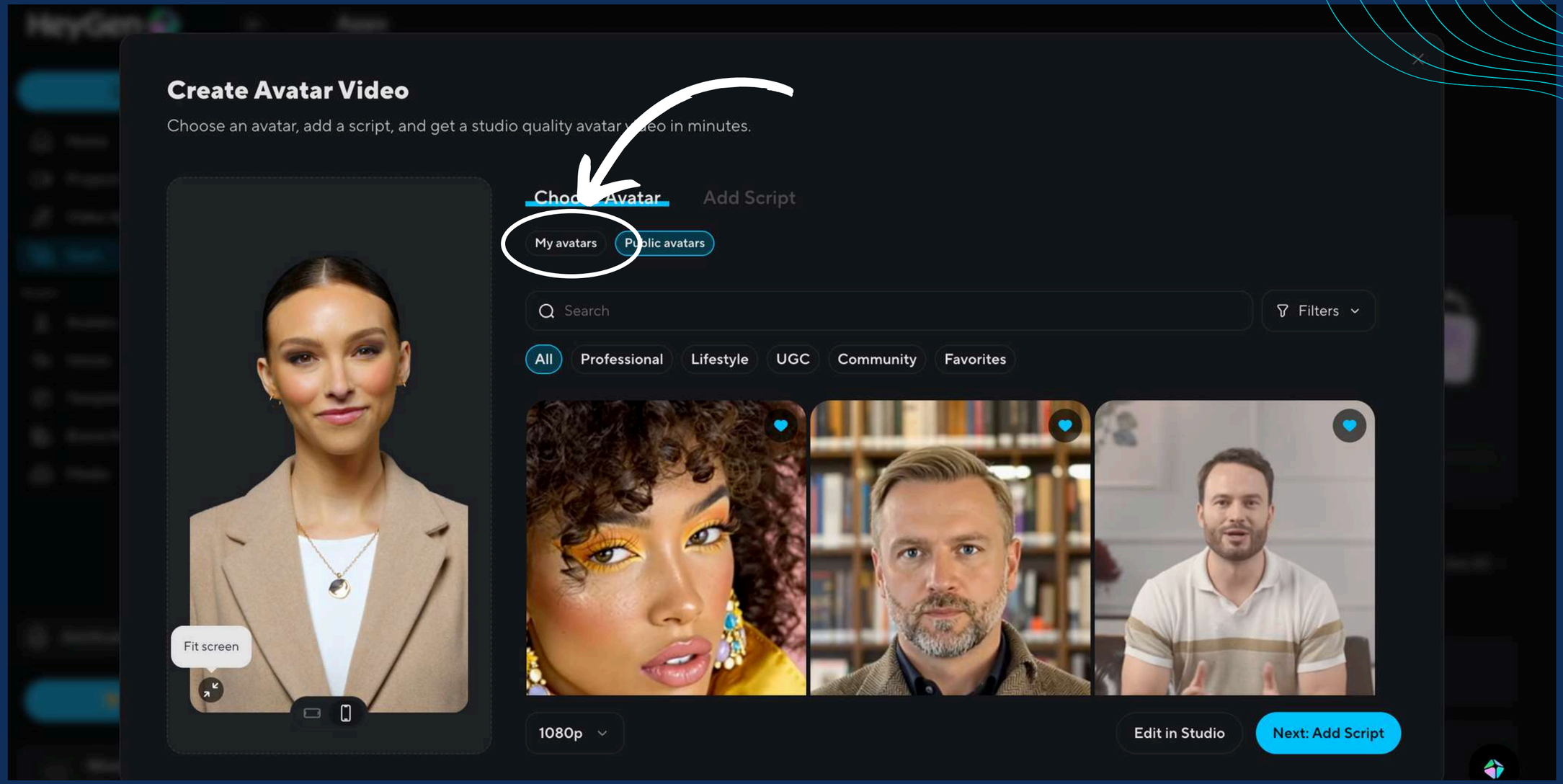
https://perchance.org/ai-face-generator

SECOND: GENERATE AN AVATAR MOVIE



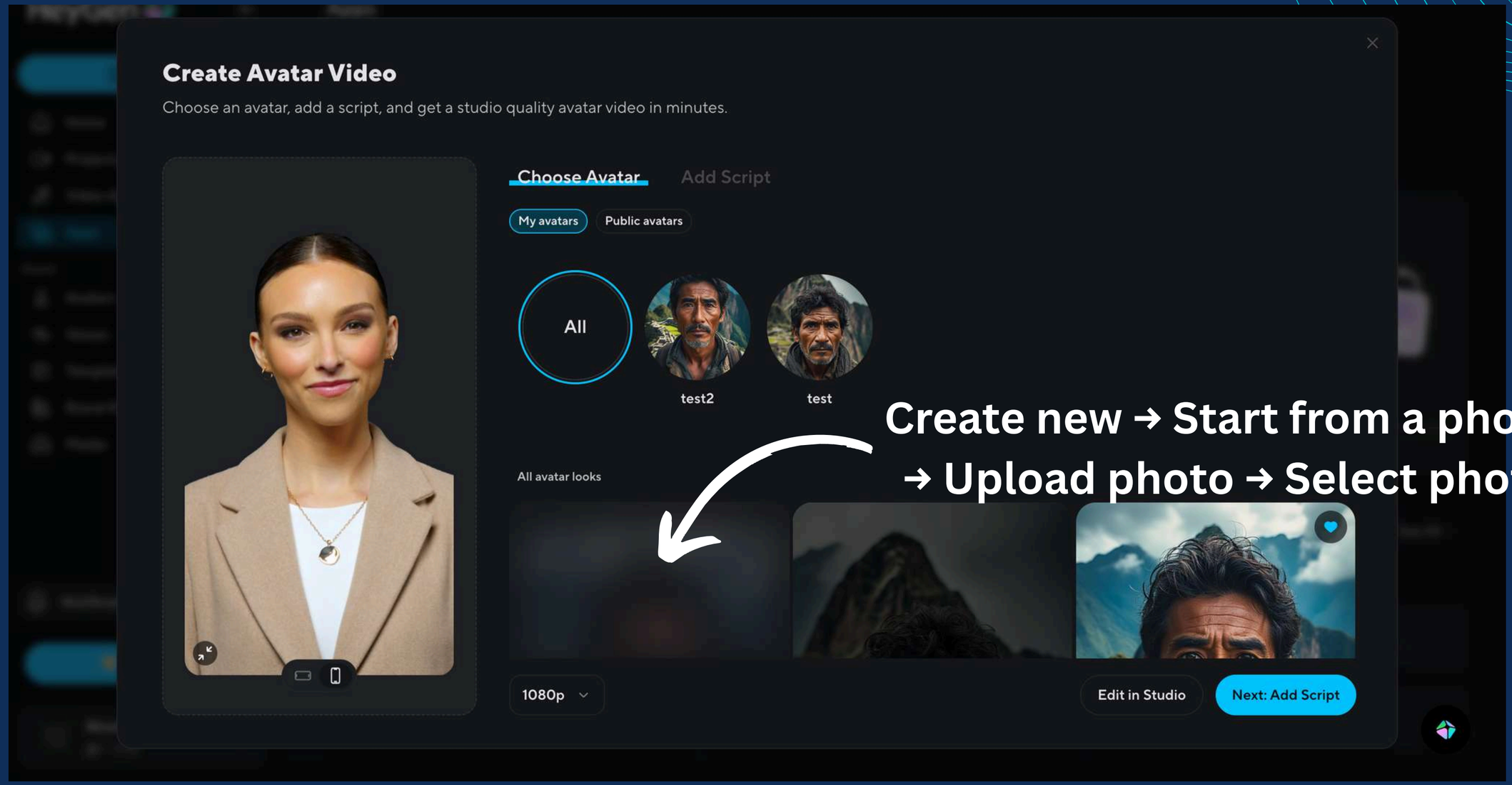
https://app.heygen.com

SECOND: GENERATE AN AVATAR MOVIE



https://app.heygen.com

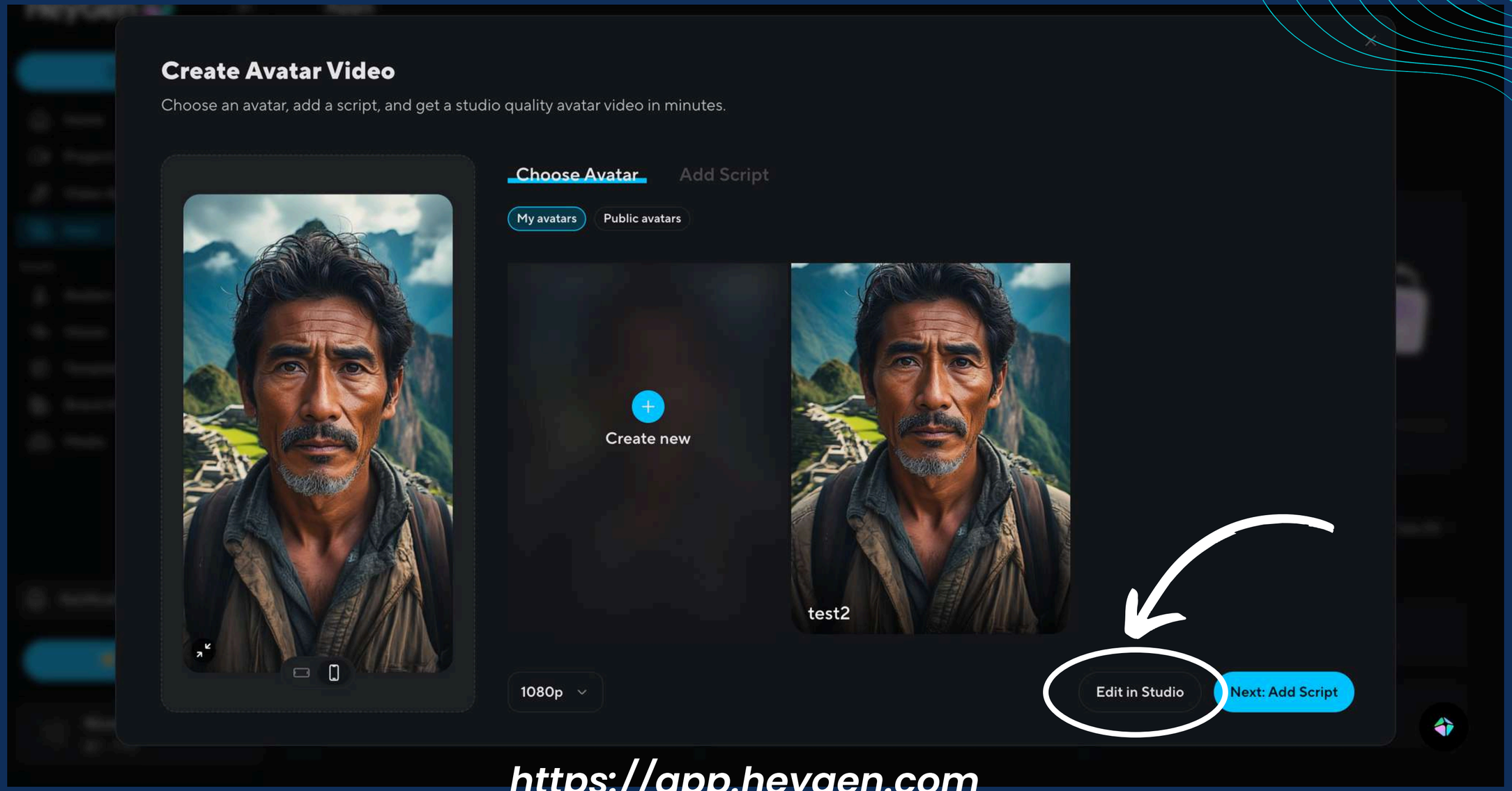
SECOND: GENERATE AN AVATAR MOVIE



Create new → Start from a photo → Upload photo → Select photo

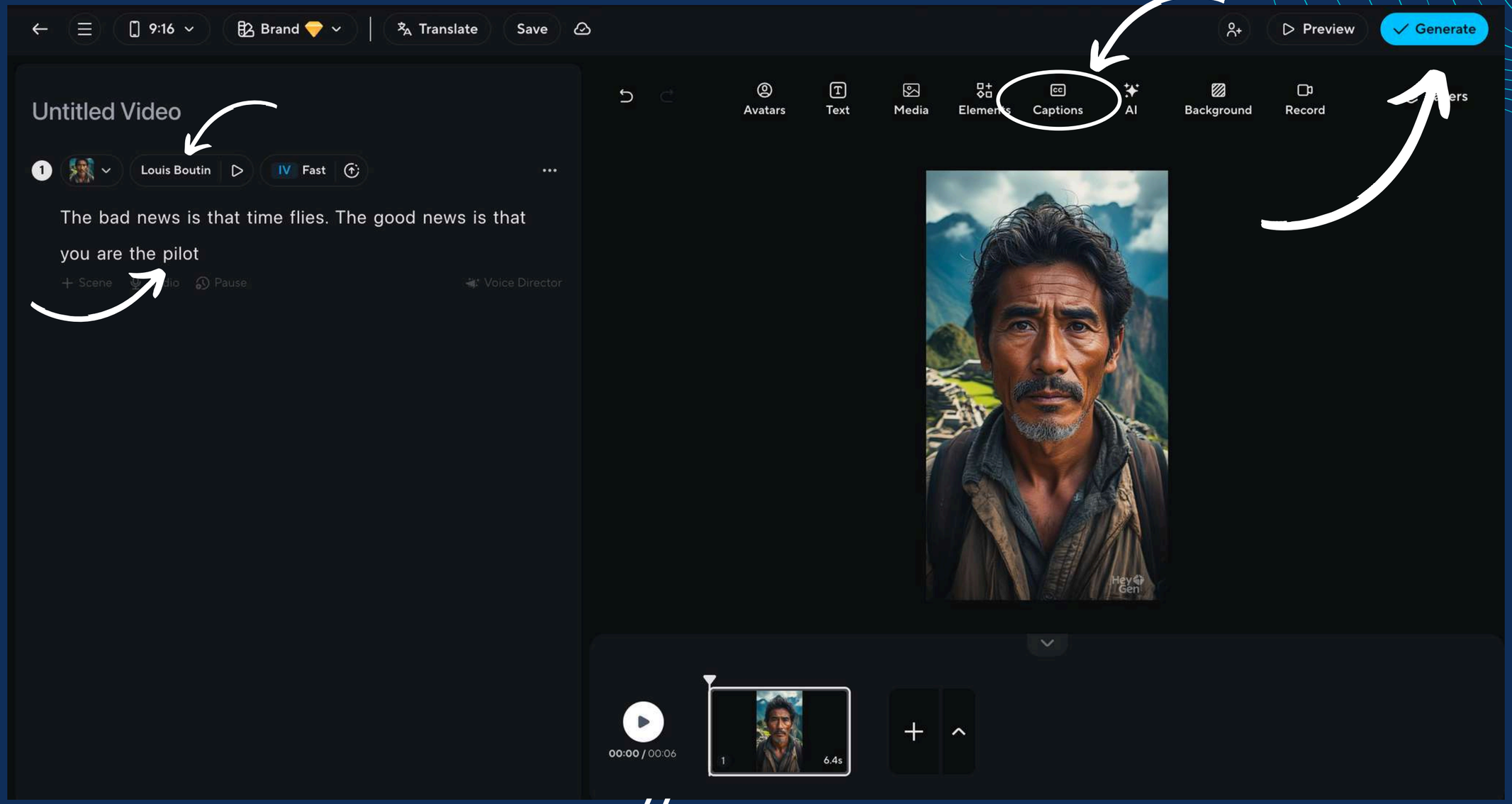
https://app.heygen.com

SECOND: GENERATE AN AVATAR MOVIE



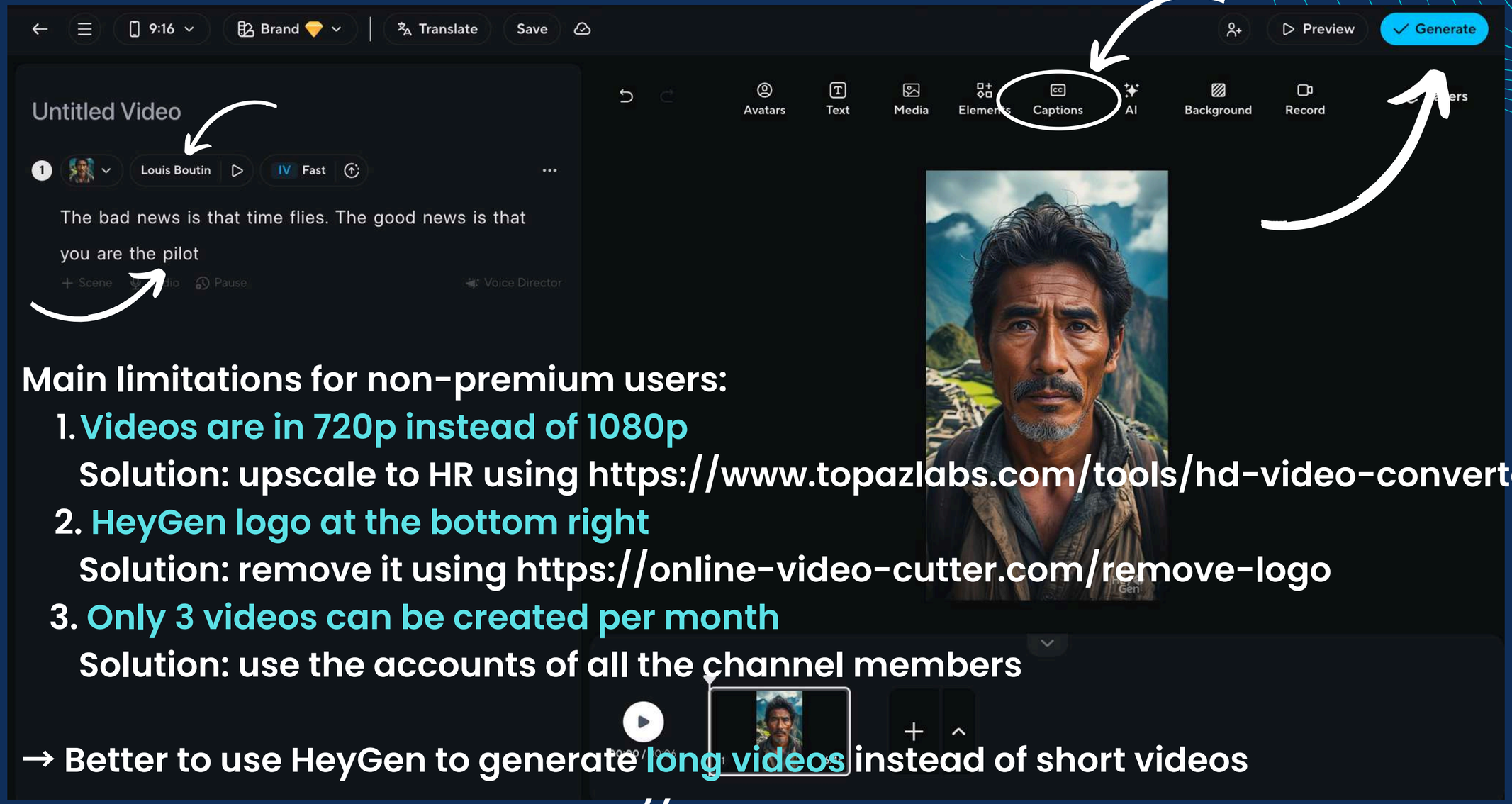
https://app.heygen.com

SECOND: GENERATE AN AVATAR MOVIE



https://app.heygen.com

SECOND: GENERATE AN AVATAR MOVIE



Main limitations for non-premium users:

1. Videos are in 720p instead of 1080p
   Solution: upscale to HR using https://www.topazlabs.com/tools/hd-video-converter
2. HeyGen logo at the bottom right
   Solution: remove it using https://online-video-cutter.com/remove-logo
3. Only 3 videos can be created per month
   Solution: use the accounts of all the channel members

→ Better to use HeyGen to generate long videos instead of short videos

https://app.heygen.com

TASKS FOR NEXT WEEK

- First project work:

  Keep posting and/or commenting and commenting the comments to keep attracting new members
- Second project work:
  - Keeping posting the new videos in each channel using 2+ different templates
  - The group that will find a tool alternative to Buffer that allow to queue more than 10 videos for free will gain a bonus of +2 points at the exam
  - Each group should fix the remaining issues reported in column P of our google doc
- Movie of the week: Ex Machina (2014) on how AI can fake consciousness
- Next lesson will be on Smart Destinations & Self-driving cars