Master in Planning and
Management of Tourism Systems

Self-driving Vehicles

and other ITs related to Tourism

Nicola Cortesi

IT for Tourism Services - Master in PMTS

Self-driving cars are able to use AI to analyse their surroundings and to drive without needing a human driver

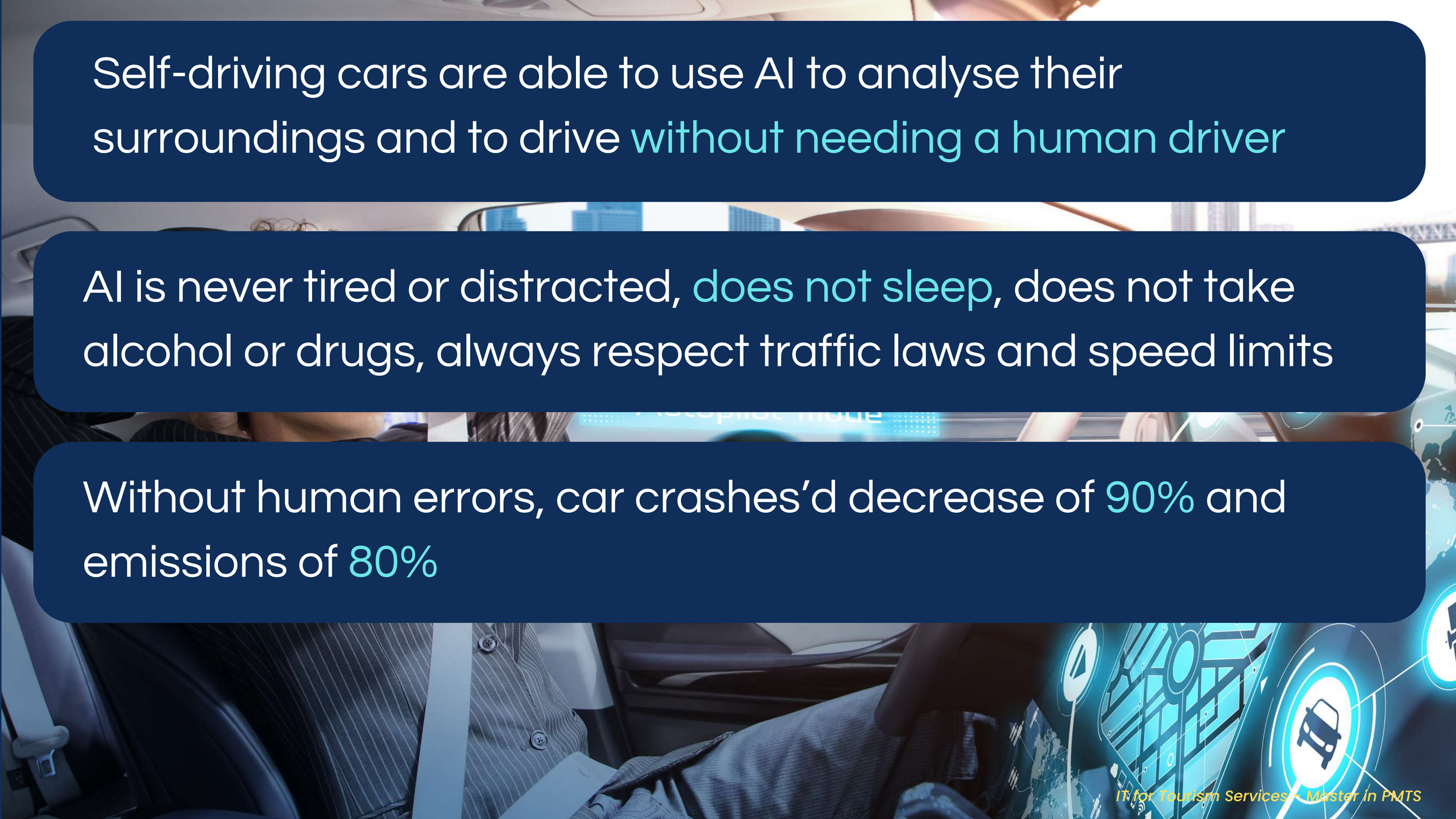
Self-driving cars are able to use AI to analyse their surroundings and to drive without needing a human driver

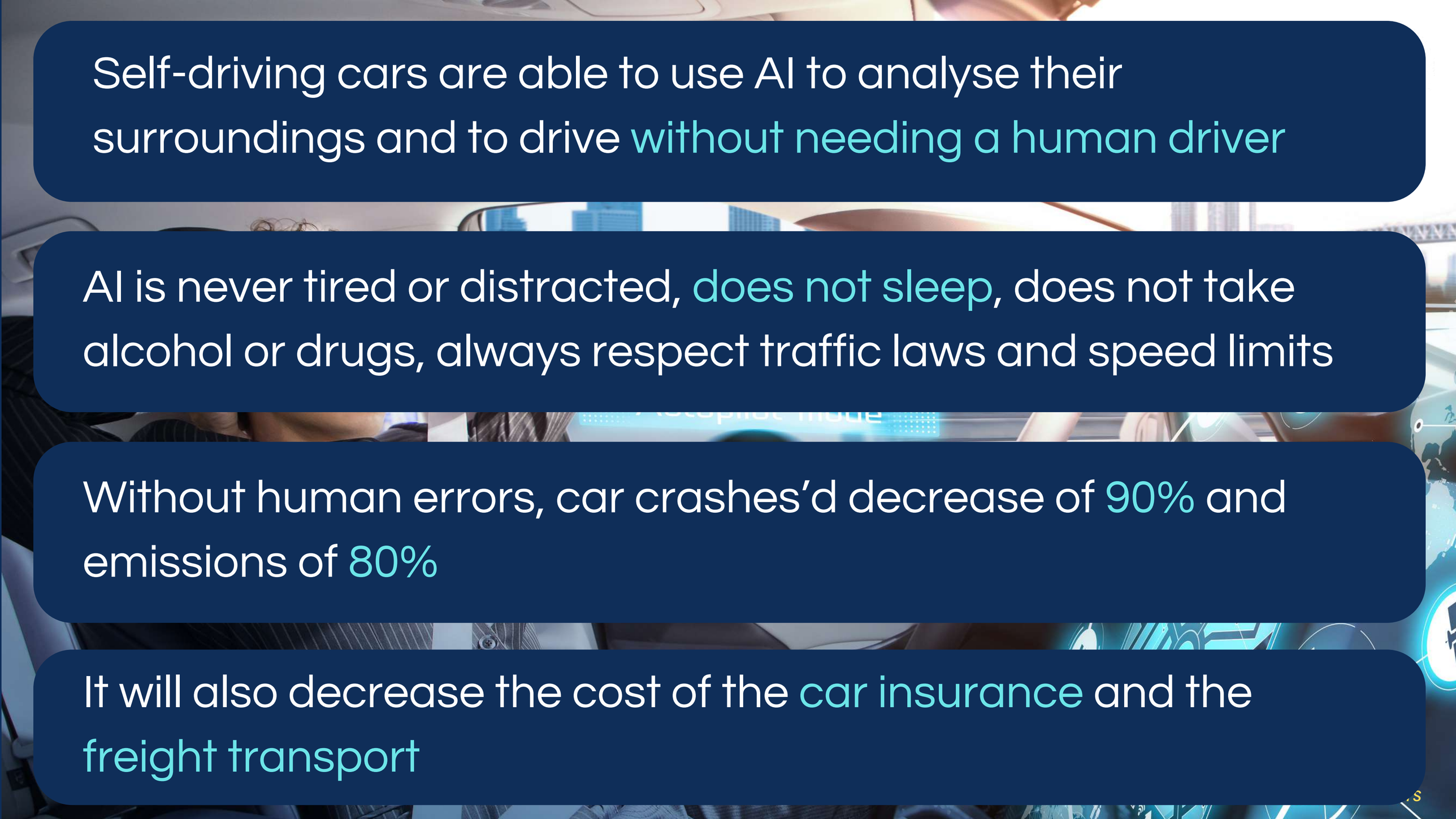
AI is never tired or distracted, does not sleep, does not take alcohol or drugs, always respect traffic laws and speed limits

Self-driving cars are able to use AI to analyse their surroundings and to drive without needing a human driver

AI is never tired or distracted, does not sleep, does not take alcohol or drugs, always respect traffic laws and speed limits

Without human errors, car crashes'd decrease of 90% and emissions of 80%





Self-driving cars are able to use AI to analyse their surroundings and to drive without needing a human driver

AI is never tired or distracted, does not sleep, does not take alcohol or drugs, always respect traffic laws and speed limits

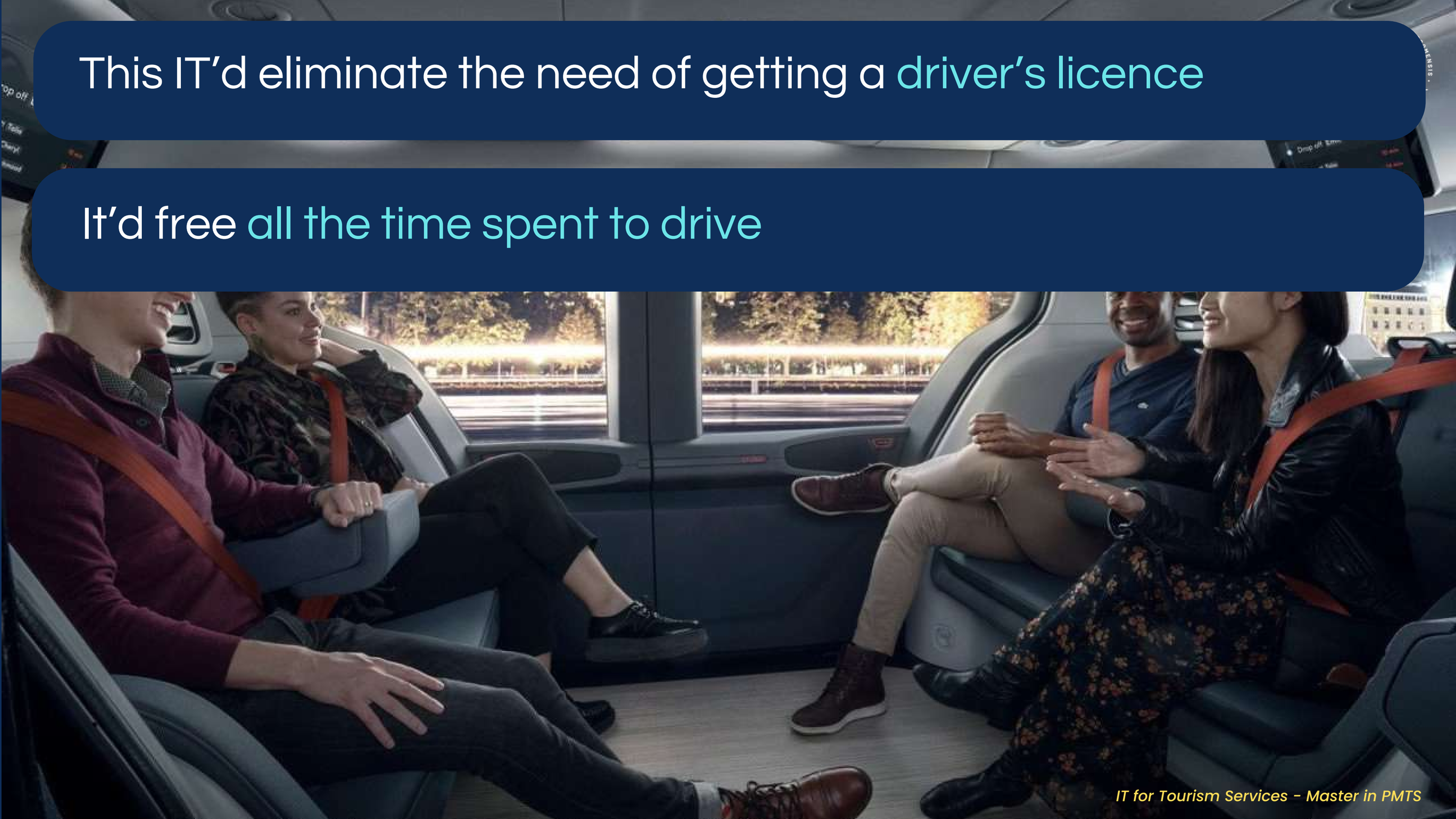
Without human errors, car crashes'd decrease of 90% and emissions of 80%

It will also decrease the cost of the car insurance and the freight transport

This IT’d eliminate the need of getting a driver’s licence

This IT’d eliminate the need of getting a driver’s licence

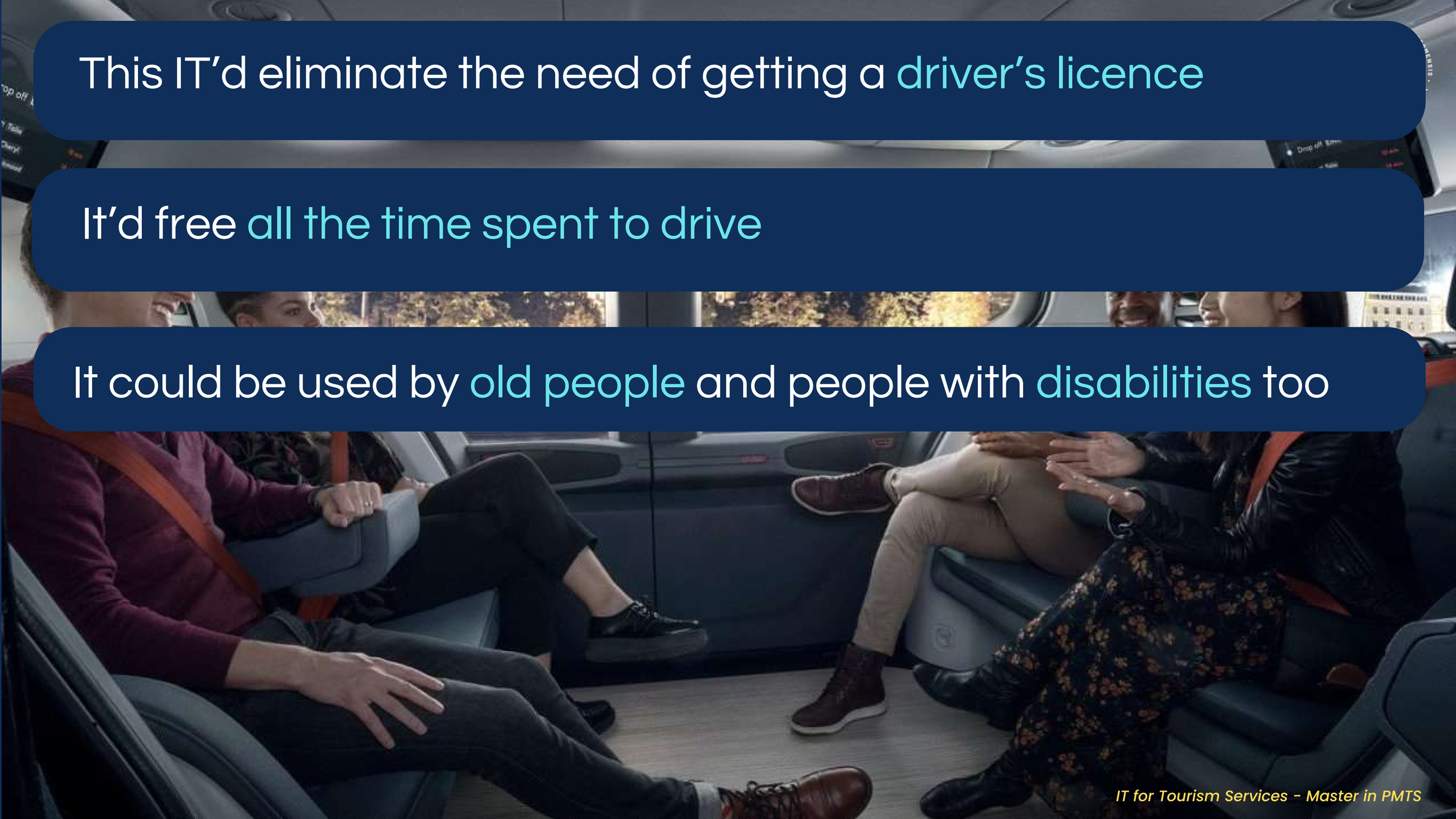
It’d free all the time spent to drive

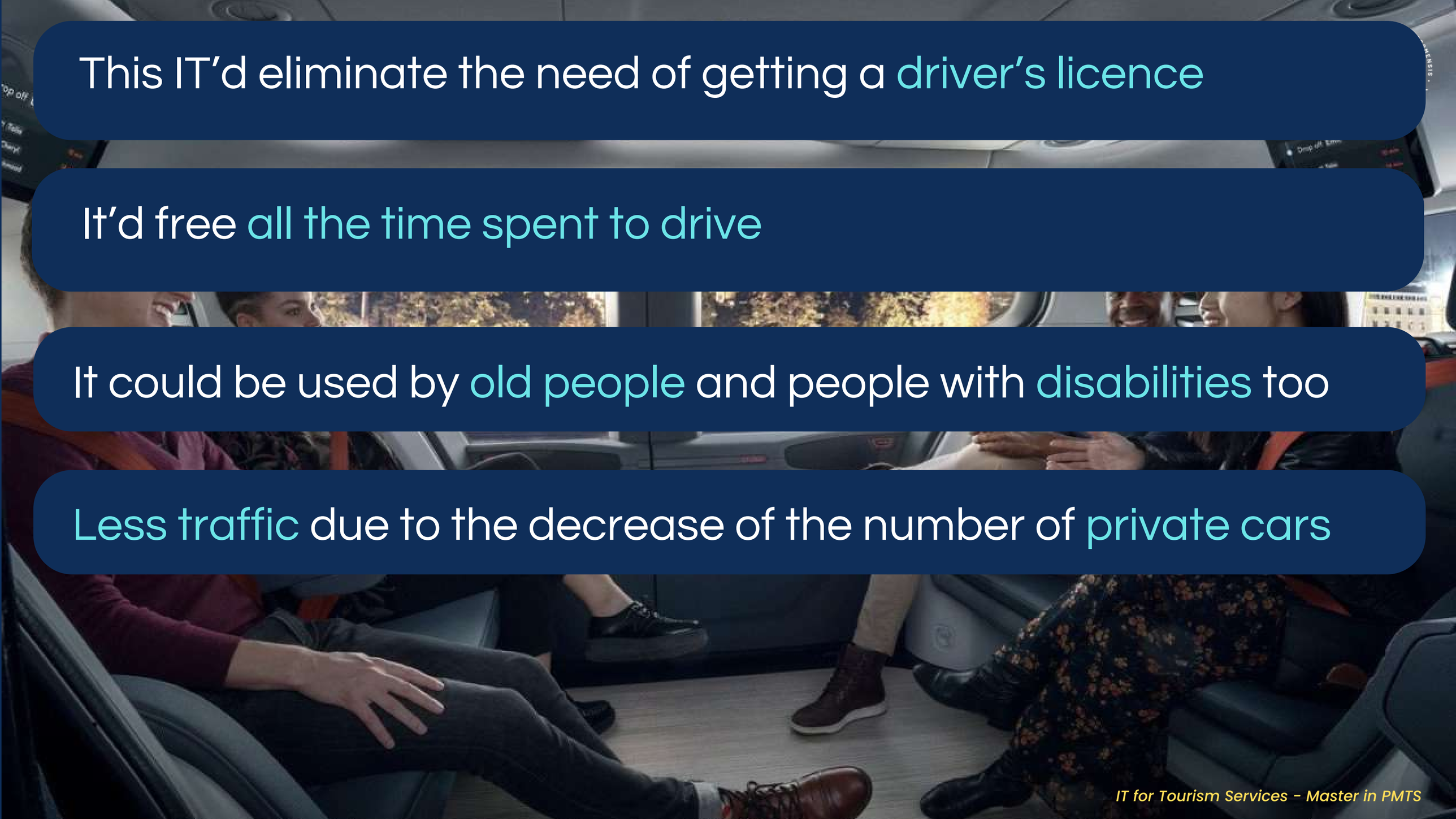


This IT’d eliminate the need of getting a driver’s licence

It’d free all the time spent to drive

It could be used by old people and people with disabilities too



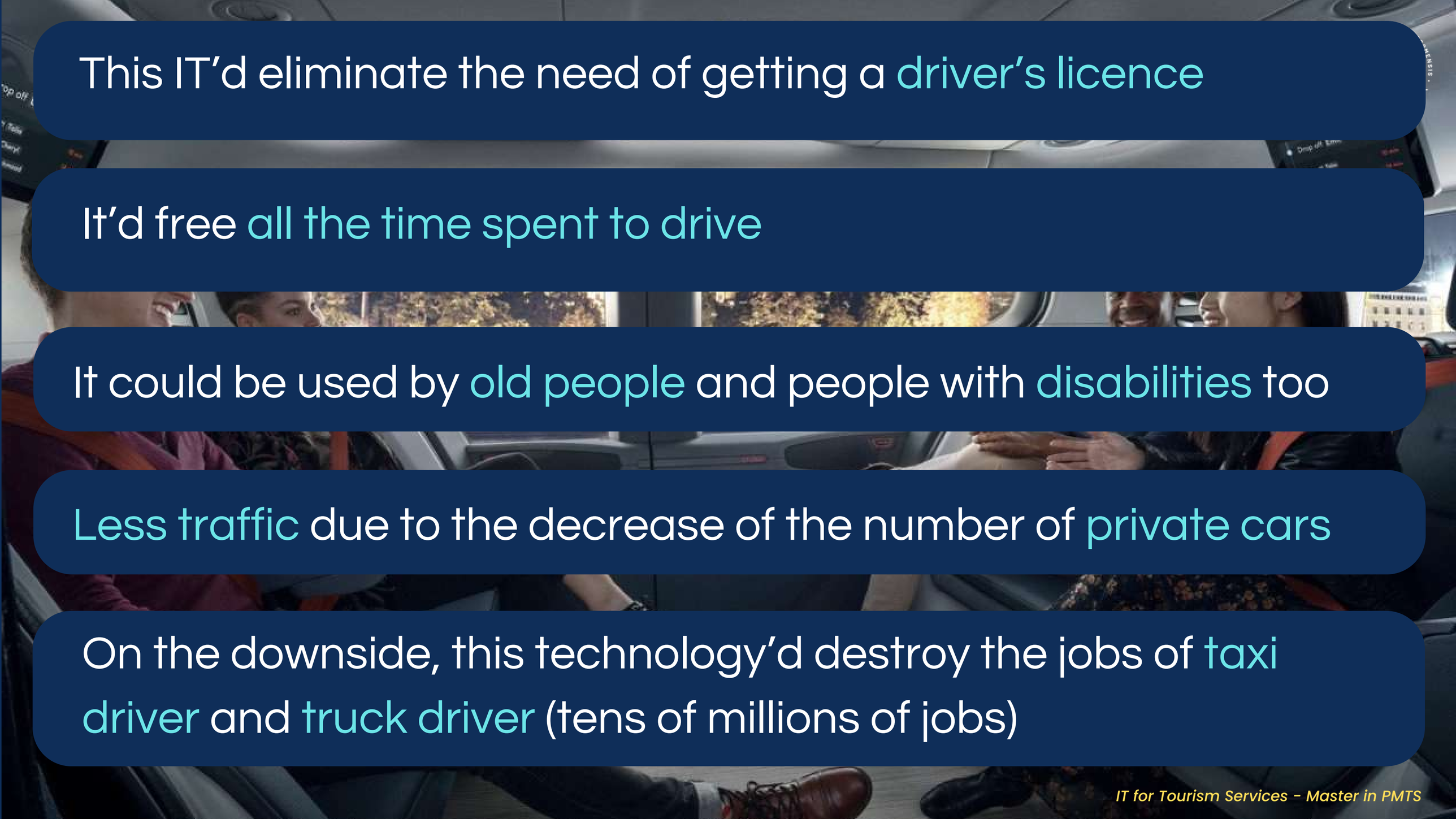


This IT’d eliminate the need of getting a driver’s licence

It’d free all the time spent to drive

It could be used by old people and people with disabilities too

Less traffic due to the decrease of the number of private cars



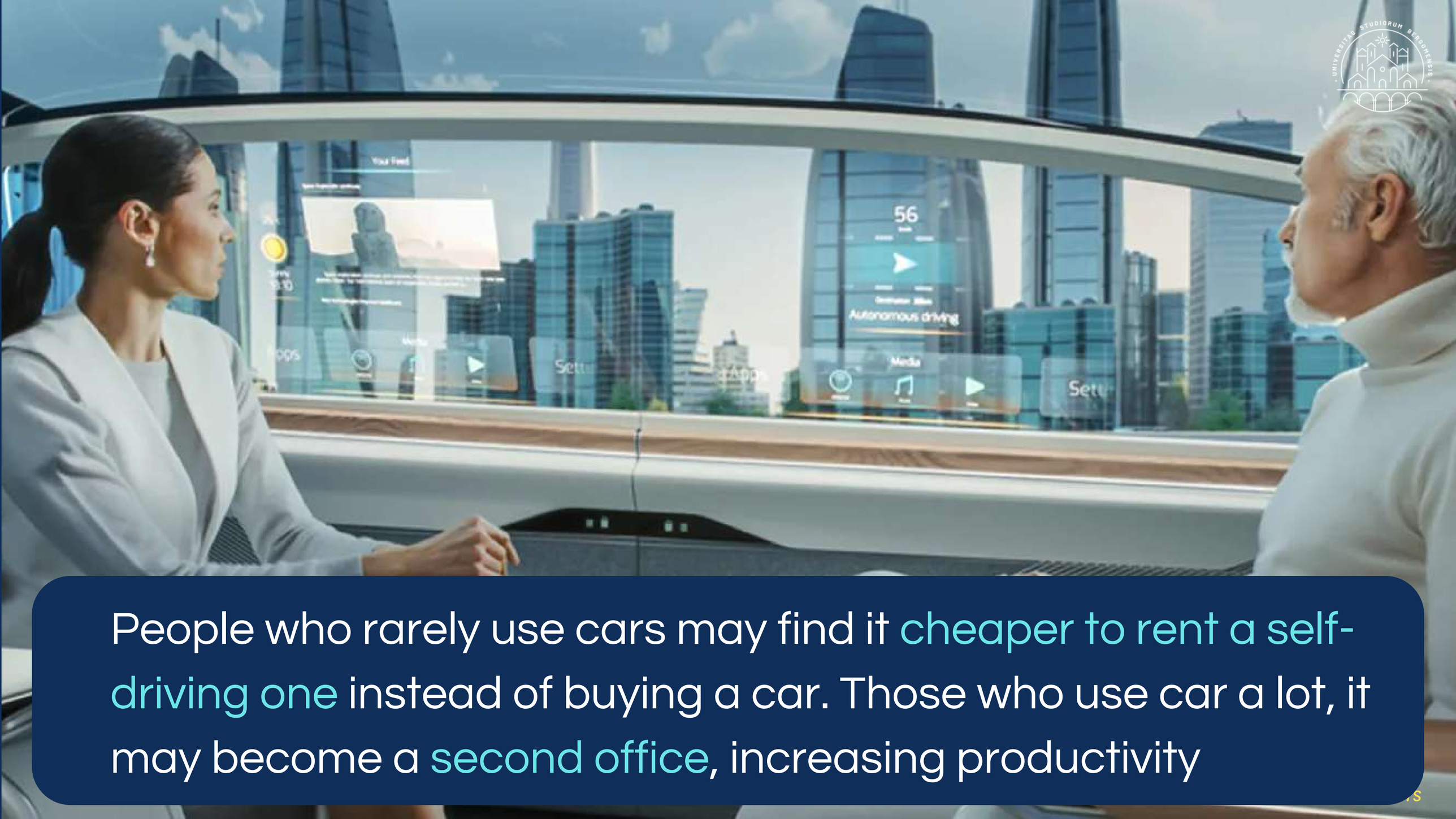
This IT’d eliminate the need of getting a driver’s licence

It’d free all the time spent to drive

It could be used by old people and people with disabilities too

Less traffic due to the decrease of the number of private cars

On the downside, this technology’d destroy the jobs of taxi driver and truck driver (tens of millions of jobs)

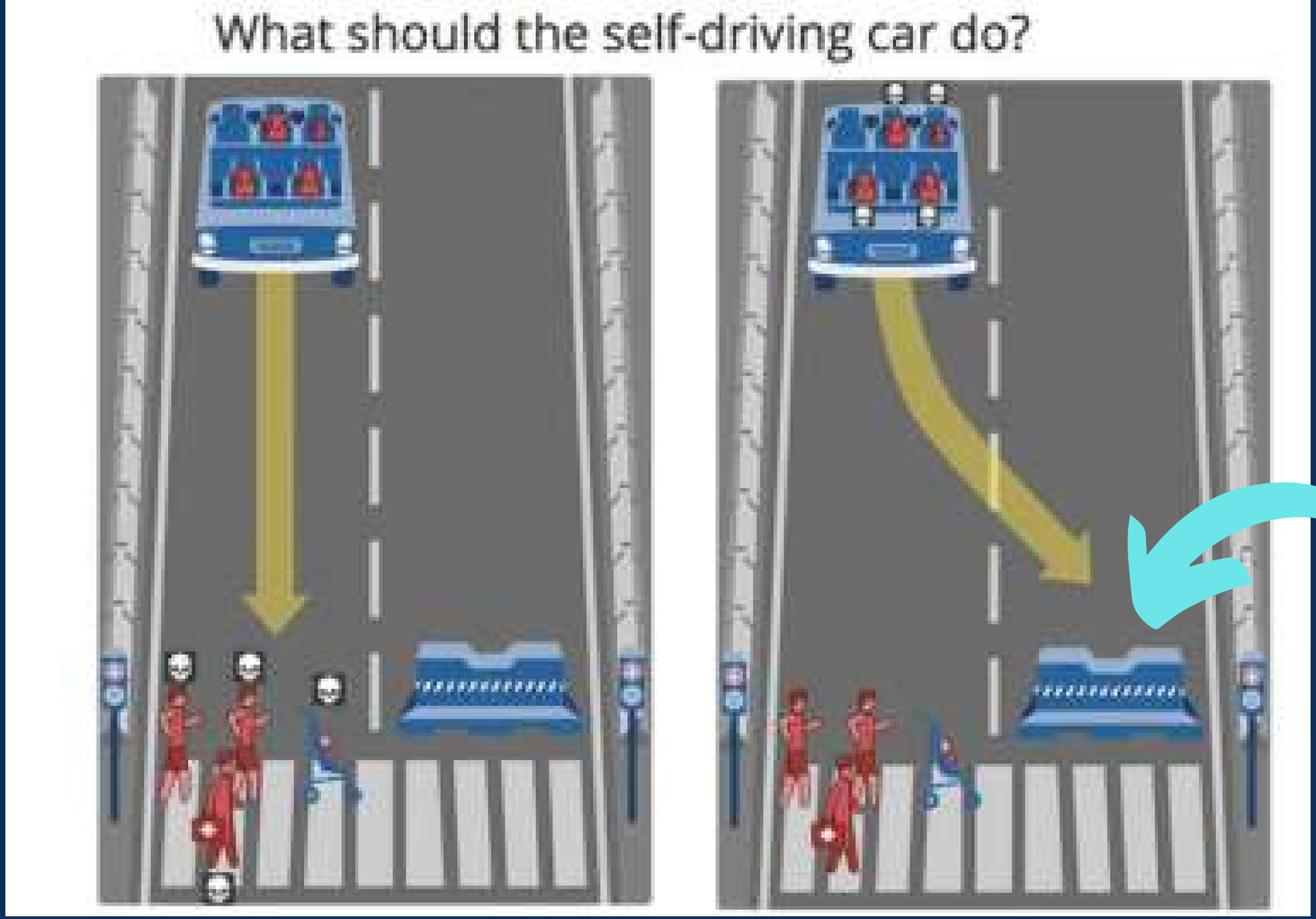


People who rarely use cars may find it cheaper to rent a self-driving one instead of buying a car. Those who use car a lot, it may become a second office, increasing productivity

In a world where taxi are as cheap as buses, and they can bring you everywhere. People who don’t like driving or get tired will be able to travel much more

Bikers and trekkers will be able to cover large distances by telling their car to reach them at the end of the trail and bring them home

Self-driving campers may reshape the way many people travel, as driving a big vehicle’d not be an issue anymore



Scenario B: car crashes on the barrier risking the life of its passengers

The biggest issue to solve is not technical but ethical: self-driving cars may have to take moral decisions, e.g: choosing which life to save in case of emergency

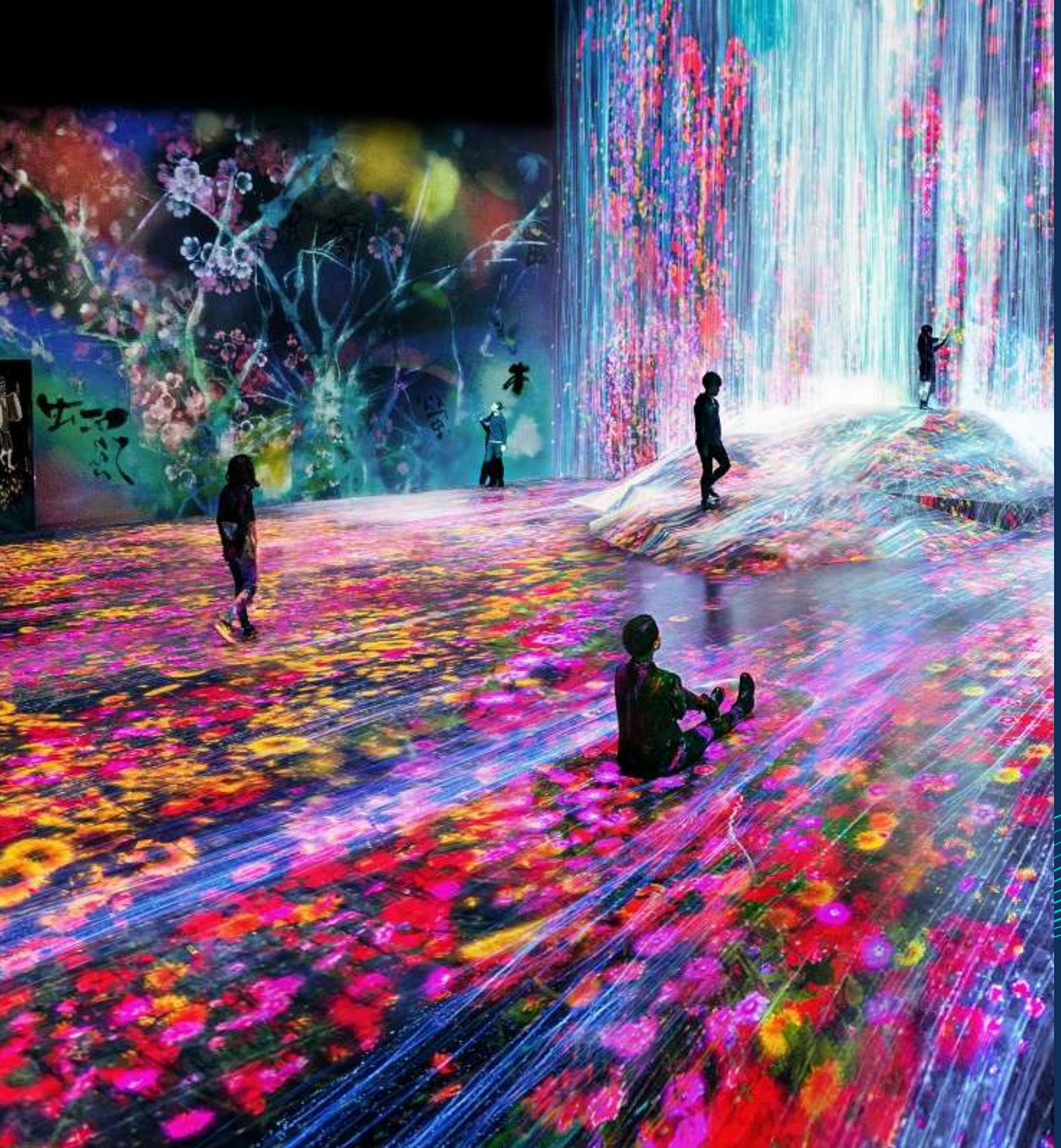
It is also very difficult to train data, as human behaviour inside traffic is sometimes unpredictable by any algorithm

For these reasons, mass production of self-driving vehicles is still a dream and it’ll take many years for this IT to emerge

It’d be much easier if all vechicles’d be driven by AI, as everything’d be perfectly coordinated

At present the only publicy available self-driving cars are a few robotaxis in San Francisco

More probable is the widespread adoption of AI-based driving assistants to insert the auto-pilot on the highway



Other ITs related to Tourism

NFT

Near Field Communication is an IT based on magnetic induction to make different devices communicate between them at a maximum distance of 10 cm

NFT

NFT is usually employed in the commerce for contactless transactions and data exchange (POS payment)

NFT

The pandemic accelerated the adoption of all technologies that allow to avoid touching objects directly

CONTACTLESS HOTELS

Also hotels introduced technology for contactless booking, contactless check-in and check-out, contactless in-room service and entertainment

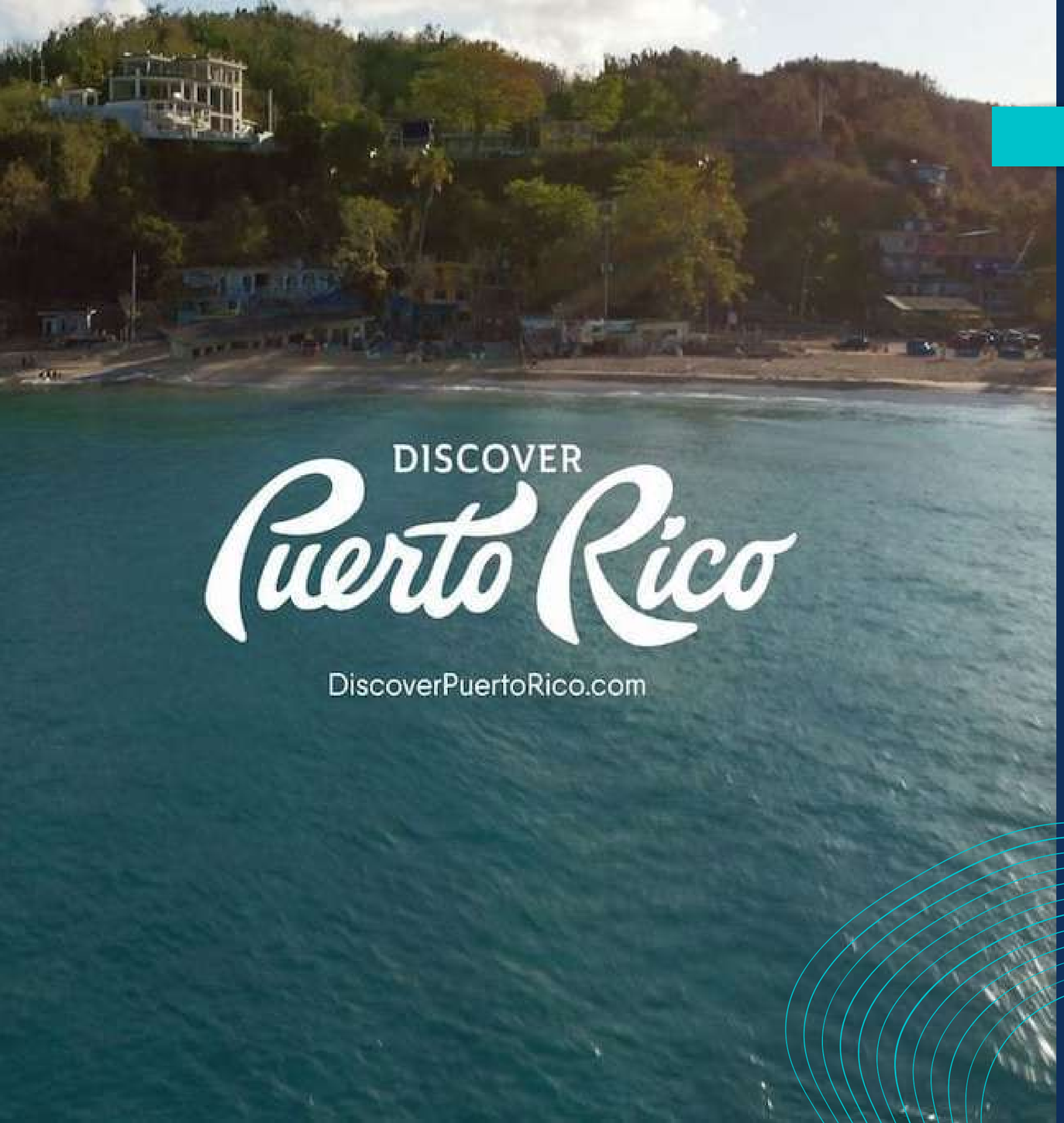
NEVERENDING TOURISM

IT is used to extend the touristic experience in time and space, before and after the real travel occurs

NEVERENDING TOURISM

Tourists attend to virtual tours of their next destination or to online courses and laboratories

NEVERENDING TOURISM



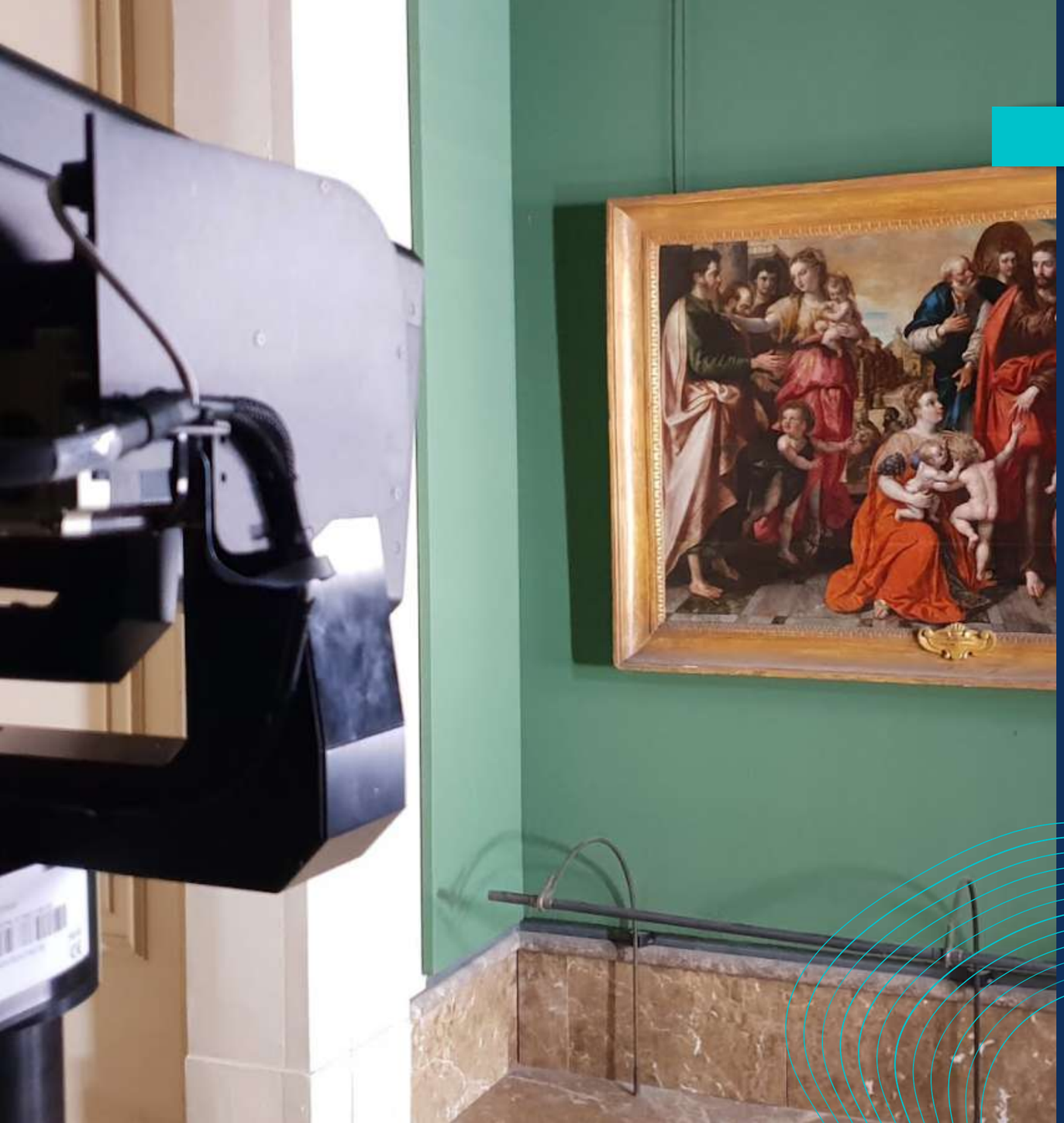
For example, the portal of Discover Puerto Rico offers cooking lessons with a famous local cook and yoga lessons on the ocean

ARTWORK DIGITALIZATION

Virtual tours of museums are also possible thanks to the digitalization of the works of art

ARTWORK DIGITALIZATION

2D objects are scanned, while 3D ones are rendered by special cameras



ARTWORK DIGITALIZATION

The biggest advantange is the improved accessibility: everyone now can access to high resolution copies of the originals. Art becomes freer and more democratic

ARTWORK DIGITALIZATION

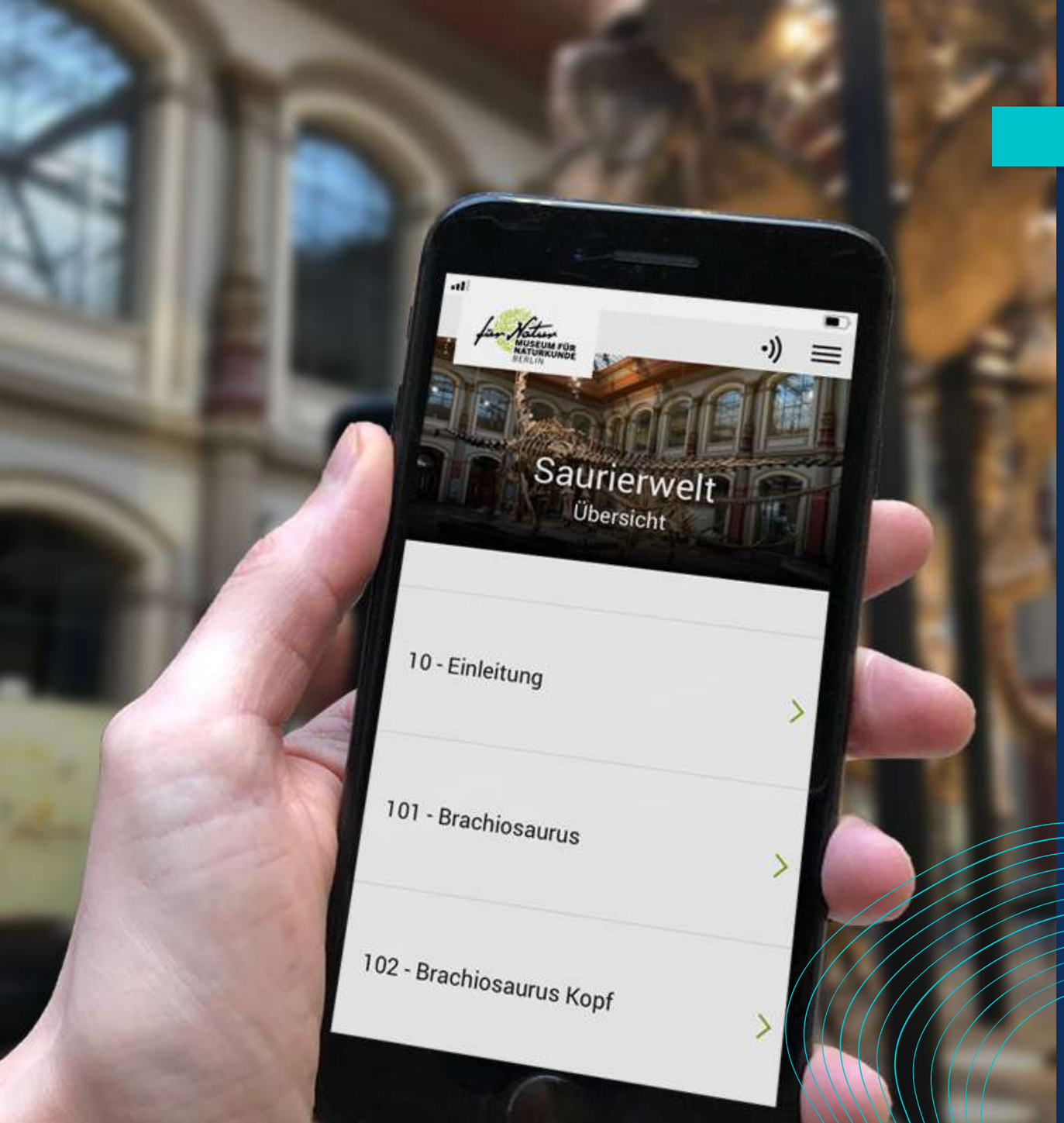
Multi-touch tables are accessible to many people at the same time

DIGITAL ART

Not only art can be digitalized, but there does exist also digital art that wouldn't exist without IT

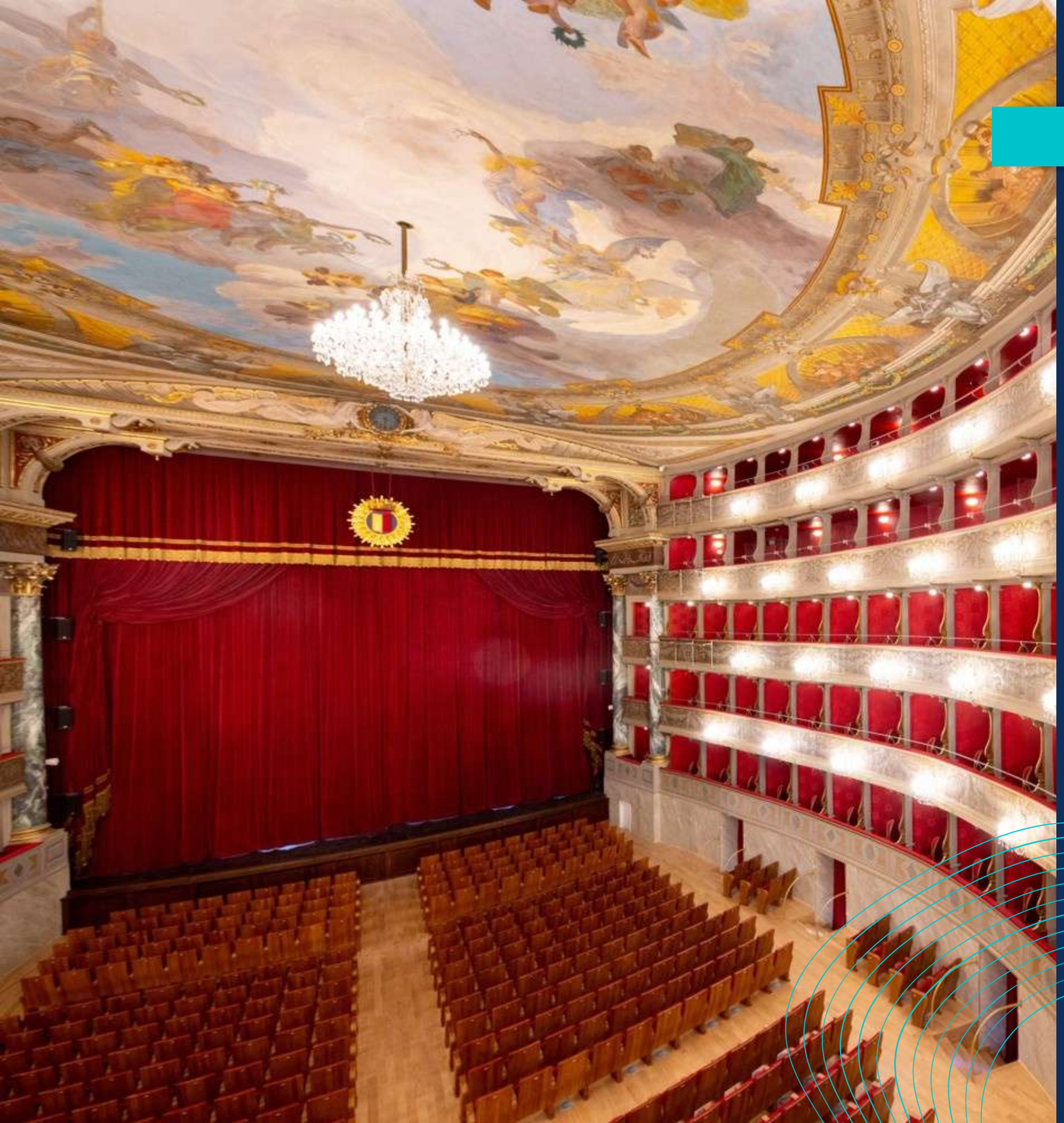
ARTWORK DIGITALIZATION

There are museums that only show digital art (e.g: Van Gogh exposition in Milan)



ONLINE TICKETS

Digital platforms already manage online tickets, cancellation management, time slot tickets, flexible pricing, ...

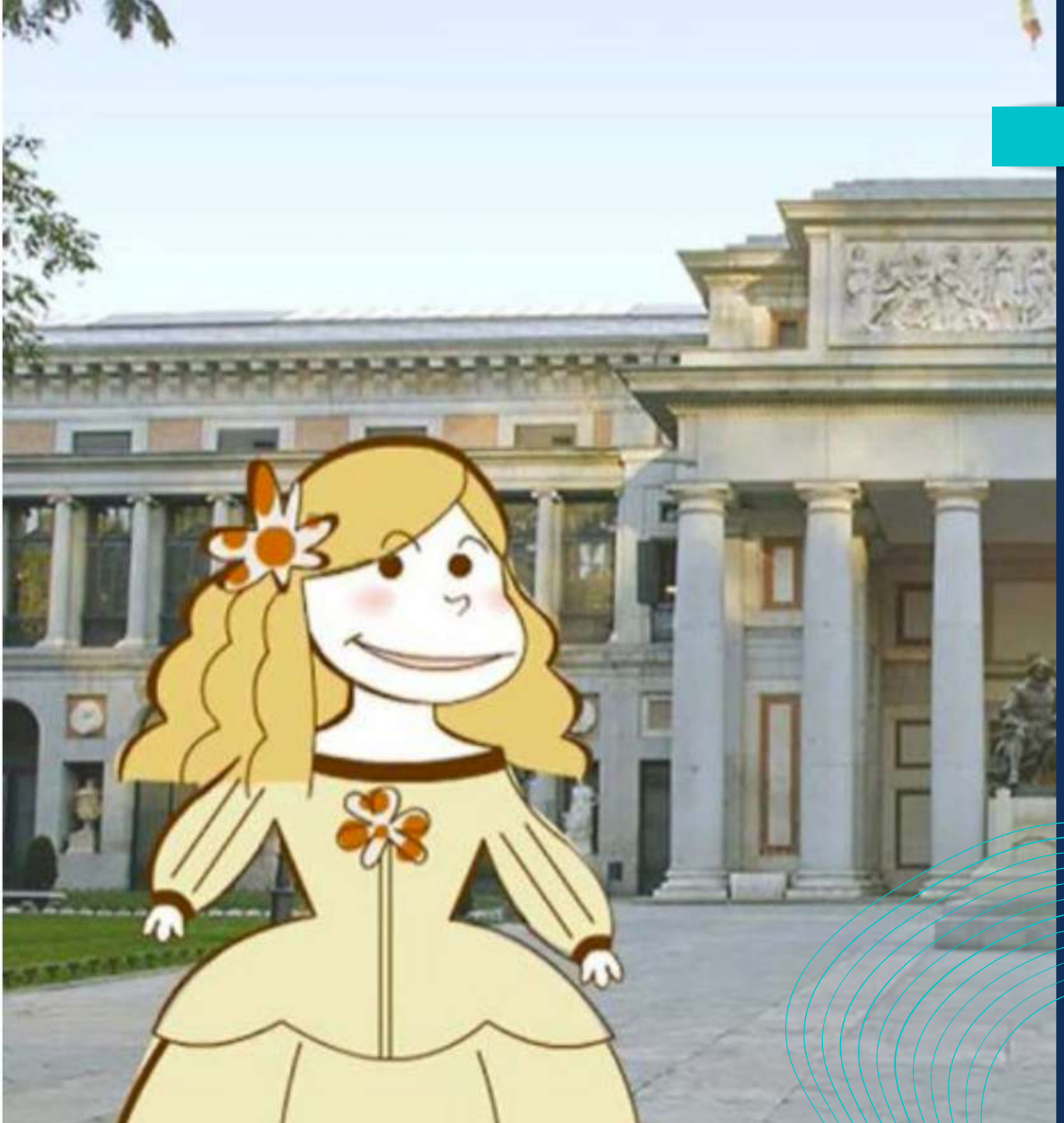


ARTWORK DIGITALIZATION

Even Bergamo Theatre has an app to manage bookings with free audio tours of the theatre

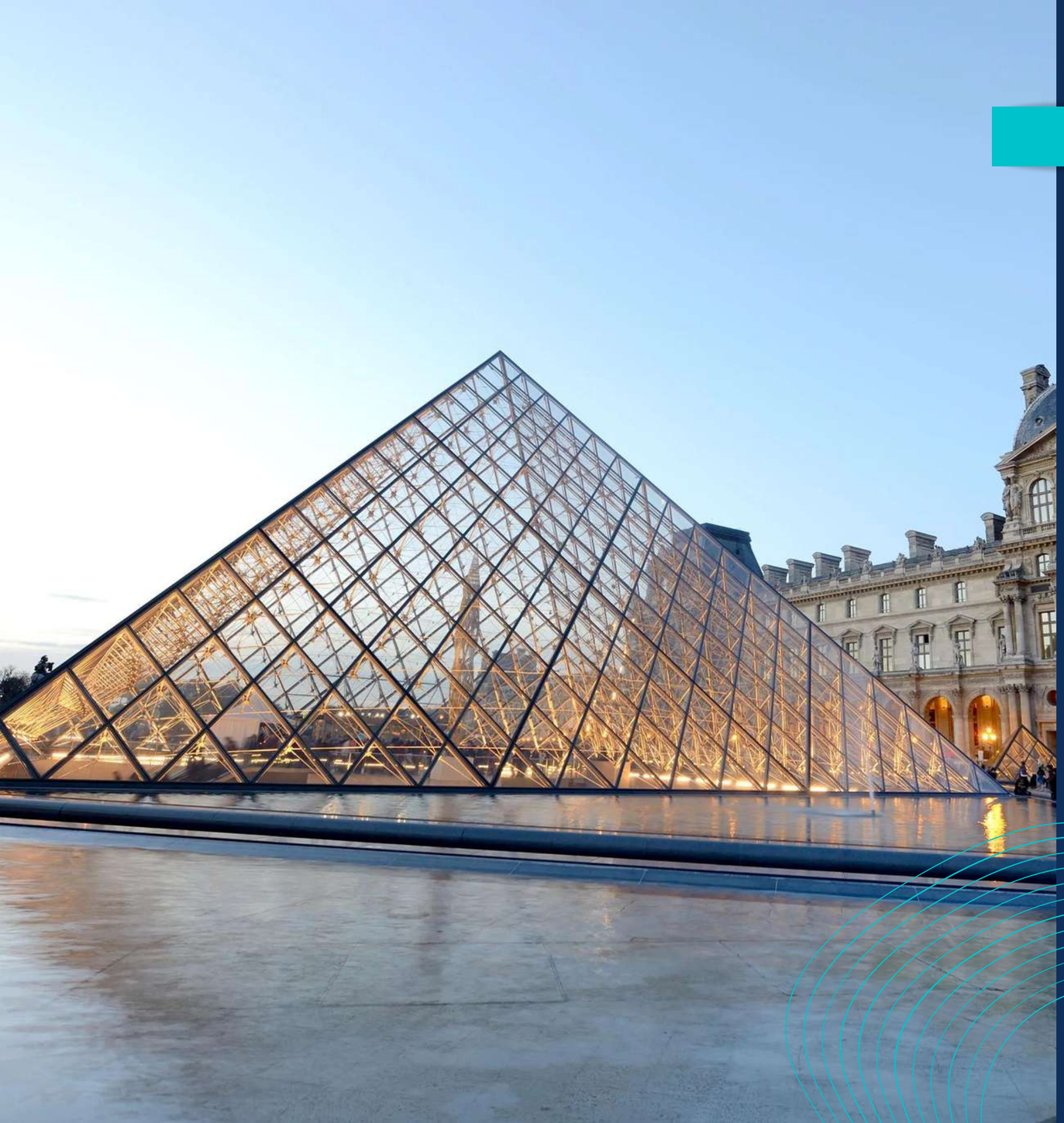
ARTWORK DIGITALIZATION

During lockdown museums had to reinvent themselves with virtual exhibitions, guided tours, conferences, web contests and popular challenges



ARTWORK DIGITALIZATION

Prado Museum (Madrid) even proposed online visits for children



ARTWORK DIGITALIZATION

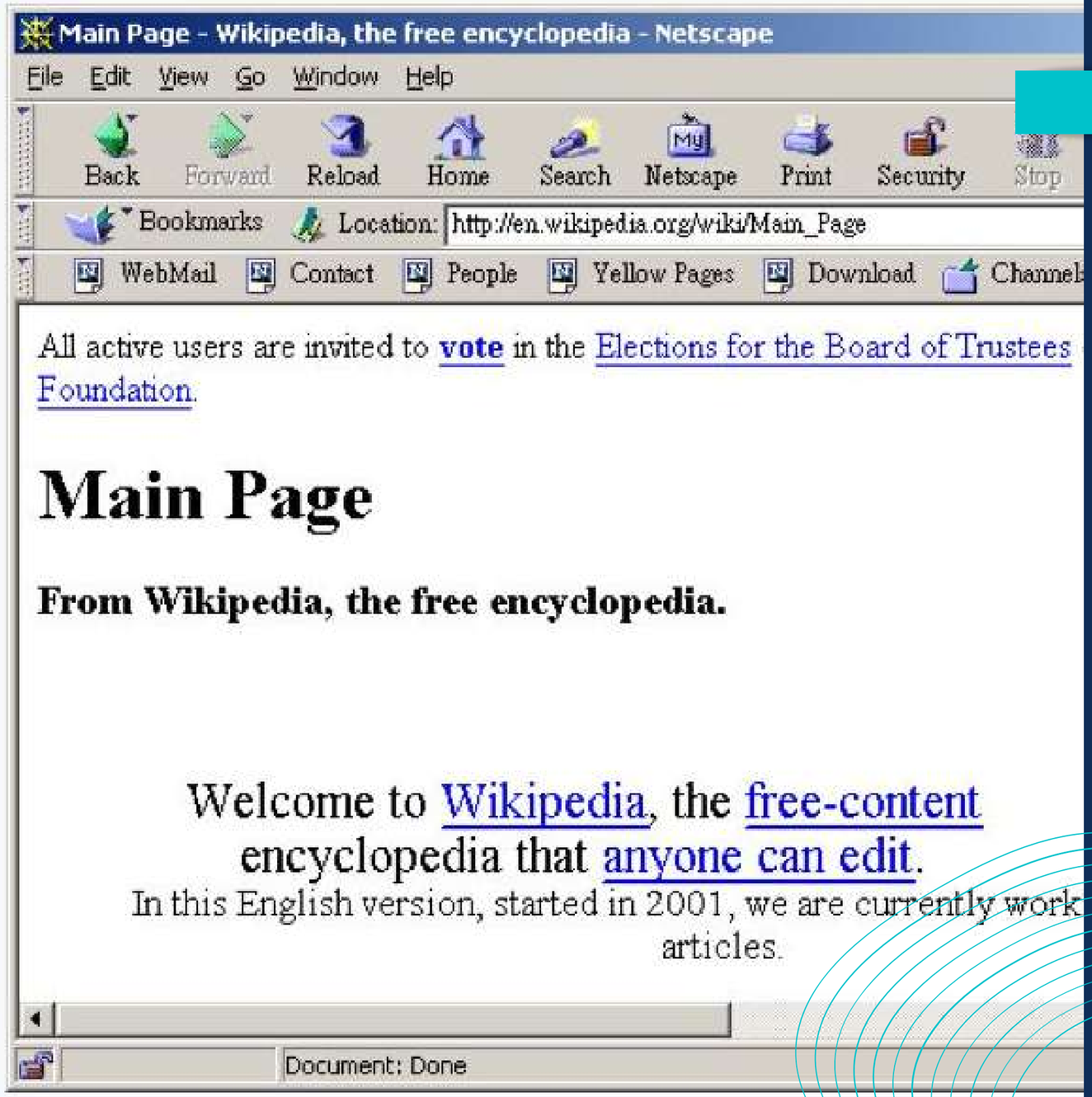
Louvre increased its online visitors from 40.000 to 400.000

ARTWORK DIGITALIZATION

Amsterdam Museum allowed public to create their own masterpieces by downloading images of works of art from the collection and use them creatively

CRYPTOGRAPHY

Another IT branch related to Tourism is Cryptography, that enabled e-commerce and the raise of Web 2.0



CRYPTOGRAPHY

Without it, Internet'd reverse to Web 1.0, because no message or account would be secure

CRYPTOGRAPHY

Safety of Internet relies on math: until now luckly no one found a way to quickly decompose very long numbers in the prime numbers they are made of.

CRYPTOGRAPHY

That's why mathematicians in USA can publish their research on prime numbers only on censored military journals

SMART TOURISM

It is the application of IT to improve tourism. by enhancing the tourist experience. All IT described in this course are forms of Smart Tourism, particularly Smart Destinations

SMART TOURISM

Smart Tourism is similar to the concept of Smart Destinations, but its aim is to help tourists everywhere they travel, not only at a specific destination

MOBILE TOURISM

Mobiles have become a necessity for tourists. They improve the travel experience by making tourists much better informed than before.

MOBILE TOURISM

Foldable phones are already available but still very expensive. They are going to replace tablets

CLOUD COMPUTING

It is the online access to computer resources, such as data storage or computing power

CLOUD COMPUTING

It allows to overcome the limitations of the device, to easily recover data lost and to access any document and programs from anywhere, improving mobility.

CLOUD COMPUTING

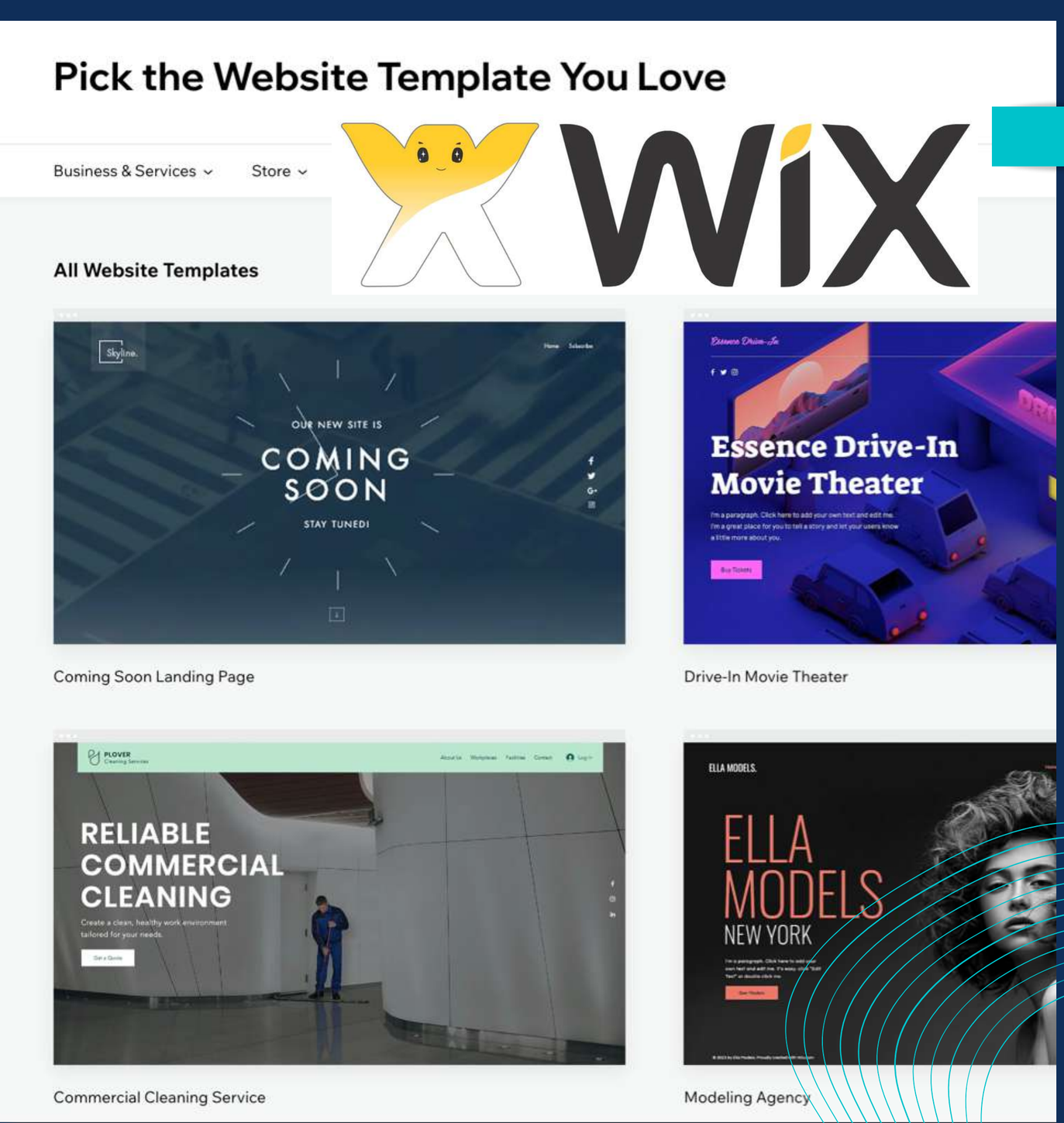
Travel agencies also use it to speed up their services for their clients (web site, booking platform, virtual tours, etc)

CLOUD COMPUTING

All social media applications using cloud computing to store user's data.

CLOUD COMPUTING

Cloud platforms are a reliable environment to develop a web site or mobile app



CLOUD COMPUTING

One of the cloudmost used platforms to develop web sites is WiX

E-COMMERCE

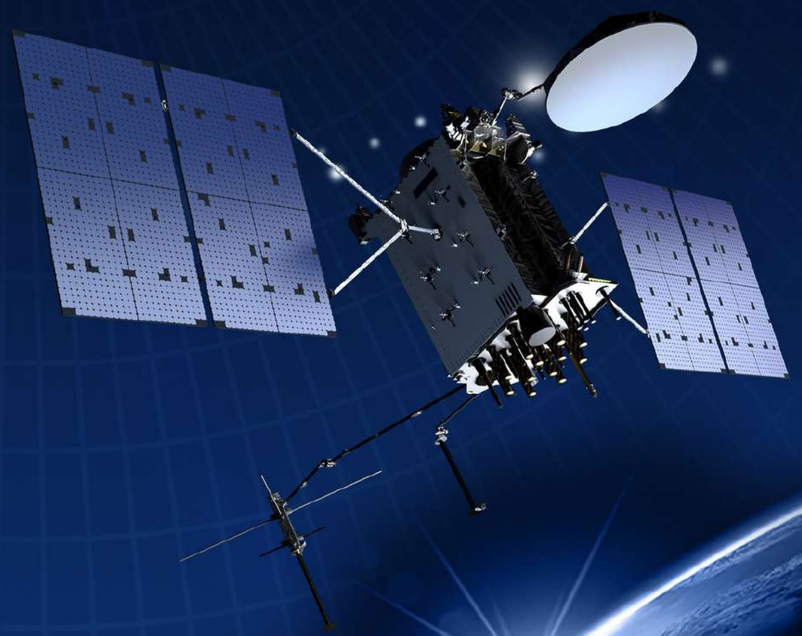
It is the activity of electronically buying or selling of products or services online.

E-COMMERCE

It also allowed the creation of online marketplaces as Amazon, eBay, Alibaba and of online travel agencies

GPS

Global Positioning System provides geolocation and time information to a GPS receiver anywhere on or near the Earth



GPS

At present its accuracy is of 3 m, but for civil uses it drops to 20 m

E-GOVERNMENT

IT to provide public services to the citizens

E-GOVERNMENT

Application to Tourism:

- Public municipal Wi-Fi
- Smart Destinations
- Management of overtourism

LIST OF IT IN THE WRITTEN EXAM

- Social Media
- Online travel agencies (OTA)
- Mobile Tourism (e.g: digital maps)
- Artificial Intelligence (AI)
- LLM & Chatbots (e.g: ChatGPT)
- Global Positioning System (GPS)
- Remote working and Workation
- Big Data
- Smart Tourism
- Smart Destinations
- Smart Cities
- Virtual Reality
- Augmented Reality
- Artwork Digitalisation
- Neverending Tourism
- Near Field Communication
- Beacons & Push notifications
- E-commerce
- Digital Marketing
- Web 1.0, 2.0 and 3.0
- Internet of Things (Smart Hotels)
- Self-driving vehicles
- Metaverse
- Linked Open Data
- 4G/5G & Starlink
- Blockchain (e.g: bitcoins, NFT)

LIST OF IT IN THE WRITTEN EXAM

- Social Media
- Online travel agencies (OTA)
- Mobile Tourism (e.g: digital maps)
- Artificial Intelligence (AI)
- LLM & Chatbots (e.g: ChatGPT)
- Global Positioning System (GPS)
- Remote working and Workation
- Big Data
- Smart Tourism
- Smart Destinations
- Smart Cities
- Virtual Reality
- Artwork Digitalisation
- Neverending Tourism
- Near Field Communication
- Beacons & Push notifications
- E-commerce
- Digital Marketing
- Web 1.0, 2.0 and 3.0
- Internet of Things (Smart Hotels)
- Self-driving vehicles
- Metaverse
- Linked Open Data
- 4G/5G & Starlink

Note that of all IT with an impact on tourism, only a few have were developed with tourism in mind

LIST OF IT IN THE WRITTEN EXAM

- Social Media
- Online travel agencies (OTA)
- Mobile Tourism (e.g: digital maps)
- Artificial Intelligence (AI)
- LLM & Chatbots (e.g: ChatGPT)
- Global Positioning System (GPS)
- Remote working and Workation
- Big Data
- Smart Tourism
- Smart Destinations
- Smart Cities
- Artwork Digitalisation
- Neverending Tourism
- Near Field Communication
- Beacons & Push notifications
- E-commerce
- Digital Marketing
- Web 1.0, 2.0 and 3.0
- Internet of Things (Smart Hotels)
- Self-driving vehicles
- Metaverse
- Linked Open Data

If you know other IT related to tourism that we didn't study in this course, you can tell me in order to improve the course in future

DATA SIZES

10^3: Kilobyte (kB)

10^6: Megabyte (MB)

10^9: Gigabyte (GB)

10^12: Terabyte (TB)

10^15: Petabyte (PB)

10^18: Exabyte (EB)

10^21: Zettabyte (ZB)

10^24: Yottabyte (YB)

1 byte = 8 bits

OPEN QUESTIONS

Which IT can be used to minimize overtourism, riduce emissions or improve sustainability?

EXAM

There are 7 dates for the written exams in 2024, the first two are:

- Tuesday 23th of January from 15.00 to 16.00 in Room 2 of Via Salvecchio
- Tuesday 6th of February from 15.00 to 16.00 in Room 2 of Via Salvecchio

Bring your ID card and a pencil

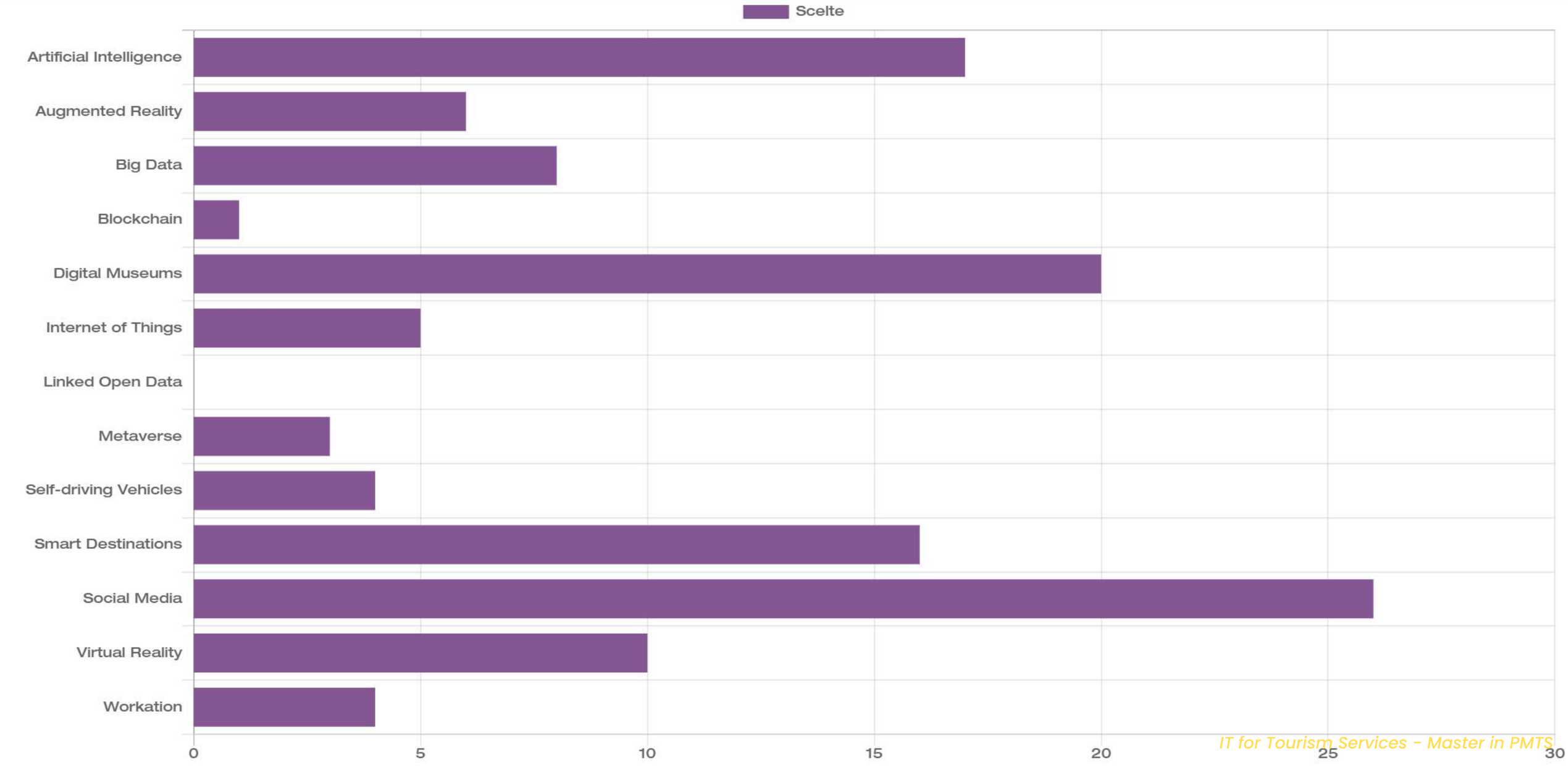
The written test has a total of 20 questions. In order to be approved, 12 or more right answers are needed. There are no grades, only approved or not approved

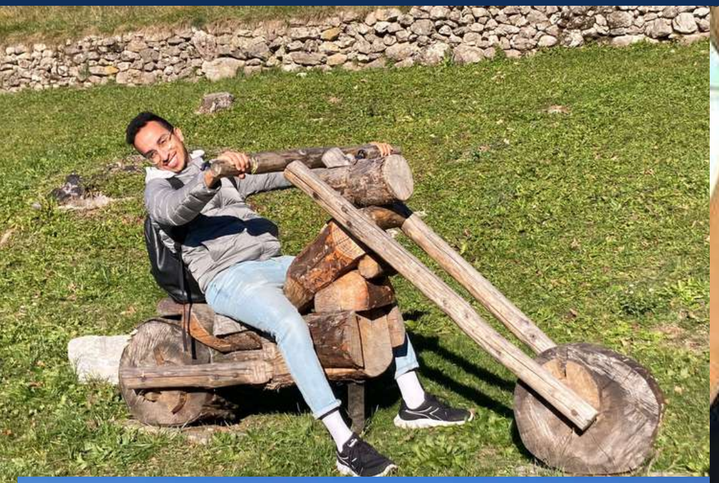
FINAL SURVEY

- The impact of IT on Tourism
- Lesson 1 - IT for Tourism Services
- Lesson 2 - Large Language Models
- Lesson 3 - Workation
- Lesson 4 - Virtual Reality & Augmented Reality
- Lesson 5 - Blockchain & Web 3.0
- Lesson 6 - Big Data
- Lesson 7 - AI & Machine Learning
- Lesson 8 - Internet of Things & Open Linked Data
- Lesson 9 - Self-driving Vehicles
- Community Management
- Community Sheet
- Template for Sharing Posts
- Template of the Editorial Plan
- The impact of IT on Tourism (answer again at the end of the course)

Answer again to the survey

FINAL SURVEY



Workshop:

ITs and regeneration strategies in the Alps