



Master Course in Planning and
Management of Tourism Systems



IT for Tourism Services

Nicola Cortesi

INFORM. TECH. (IT) ARE TRANSVERSAL TO MANY FIELDS

Tourism



Science



Medicine



Economy



Politics



INTRO

Everything you see on social media is sent to you by an **algorithm** that has learnt so well which video you will click on next that is able to keep you engaged hours each day **against your will.**

INTRO

Artificial Intelligence (AI) is the most important Information Technology.

All the jobs that do not require a deep human connection, empathy, feelings or sensations will disappear, because AI will do them better, cheaper and faster.

COURSE INFO



Contact: nicola.cortesi@guest.unibg.it

Credits & hours

- 18 hours of lessons
- 3 credits
- 56 hours of individual study
- 2 project works

Lessons

- Where: Room 10, Via Salvecchio
- When: 9 lessons of two hours each from 11.00 to 13.00.
- Lessons starts at 11.10 and ends at 12.40.
- Lessons consists in:
 - a first part of lesson
 - a second part of project work
- Bring your laptop and smartphone with you with TikTok, Instagram and Facebook installed

Exam

- The course is an 'idoneità': there are no grades, just 'approved' or not
- In order to be admitted to the exam, you need to complete the two project works of the course
- In order to be approved, you need to pass a written exam of 20 closed questions



FILE SHARING

Pdf of all lessons are available in the Moodle eLearning shared folder:
<https://elearning15.unibg.it/course/view.php?id=6651>

ROOM for MEETINGS with STUDENTS

Every Tuesday from 15.30 to 16.30, at Room 403 of 4th floor of faculty headquarters, in Piazza Rosate 2. You need to book the room in advance, by sending me an email

WRITTEN EXAM

- The written test has a total of 20 closed questions. Each question has 3 answers, and only one is the right one. In order to be approved, 12 or more right answers are needed.
- There are no grades: answering correctly to 20 questions is exactly the same as answering to 12.
- The written exam is very simple, as all your efforts should be spend on completing the 2 project works instead, which are required to be admitted to the written exam
- The only knowledge needed for the written exam is that of the definition of the IT studied in class and that of the units of measure of data storage: MB, GB, TB, PB, etc.
- Remember to book the exam in time, and to bring your ID card and a pencil

AI AND DATA SCIENCE FOR TOURISM



2nd semester of the 1st year

Credits & hours

- 18 hours of lessons
- 3 credits
- 56 hours of individual study
- 2 project works

Lessons

- Where: Room 10, Via Salvecchio
- When: 9 lessons of two hours each from 11.00 to 13.00.
- Lessons starts at 11.10 and ends at 12.40.
- Lessons consists in:
 - a first part of lesson
 - a second part of project work
- Bring your laptop and smartphone with you

Exam

- The written exam gives you a numerical grade (18-30)
- In order to be admitted to the written exam, you need to complete the two project works of the course
- The written exam consists in 31 closed questions about AI and its applications to tourism

WORKSHOP: ICT AND REGENERATION STRATEGIES IN THE ALPS



1st semester of the 2nd year

Credits & hours

- 3 credits
- 18 hours (2 days)
- max 10 participants

Where

- Lake of Como, on the
"Sentiero del Viandante"



PMTS THESIS ON THE APPLICATIONS OF AI TO TOURISM

2nd semester of the 2nd year

Credits & hours:

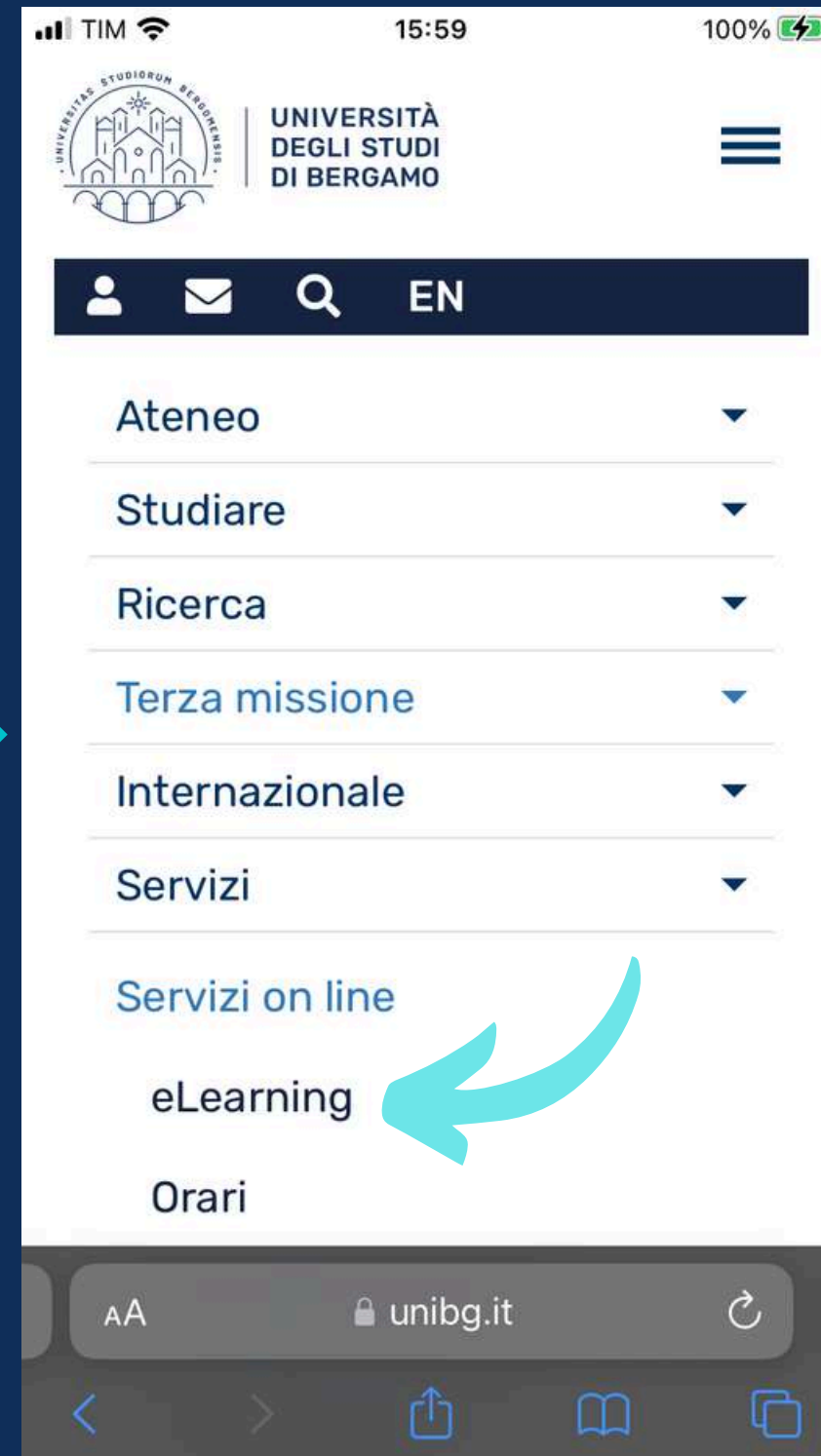
- 6 credits
- 3 month's work
- max 10 students/year

Last three thesis discussed:

- Advancing tourism research with Artificial Intelligence: integrating Large Language Models for searching and extracting textual data from PNRR documentation
- Artificial intelligence and Accessibility: creating opportunities for Tourists with Disabilities
- Smart Hospitality: AI-Driven Innovation in the Hotel Industry

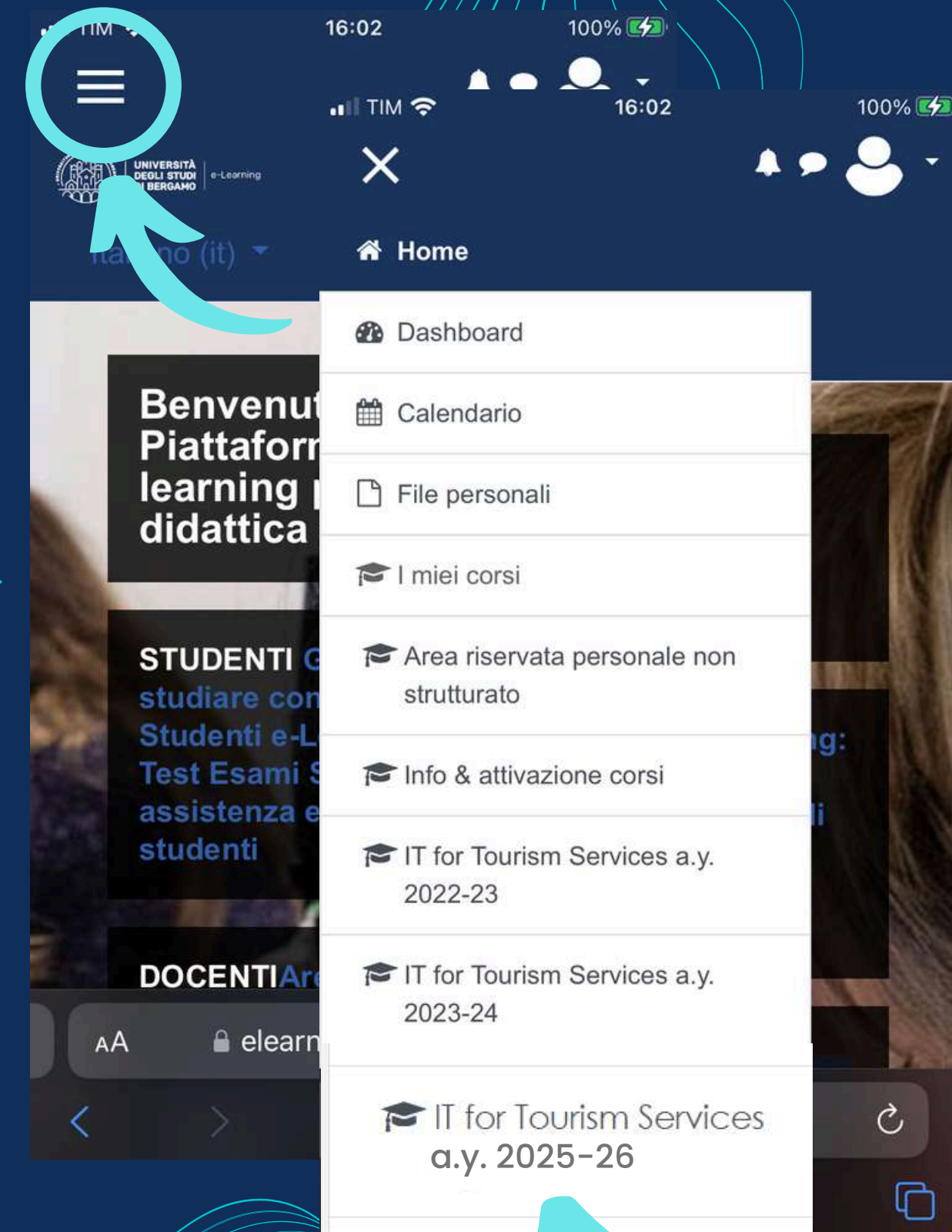
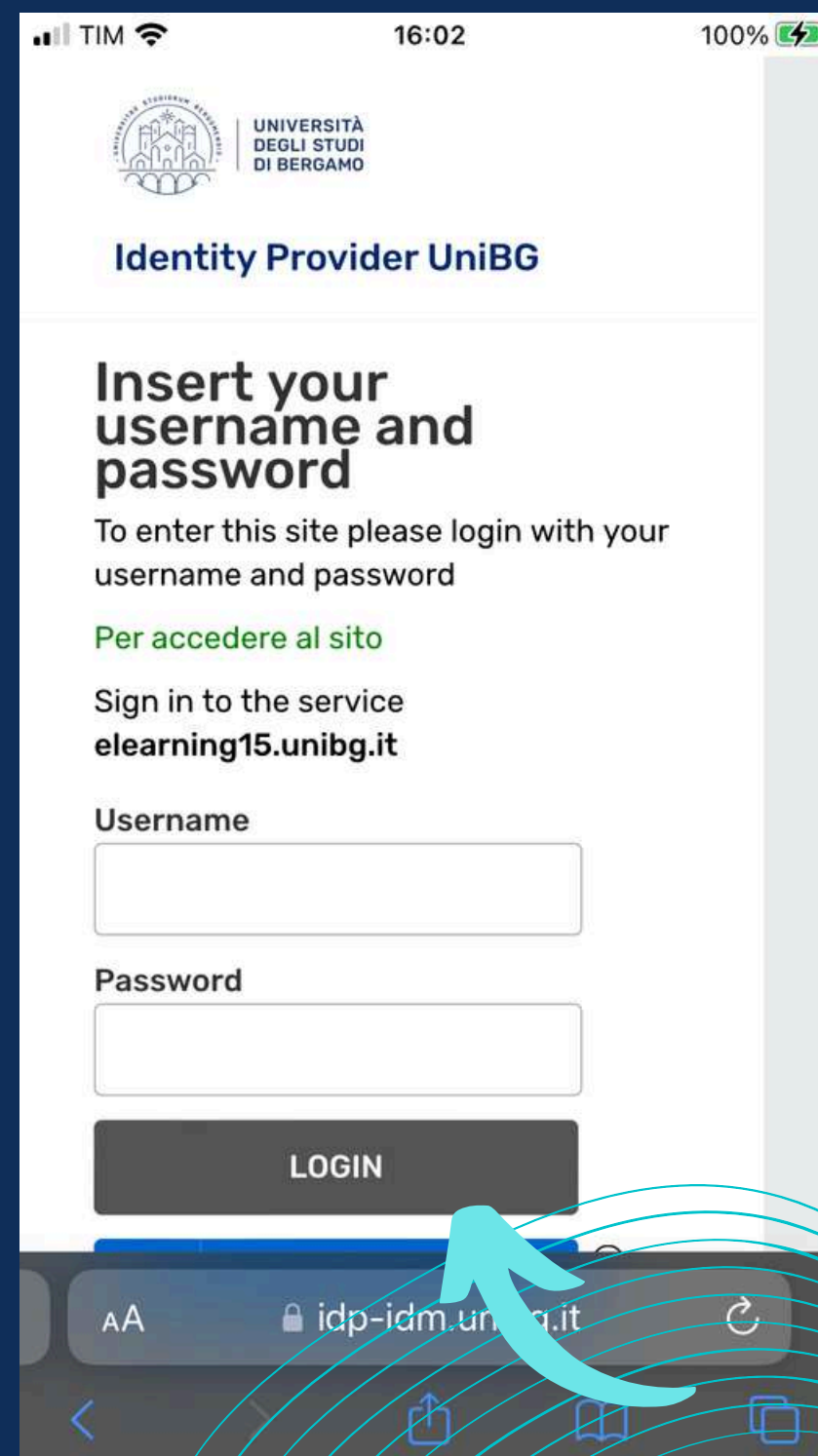
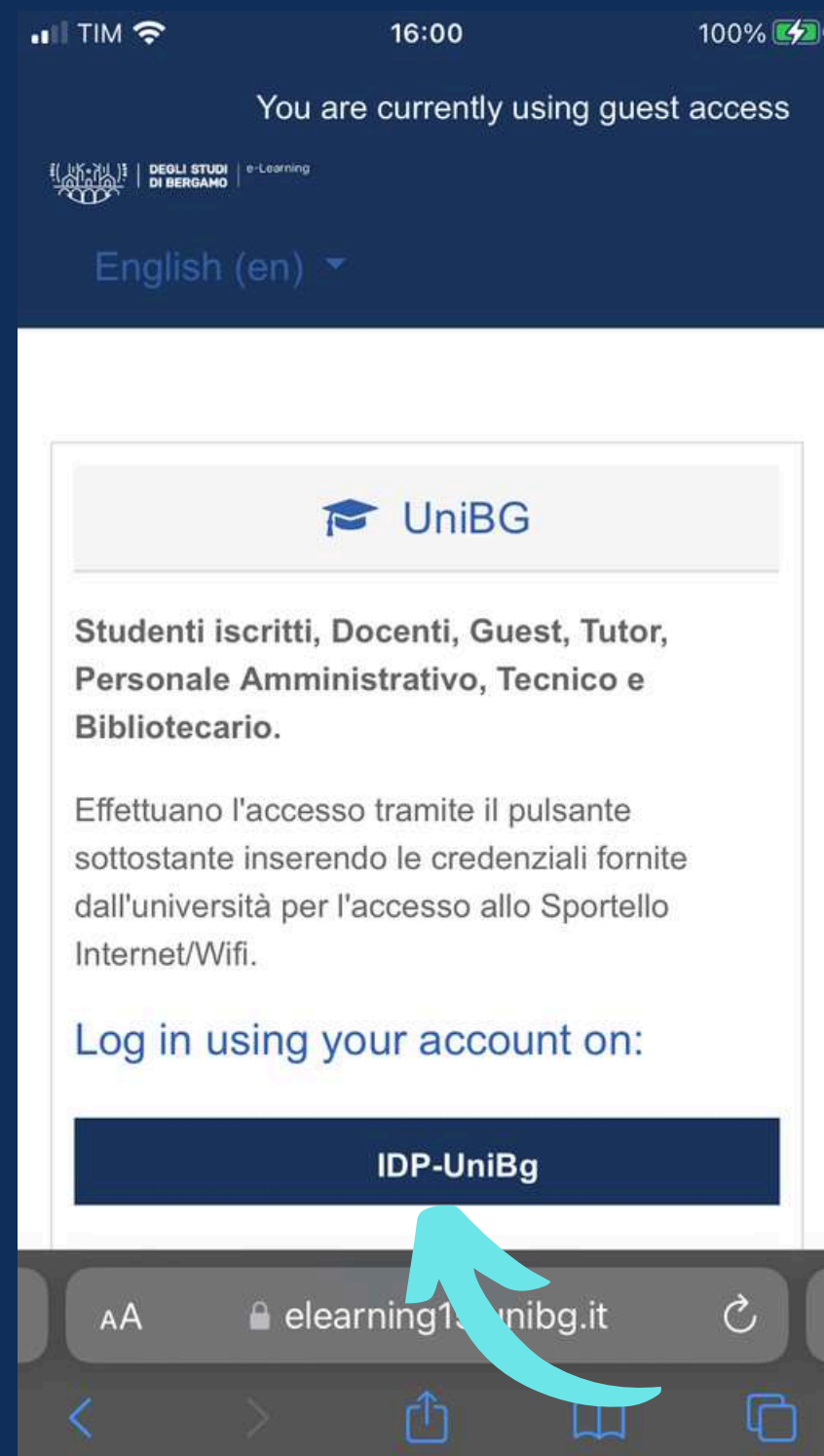


MOODLE ACCESS FROM SMARTPHONE



www.unibg.it

MOODLE ACCESS FROM SMARTPHONE



Computer Science

Information Technology

AI

Data
Science

DEFINITION OF IT/ICT



IT is one of the many branches of computer science. IT is defined as:

“The use of computers to create, process, store, retrieve, and exchange all kinds of data”*

In short: any data manipulation

* including smartphones, smart TV, ...

Computer Science

Information Technology

AI

Data
Science

DEFINITION OF IT/ICT



Computer is a term introduced in 1945 and derives from the verb “to compute”: to do calculations

Any well defined sequence of instructions to perform calculations is called algorithm

TOURISM & IT

In the last century, the Tourism sector grew mainly thanks to the evolution of the means of transportation, then thanks to mass media



Booking.com



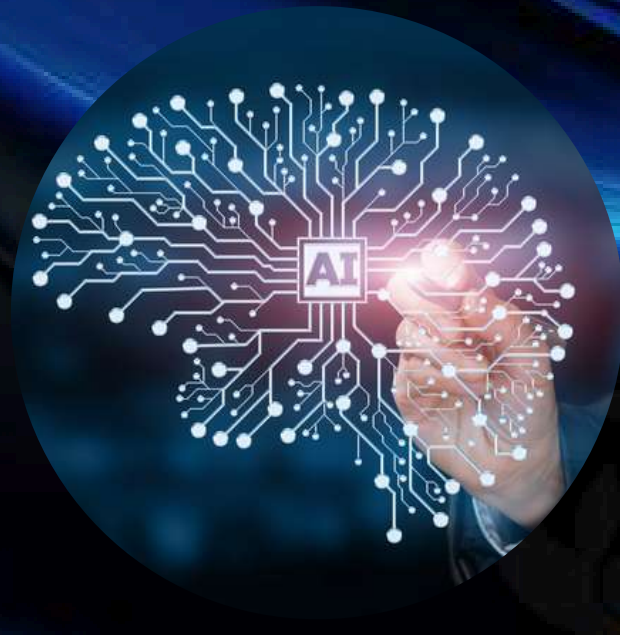
lastminute.com

Now, Tourism evolves mainly thanks to IT: Online Travel Agencies (OTA) and other booking platforms, travel apps, social media, websites, GIS, ...

MAIN IT FOR TOURISM SERVICES



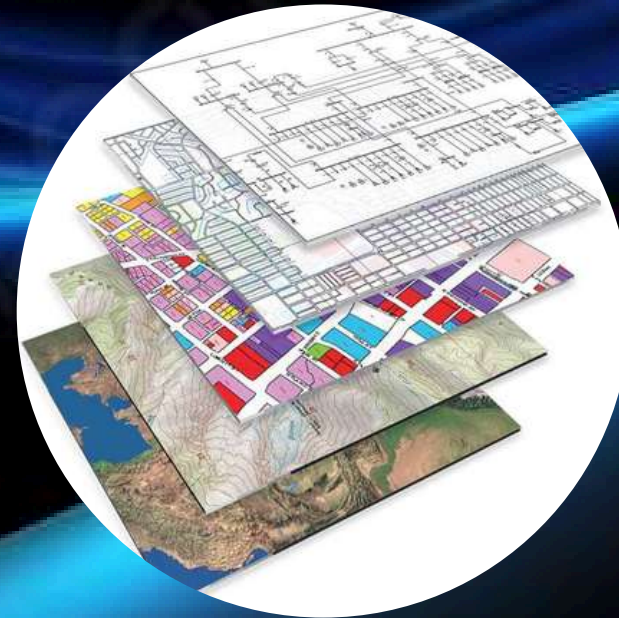
Main IT related to Tourism



AI & Big Data

Many applications. AI finds patterns in large streams of unstructured information. As a consequence, travel companies can identify which destinations will be the most popular next season. Other examples: Smart Destinations, Smart Tourism.

Course: AI and Data Science for Tourism (2nd semester)



GIS & GPS

Geographic Information Systems (GIS) are software for capturing, storing, checking, and displaying geographic data. They generate every kind of map imaginable, often linking them with tracking systems as GPS. Very useful for destination management.

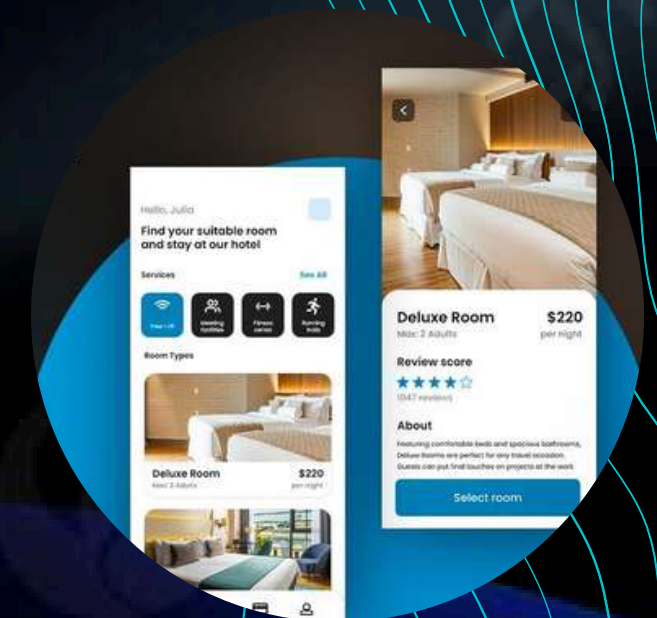
Module: Geotracking and webmapping for Tourism (2nd year)



Mobile Apps

A whole ecosystems of apps for mobile devices exist to satisfy every traveler need: tracking flight delays, finding last-minute accommodations, finding the closest wifi spot, locating the nearest public restroom, etc. Examples: Google Maps, Mapy, Skyscanner, Satispay, Trenitalia, Omio, TheFork, Triplt, etc.

Course: IT for Tourism Services



Online Booking Platforms

Both hotels, museums and Online Travel Agencies (OTA) employs online booking systems to allow users to search for, compare, and reserve tourism-related services such as accommodations, flights, tours, visits or transportation, in real time. OTA disrupted travel agencies. Examples: Booking.com, Airbnb, Trivago

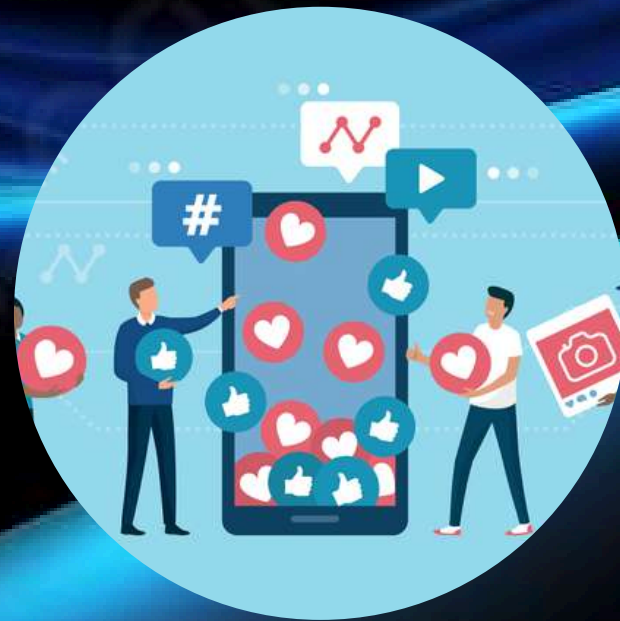
Main IT related to Tourism



Social Media (SM).

People share with a vast audience the memories from their travels: a more powerful way of attracting tourists than simple advertisements. People build their trust in a tourism agency based on the reviews of the others.

Course: IT for Tourism Services
(Project works)



SM Marketing

SM influence destination trends. People discover and choose where to go based on visual storytelling. Social media marketing analyses social media data to develop data-driven market campaigns.

Module: Tourism and Social Media Marketing (2nd semester of 1st year)
- Prof. Roberta Garibaldi and Angel Herrero



Artwork Digitalization

It enables people to overcome spatial, temporal and economical barriers, improving the access to culture and making it more democratic and more inclusive. Digital systems manage online tickets, flexible pricing, etc.

Module: Art and Museum Resources (1st year) - Prof. Gemma Tully and Raffaella Pulejo



Workation

Widespread adoption of smart working in 2020 made it possible for the first time in history to spend all or part of the year working everywhere, so people can work and travel at the same time (hence the word "Workation", form the union of "Work" and "Vacation").

Course: IT for Tourism Services

Main IT related to Tourism



Virtual Reality (VR)

Virtual Reality (VR) is the true magic tech of our times. For tourism purposes, VR mainly prepares travelers for what they should expect during travel, and give them a new level of comfort and confidence in making travel plans.

Course: IT for Tourism Services



Augmented Reality

Augmented Reality enhance the physical environment for visitors and engage them in a variety of experiences.

Course: IT for Tourism Services



Sustainable Tourism

IT can be used to accelerate the Green Transition, enhancing destination sustainability. IT can also educate tourists and assist them in making more sustainable choices.

Module: Environmental Issues for Green Tourism Development (1st year, 1st semester); course: Digital Strategies for Sustainable Tourism (2nd year)



Overtourism Management

Smart IT solutions can offer an exit strategy to overtourism.

Module: Information and Communication for Sustainable Turism (2nd year, 1st semester) - Prof. Marta Pantalone and Marta Soligo

Course: IT for Tourism Services (Project work)

Main IT related to Tourism

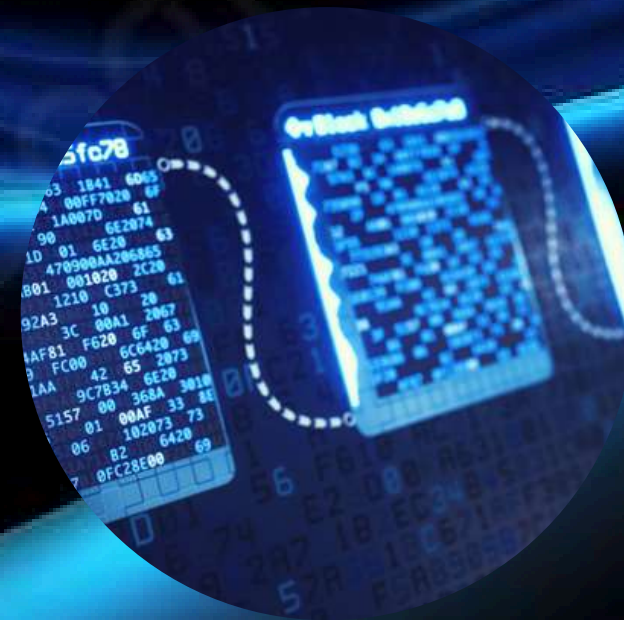


Internet of Things

Physical objects with sensors, processors and/or software that connect and exchange data with other devices and systems over the Internet or other networks. They deliver a superior customer experience, decrease energy consumption and optimise internal processes.

Examples: smart homes, smart hotels, smart parkings.

Course: IT for Tourism Services



Blockchain

Disrupting technology that makes central intermediaries superfluous by transferring their functions to all participants of a given system. It may resize the role of online travel agencies, enabling greater customer-to-customer transactions to emerge in travel.

Course: IT for Tourism Services



Self-driving Cars

People'd travel more if they could drive less, without even needing a driver license. Finding a parking place'd become a lot easier, as your car would just leave you off and go to park itself. Also traffic congestions and pollution'd decrease.

Course: IT for Tourism Services



Language Translation

Decrease language barriers for travelers. Example: Google Translate, DeepL, iTranslate. Technically a branch of AI, but it is very important for tourism.

Course: IT for Tourism Services



Old IT related to Tourism



E-commerce

The possibility to buy online through credit cards, PayPal, Apple Pay, etc. created the OTA that sell their products fully online



OTA (Online Travel Ag.)



Web sites & HTML



Web 2.0 & CMS



Spreadsheets

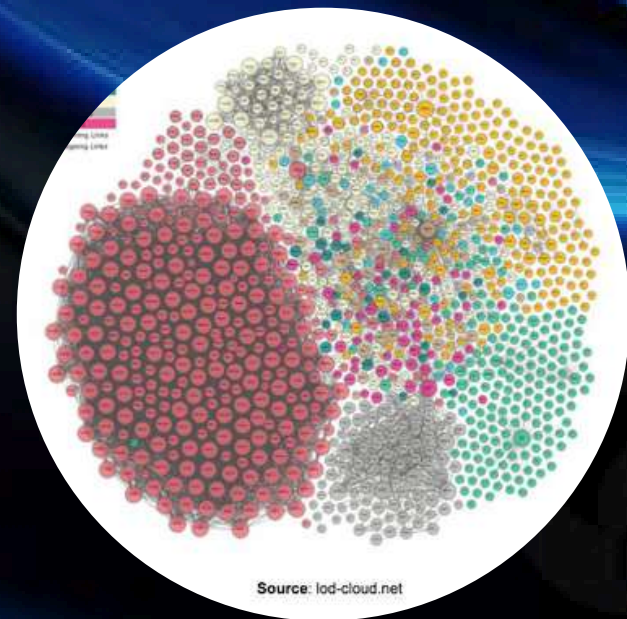


Databases & SQL



Cybersecurity, PEC

Notable IT for Tourism that haven't materialized yet



Semantic Web

Also called "Linked Open Data". Connecting databases together is much more powerful than linking web sites or documents: it allows much better web searches. However, many databases are still private, or they are not connected to each other. This limit the usefulness of this IT.



Metaverse

An immaterial realm made entirely of data. A shared virtual space of millions of different words in which billions of people would have played, made shopping and travelled together, as in the "Ready Player One" movie. It was a flop as the technology is quite expensive and it is not mature enough yet to allow simultaneous access to billions of users.



Flying Cars

By now they are more similar to helicopters than cars. Anyway, flying cars are still dangerous flying bombs. With the current technology, it is impossible to guarantee a good degree of safety with a traffic of millions of flying vehicles in the sky.



Decentralized Web

Also called Web 3.0, it is the evolution of the current version of the World Wide Web, the 2.0. It should have given back the control of Web to the hands of its users and not to those of the Tech giants as Google, Apple, Meta, etc.

PROJECT WORK: EMPLOY INF.TECN. TO REDUCE OVERTOURISM, BY OPENING AN ONLINE TRAVEL COMMUNITY



 **Dolomites for Beginners** 

<https://www.facebook.com/groups/dolomitesforbeginners>

Public group · 206.5K members



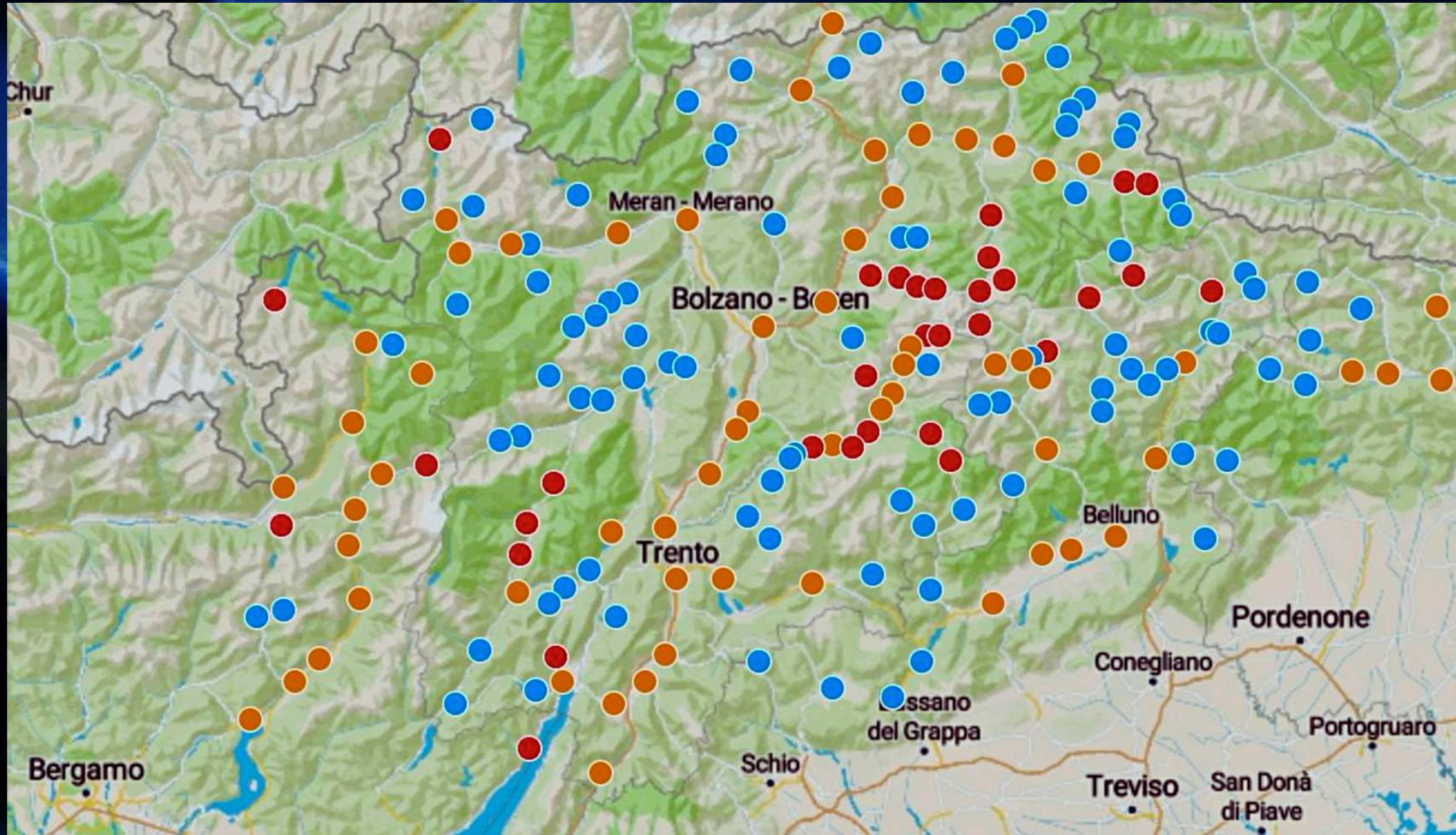
+ Invite

Share

Joined



MAP OF OVERTOURISM IN THE DOLOMITES



- Overtouristic towns
- Undertouristic towns
- Small cities

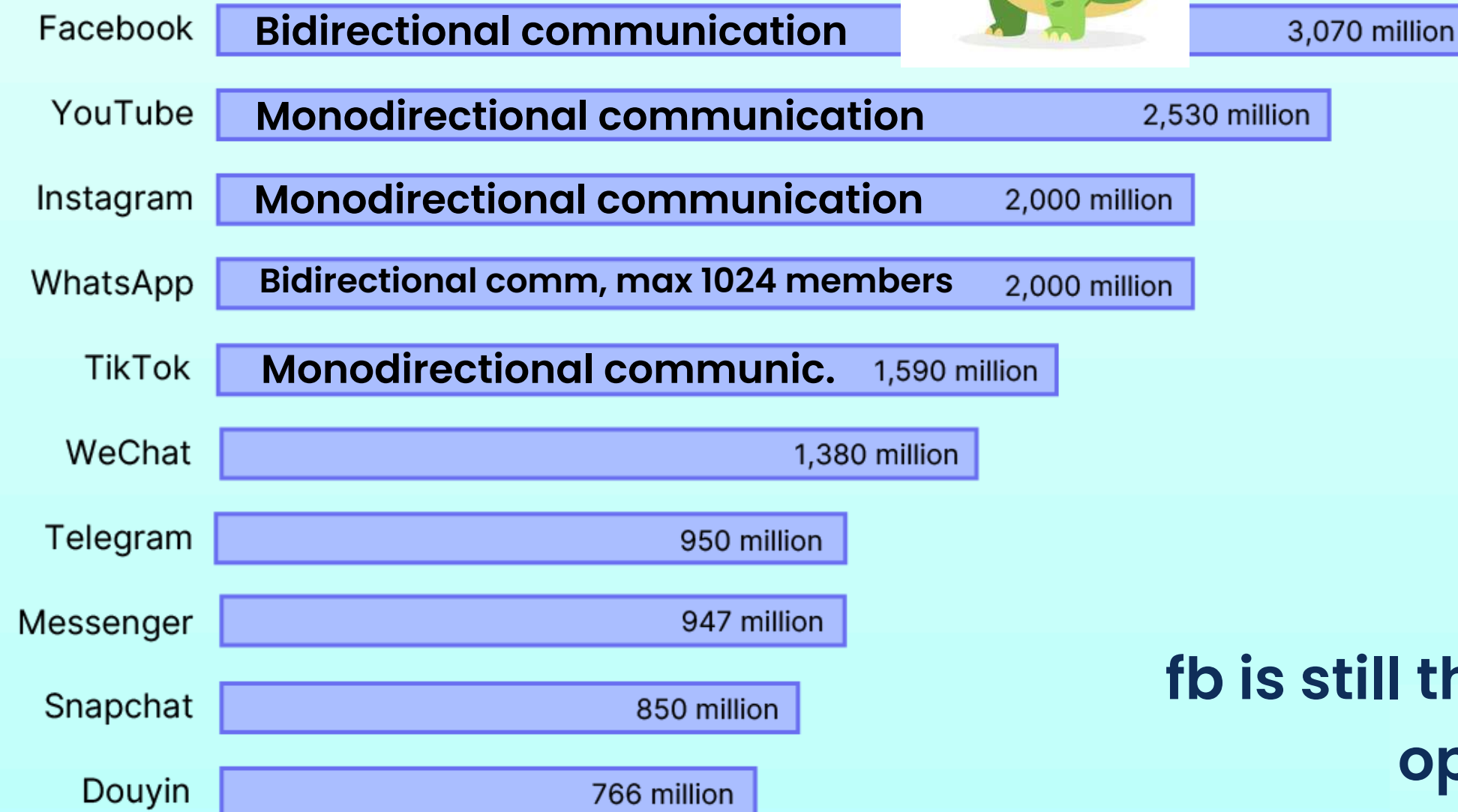
https://umap.openstreetmap.fr/en/map/overtourism-in-the-dolomites_1147630#9/46.3261/11.4313

NEW ONLINE COMMUNITY: ALPS FOR BEGINNERS

A wide-angle photograph of a majestic, snow-covered mountain range under a clear blue sky. The peaks are rugged and jagged, with patches of dark rock visible through the white snow. The foreground shows a smooth, snow-covered slope.

MAIN GOAL: DECREASE OVERTOURISM IN THE ALPS

MOST POPULAR SOCIAL MEDIA IN 2025



35 millions
in Italy

**fb is still the best sm to
open an online
community!**

Source: Statista

SOCIAL MEDIA COVERAGE

FEB
2025

ESSENTIAL DIGITAL HEADLINES

OVERVIEW OF THE ADOPTION AND USE OF CONNECTED DEVICES AND SERVICES



TOTAL
POPULATION



we
are
social

8.20
BILLION

URBANISATION

58.1%

UNIQUE MOBILE
PHONE SUBSCRIBERS



Meltwater

5.78
BILLION

vs. POPULATION

70.5%

INDIVIDUALS USING
THE INTERNET



KEPIOS

5.56
BILLION

vs. POPULATION

67.9%

SOCIAL MEDIA
USER IDENTITIES



5.24
BILLION

vs. POPULATION

63.9%

SOCIAL MEDIA COVERAGE

JAN
2025

DAILY TIME SPENT USING SOCIAL MEDIA

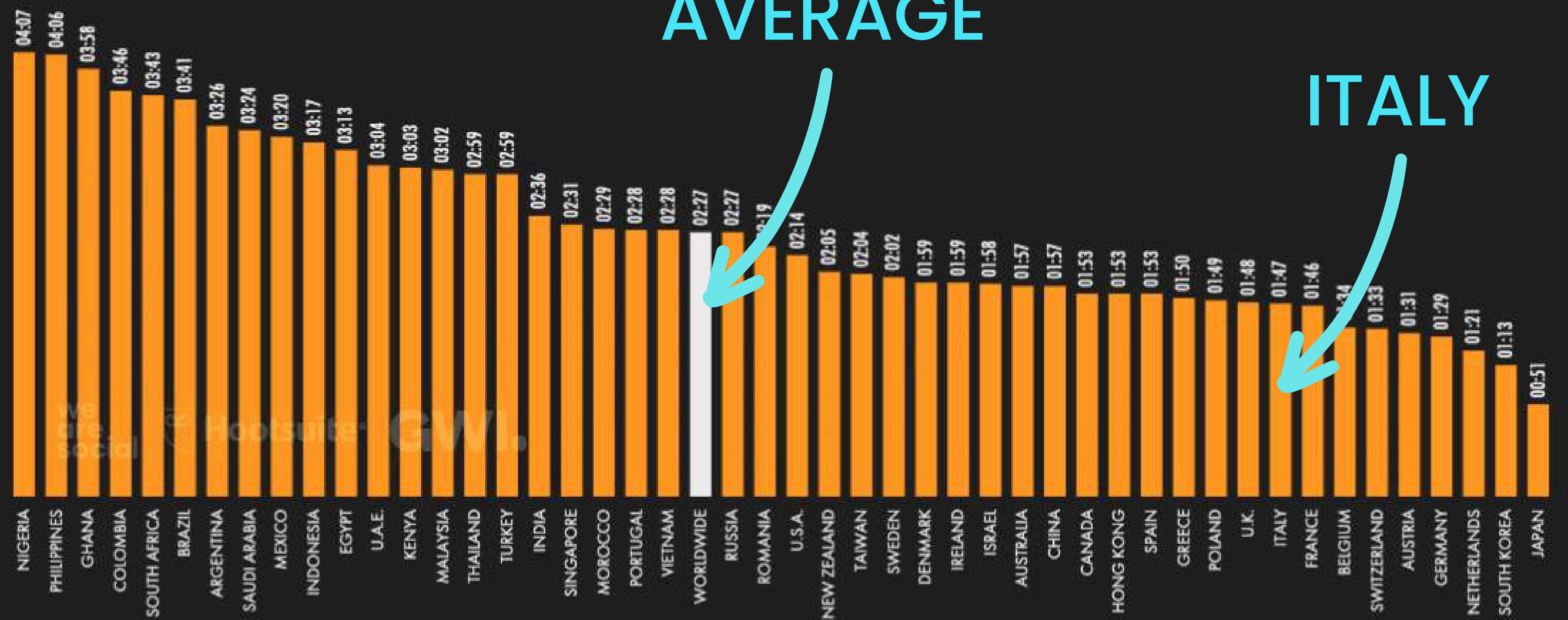
AVERAGE AMOUNT OF TIME (IN HOURS AND MINUTES) THAT INTERNET USERS AGED 16 TO 64 SPEND USING SOCIAL MEDIA EACH DAY

<https://blog.hootsuite.com/social-media-statistics-for-social-media-managers/>

GLOBAL OVERVIEW

AVERAGE

ITALY



COMMON ERROR

A common mistake to avoid is spending time and money for creating **the web site** of your brand and paying for the **advertising** to attract customers.

This strategy has **no guarantee of success**, as every brand already has a web site and is present on SM, and the competition is **HUGE**

COMMON ERROR

What's the difference between you and your competitors?

You must stand out from the crowd

How? By opening an online community. If it grows, than you create your business around it, the opposite of what others do.

COMMON ERROR

Many online travel portals and agencies (OTA) and web sites are just empty boxes because there is no community behind them to sustain and support them

That's an important example of how technology alone is useless without a previous work of aggregation of people



ONLINE COMMUNITIES

The only business model that works nowadays is that of **selling through communities**. This is especially true in the **tourism sector**

Communities don't give any immediate economical benefit until they grow. Money comes mainly from **affiliate links** and **ads** and **indirectly** in the form of events, collaborations, jobs, books, formation, etc.

ADVANTAGES

You create gratitude in your members by solving their problems or helping them.

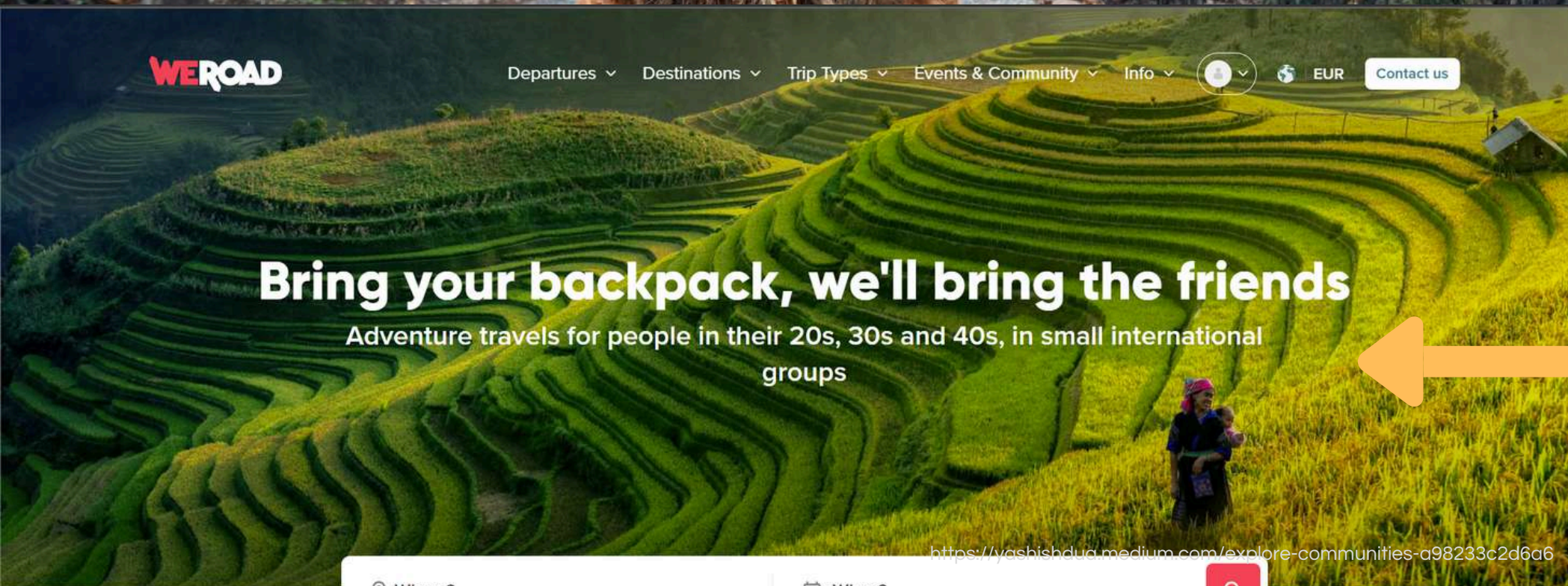
In this way, not only they'll trust you, but they'll also always speak well of your community/brand to everyone: the word of mouth is a powerful tool

ADVANTAGES

People don't buy a travel when they first see its advertisement.

They may buy it if they are also **part of a community** that they trust and that proposes them that travel

WeRoad: Italian tour operator for young people



ADVANTAGES

You'll also collect a lot of feedbacks of your potential products and services to validate their market potential and data and email addresses of potential clients

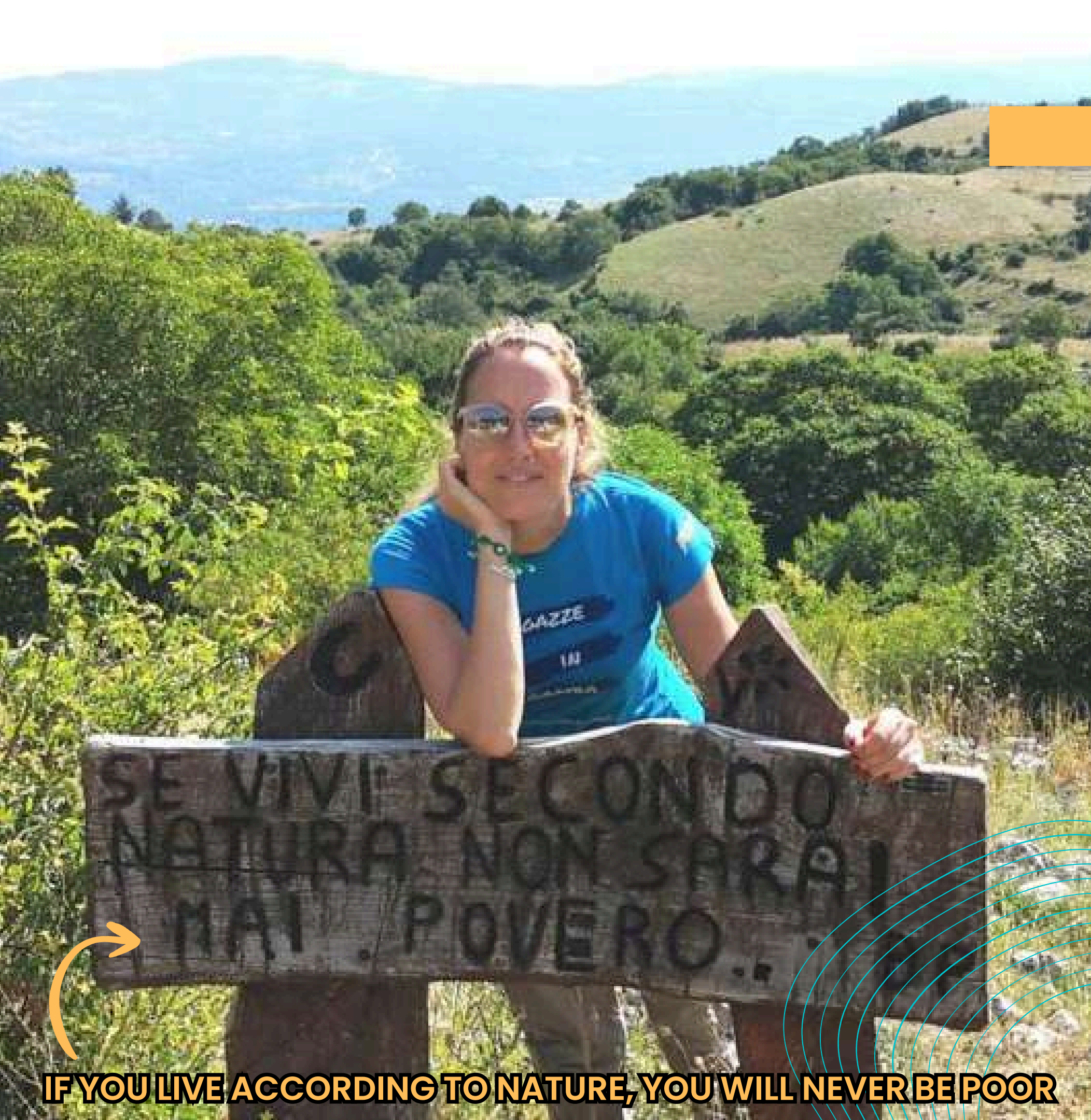
ADVANTAGES

You'll build a network of contacts with like-minded people who will recognize you as an expert on that topic. Real experts will treat you as if you were on their same level. In real life, contacts can be more important than CV and bring you job offers



EXAMPLES

The Facebook group "Ragazze in gamba" ("Smart girls") is a fb group of italian women who loves walking/hiking.



IF YOU LIVE ACCORDING TO NATURE, YOU WILL NEVER BE POOR



Group by Rete Nazionale Donne in Cammino

Ragazze in Gamba

Public group · 157.8K members



+ Invite

Share

Joined

IT for Tourism Services – Master in PMTS

EXAMPLES

In this group members post anything funny that happened to them while in the mountains.

Fun is a powerful emotion to exploit in a community



Group by Gente che va in montagna una volta l'anno e si sente Messner

Gente che va in Montagna 2 volte l'anno

Public group · 38.7K members

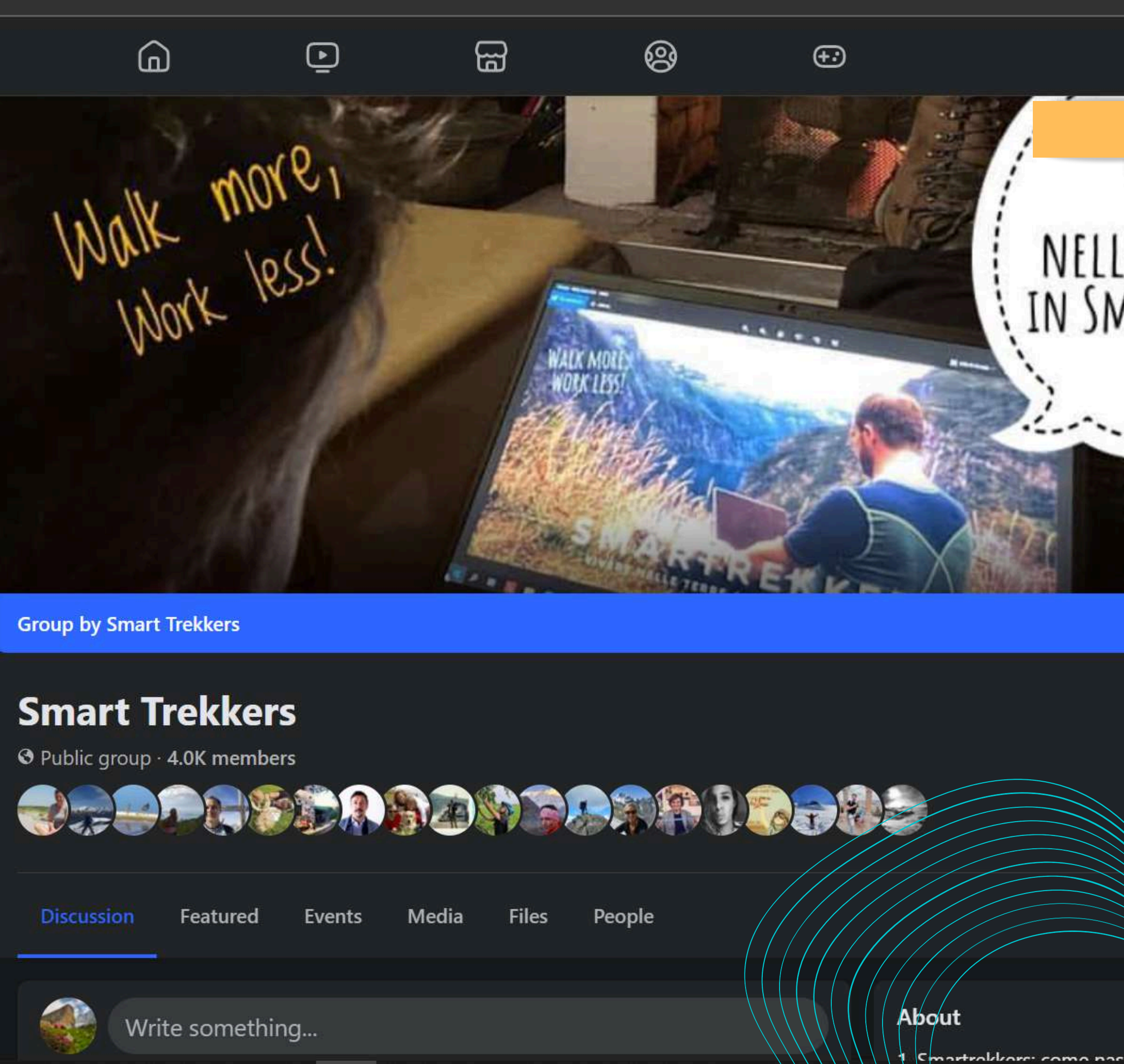


People who go to the mountains twice a year

EXAMPLES

The fb group "Smart Trekkers" aims at helping smart workers finding the best places to work in the Alps

All these groups are related to the mountains as they are the main touristic attraction in Bg



BEST STRATEGY

The secret to build a successful community is that of choosing the **right name** of the group in order to attract the attention of the fb algorithm

BEST STRATEGY

Avoid horizontal communities which are not focused on a single topic. Consider only vertical communities, focused on a very specific topic and that can be interesting for millions of people

BEST STRATEGY

Once you'll have published a few dozens posts, the fb algorithm will do the rest of the work, promoting your community in your stead for free!

BEST STRATEGY

Write a **simple post** with no images, just asking for information, e.g:

“in which month it is better to go to the Alps?”, or
“which are the best towns to visit near Bergamo?”, or
“the best way to reach them?”, etc

TASKS FOR NEXT LESSON

- Try to access the [Moodle](#) of this course once you have your UniBG username and password
- Create a [Facebook](#), [Instagram](#) and [TikTok](#) account, if you don't have one yet
- Join the fb group "[Dolomites for Beginners](#)"
- Take some pictures of the [Orobian Alps](#) as seen from the high city (e.g: from "Castello di San Vigilio" or from "Parco delle Rimembranze")
- Watch the movie "[Ready Player One](#)" to understand the Metaverse