



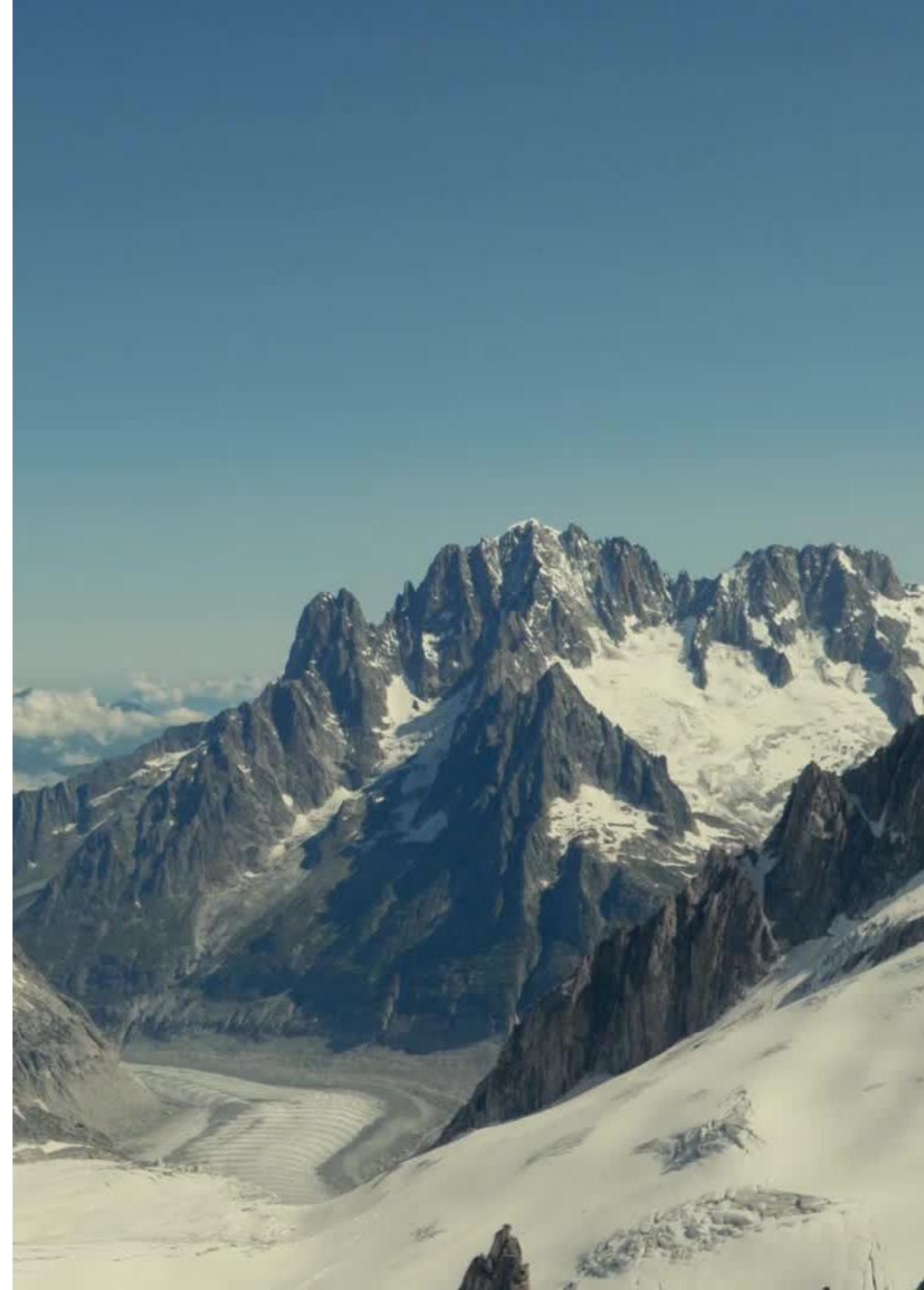
“FROM PEAKS TO PIXELS: A
SYSTEMATIC LITERATURE REVIEW ON
THE USE OF DIGITAL TECHNOLOGIES
FOR MOUNTAIN HERITAGE
MANAGEMENT”

A QUICK GUIDE TO DIGITAL MOUNTAIN HERITAGE

OUR COLLABORATIVE RESEARCH TEAM

This project brings together **researchers** from across the **Alps**, powered by a strong passion for **mountain heritage** and funded by **UNITA Alliance**.

- **HES-SO Valais Wallis**, Institut Tourisme (Switzerland)
Mele, E. -Dunner, M. -Santangelo, N.
- **Université Savoie Mont Blanc** (France)
Colombie, G. -Duvall, M.
- **Università di Torino** (Italy)
Bonato, L. -Cornelli, M. -Trinchero, C.





More than just a
view!

WHAT IS MOUNTAIN HERITAGE?

Mountain heritage isn't just majestic peaks. It's a rich tapestry of **cultural** and **natural** significance, shaped by the continuous and diverse **practices** of **communities** over time. It includes **historical assets**, **natural landscapes** and **intangible cultural expressions** like culinary traditions.

- The research problem: despite the recognized **benefits**, academic research on the application of **digital technologies** to mountain heritage remains limited.

Key Insight: digital tools are becoming vital for both **preserving** this legacy and **sharing** its value with the world.

THE DIGITAL TOOLKIT FOR MOUNTAIN HERITAGE

Our review identified a core set of technologies being used to document, share, and manage mountain heritage.



Mobile Apps & Web Platforms: your pocket guide to the mountains, offering **maps**, **storytelling**, and **visitor information**.



AR & VR (Augmented & Virtual Reality): **immersive tools** that bring history to life, reconstruct ancient sites or transport you to **inaccessible peaks**.



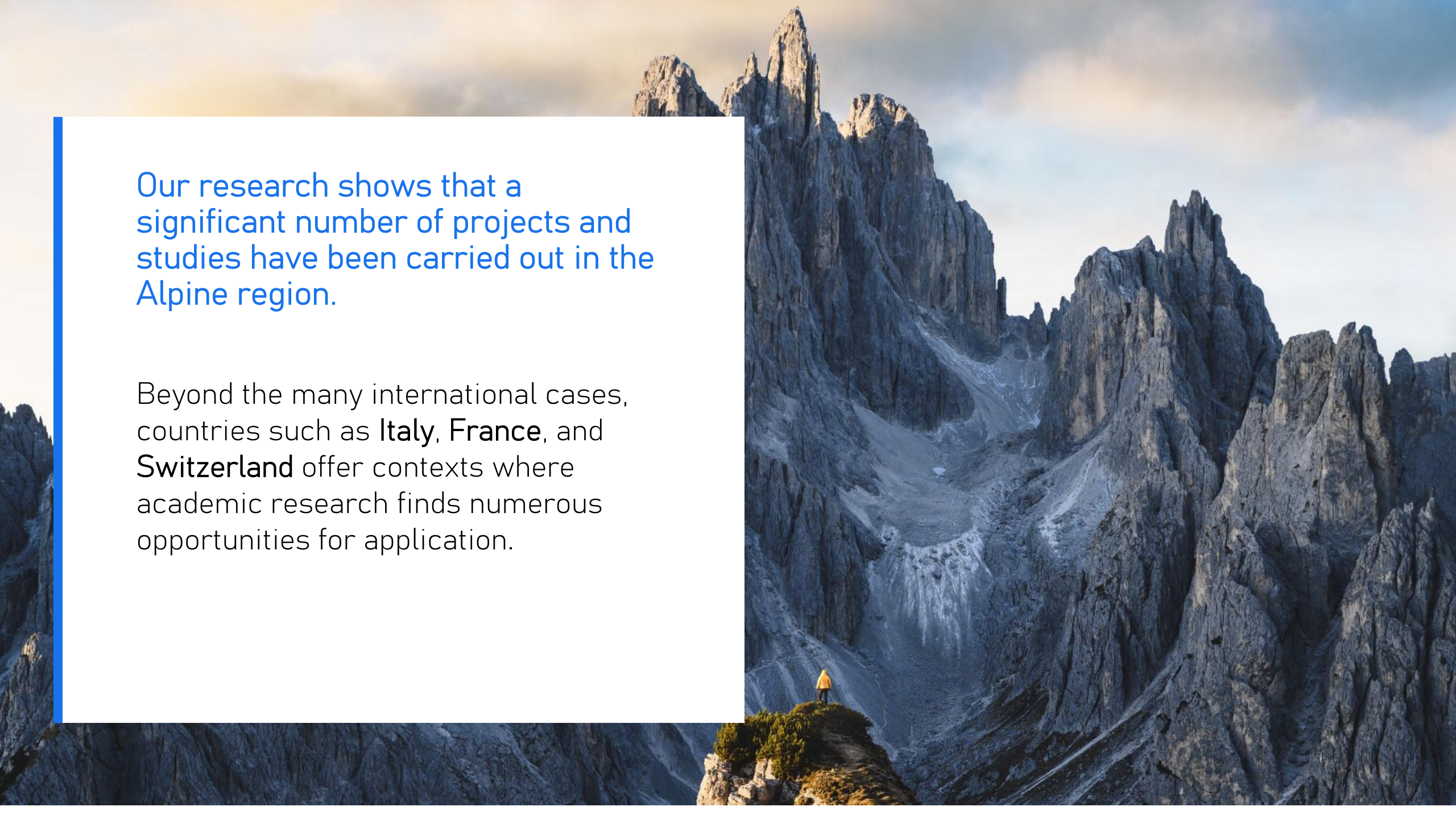
3D Modeling & Photogrammetry: creating stunningly accurate '**digital twins**' of artifacts, buildings and landscapes for **research** and **conservation**,



GIS (Geographic Information System): powerful **mapping technology** used to **analyze environmental changes**, **manage visitor flow** and **protect sensitive areas** by handling vast amounts of multi-thematic information.

THE ALPS: AN INNOVATION HUB FOR DIGITAL HERITAGE



A full-page background image of a rugged mountain range. In the foreground, a person wearing a yellow jacket stands on a rocky ridge, looking out over a deep valley. The valley floor is covered in grey scree and patches of snow. The mountains are dark and jagged, with sharp peaks reaching into a sky filled with soft, white clouds. The lighting suggests late afternoon or early morning, with a warm glow on the left side of the image.

Our research shows that a significant number of projects and studies have been carried out in the Alpine region.

Beyond the many international cases, countries such as **Italy**, **France**, and **Switzerland** offer contexts where academic research finds numerous opportunities for application.

FROM PRESERVATION TO PARTICIPATION, THE FIVE KEY GOALS

We identified five key purposes driving the adoption of digital tools in mountain heritage.



THE REAL GAME-CHANGER

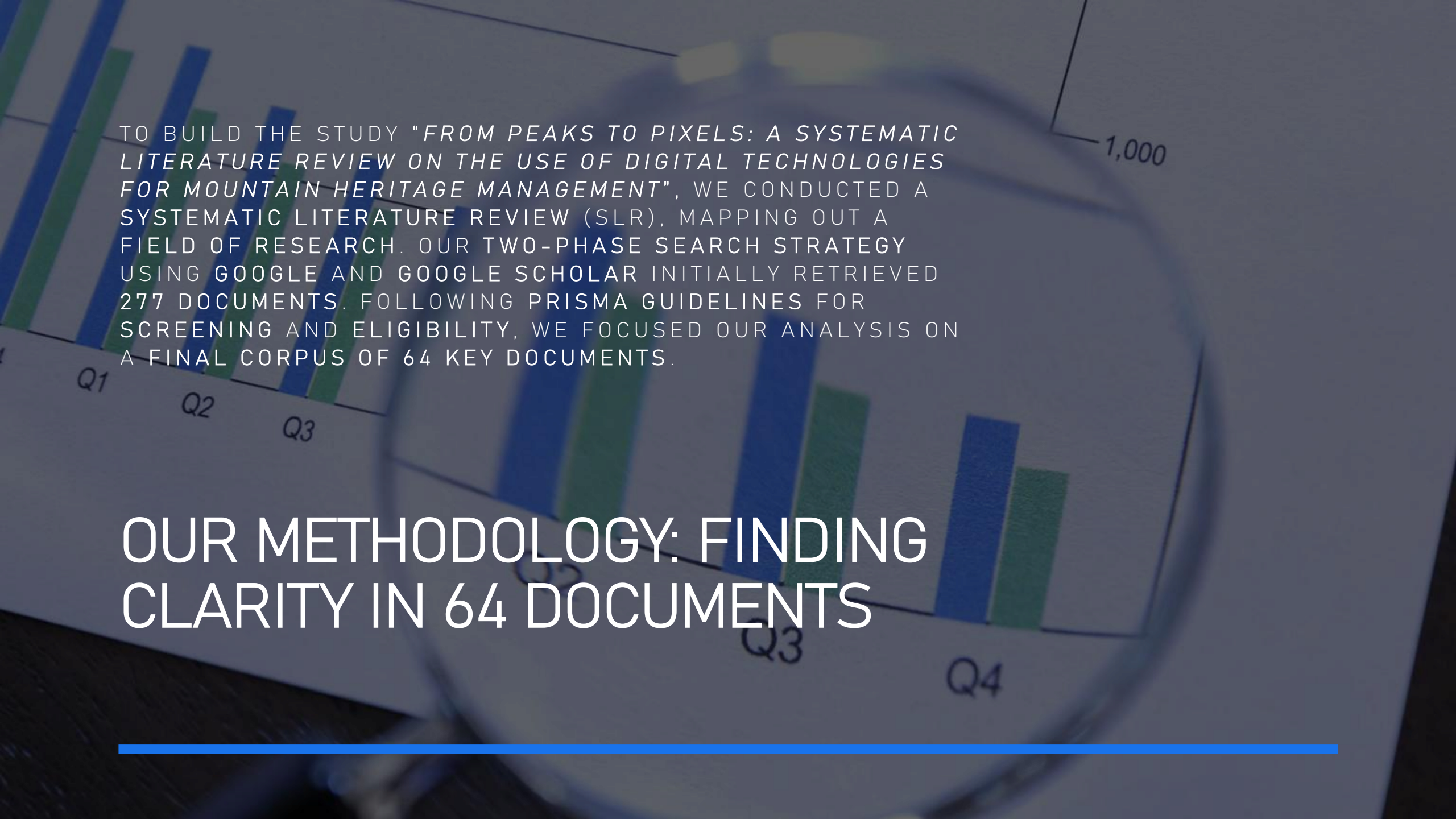
It's not just tech, it's teamwork!

Our most most finding? The **best technology** in the world is **insufficient** if it's **disconnected** from **local needs**.

Success depends on a **collaborative ecosystem**.

Digital solutions must be built with **local communities**, not just *for* them. They need to solve real issues by integrating **public and private stakeholders**.

This **ecosystem-based approach**, fostering **public-private partnerships** and **participatory dynamics**, is the **key** to creating **digital tools** that are **innovative, sustainable** and **culturally sensitive**.



TO BUILD THE STUDY *"FROM PEAKS TO PIXELS: A SYSTEMATIC LITERATURE REVIEW ON THE USE OF DIGITAL TECHNOLOGIES FOR MOUNTAIN HERITAGE MANAGEMENT"*, WE CONDUCTED A SYSTEMATIC LITERATURE REVIEW (SLR), MAPPING OUT A FIELD OF RESEARCH. OUR TWO-PHASE SEARCH STRATEGY USING GOOGLE AND GOOGLE SCHOLAR INITIALLY RETRIEVED 277 DOCUMENTS. FOLLOWING PRISMA GUIDELINES FOR SCREENING AND ELIGIBILITY, WE FOCUSED OUR ANALYSIS ON A FINAL CORPUS OF 64 KEY DOCUMENTS.

OUR METHODOLOGY: FINDING CLARITY IN 64 DOCUMENTS

RESEARCH METHODOLOGY FLOW



Retrival: 277 documents retrived



Filtering (Screening and Eligibility): 64 documents selected



Analysis: we analyzed each document to answer our three core research questions

The type of digital tools being used
The geographical context of application
Intended objectives and the purposes behind them



Want to digitalize your territory? Let's talk!

Our team is ready to help you navigate your **digital transition**, from strategy and stakeholders engagement to marketing and implementation.

Let's work together to turn these insides into actions.

CONTACT US:

Emanuele Mele, PhD
Professeur HES assistant
Haute Ecole de Gestion
Institut Tourisme

emanuele.mele@hes-so.ch

