

Problem & Motivation

► Problems

- **Human trafficking** is a huge problem for **national security**.
- Many people rescued **have no identificational documents**, but **most carry a smartphone**.
- Sending smartphones to a lab for analysis **takes too much time** and **removes most forms of communication** for these people in distress.

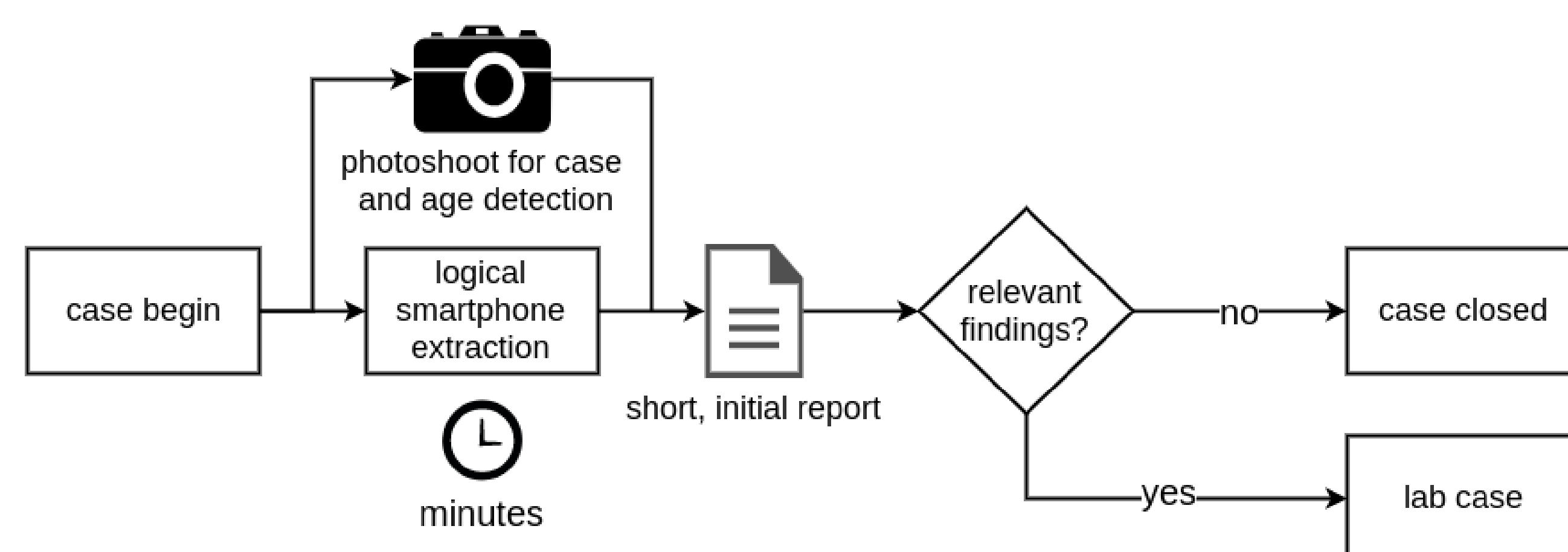
► Research Tasks

- **Identification of individuals** based on data found on a person's smartphone
- **Detection of unattended minors** through analysis of images taken in the field and other sources
- **Analysis of trends and used routes** by anonymizing and aggregating available location data
- **Gather information about the trafficker**

Testing and Integration

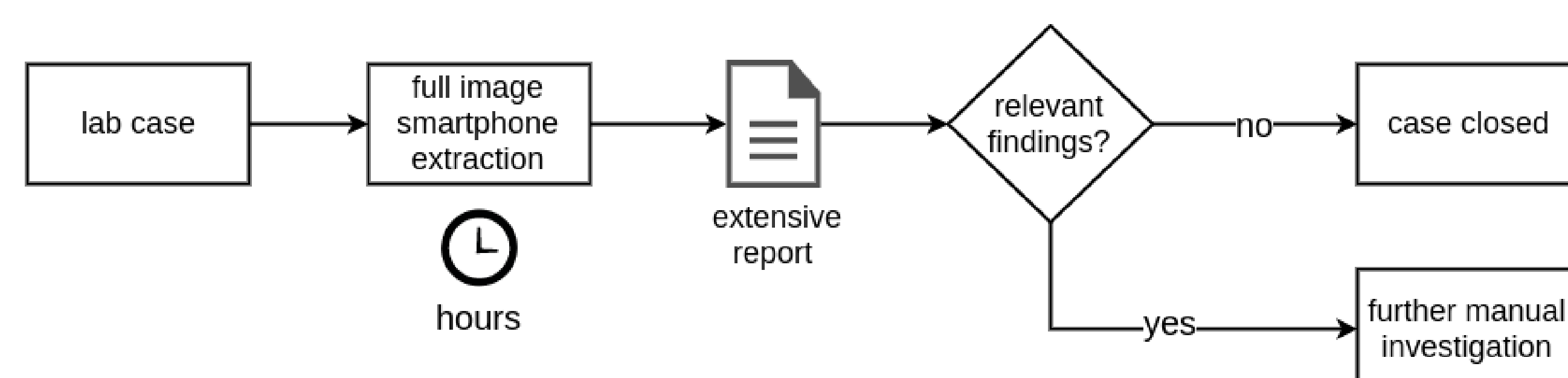
The tests are heavily integrated into the ongoing efforts of both the **BM.I (Austrian Ministry of the Interior)** and the **Bundespolizei (German federal police)** against human trafficking. This allows to **rapidly integrate and fix features**, so that officers working with the software get the **optimal solution**. Further, this makes it possible to use **real data for tests** and correctly adjust the used technologies for detection without having access to the data.

In the Field



Officers in the field need a **quick overview** of the data on the phone. Primary focus is on **identifying documents** like passports; the extraction also contains **location data**, which is important for strategic evaluation like **trend and route analysis**.

In the Lab



In the lab, an **automated and fast routine** is beneficial to keep devices as briefly as possible. Further, current processes are mostly manual, thus an **extensive preliminary report** can **free resources** for more and faster analyses.

Keypoints

- **Various data sources from the provided smartphone**
Phone numbers, contacts, text messages, images, device-specific data, location data, documents, connected WiFi
- **Techniques to spot relevant data while omitting irrelevant**
Machine Learning as in image recognition, text and dialect detection, document detection (e.g. passports)
- **Age estimation based on images**
Experimental checks to determine the age range of an individual (below 13, below 18, above 18).
- **Cross-checks between multiple cases**
Finding common identifiers to highlight potential traffickers, e.g., one and the same phone-number on n analysed smartphones.
- **Testing during the development**
Both the **BM.I** and the **Bundespolizei** heavily test the application in the field to ensure features work as intended and help effectively.
- **Extensive ethical and legal guidance**
Established guidelines how this project can effectively protect the individuals' privacy while providing valuable insights.

Trends and Routes

Through **manual export**, strategic evaluation can be provided based on **location data from multiple cases**. This data is anonymized through various techniques.

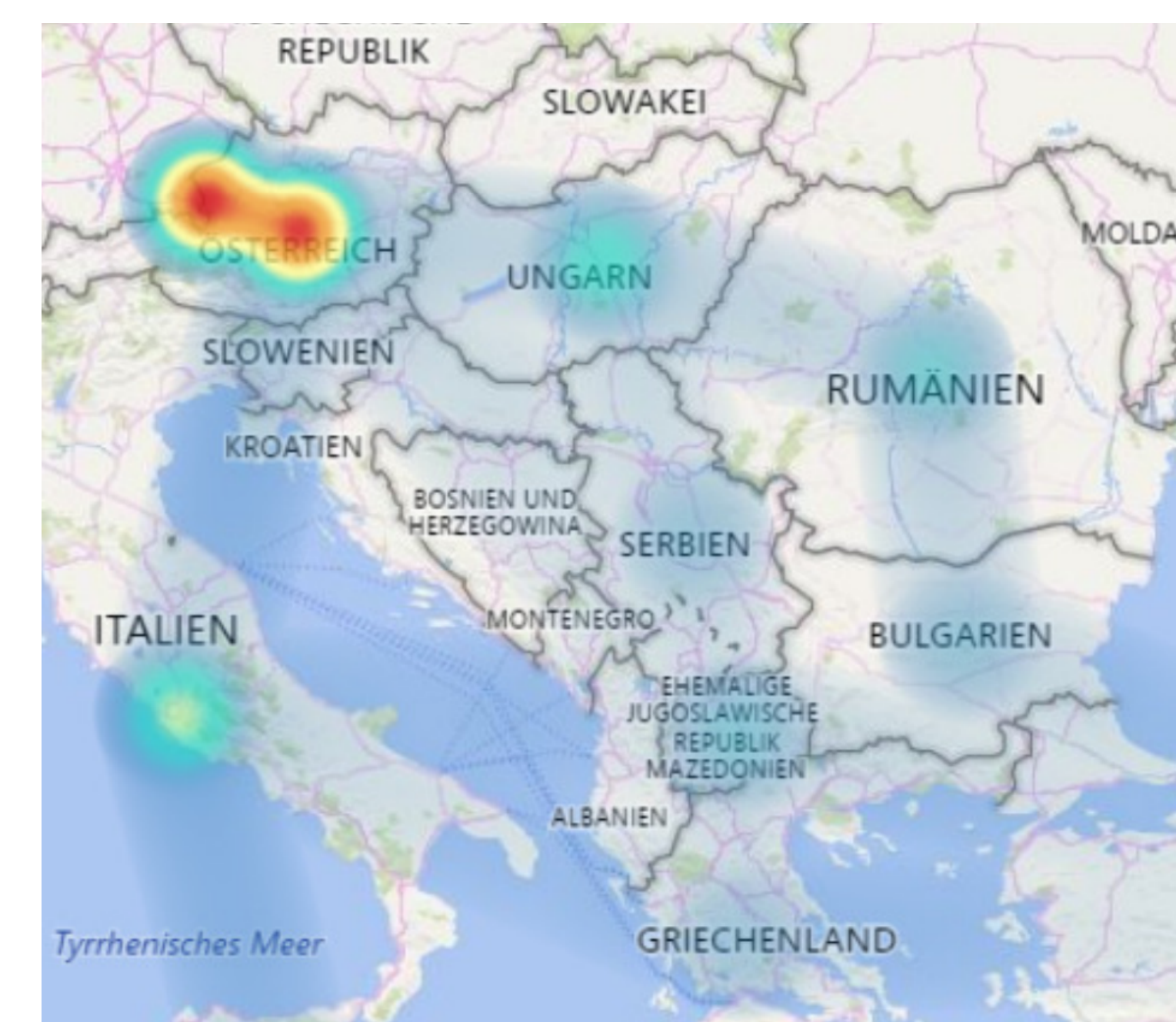


Figure 1: Demonstration of the trend and route analysis based on generated data

Conclusion

- SmartIdentification reduces the time needed per case by **providing information**, but **leaving the decision responsibility** with the officer in charge.
- People in distress get their smartphones back in a **more reasonable time**, as an extensive analysis in the lab is less often necessary.
- Valuable location data can be collected, providing better understanding of **trends during transit and the used routes**.