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International Institute for
Applied Systems Analysis

Fotoquest Go: A Citizen Science Approach to the Collection of in- situ Land Cover and Land Use Data for Calibration and Validation

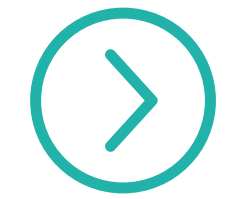
EARSeI Symposium
July 2 | Salzburg

WeObserve EO4CO Workshop



@FotoQuest_Go
@LandSense
@WeObserveEU

Motivation



Uncovering the potential of citizen science and earth observation to improve the way we see, map and understand the world



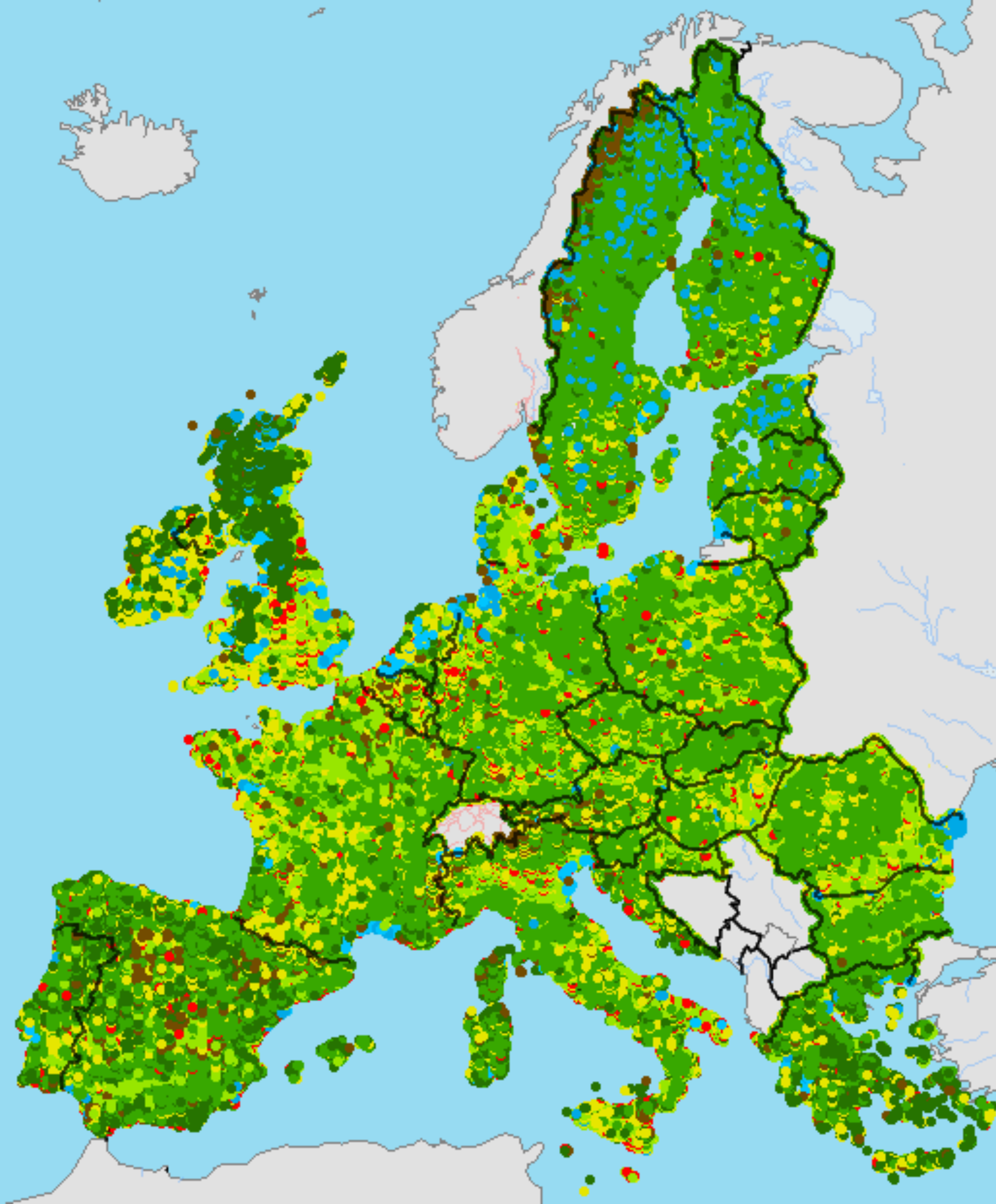
Improving the quality of Earth Observation-based Land Use & Land Cover (LULC) maps/products



Participatory process

- EO-based mapping has a conventional top-down approach
- It is possible to involve citizens and interested experts to crowdsource the needed information using a more participatory approach





Land Use/Cover Area Frame Survey (LUCAS)

- Systematic sample every 3 years
- Trained surveyors
- Validate CORINE land cover maps
- Publically available for cal/val of EO products

A more participatory approach to land use/cover mapping?





LandSense

A Citizen Observatory and Innovation Marketplace for Land Use and Land Cover Monitoring

Connecting citizens with satellite imagery to transform environmental decision making

September 2016 → August 2020

LandSense.eu

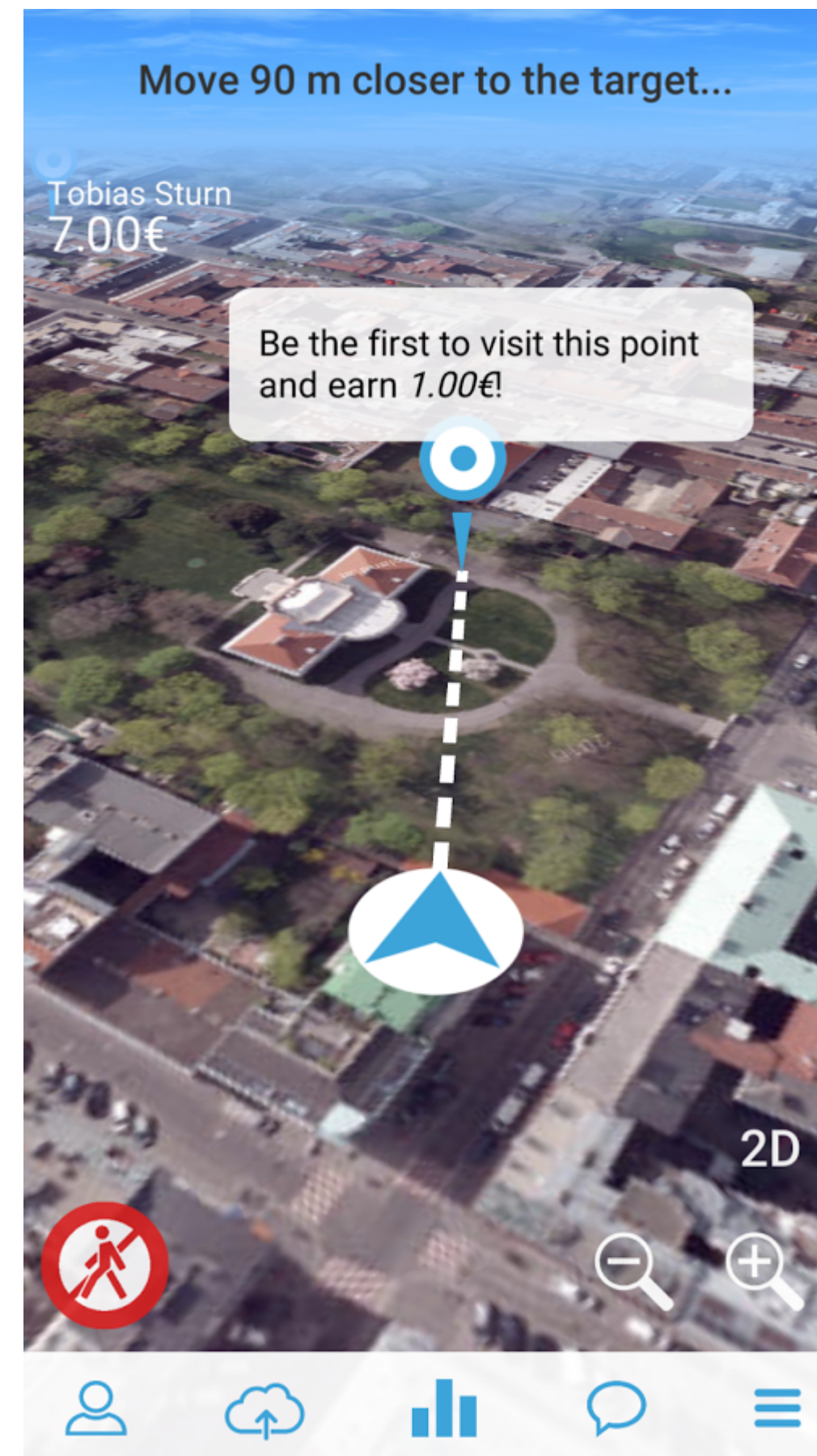
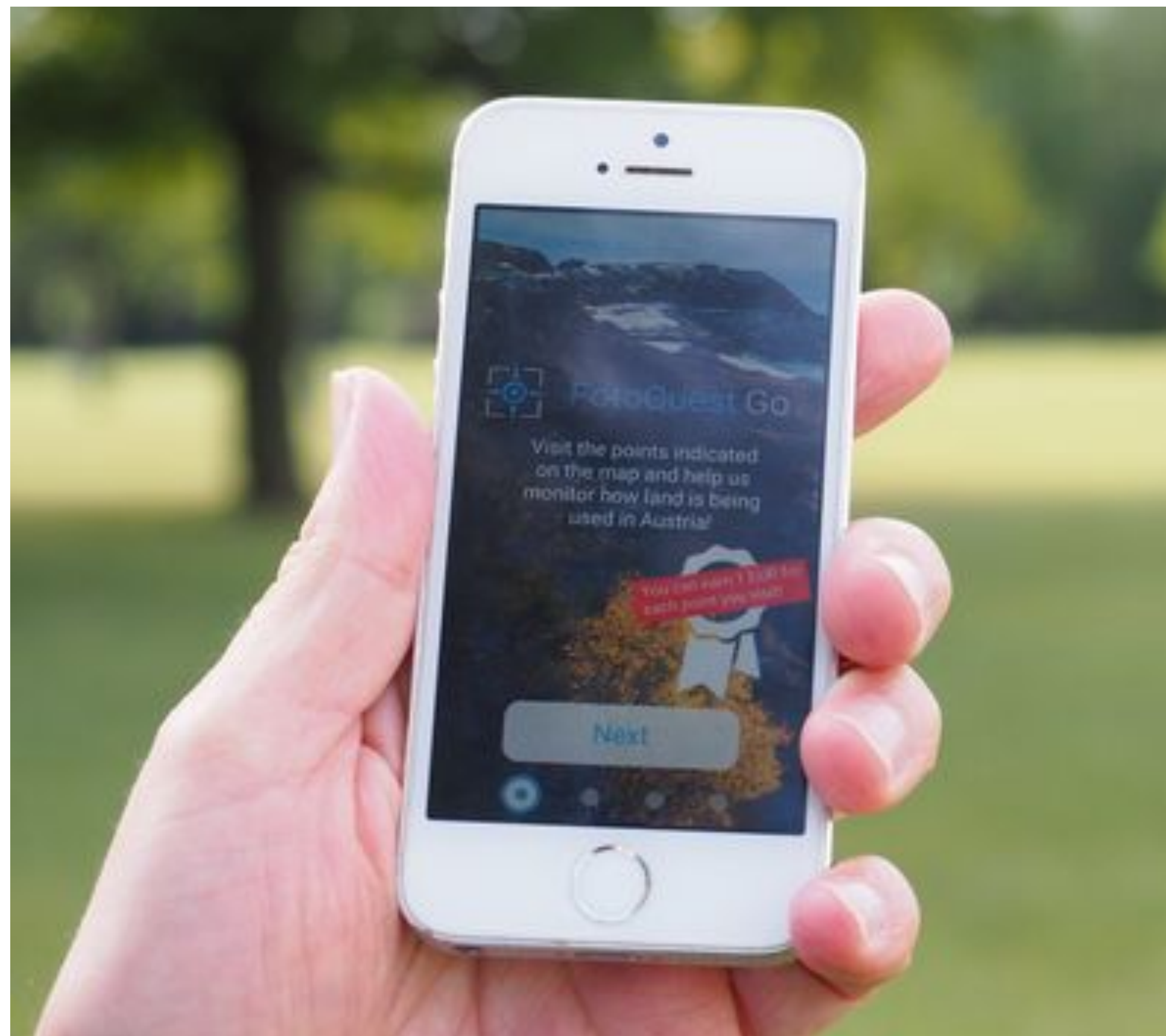


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 689812



FotoQuest Go

Mobile application for in-situ data collection to promote community-based LULC awareness and monitoring

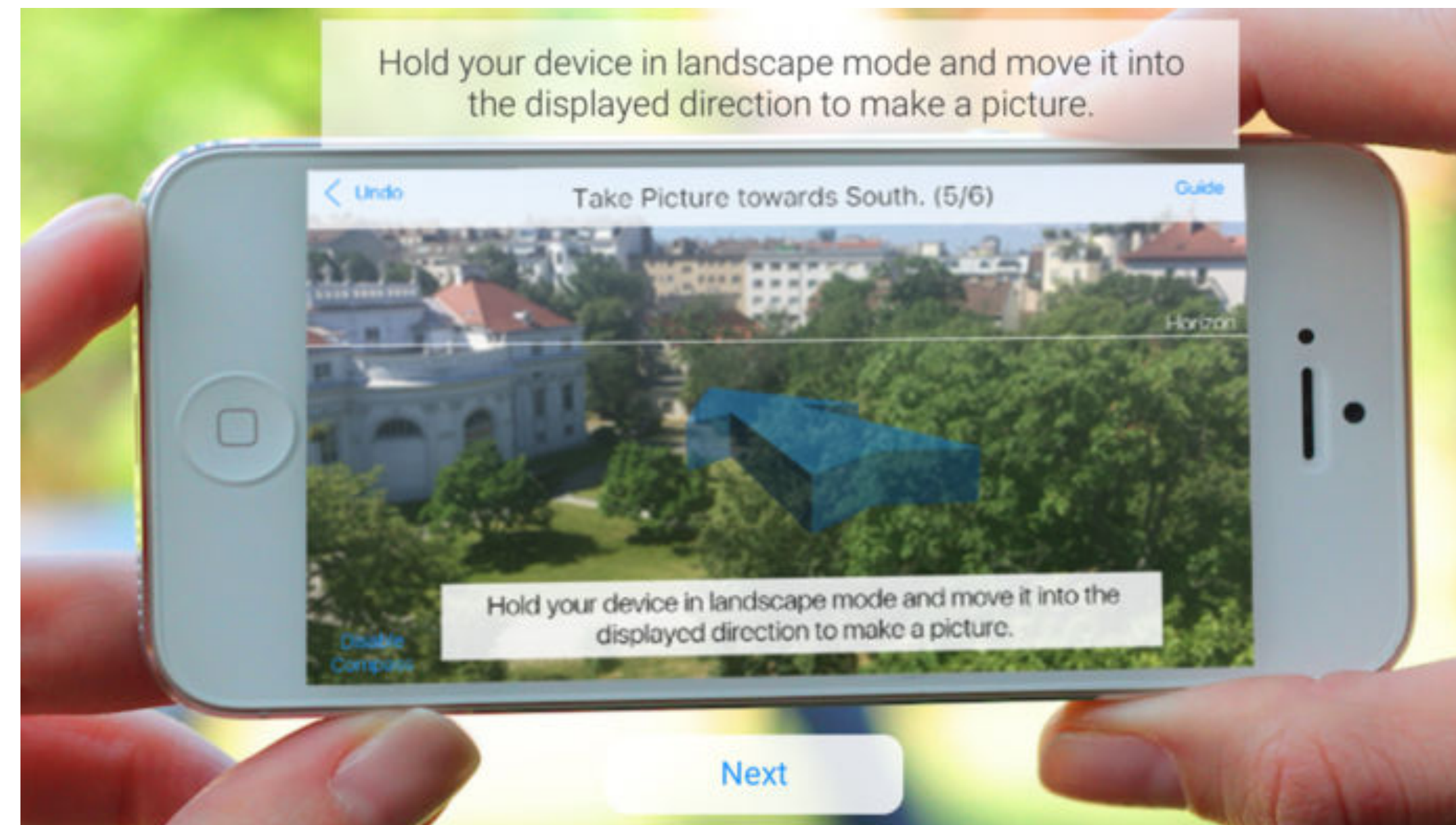
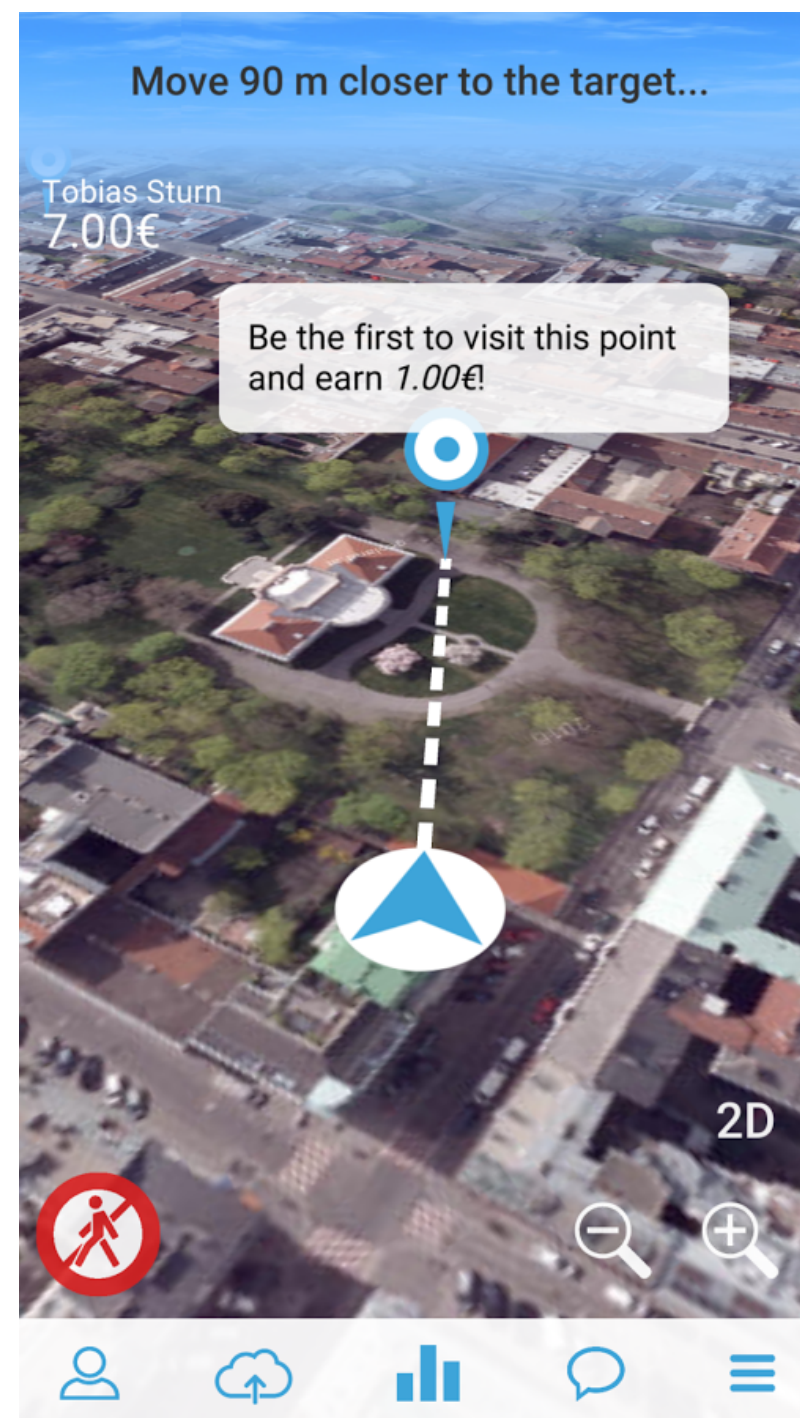


FotoQuestGo

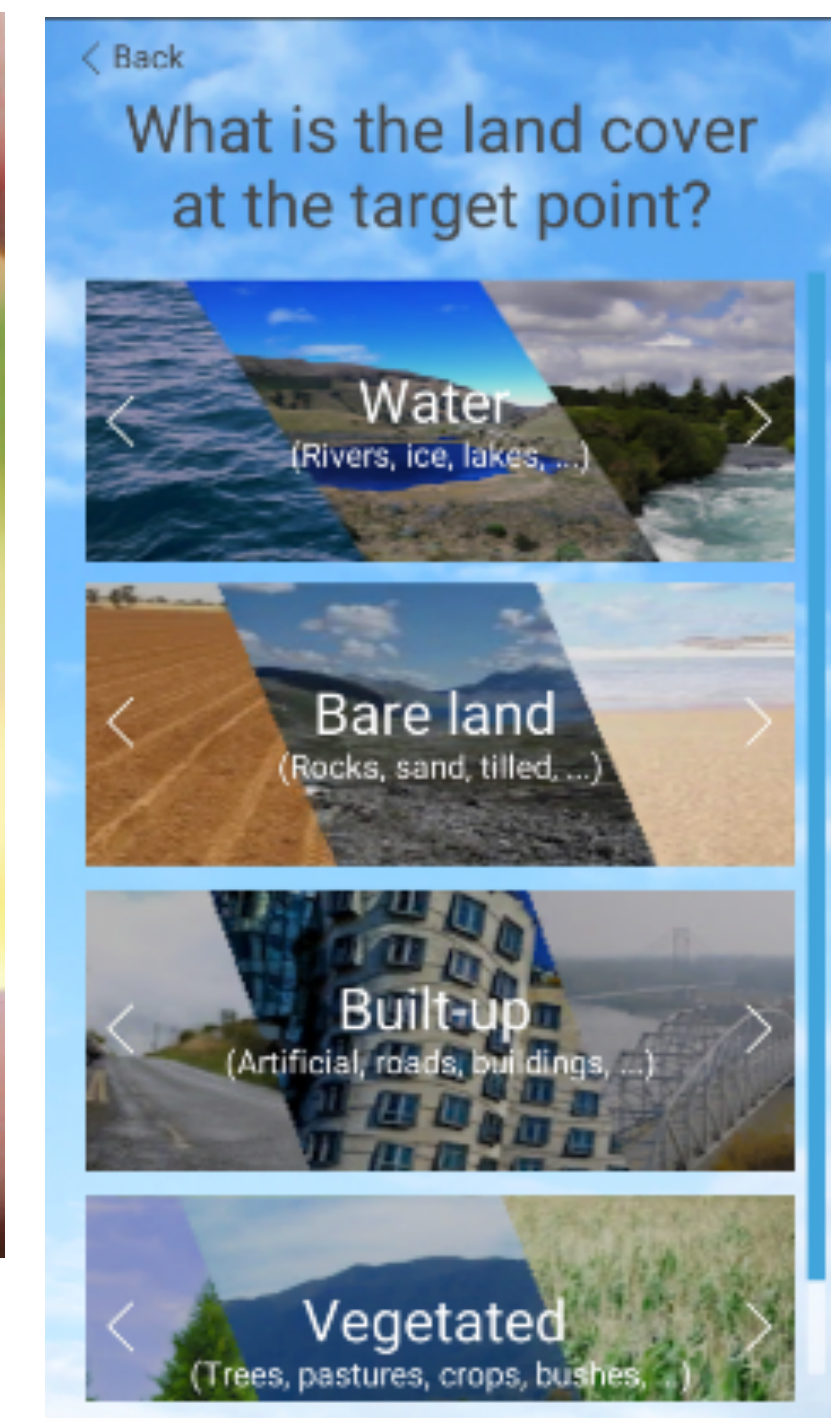
<http://fotoquest-go.org/>



FotoQuest Go



Photos in 4 cardinal directions plus target location itself



FotoQuest Go - 2018

June → September



138 users



1600+ quests



7600+ photos

Contributions

- User is at the exact location
- Land Use/Cover identified correctly
- Check change to previous LUCAS data
- Four photos taken in the cardinal directions
- Quality of photos

FQ Go

LUCAS

North



East



South

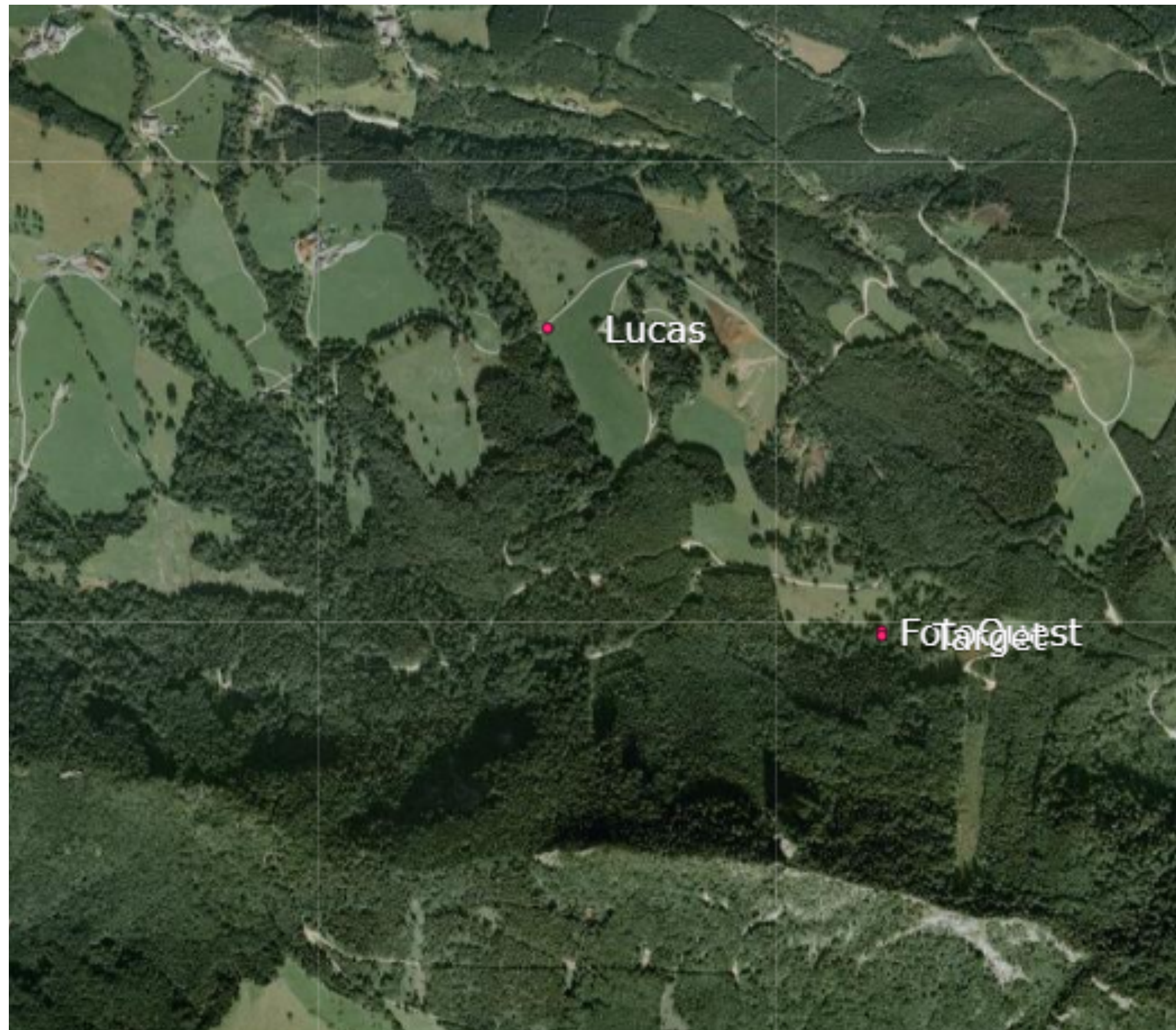


West



Good examples

- FotoQuest user is getting closer to the point than LUCAS
- LUCAS surveyors do not walk to very remote points
- FotoQuest user is reaching points in water!



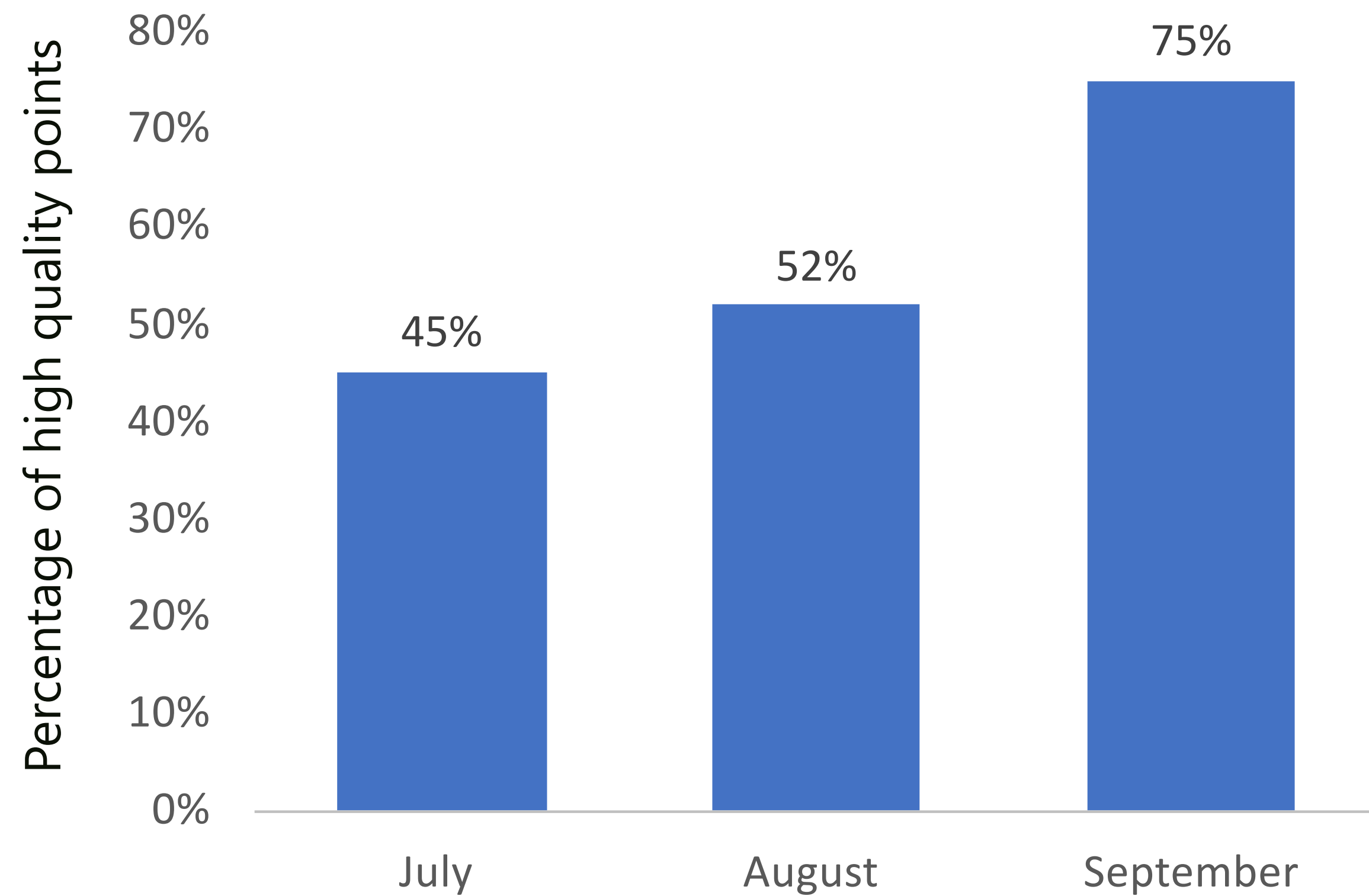
Not perfect examples

- FotoQuest user has not reached the target location
- User identifies wrong crop type or wrong field
- Photo quality & usability



Quality Feedback

- Financial incentive (€1 / point) for points approved by an expert





Lessons learned

- Feedback on quality and communication with participants is critical
- Evidence of learning can be observed
- Potential low-cost & valuable complementary dataset to LUCAS

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