The Next Generation of Citizen Observatories

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THE GROW OBSERVATORY

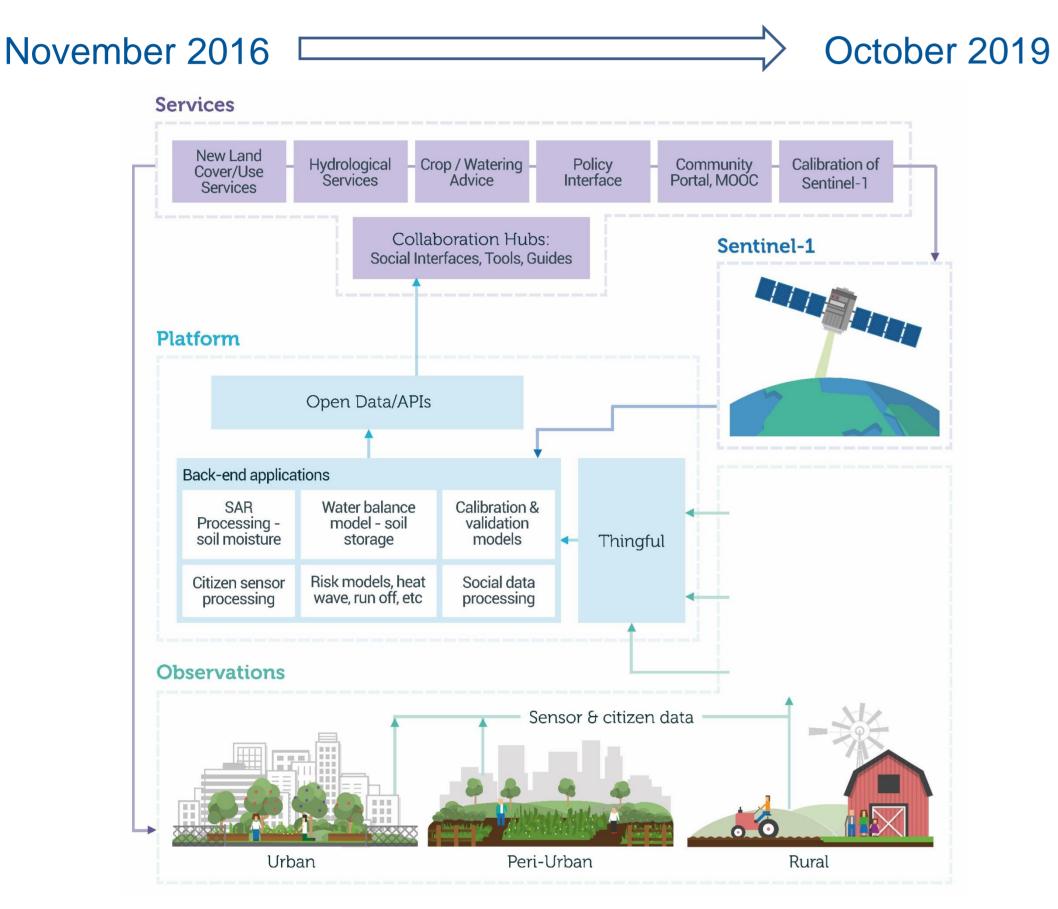### Collective intelligence and participatory citizen science for growing for food and sustainable land use

The GROW Observatory employs a citizen platform and community to generate, share and utilize information on land, soil and water resource at a resolution until now not previously considered. The vision is to underpin smart and sustainable custodianship of land and soil, whilst meeting the demands of food production, and to answer a long-standing challenge for space science, namely the validation of soil moisture detection from satellites. GROW will place the burning issues of a specific community of interest at the centre of the project from the very start. Low cost but high power consumer sensing technology, and an easy to use Soil Testing Kit, lower barriers to entry. A Massive Open Online Course (MOOC) facilitates the scaling of rigorous citizen observation, while engagement is underpinned by storytelling and community champions. A campaign-based approach engages citizens, scientists and policy makers to co-design coordinated sampling operations around particular needs and issues.

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SCENT

Smart Toolbox for Engaging Citizens into a People-Centric Observation Web

The SCENT smart toolbox consists of a crowdsourcing platform which will be used to collect images and text from citizens. This will extend the *in-situ* infrastructure to support the calibration and validation of satellite-based remote sensing imagery. Coupled with this platform is the SCENT intelligence engine which will utilize innovative machine learning to classify & annotate images and text sourced from citizens and existing open platforms. In addition, a serious gaming application will be developed to annotate unutilised images from such platforms (e.g. Flickr, Panoramio), as complementary data sources to quantify the impact of land-cover and land-use changes in the context of flood risk prediction. The project will test and validate the SCENT toolbox in two large scale pilots, the urban case of Kifisos river in Attica, Greece and the rural case of Danube Delta in Romania. The anticipated people-centric observation web will be OGC-compliant and serve as a valuable resource to GEOSS portal.

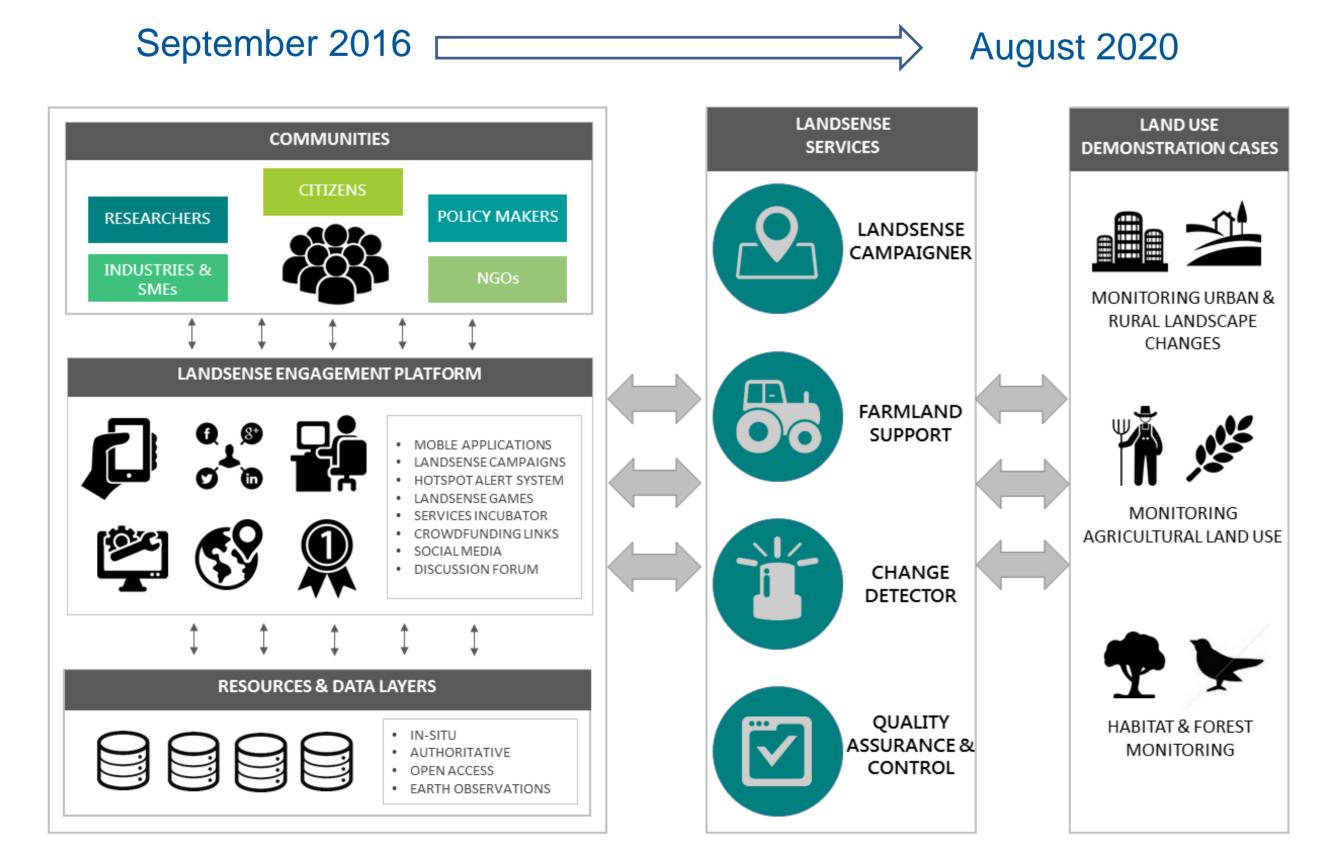September 2016 ⟶ August 2019

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LANDSENSE

A Citizen Observatory and Innovation Marketplace for Land Use and Land Cover Monitoring
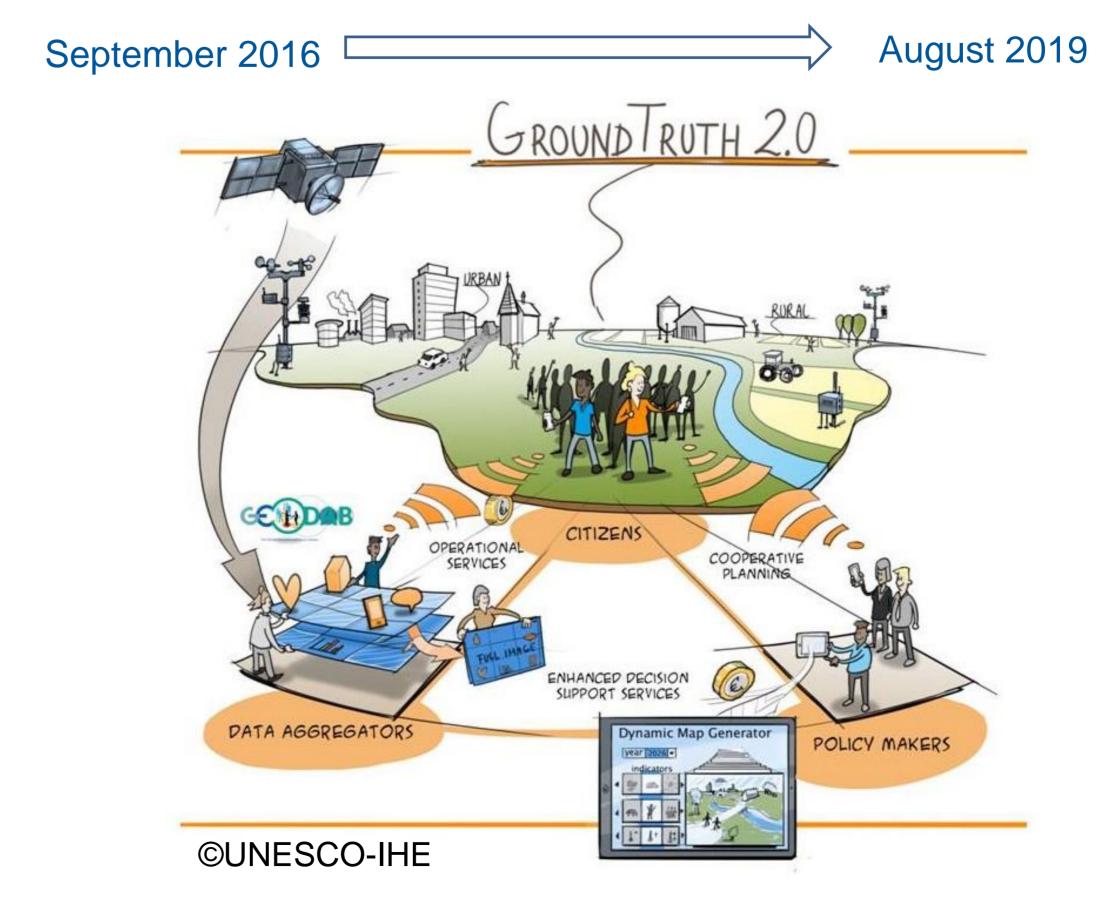
The overall aim of the LandSense project is to build an innovative citizen observatory in the field of Land Use Land Cover (LULC), which collects data both actively (through citizens) and passively (from authoritative, open access, and other citizen-based initiatives) and integrates them into an open platform that provides valuable quality-assured *in-situ* data for SMEs, larger businesses, government agencies, NGOs and researchers. The LandSense citizen observatory will integrate and scale-up existing technologies to offer four highly applicable services across the LULC monitoring domain - LandSense Campaigner, Farmland Support, Change Detector, and Quality Assurance & Control. Once this federation of services is in place, the project will demonstrate the four LandSense services through focused campaigns on monitoring land resources in both urban and rural contexts across the EU and internationally. In addition, the anticipated LandSense Services Incubator will create a collaborative network of relevant stakeholders, including a critical mass of SMEs, to stimulate rapid adoption and uptake of LandSense products and services in the long run.

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GROUND TRUTH 2.0

Environmental knowledge discovery of human sensed data

Citizen observatories can help improve data collection, cooperative planning and environmental stewardship of stakeholders who can jointly take care of the environmental system addressing complex, cross-cutting problems. Ground Truth 2.0 aims to strengthen the full feedback-loop in the information chain from citizen-based data collection to knowledge sharing for joint decision-making, cooperative planning and environmental management. With an emphasis on social dimensions (i.e. issue-driven citizen observatories, incentivization strategies) the project will customise, test and validate interoperable and scalable technologies for large scale citizen-based data collection that lower costs compared to existing data sources. The planned demonstration activities will not only empower citizens' active roles in planning, decision making and governance, but also improve land-use mapping in terms of availability of land-use data, consistency of time series of maps and accessibility to land-use information. Ground Truth 2.0 will also focus on creating sustainable business opportunities and market access (EU and worldwide) for the uptake of its products and services.

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