P08: Trees counting

Maturity score	
Mean: 2.4	**STD:** 0.70

Constraints and limitations

- Cloud presence
- Machine learning model uncertainty

Relevant user needs

UN31: Need to link tree planting parcels to estimate the number of trees planted.

R&D gaps

- Cost of Very High Resolution (VHR) satellite imagery which is essential for the product.
- Global inconsistency due to the diversity of tree species.
- Limitations in homogeneous forests where the trees are connected to each other.
- The lack of local in-situ data to train and validate the models.
- Lack of spectral resolution to differentiate between tree species

Potential improvements drivers

- Advances in AI models to detect and count individual trees.
- Datasets for training and validating the models.
- Price models for commercial EO data.
- Fusion of hyperspectral and multispectral EO data.

Utilisation level review

Utilisation score	
Mean: 2.14	**STD:** 0.64

No utilisation:

Unawareness of the existence of this EO product

Low utilisation

- Higher cost of using the commercial EO product.
- The current method (manually counting for a sample area and multiplying up to estimate the whole area) is considered good enough in terms of accuracy, reliability, and price.
- Ground truth data is not sufficient for counting individual trees.

Medium utilisation

- Unawareness of the existence of the best available commercial EO product with better specifications.
- Higher cost of using the best available commercial EO product .

High utilisation

Critical gaps related to relevant user needs
Utilisation gap UN31: Need to link tree planting parcels to estimate the number of trees planted