For nearly a decade, Definiens has been the image analysis solution of choice for industry leading data providers, value adding organizations, and remote sensing professionals.

With the emergence of LiDAR as an exciting new data format, Definiens’ object-based image analysis approach has proven to be perfectly suited to the extraction of intelligence from LiDAR data by a global user community.

**Definiens image analysis for LiDAR**

- Fully integrate into existing workflows
- Automate data filtering and classification
- Conduct sophisticated data fusion
- Create urban planning, forest inventory or land cover applications
- Add value to LiDAR data

**Efficient workflows**

By fully integrating into existing workflows both processing and editing can be streamlined resulting in higher automation and throughput.

**Leveraging data synergies**

By applying an object-based image analysis approach, Definiens overcomes the boundaries of differing data types, sources and resolutions. Data from optical sensors, LiDAR and GIS vector information can be fused leading to more detailed and higher accuracy of results.

**Building LiDAR solutions**

Definiens’ image analysis technology provides all components necessary to build solutions tailored to the specific needs of a subject matter expert. This allows additional revenue to be generated based on LiDAR data.

Figure 1: Airborne photography, LiDAR data and GIS vector information is fused to generate impervious surface maps on a cadastral level.
LiDAR based applications
Definiens’ software offers the unique capability of fusing data from various sources. Therefore LiDAR can be combined with other available data like aerial photography, satellite imagery as well as cadastral vector layers. Leveraging this capability, Definiens’ customers optimize their available LiDAR data to bring innovative solutions to market.

Example applications
Urban tree canopy (UTC) assessment
Definiens’ software has been used to develop an urban tree canopy (UTC) assessment application which is in use by several major US cities to establish their tree canopy goals. The aim of the UTC assessment is to increase the decision maker’s understanding of their urban forest resources. This in particular aims at accurately quantifying the amount of tree canopy that currently exists, and the amount that could exist, for the purpose of planning healthier and more sustainable urban environments.

![Figure 2](UTC land cover results overlaid on LiDAR data)

![Figure 3](UTC land cover results overlaid on imagery)
Multi-purpose, GIS ready data

Lagen Spatial, a Definiens’ partner, has developed an application on Definiens’ image analysis platform that allows local governments in Australia to quickly segment and classify aerial photos in combination with LiDAR. The results can be viewed in conjunction with traditional GIS layers, such as the cadastre, within a purpose-built system. Outputs can also be imported into all popular GIS and CAD platforms for further analysis. With a wide range of extractable features, the potential uses are manifold:

**Generated GIS layers**

- Building Footprint
- Pervious / Impervious Land Cover
- Sealed / Unsealed Roads
- Vegetation Identification
- Parks
- Water / Dams
- Building Heights

**Potential uses**

- Flood Modeling
- Zoning Information
- Vegetation Analysis
- Illegal Clearing
- Illegal Dwellings
- Planning Approval
- Asset Management

Image analysis software for Earth Sciences

Definiens enables organizations involved in Earth Sciences to quickly extract accurate and reliable geo-information from any kind of remote sensing imagery. With Definiens, you can create your own image analysis applications specific to your individual needs. This allows your end-users to shift their efforts from quantifying and organizing results to analyzing and interpreting them.
The Definiens Enterprise Image Intelligence® Suite is the platform on which image analysis applications are built and executed:

**Definiens Developer** is a powerful development environment for object-based image analysis.

**Definiens Architect** enables non-technical users, such as domain experts to easily configure, calibrate and execute image analysis workflows created in Definiens Developer.

**Definiens eCognition® Server** software provides a processing environment for the batch execution of image analysis jobs.

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**Client Software**

**Server Software**

![Figure 6 Definiens Enterprise Image Intelligence® Suite](image)

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Definiens is the number one Enterprise Image Intelligence® company for analyzing and interpreting images on every scale, from microscopic cell structures to satellite images.

The patented Definiens Cognition Network Technology®, developed by Nobel Laureate Prof. Gerd Binnig and his team, emulates human cognitive processes of perception to extract intelligence from images. If you are interested in learning more about how Definiens could address the challenges you face, please visit our website.

[www.definiens.com](http://www.definiens.com)