

PROinfra

Digitale Wartung und Instandhaltung

PROinfra for Civil Engineering

Digitization and visualization of structural data for bridges, roads, tunnels, and retaining walls.

English version



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What is PROinfra?

PROinfra is a solution for the maintenance of structural infrastructure.

- ✓ PROinfra is a solution for the digitalization of maintenance data.
- ✓ PROinfra is a predictive maintenance solution for condition forecasts of structures based on modern AI methods.
- ✓ PROinfra is a data platform for the combined analysis of structural, sensor, BIM, maintenance, and other data, such as maintenance costs, weather data, and traffic volumes.
- ✓ PROinfra is an application for the targeted and sustainable planning and implementation of maintenance measures.

What is the goal?

With PROinfra, you improve your data management in maintenance. Structure your data and influencing factors specifically for meaningful predictions of condition development. Use the wealth of empirical data for **valuable decision-making support** and to **optimize day-to-day operations**.

PROinfra is a **modular and expandable solution** for:

- Digital maintenance and repair of buildings
- Predicting the condition development of buildings

Significant effects are achieved:

- Optimize maintenance measures
- Better plan scarce resources
- Use financial resources more effectively
- Significantly optimize maintenance costs
- Access empirical data faster
- Plan new buildings more sustainably
- Compensate for the shortage of skilled workers
- Use AI in a targeted manner





Which structures are processed?

The PROinfra Basis for civil engineering processes all data on:

- Bridges
- Tunnels
- Retaining structures
- Roads

PROinfra is also used for **other structural infrastructure**:

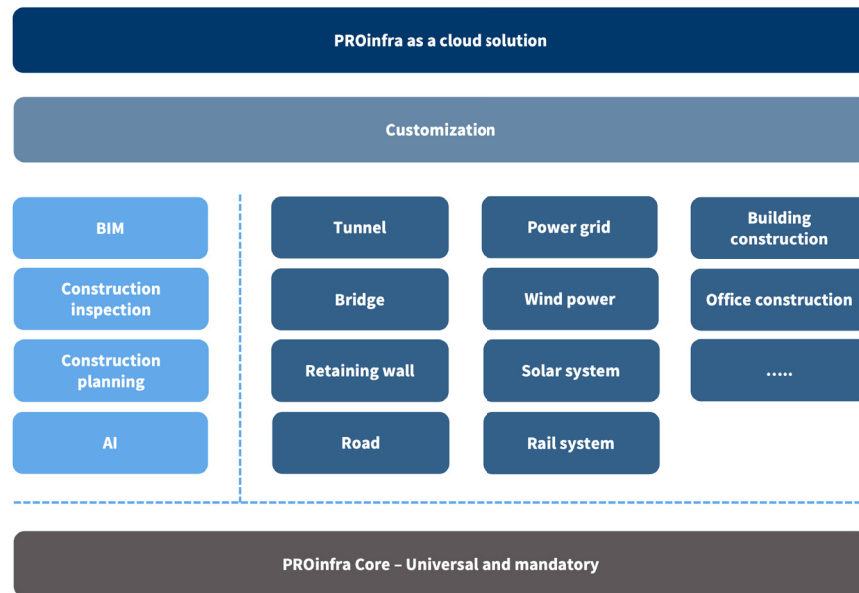
- Power grids and utility networks
- Wind turbines
- Building construction
- Civil engineering
- Special construction
- Other...

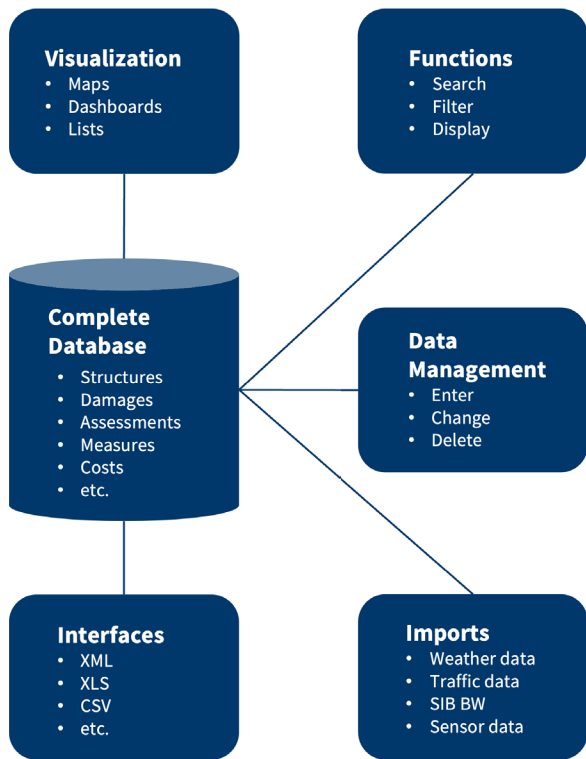
Why is PROinfra modular?

PROinfra can be **used specifically for specific structures**, so that only the corresponding specialist modules, for example, the „Bridge“ specialist module, are required. This allows PROinfra to grow gradually and ultimately map digital twins.

An example demonstrating the benefits of modularity:

1. You start with the „PROinfra Basis“ and, in the first step, digitize your database for bridges, roads, tunnels, and retaining structures. You can also divide this step and, for example, start only with bridge structures.
2. In the second step, you can use the „Bridge“ specialist module to implement analysis methods and condition forecasts.
3. You gradually expand the analyses and condition forecasts for other structures and use additional modules (BIM, AI models, sensor technology) in combination to increase the efficiency of action planning.





What does the basis offer?

The **PROinfra data platform** is based on the following data:

- Complete building records
- Maintenance histories, inspection reports, etc.
- Damage histories, including damage sketches
- Image data, photos, videos, etc.
- Maintenance measures
- Costs for new construction and maintenance
- Condition rating histories

Standard data visualization:

- Map display, list display, and dashboards

Standard interfaces:

- Standard data interfaces (e.g., CSV, XLS)
- Interface to SIB BW
- Interfaces to weather data
- Import of traffic data and more...
- Import of sensor data
- Other, even customized, interfaces...

What other data can be used?

In addition to the basic data, all data relevant for the creation of condition forecasts and analyses can be processed. In addition to historical maintenance data, sensor data, traffic data, and weather data can also be processed.

What data influences the condition of structures?

- External and material damage
- Traffic and weather data
- Histories
- Asset data
- Geological hazards and ground movements
- Expert knowledge and much more





What are the basic functions?

PROinfra is already **equipped with extensive standard functions** to optimize the management of maintenance and structural data:

- Display of all data in list form, as maps, and as dashboards
- Data imports, data storage, and object linking
- Connection to external systems, e.g., other asset systems
- Cost evaluations of maintenance measures and cost comparisons of object types
- Display of condition and maintenance history
- Prioritization of maintenance/damage situations, damage location

Additional analysis and forecasting functions are available:

- Analysis of condition development between maintenance measures
- Simulation options, e.g., traffic simulations
- Forecasts of condition progression
- Forecasts of deterioration rates under certain conditions
- And many more...

What types of analysis are available?

The types of analysis depend on the respective application scenarios, e.g.:

- Relational or dimensional data evaluations
- Statistical (white-box) models, (black-box) learning models
- S-shape functions
- FMEA-based analyses
- Correlations of building properties
- Deterioration rates
- Similarity analyses, etc.

Generative AI models can also be integrated.

The results are presented in various forms:

- Dashboards with graphical objects and list objects
- Map representations of geographical and spatial relationships
- 3D visualizations
- BIM models





Is PROinfra being further developed?

PROinfra is a modular solution that is constantly being developed:

- The pricing model is not based on the number of users and includes a hotline and support.
- The pricing model is based on the modular structure and benefits.
- There are regular updates and further developments.
- PROinfra can be used on all devices (e.g., including mobile devices).

PROinfra is **extensible and platform-independent** and can therefore run as a solution in your own data center, with a hosting service provider, or as a service with a cloud provider. Hybrid deployment scenarios are also possible.

We offer **PROinfra directly as a service**.

PROinfra can also be used with small data volumes.

What are the first steps?

Depending on your initial situation, we will work together to determine how the database can be initially built. In an **initial, non-binding, and free analysis workshop**, we will discuss your current situation, clarify the effort required and the procedure for building the database, and answer, for example, the following questions:

- What maintenance data and historical data are available, and in what form, and how can they be digitized immediately?
- What other data is available, and which should be integrated?
- Which existing systems need to be connected?

The first goal is to obtain a uniform database so that appropriate analysis methods can be used in the next steps.

If you already have a digitized database, it can be used for the PROinfra forecasting and AI models.



Digitalization now. ”
Let's talk about a
discovery workshop.

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