BIM - digitalising engineering projects

INCREASE EFFICIENCY OF YOUR CONSTRUCTION AND MAINTENANCE PROJECTS

Building Information Modeling is the foundation for investment lifecycle information management. Are you ready for maximum transparency, safety and cooperation?

The nature of large, complex construction projects means that delays can happen and costs can inflate quickly. This can also lead to public criticism and damage company reputation. How can digitalisation help overcome these challenges?

CLIENT ISSUES

- How can new construction projects be carried out efficiently and safely?
- How can revamps with limited space or tight schedule be optimised?
- How can costs be predictable and deadlines kept without delay?
- How can infrastructure be maintained to ensure operational reliability?
- How can the entire lifecycle be modelled and operational costs calculated

REVOLUTIONISED PLANNING

Traditional building design was largely reliant upon two-dimensional technical drawings. Building Information Modeling (BIM) extends three dimensional visualisations (3D), enabling the augmentation of spatial dimensions (height, length, width) with both time (4D) and cost (5D).

Building Information Modeling (BIM) can help to revolutionise the way engineers and owners collaborate and significantly improve the planning process to minimise such issues.

- The model is developed in a coordinated and time efficient way. Design changes can be incorporated promptly and easily.
- The client has maximum transparency during the entire planning phase.
- Eonomic data and knowledge of day-to-day operation enrich the model in the design phase.
- Data for surface models is compiled with laser scanning or photogrametry enhanced with visual material from drone photography.

CASE - RAILWAY ENGINEERING IN GERMANY

Whilst the deployment of BIM in the German transportation sector is currently in a pilot phase, the first big railway construction projects are carried out by Pöyry experts. One example is the Fehmarn Sound Bridge that links the island Fehmarn to the German mainland. The aim of the project is to optimize transportation with the construction of a double-track railway as well as a four-lane road. All planning services for the project are conducted with BIM methodology.

CASE - EXTENSION OF GARE DE LAUSANNE IN SWITZERLAND

The train station in Lausanne is one of the biggest railway projects in Switzerland within the next century. The aim of this project is to extend the platforms, improve access for passengers and increase space for businesses. The construction will take place during operation time.

All planning services are conducted with Revit 3D software and models are regularly collated as well as reviewed by the BIM manager and the client. The current situation is incorporated with the help of 3-D laser scanning as well as existing plans. The 4-D model will include a representation of the construction process as well as deadlines, while the 5-D model will showcase cost implication on basis of the 3D-model.

CASE - HIGHWAY 6 TAAVETTI – LAPPEENRANTA IN FINLAND

Highway 6 is a main connection between Helsinki Metropolitan Area and South-East Finland. Due to the intense use of the Taavetti Lappenranta section by heavy duty vehicles, the aim of the project is a mass, haul and grade line optimization. The project is executed in a project alliance consisting of the client, the builder and the designer. The global project team uses advanced model-based BIM design. The Model is used for working machine control on-site and the final model is transferred for the client's maintenance purposes.

KEY BENEFITS

- Facilitates efficient planning and reduces scope for errors as well as stagnation on construction sites
- Promotes a high level of cooperation for multidisciplinary and virtual teams
- Offers a virtual reality that enables clients to review alternative construction possibilities and take comprehensive decisions
- Offers the possibility to calculate future operational and maintenance costs
- The final BIM model can be deployed during the entire lifecycle of a project

YOUR TRUSTED PARTNER

Pöyry experts leverage BIM methodology to take engineering from drawing generation to the next level. BIM methodology is not only utilised in the design phase but offers countless possibilites for wider deployement of virtual reality as for example in Health, Safety and Environment (HSE), for training purposes, information management, machine learning and artificial intelligence. For industrial plants Pöyry offers the Virtual Site service to leverage smart data.

Pöyry experts have adopted BIM especially for multi-discipline projects and welcome the opportunity to identify your project potential.

PÖYRY