Norwegian Public Roads Administration / VIANOVA

Civil Engineering and Construction

Design and Construct with Confidence

TRANSFORMING THE WAY THE WORLD WORKS

Trimble

Civil BIM

FOR THE COMPLETE PROJECT LIFECYCLE

Trimble´s unique BIM solution for civil engineering and construction projects significantly improves efficiency and productivity, while minimizing errors, waste and cost at every stage of the project – from planning and design, to construction, operation and maintenance.

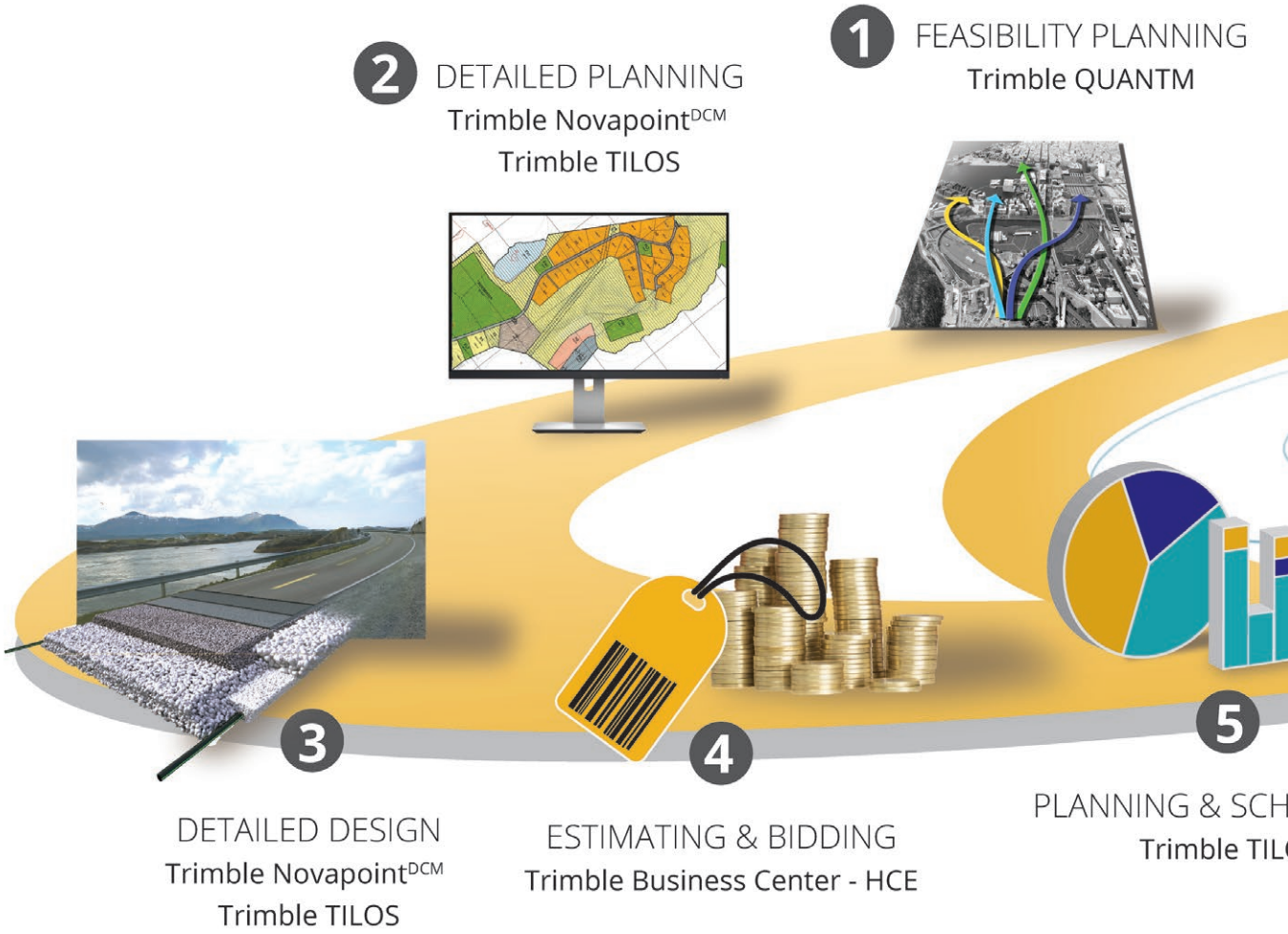
The solution is ready for BIM Level 3 – the most advanced state to date, allowing the model data to be used, extended and evolved throughout the complete project lifecycle by all stakeholders.

The shared, single project civil BIM model is enriched at every stage and, with Trimble´s specialized design and productivity tools, to bring you workflow efficiency and quality gains – all the way through the value chain.

PROJECT OWNERS

With Trimble solutions, owners have visibility, transparency and control over projects to achieve business goals.

- Optimize lifecycle project efficiencies through civil BIM – and save time and expenses all along the way
- Improve cost estimation and control
- Make better project decisions with joint model collaboration in the cloud
- Minimize errors and conflicts
- Improve overall quality
- Benefit from visual model communication for easier common project understanding
- Take advantage of the as-built model for future operation and maintenance



DESIGN ENGINEERS

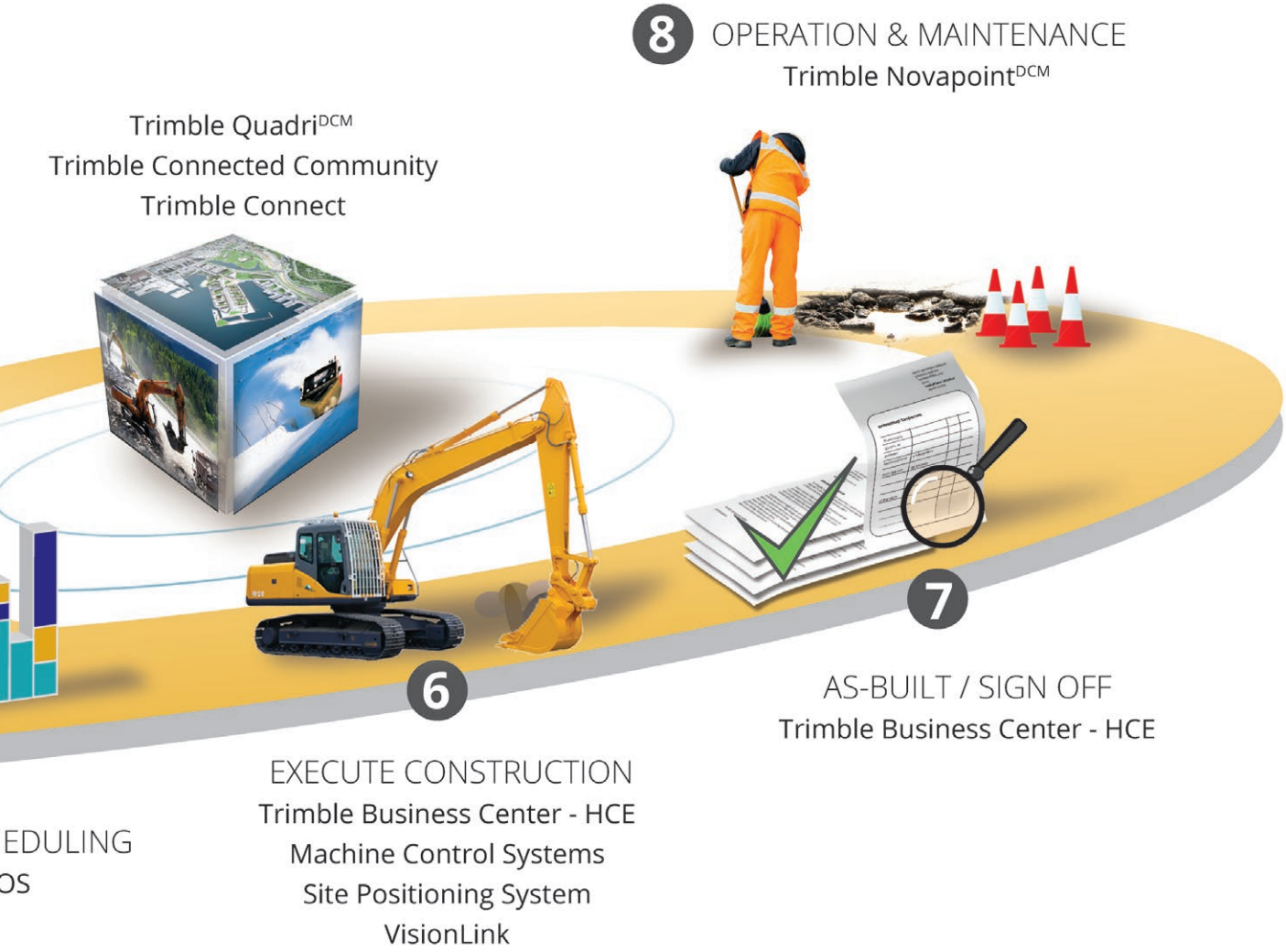
With Trimble solutions, engineers optimize the design process with the most advanced solutions

- Benefit from unique multi-user and multi-discipline modeling collaboration in the cloud
- Improve design efficiency and control with a full range of world-class, integrated, multi-discipline civil BIM design tools
- Optimize project quality by minimizing design errors and conflicts
- Enjoy higher hourly rates
- Achieve optimal design results

CIVIL CONTRACTORS

With Trimble solutions, contractors have precise, accurate solutions that optimize control over every phase of the project – from pre-bidding to on-going maintenance

- Improve estimating and bidding by getting involved in the civil BIM collaboration process early on
- Extend civil BIM data with construction-ready information – no need for re-modelling
- Visualize what to build through the virtual constructible model
- Use the BIM constructible model for machine control and surveying
- Create multiple "what if" scenarios
- Minimize construction errors and change orders – and enjoy better quality
- Complete the BIM model with as-built documentation – for future project operation and maintenance



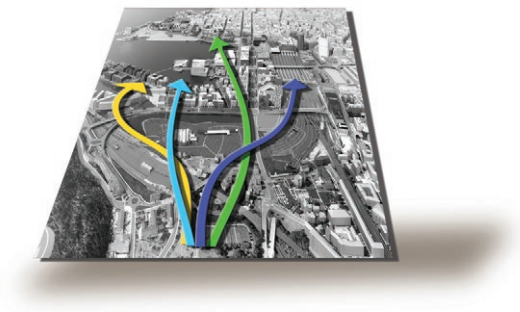
Plan
WITH CONFIDENCE

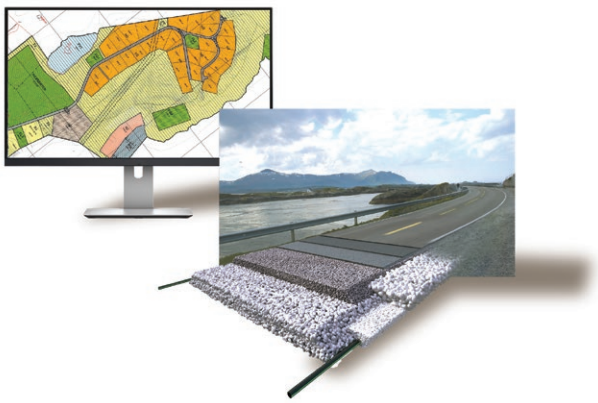
Planning and Design

PLAN

Trimble Quantm provides alignment planning so you can plan a new highway or rail project more efficiently, helping you to find and analyse a number of alternatives faster. The system is of most value when used from the initial project scoping stage, when greater flexibility can be allowed to identify the full range of corridor alternatives.

Trimble helps your engineers through the complex process of selecting and generating optimal 3D corridors and route alignments.

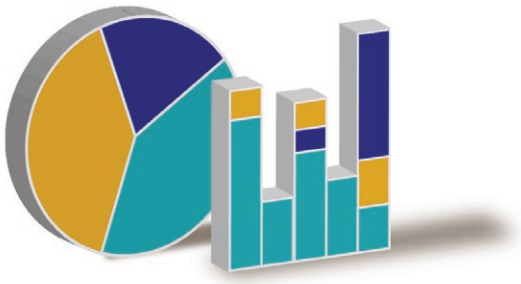




DESIGN

Trimble Novapoint^{DCM} combines a powerful object-oriented and work process-based modelling application, Novapoint^{DCM} Base, with 20+ Novapoint domain design applications. Together with the cloud-based BIM server and collaboration platform Quadri^{DCM}, they comprise the industry´s most comprehensive BIM solution – covering road, rail, water and sewer, tunnel, bridge, landscape. – all aspects of modern infrastructure design, throughout the complete Design – Construct - Maintain (DCM) process.

With Trimble Novapoint^{DCM} you can build a complex model of the infrastructure efficiently – including 3D terrain surfaces, 3D sub-surface layers, and 3D structures such as buildings, bridges, road signs, pipes, manholes, cables, vegetation.



SCHEDULE

With Trimble TILOS you can plan and manage your projects more effectively. Linear construction and maintenance projects present unique challenges, because the work is not performed in a single location. TILOS software merges both the location and the schedule dimension into one combined time and distance graphical view that changes dynamically as conditions change.

By incorporating design details, construction challenges and the project schedule into one view, contractors, owners and civil engineers can plan and manage linear projects more effectively.

COLLABORATE

Trimble Connect and Trimble Quadri^{DCM} are a cloud-based collaboration sevices providing a collaboration platform. All civil engineers and stakeholders share a central seamless project model – facilitating tight teamwork between planners, designers, contractors and the project owner. Trimble Quadri^{DCM} is the key to achieving BIM Maturity Level 3, including support for open formats like LandXML, GML and IFC.

Trimble Quadri^{DCM} provides a standardized, multi-discipline and concurrent work environment, taking full control of the complete result. Using Novapoint^{DCM} the civil design project team members are working within the same process, sharing and receiving each others work continuously, hence substantially increasing productivity and quality.

Construct
WITH CONFIDENCE

Construction

CONSTRUCT

Trimble Business Center - HCE is an integration solution ideal for a wide range of construction applications. The platform provides users with the capability to efficiently edit, process, and adjust geospatial data and create deliverables with optimum mass haul confidence.

The solution includes powerful field data management, efficient data model handling, material quantity takeoff, mass haul analysis, and project analysis and visualization, plus much more.

From the bid stage through construction planning and scheduling to construction operation management, Business Center - HCE will eliminate mistakes, provide better project visibility, reduce rework, improve material and equipment utilization and eliminate waste.

CONTROL

Trimble VisionLink® can effectively help you control costs and increase efficiency on the construction site. The system leverages the constructible model for management and monitoring of mass haul operations on the project. VisionLink integrates site productivity, material quantities and materials movement with asset and fleet management to give you a holistic view of your site so you can make the right decision at the right time.

COMMUNICATE

Connect everyone on the job – from the owner to the operator – so your project is on-time and on-budget. Trimble Connected Community is a custom web-based service that connects everyone, helping you manage and share information in real-time using the internet. Whether you're in the office working on a design or in the field working on a machine, you'll be in the know.

With a Connected Community subscription plan, you can stop wasting valuable hours driving out to the jobsite and start managing your crew, devices and sites effectively from the office.

OPERATION & MAINTENANCE

The civil BIM model evolves in the planning and design phase and is completed with as-built information in the construction phase. The model then becomes of great value in the operational phase of the built infrastructure. Every object comprising the infrastructure – above and below the ground – resides in the model and can be reused in a maintenance system. You have easy and full control – in maintaining the road or rail, in making adjustments or upgrading as time goes, or simply monitoring the status.

Civil Infrastructure Projects

CUSTOMIZED CIVIL INFRASTRUCTURE PROJECTS

Whether designing site-based projects (ports, harbors, airports, sports complexes or shopping malls) or linear projects (roads, railways, waterways, or pipelines), one thing that all civil infrastructure projects have in common is that they all follow the complete project lifecycle. From planning and feasibility analysis, through civil design and construction, and on through to the maintenance and operation of the project, these projects are complex and require seamless collaboration.

Contributors to civil infrastructure projects are diverse. More and more of these project types are being built under the Public, Private Partnership process (PPP). In this case, the Owner, Engineers and Contractors form a consortium for the lifecycle of the project and work collaboratively to deliver the best value for the Owner, and take a share in the profits as well as the risks of the project. With a mutual investment from all stakeholders in a PPP, and the need to operate and maintain the infrastructure, there are greater demands for superior project quality to mitigate the costs associated with maintaining the asset over the operating contract lifecycle.

Using BIM, model-based construction can eliminate waste by identifying clashes, planning for construction sequencing problems, and better planning and scheduling processes. The connection between project collaborators around the BIM model and construction processes has never been more important, driving changes in the industry that streamline processes that call for a common and living model throughout the continuum that is used by all stakeholders, and all assets that are carrying out the construction efforts.

Trimble:
Transforming the way the World Works

Trimble provides the tools and support to let you integrate planning, design, site positioning, machine control and asset management information throughout the construction life cycle for more efficient operations and higher profits.
Contact Trimble or your local dealer today to learn how easy it is to utilize technology that makes significant improvements in project workflow, dramatically increases your production, improves your accuracy and lowers your operating costs.

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