

An aerial night view of a city street grid. The central focus is a large, circular roundabout with a landscaped center featuring greenery and a central monument. White arrows on the road surface indicate a counter-clockwise flow of traffic. The surrounding city blocks are illuminated by streetlights, creating a warm glow against the dark night sky.

Plan, design, and build roadways to last

Make your work life easier by unlocking
the full potential of digital project delivery.

 **AUTODESK**

Introduction

Road and highway owners like you have a lot of responsibility when it comes to maintaining an optimum transportation system to keep the public travelling safely. Not to mention planning for your communities needs in the future.

With evolving technologies, the process of planning, design, building and operating roads and highways systems is also adapting. One of the greatest challenges you face today, is sustainably accelerating the digital transformation journey, to meet the needs of a growing population, as well as Sustainable Development Goals (SDGs).

This provides you with a great opportunity to improve digital delivery through the project lifecycle. In turn, this will drive beneficial, resilient, and positive outcomes for the rapidly changing transport industry. Improved operation and maintenance is only achieved when the whole team approaches digital transformation with a new, aligned mindset.

Teams are empowered to design transport solutions using technologies such as cloud collaboration, integrated BIM & GIS, and interoperable systems that speak the same language. Take charge and define requirements such as interoperability, openness and flexibility, to build resilience for a more sustainable future.

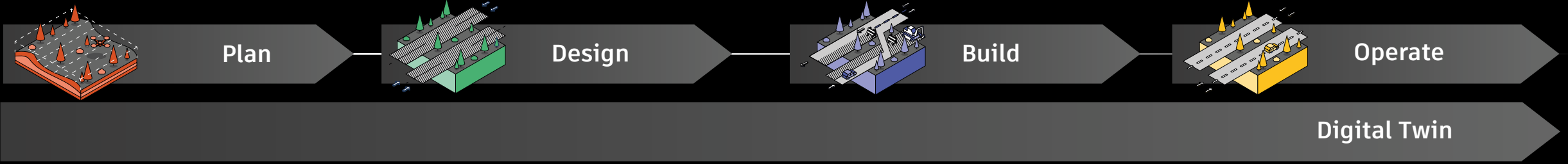
↖ ↗ **Invest in your digital journey today**
↙ ↘ **for better roads and highway solutions.**



Transform your digital maturity with BIM

02

Improve digital delivery with cloud collaboration, integrated BIM & GIS, and interoperable systems.



Connect. Manage. Perform.

The Autodesk solutions that make it happen.

Data Platform.

Streamline project management on one centralized platform. Tools include BIM Collaborate, Takeoff, Build and more.

Design solutions.


A complete set of tools and workflows for all your design and engineering needs. Tools include AutoCAD, Civil 3D, Revit, InfraWorks, ReCap Pro, Navisworks, and more.

- Gain permission-based document control and approvals.
- Centralize issue tracking and reduce rework.
- Enhance transmittal management and tracking.
- Manage the exchange of data, visualize design process, supercharge collaboration.
- Automate clash detection and issue management for constructability.
- Leverage project data and dashboards to identify trends, mitigate risks, and improve decisions.
- Connect field and project management workflows.
- Manage quality and safety issues in one common data environment.
- Perform construction engineering, conduct scope analysis, and calculate quantities.
- Unlock easy handover to asset management system with a common data environment.
- Access and track your project data to keep your transportation system running.


- Capture and digitize as-built conditions.
- Analyze, simulate and prioritize roadway projects.
- Accelerate the design process by utilizing BIM tools for preliminary design.
- Draft, annotate, design and coordinate complete 2D geometry and 3D-based model designs.
- Combine design and construction data into a single model, improving documentation and constructability.
- Run 5D analysis, clash detection, design simulation and coordinate multi-disciplinary design.
- Centralize design and construction data in a single model.
- Improve 5D analysis, clash detection and design simulation.
- Mitigate disruption to traffic flow with improved construction schedule management.
- Capture and process current conditions to further inform your asset management plans.
- Increase the accuracy of digital as-builts with 3D models directly from design.

Partnerships

Easily connect to industry leading technology for better insights, accuracy and execution of all projects.



ESRI: Start seeing your assets in context by connecting geospatial data to your design and construction information to include municipality and surrounding structure data.



Oris: Achieve a holistic road design process. Manage costs, carbon impacts and design analysis, as well as the ability to import to Civil 3D.

Connect, visualize, and act with BIM & GIS cloud collaboration

03

Achieve more with combined solutions from Autodesk Construction Cloud and Esri's ArcGIS.

As AEC industry projects grow in complexity, the ability to bring together connected workflows in the cloud is key to making informed decisions. Without contextual awareness it is difficult for teams to visualize engineering assets in the real world, and it is equally difficult to communicate with stakeholders.

BIM & GIS Cloud Collaboration connects the Autodesk Construction Cloud and Esri's ArcGIS to blend design and documentation information with geospatial context—enabling you to gain insights and make better decisions for operators and AEC teams throughout an asset's lifecycle.

The integration streamlines the flow of design information and geospatial context, allowing decision-makers, designers, construction, and operations teams to plan, build and manage vital assets, with consideration of their real-world environments. Key stakeholders can also explore digital models and documentation in real world context throughout the project's lifecycle with issue and performance dashboards.

“The connection between Esri's ArcGIS GeoBIM and Autodesk's BIM Collaborate Pro enables the coordination necessary for our teams to design within a real-world context as we factor in key surrounding data in our design.”

**Darin Welch, Associate V.P.,
Geospatial and Virtual Engagement
Solutions, HNTB**

The benefits:



Configure applications

Task-specific web-apps enable more efficient evaluation and monitoring of performance status and issues.



Rich data

Project and portfolio-level information helps better planning and execution of capital improvement projects.



Enhanced visualizations

Visuals that blend design and real-world context enrich project status and design reviews, helping to improve understanding, and accelerate buy-in.



Powerful dashboards

Information-rich, geo-enabled performance dashboards facilitate the on-time-on-budget, and safe delivery of projects.

Interoperability and openness with IFC

Why IFC is the preferred handover format for design deliverables



In many AEC projects, multiple solutions from different vendors are being implemented. When working with different teams, information is often lost during handover, even with high quality data. However open standards and a common language with IFC helps to specify outputs and neutral exchange.

Use IFC to build smarter, and combine, enhance, and develop open standards for intelligent data, enabling process and data integration for infrastructure. Direct integration with Civil 3D and Revit also helps teams to leverage existing interoperability.

Information exchange and standard processes support effective management of constructed built environments, as well as linking and integrating across BIM and GIS. Scripted integration helps customize workflows with computation, while open API and cloud integrates third-party tools.

Around the world, BIM mandates are driving the adoption of IFC as the preferred format for the handover of design deliverables, and as a way of ensuring you can access and share their data without being tied to a single software vendor.

Autodesk's support for IFC 4.3 underpins our investment in interoperability, flexibility and openness, with 3D model deliverables for construction and maintenance.

AWV and Pàu eliminate islands of data using Forge

Improve road management and maintenance by connecting teams and information

Automating data processing and sharing is essential for Agentschap Wegen en Verkeer, a Belgian transportation agency. Based in the Flanders region, the agency manages around 7,000 kilometers of roads and 7,700 kilometers of cycle lanes. And the usability and safety of these roads, cycle lanes and highways require careful consideration.

As a result, project lifecycles can be long, with data being spread in silos across different departments within the organization. Keeping up with the demands of building new roads while maintaining the old, requires the organization to be able to record and seamlessly share project data, as well as information about assets and maintenance.

To ensure projects and maintenance works are aligned, and reduce the risk of information loss and rework, AWV partnered with digital user experience agency Pàu. Together they implemented the Forge API platform, which enabled:



**Knowledge sharing
across teams**



**Automated processes for
improving the maintenance
and safety of roadways**



**The elimination of
siloed data that can
slow projects down**

“The benefit of using Forge is not only having access to roadway project data, but it’s also being able to share it with anyone.”

**Raf Vanlathem, Consultant and
BIM/OTL Expert, Agentschap
Wegen en Verkeer**

[Read more](#)



Ready to **start** the digital transformation journey?

Click through below to learn more about how digital project delivery can deliver value throughout roadway project lifecycles, and to book a consultation with an expert.

Your digital transformation starts here



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