



# Infrastructure / Roadmap to National Digital Twin Deep Dive Session


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**Bentley**<sup>®</sup>  
Advancing Infrastructure

An aerial photograph of a large dam and reservoir. The reservoir is filled with greenish water and is bordered by a concrete dam. A spillway is visible on the right side of the dam, leading to a canal that flows through a lush green forest. The background shows rolling hills under a blue sky with scattered white clouds. In the foreground, there are some construction vehicles and a small structure near the dam.

**We provide innovative software to advance the world's infrastructure  
– sustaining both the global economy and environment –  
for improved quality of life**

# Key Considerations for Digital Twins

- Who are the users?
- What decisions are they making?
- Where is the data coming from?
- What framework/file formats are used to interconnect and overlay data?
- How is the correct context determined?
- How is sensitive information kept secure?

# Infrastructure Digital Twins

EMPOWERING SUSTAINABLE DEVELOPMENT GOALS



## MOBILITY



## ENVIRONMENT



## GRIDS



**BRIDGES AND TUNNELS**



**FERROVIAL CONSTRUCTION AND ALAMO NEX CONSTRUCTION**  
 IH35 Nex Central Station

Texas, United States

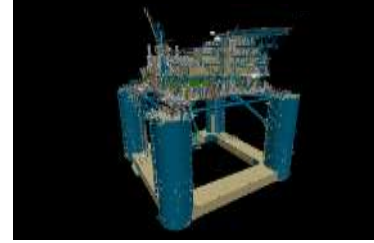
**SURVEYING AND MONITORING**



**HDR**  
 Murray Dam Condition Assessment

California, United States

**PROCESS AND POWER GENERATION**



**SHELL PROJECTS AND TECHNOLOGY**  
 Deepwater Project Delivery Digital Platform

Texas, United States

**ENTERPRISE ENGINEERING**



**WSB**  
 Digital As-Built Proof of Concept

Minnesota, United States

**SURVEYING AND MONITORING**



**AEGEA**  
 Brazil's Largest 3D Sanitation Map  
 (Digitalization of Rio de Janeiro)

Rio de Janeiro, Brazil

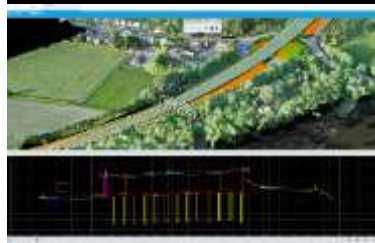
**RAIL AND TRANSIT**



**ARCADIS**  
 Carstairs Junction Remodeling

Scotland, United Kingdom

**ENTERPRISE ENGINEERING**



**NATIONAL HIGHWAYS**  
 Complex Infrastructure Programme  
 - A303 ProjectWise and iTwin  
 Deployment Pilot Project  
 Wiltshire, United Kingdom

**FACILITIES, CAMPUSES, AND CITIES**



**KAUNAS UNIVERSITY OF TECHNOLOGY**  
 Kaunas Digital Twin

Kaunas, Lithuania

**RAIL AND TRANSIT**



**PT WIJAYA KARYA (PERSERO) TBK**  
 Integrated High Speed Rail &  
 Station Jakarta – Bandung

Jakarta – Bandung, Indonesia

**PROCESS AND POWER GENERATION**



**SARAWAK ENERGY BERHAD**  
 Modernising Bakun Hydroelectric  
 Plant with Digital Twin

Sarawak, Malaysia

**RAIL AND TRANSIT**



**ORIENTAL CONSULTANTS GLOBAL**  
 Metro Manila Subway Project - Phase 1

Metro Manila, Philippines

**WATER AND WASTEWATER**



**JACOBS AND PUB, SINGAPORE'S NATIONAL WATER AGENCY**  
 Tuas Water Reclamation Plant (TWRP)

Tuas, Singapore

**CONSTRUCTION**



**ACCIONA**  
 Safely Removing Dangerous Level  
 Crossings through Digital  
 Construction  
 Victoria, Australia

**FACILITIES, CAMPUSES, AND CITIES**



**SYDNEY AIRPORT**  
 Maps@SYD

New South Wales, Australia

**ROADS AND HIGHWAYS**



**BECA LTD**  
 Takatimu North Link

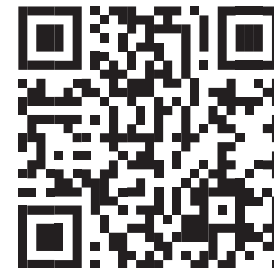
Western Bay of Plenty, New Zealand



# Joinville, Brazil

## DIGITAL TWIN HELPING WITH DROUGHT

- 2,300 km underground water network
- Reduced water production needs by 170 liters per second
- Prevented losses of close to a million dollars





**By going digital and leveraging data, the infrastructure sector is building *better* infrastructure and building infrastructure *better***