



FIG WORKING WEEK 2023

28 May - 1 June 2023 Orlando Florida USA

Protecting
Our World,
Conquering
New Frontiers

Infrastructure Digital Twins

Accelerating the transition to sustainable,
low-carbon, resilient infrastructure

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Vice President Transportation
Bentley Systems Inc.




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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**

Global Top 100 Software Company

FOCUSED ON INFRASTRUCTURE ENGINEERING



39
years in
operation



> 5,200
colleagues in
40 countries



> 1,400
colleagues with doctoral
and master's degrees



87%
colleagues recommend
as a place to work



~\$1.1B
annual revenue



> 194
countries where BSY
solutions are in use



\$664M
in R&D in past 3 years



290
patents granted or
pending



72%
Bentley Infrastructure
Top 500 Owners



93%
ENR Top 250
Engineering Firms



initial public
offering
September 2020



advancing
sustainable
infrastructure



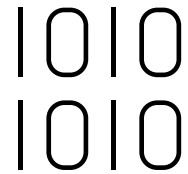
Bentley is leading the development of digital twin technology as an enabler and accelerator of the transition to sustainable, low-carbon, resilient infrastructure.

We strongly believe that Infrastructure digital twins and sustainable development go hand in hand.

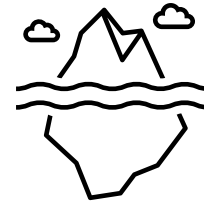
Infrastructure Data Challenges



Diverse data environment



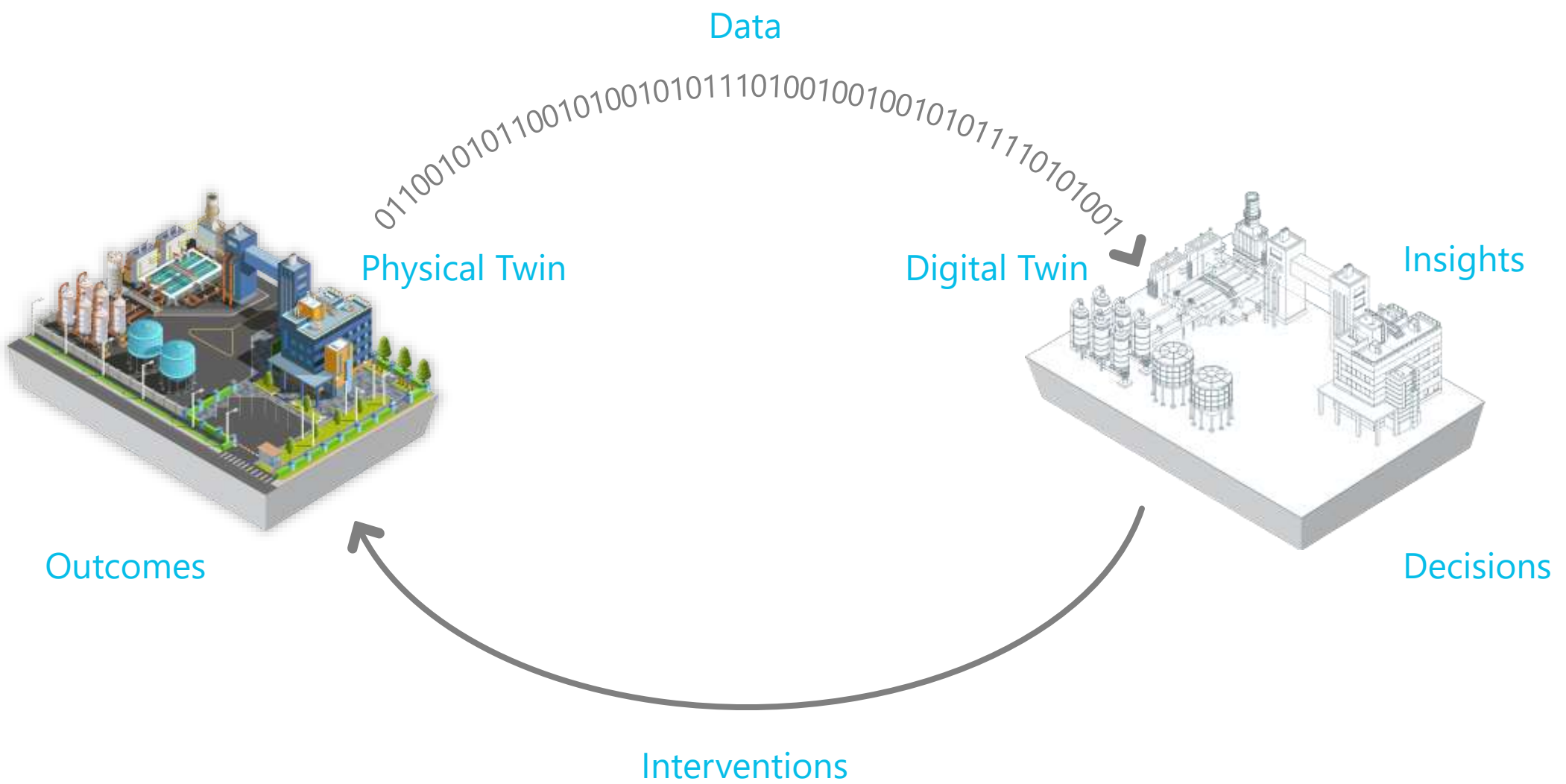
Siloed data sources



Complexity of information



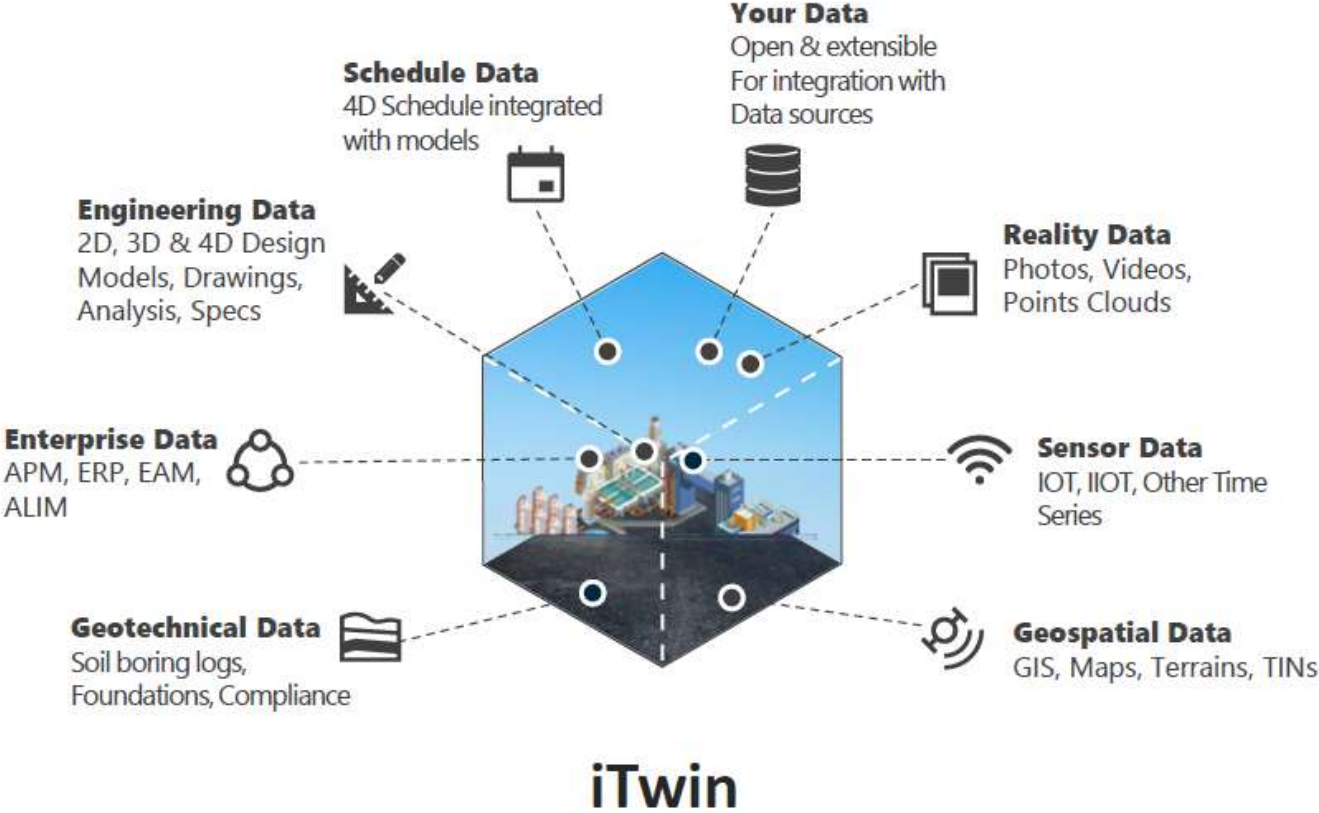
Platform for growth



Source: adapted from Centre of Digital Built Britain

A **digital twin** is virtual representation of real-world entities and processes, synchronized at a specified frequency and fidelity

An **iTwin** is an **infrastructure digital twin** implemented using Bentley's iTwin Platform.





An aerial photograph of the Diablo Dam and its reservoir. The dam is a concrete structure with a spillway, situated in a deep, forested valley. The reservoir is a large body of water with a blue-green hue, surrounded by steep, rocky slopes. The surrounding landscape is rugged and mountainous, with dense green vegetation covering the slopes. The sky is clear and blue.

Diablo Dam

3D Digital Twin

The logo for HDR, consisting of the letters 'H', 'D', and 'R' in a stylized, white, sans-serif font. The 'H' and 'D' are connected, and the 'R' is positioned to the right of the 'D'. The logo is set against a dark background.

HDR



4K Drone Footage

3D Reality Mesh

No settings for this tool.

- Home
- 3D View
- Navigation
- Tools
- Layers
- Settings
- Clipboard
- Files
- Flags
- Heart



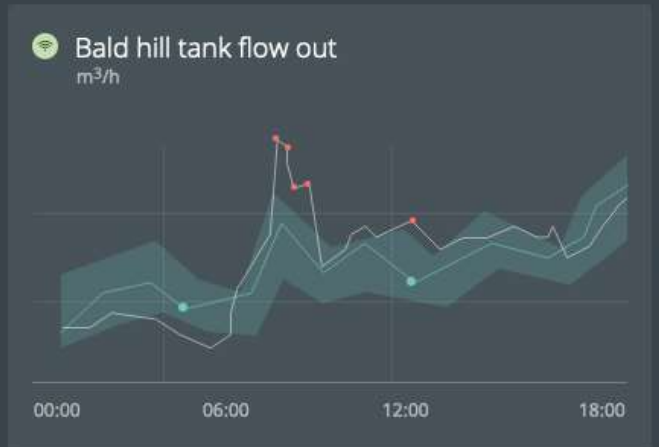
Defect Detector

Show Cracks:

IoT Sensor Data...

Messages Identify point on element to rotate about

Snap Mode Scope: Element 0 Presentation



Tanks

Current System Storage

96%

14,708 m³

Alerts

Number of alerts

↑ 16%

27

Active

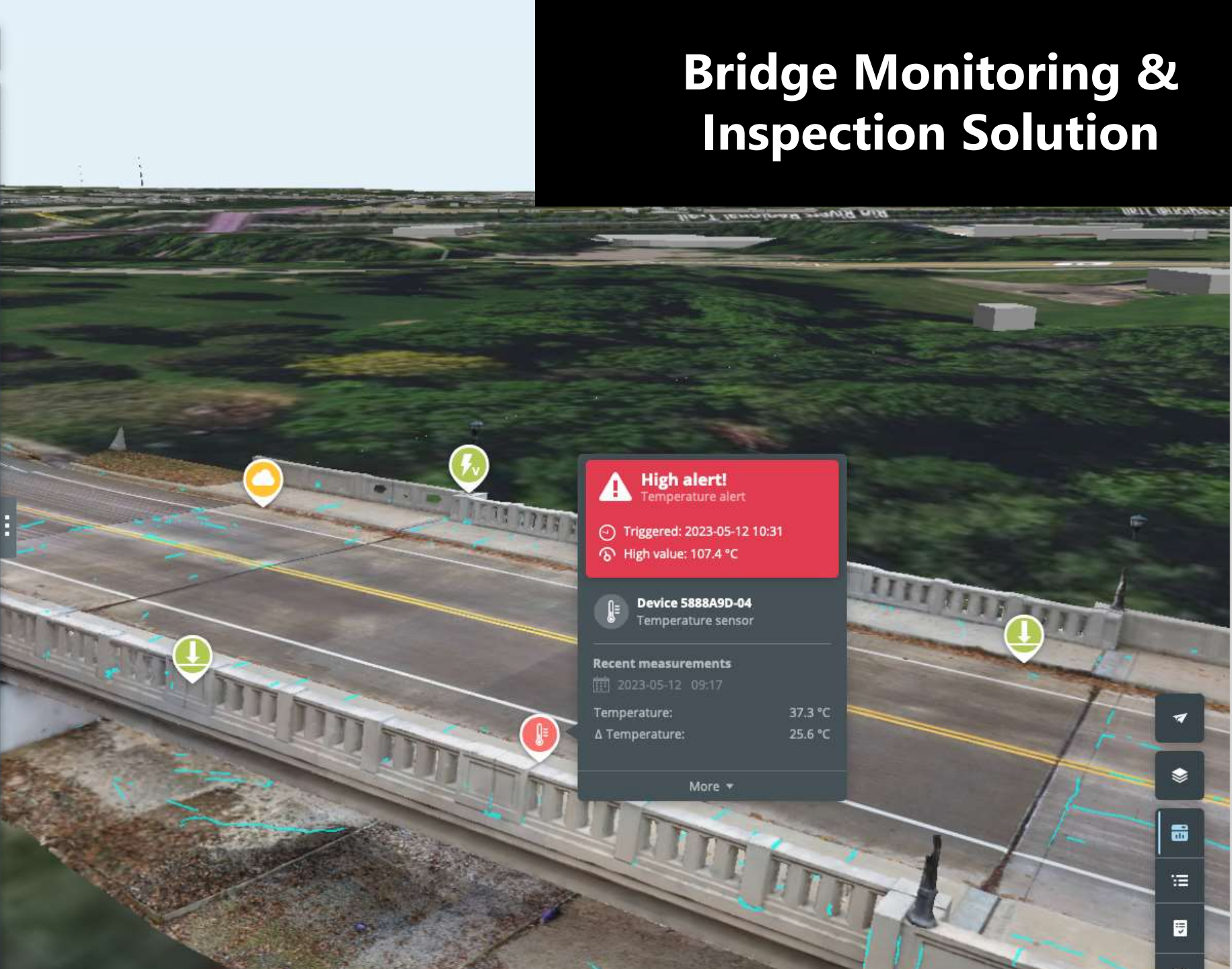
↑ 16%

5

New (last 24 hours)



Bridge Monitoring & Inspection Solution



High alert!

Temperature alert

⌚ Triggered: 2023-05-12 10:31

📈 High value: 107.4 °C

🌡️ **Device 5888A9D-04**

Temperature sensor

Recent measurements

📅 2023-05-12 09:17

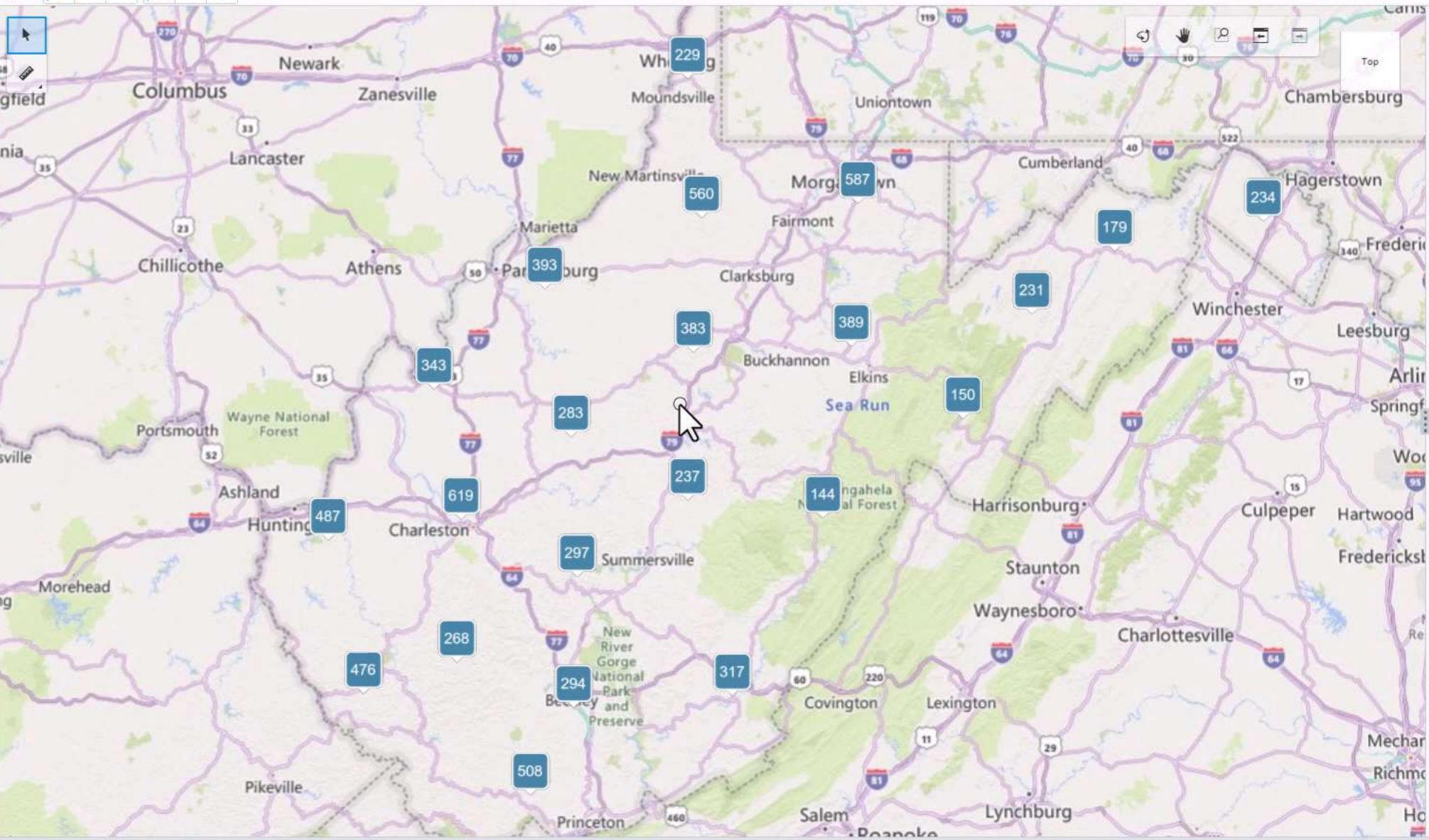
Temperature:	37.3 °C
Δ Temperature:	25.6 °C

More ▾



Home
 Location
 Layers
 Search
 Tools

Sample Mobility Dataset



Map Layers

- Assets
- Park and Ride Facilities
- WVHD Maintenance Facilities
- WV 2020 AADT
- Railroads
- WVHD District Boundaries
- Bing Imagery Road
- Aerial Map View

siemensstadt square

siemensstadt square



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



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Thank you!



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