UTILITX

A Wonder by Deloitte Business

Utilities & Networks Seminar

Geospatial Intelligence for Future-Ready Telecom Networks & Digital Infrastructure

How infrastructure decisions are being made on untrusted data – and what to do about it.

Presented By:
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About Me

Leigh-Anne McKnight

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A Wonder by Deloitte Business

- Engineer (P.Eng, B.A.Sc)
- Commercial construction
- Utility and geospatial coordination specialist
- Entrepreneur and founder

We Did **Everything "Right"** … and It **Still Didn't Work**

What led me here

- Led $4B infrastructure program
- 50,000 km fibre , 300+ Municipalities
- Built governance, standards, coordination

What we learned at scale

- Strong governance.
- Strong standards.
- Still fragmented.

What’s happening on the ground

Coordination Is Failing - And Everything Built On It Fails

Reality

- Fragmented coordination
- Disparate records
- Conflicting versions
- No shared truth

Consequence

- Decisions made on assumptions
- Rework and delays
- Risk compounds at scale

The Gap

- No way to verify the collective hypothesis
- No way to resolve conflicts
- No way to trust the outcome

The Promise vs. Reality

We are building advanced systems on top of unreliable foundations.

Real-time digital twins

Live visibility across all network assets and infrastructure

Predictive maintenance

AI-driven alerts before failures impact service

Optimized network rollout

Data-driven 5G densification and capacity planning

PDFs, CAD files, siloed records

No single source of truth - every team has its own version

Missing & conflicting data

Operators working from records that are incomplete or wrong

Low confidence decisions

Risk-based guesses, not verified spatial facts

Incorrect Asset Location

Service disruptions from mislocated fiber, towers, or conduit, impacting SLAs

1

Poor Coordination

Delayed rollouts and costly rework when permit data conflicts with field reality

2

Incomplete Network Data

Coverage gaps and suboptimal design on records that are partial or outdated

3

Why this matters for Telecom

As networks densify, the margin for data error shrinks to zero.

We Don't Have a Data Problem.

We have a trust problem.

No one can confirm if data is correct, complete, or current - so decisions become risk-based guesses rather than verified evidence and facts.

No Provenance

Unknown origin of records

No Validation

Unverified spatial claims

No Shared View

Siloed, conflicting datasets

Where AI Falls Short

Infrastructure decisions require determinism, traceability, and defensibility - not probability.

AI Can

Extract Patterns

Identify signals from large datasets rapidly

Predict Outcomes

Forecast likely scenarios from historical data

Automate Classification

Recognize and label objects at scale

AI Cannot

Validate ground truth

Determine what is correct and current

Resolve Source Conflicts

Arbitrate between contradictory records or claims

Guarantee spatial accuracy

Ensure infrastructure is where records say it is

The Missing Layer

Before digital twins. Before AI. Before any intelligent system can be trusted, we need a foundation that converts records into verified spatial ground truth.

Ingest

Connect Fragmented Records

Process

Connect Fragmented Records

Compare

Deterministically extract & conflate

Trace

Track Provenance & Confidence Score

Model

Trustworthy Digital Twin

HOW UTILITX THINKS ABOUT

INFRASTRUCTURE DATA

Can you trust what you're about to build on?

Evidence

Every document, drawing, and dataset is treated as a witness, raw material that contains signals about the physical world.

Claims

Structured, machine-readable statements about infrastructure such as location, depth, material, condition, derived from the records.

Confidence

A composite measure of how well the evidence supports each claim, enabling decisions grounded in verified ground truth.

The Unlock from Trusted Ground Truth

Accurate Fiber Routing

Plan and deploy with confidence, on verified spatial records

Reliable Digital Twins

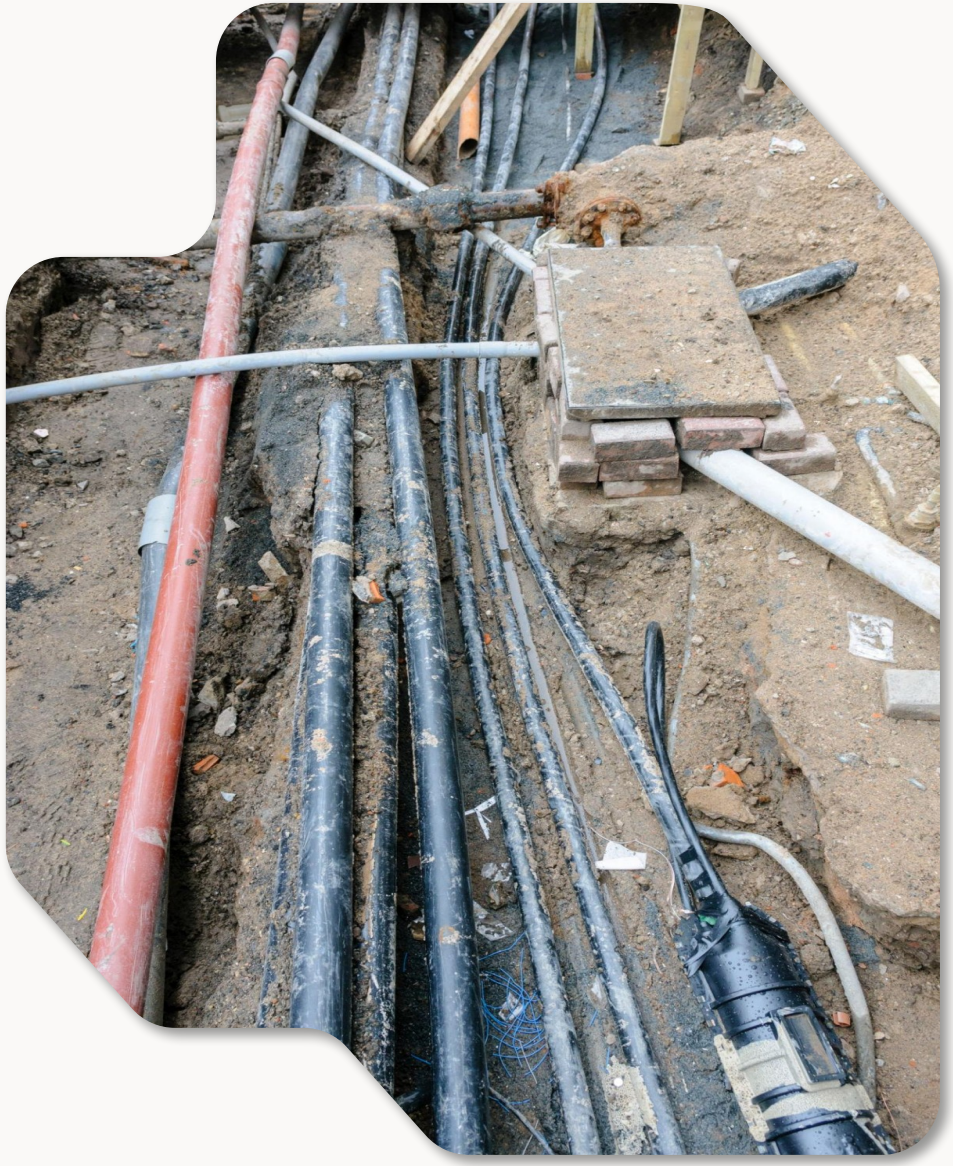
Feed live, trusted data into your network model continuously

Faster Permitting

Verified ground truth accelerates approvals and reduces rework

Resilient Network Design

Optimize coverage and capacity on complete, current data



from

Static Maps

to

Living Infrastructure Systems

"If two operators cannot agree on where infrastructure is, no amount of AI will fix network performance."

STATIC GIS TODAY	LIVING SYSTEM
Point-in-time snapshots	Continuously validated & updated
Manual, infrequent update cycles	Confidence overlay on every asset
No confidence or provenance layer	Shared, provenance-tracked truth
Siloed data ownership per team	Ecosystem-wide interoperability

Digital twins don’t fail because of technology.

They fail because of **trust**.

Fix the foundation. Unlock everything else.

This isn’t a data problem.

It’s a trust problem.

Until we solve it - every system we build will sit on unstable ground.

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