

UC



2017 Esri Water UC Meeting

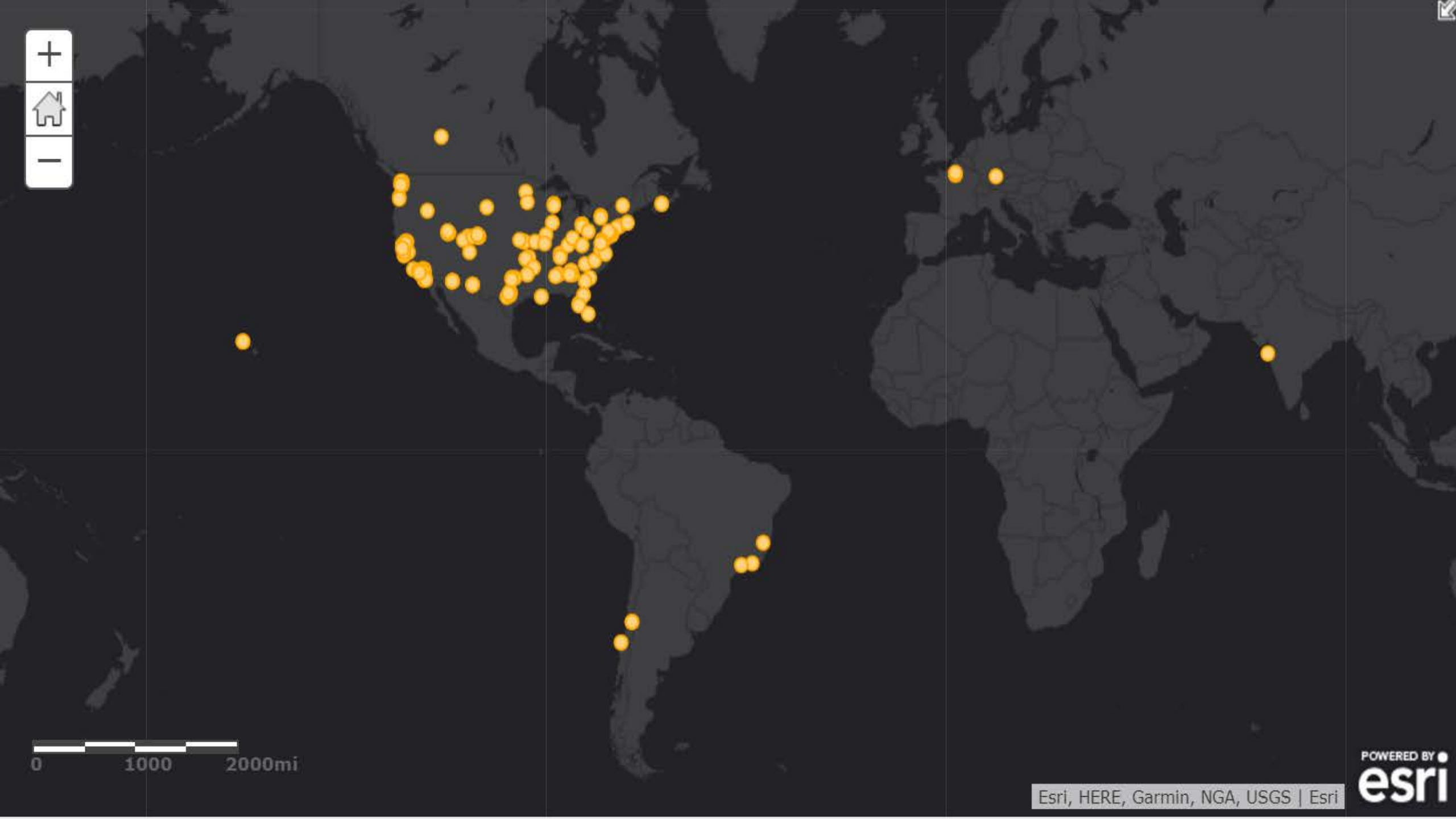
July 9, 2017 • San Diego Convention Center

The background is a gradient of blue, transitioning from a darker blue on the left to a lighter, teal-like blue on the right. In the top-right and bottom-left corners, there are faint, light-colored topographic map lines, suggesting a geographical or terrain theme.

WELCOME!



WHERE



Agenda

- **Opening Session** (29 A/B)
 - Esri's One Water
 - Solutions Roadmap for Water
 - Water Technology Update
- **Breakout Sessions**
 - Water Utilities (29 A/B)
 - Water Resources (29 C)
- **Closing** (29 A/B)
- **Water Social** (Plaza Terrace - Upper Level)

Thank you to our sponsors:

Platinum



Gold



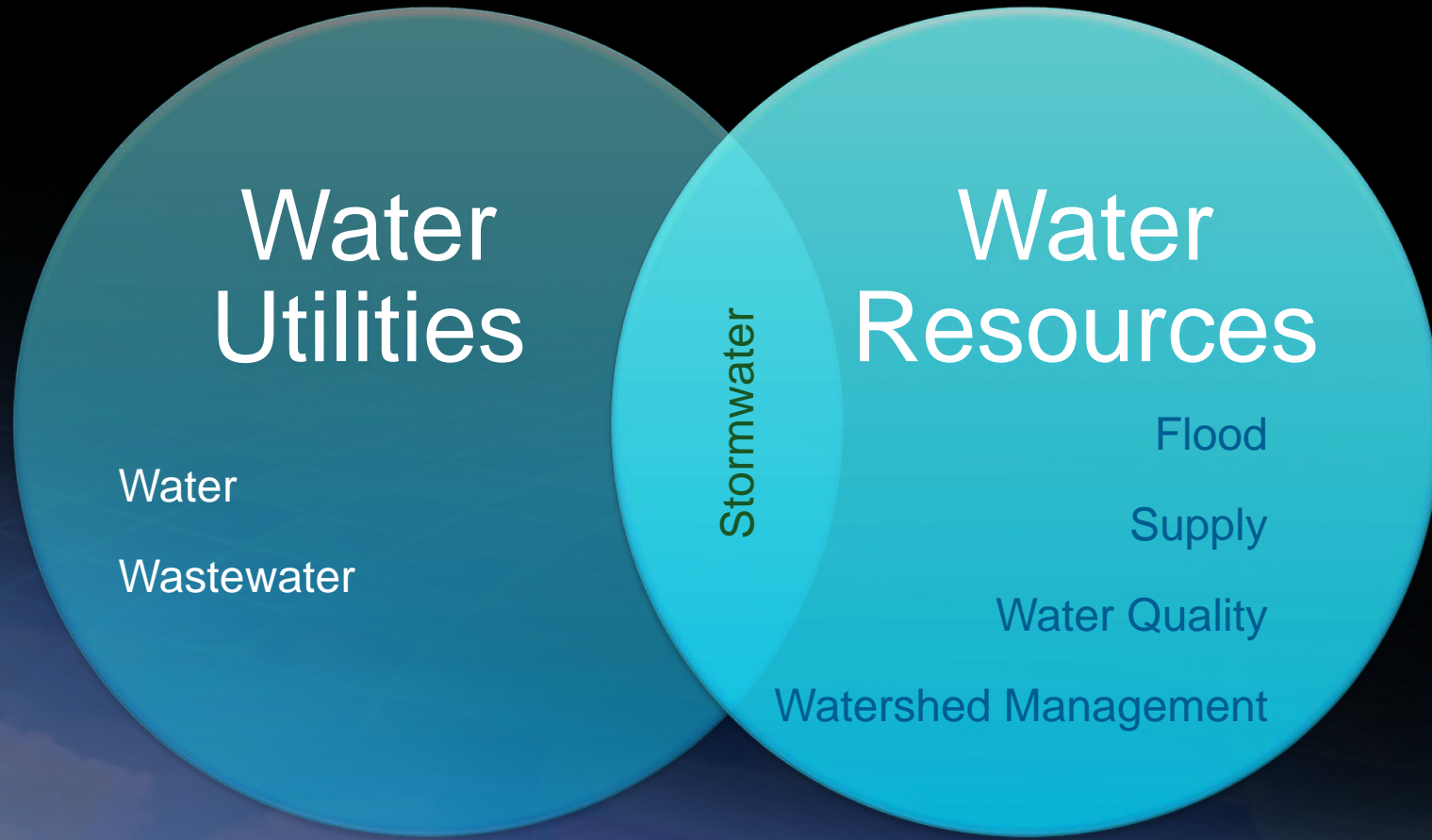
Silver



Bronze



One Water Initiative



WHERE



**THE
SCIENCE
OF
WHERE**



Intersection of science and
the narrative . . .

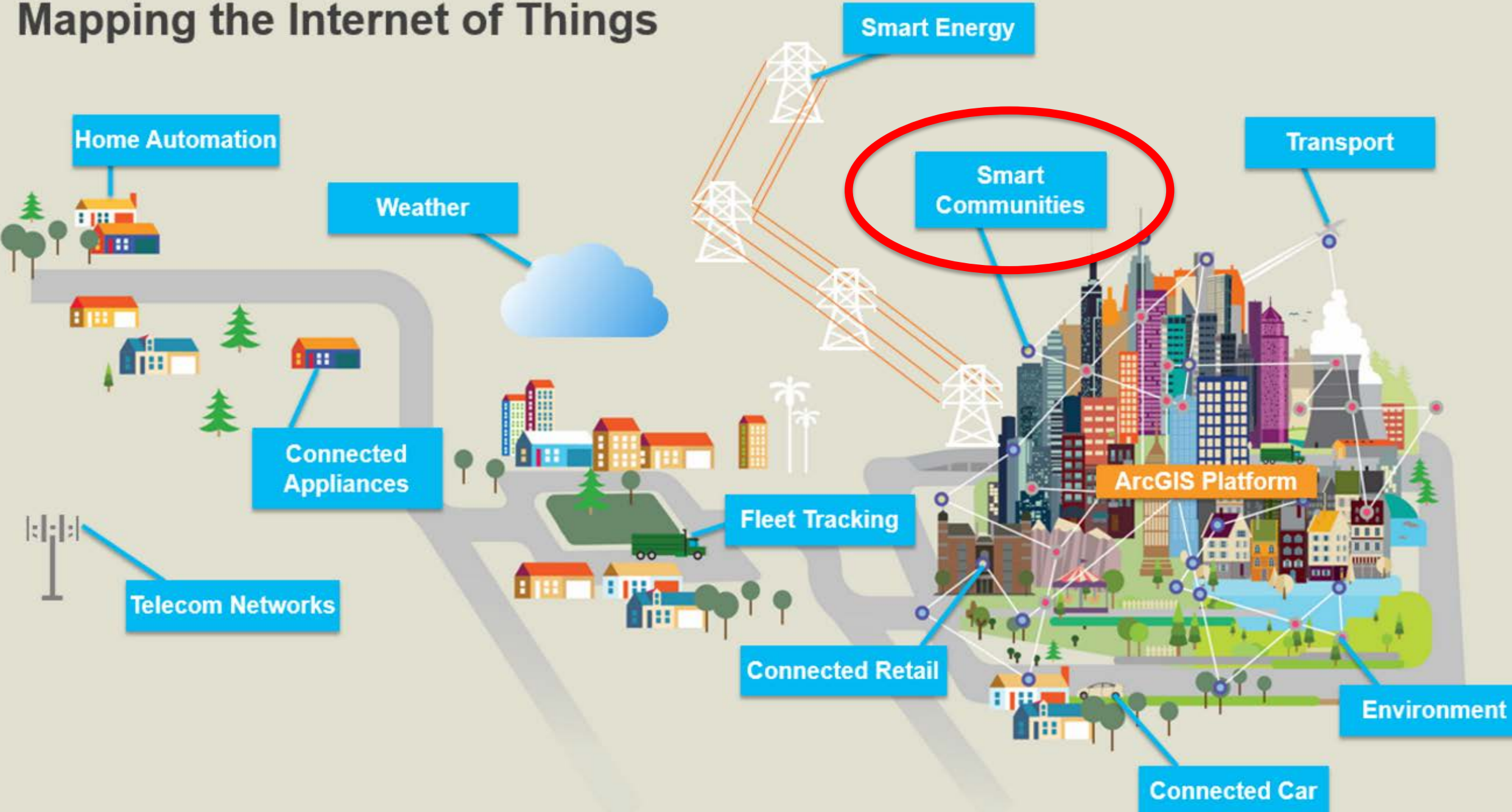
Dynamic data and the ability
to reveal its meaning

Illuminate the truth
and answer the
fundamental questions
of where . . .

- Where is it
- How do I get there
- Where am I
- Where are we going
- Where's the problem
- Where is it changing
- Where is the issue
- Where is it suitable
- Where should we locate

SMART

Mapping the Internet of Things





Smart Infrastructure



~~Smart Water~~



Intelligent Water Systems



Smart Communities implement Intelligent Water Systems based on the IoT

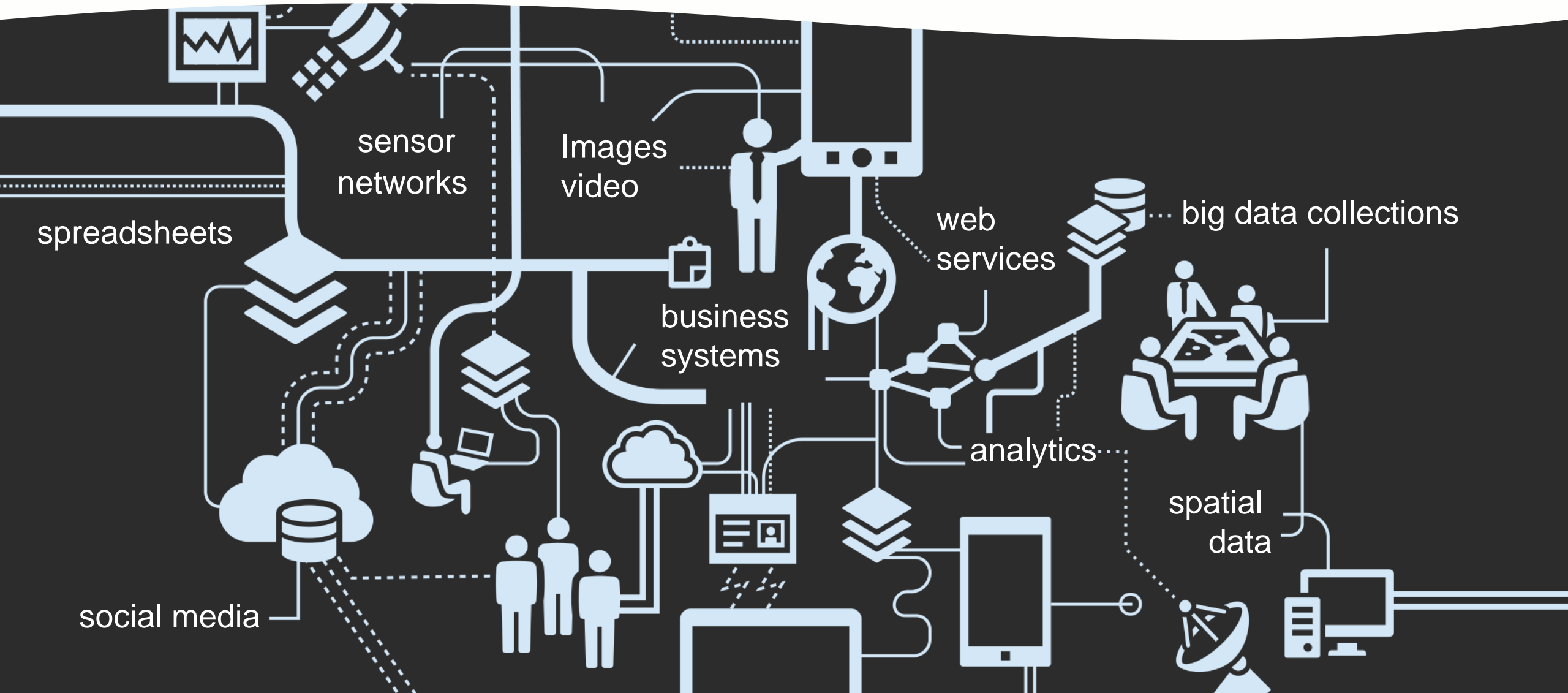
Location Platform for IoT

- IoT / Real-time
- Mobility
- Analytics
- Situational Awareness
- Community Engagement



Maps at Work

▶ Integrate, display, analyze, and enrich information from many sources



Water Loss



Water Loss



Non-Revenue Water

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water
			Billed Un-metered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non Revenue Water (NRW)
			Unbilled Un-metered Consumption	
	Water Losses	Apparent Losses (Commercial Losses)	Unauthorized Consumption	
			Customer Meter Inaccuracies and Data Handling Errors	
		Real Losses (Physical Losses)	Leakage in Transmission and Distribution Mains	
			Storage Leaks and Overflows from Water Storage Tanks	
			Service Connections Leaks up to the Meter	

Water Quality



Water Quality

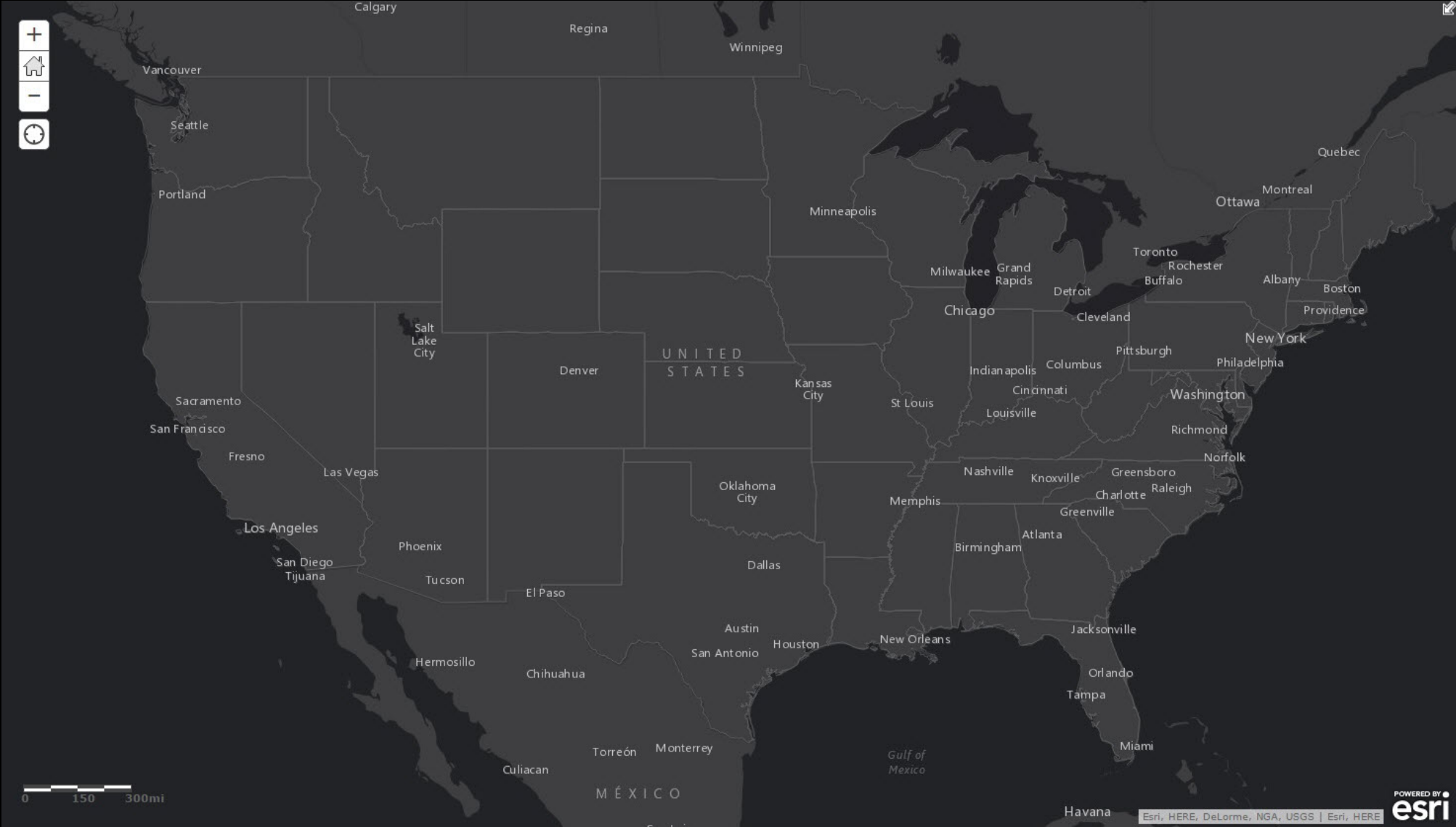


Water Quality

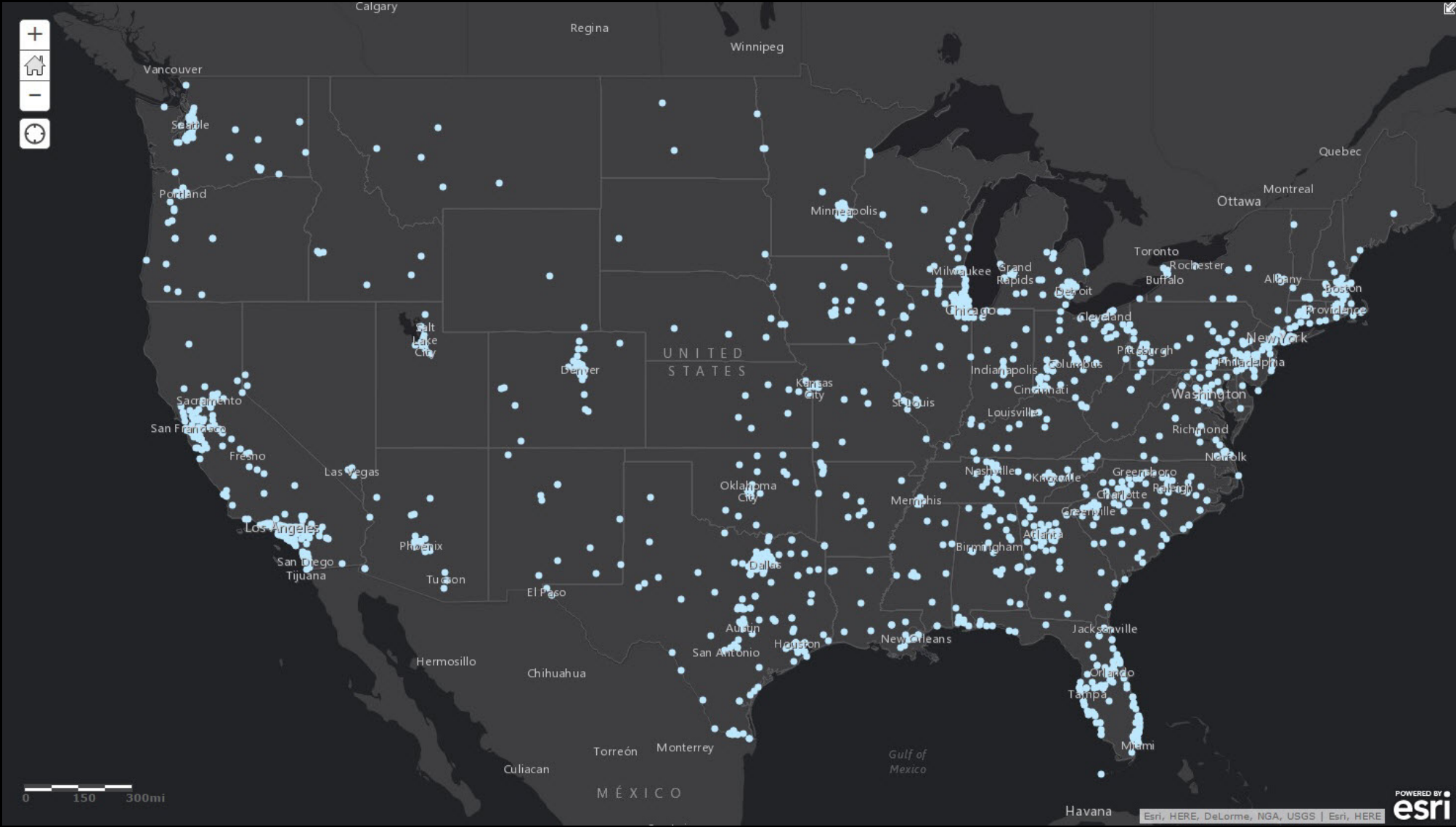
CHF_3 , CHCl_3 , CHBrCl_2 , CHBr_2Cl , CHBr_3 , CHI_3

RESILIENT

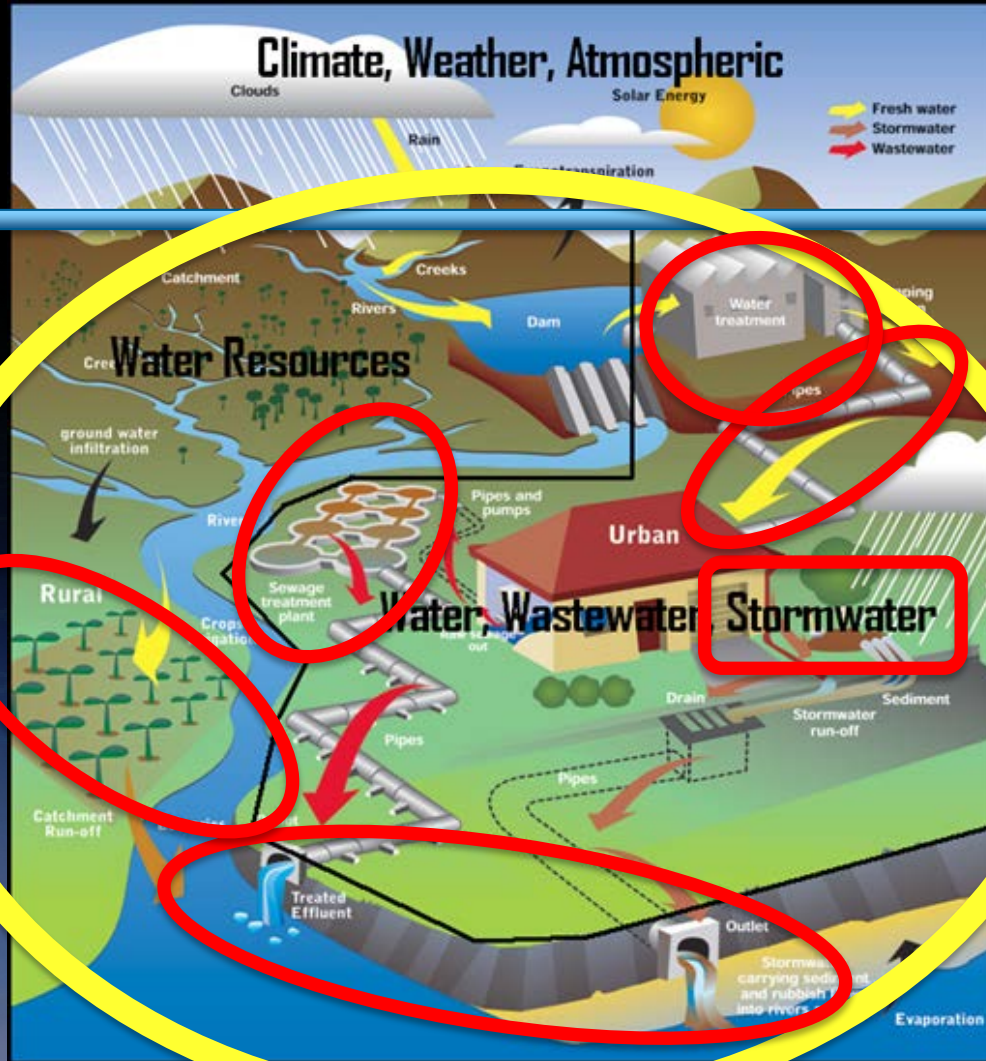
Water Systems



Water Systems: > 10,000 served



Hydrologic Cycle



Atmospheric

Terrestrial

Mega Trends Driving Our Industry

- **Water Supply Sustainability (quantity and quality)**
- **Rising Costs**
- **Revenue Reduction**
- **Technology Adoption and Replacement**
- **Aging Infrastructure**
- **Drought and Water Conservation**
- **Increased Global Flood Events**

2017

INFRASTRUCTURE REPORT CARD

MAKING THE GRADE

AMERICA'S GRADES

STATE BY STATE

SOLUTIONS

THE IMPACT

GET INVOLVED

NEWS



ASCE

2017

INFRASTRUCTURE REPORT CARD

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Drinking Water

D+

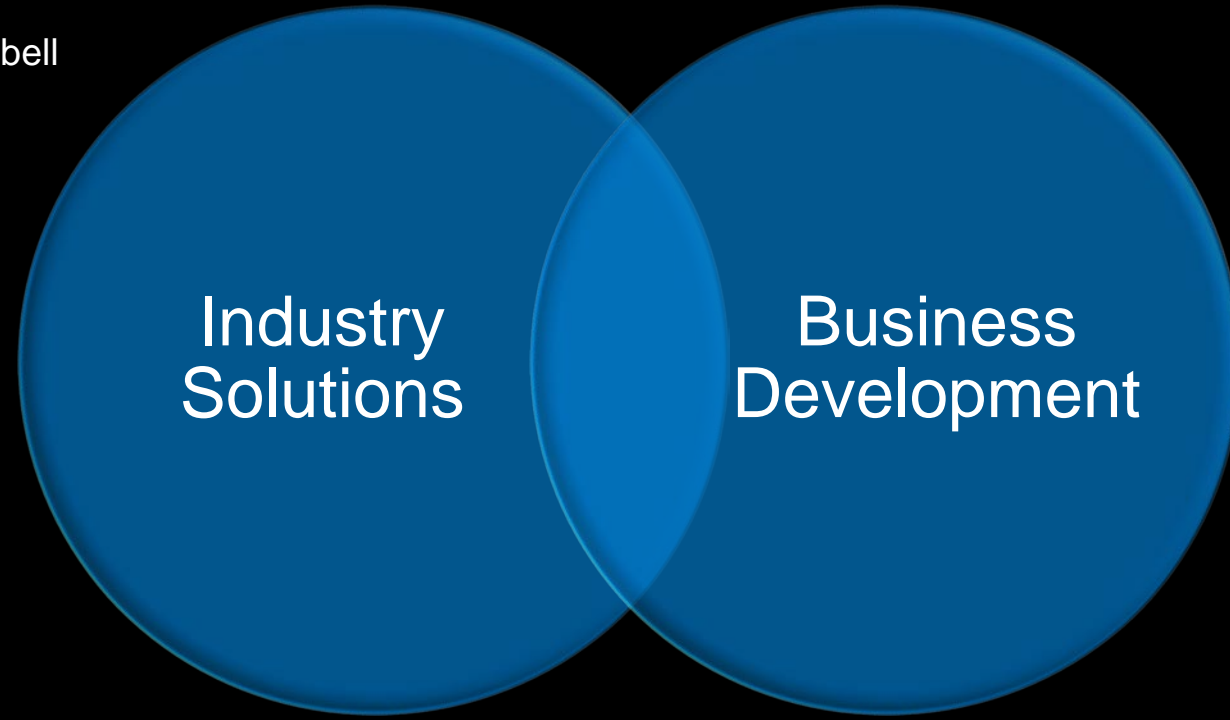
The Esri Water Team

David Totman
Christa Campbell
Maria Lamas



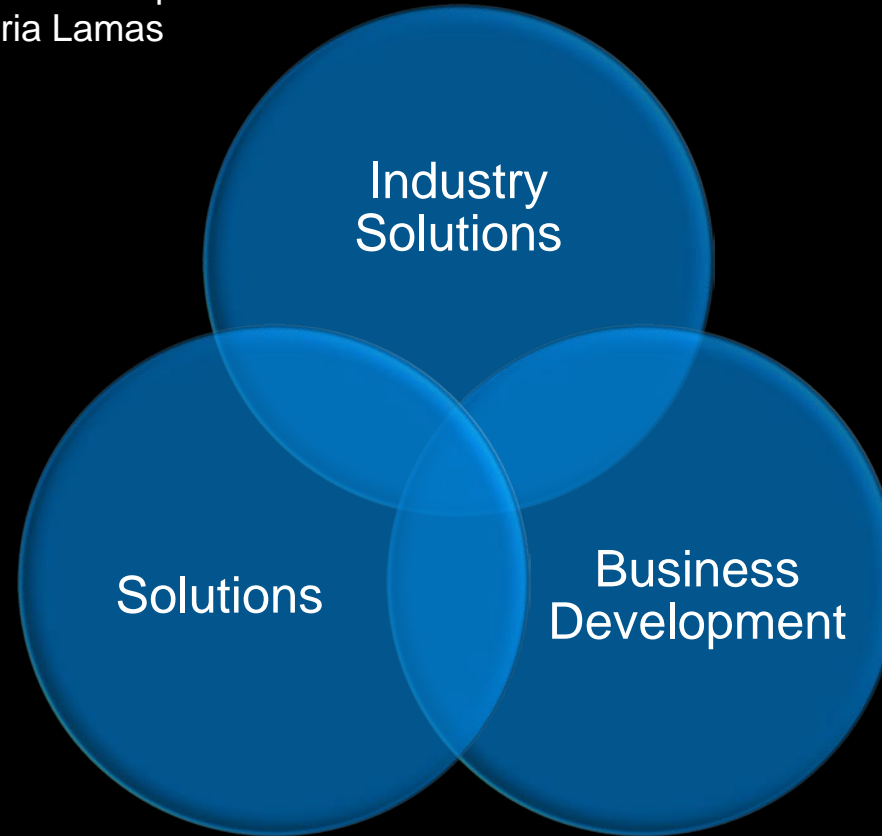
Industry Solutions

David Totman
Christa Campbell
Maria Lamas



James Higgins
David Wachal
Andrew Hargreaves
Brittany Stwalley
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Deilson da Silva
Derek Lorbiecki
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Seth Johnstone
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Suzanne Timani
Tripp Morson

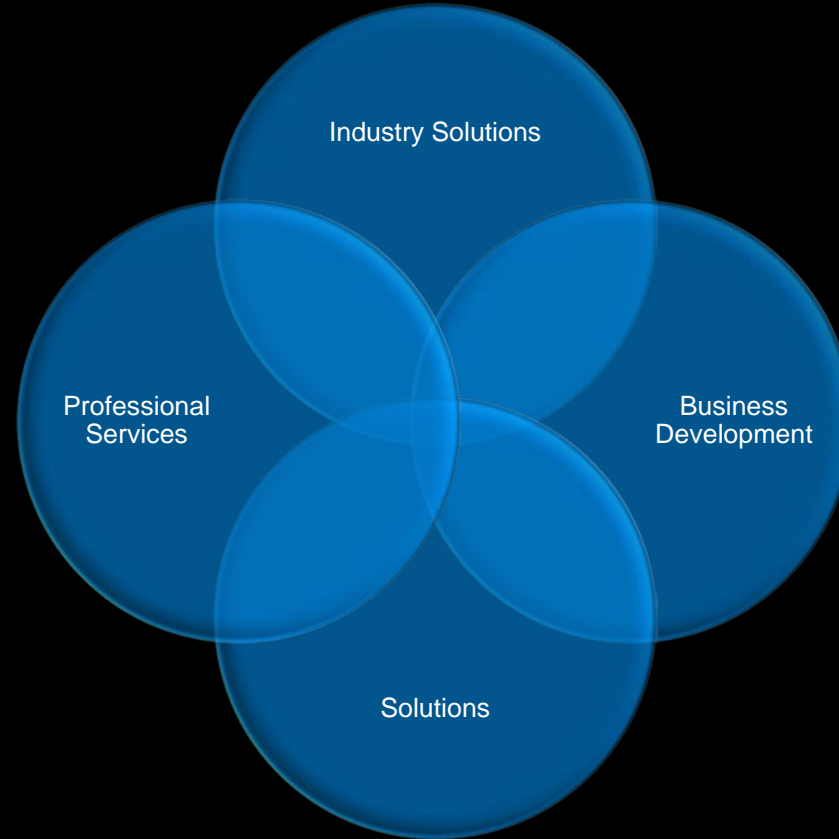
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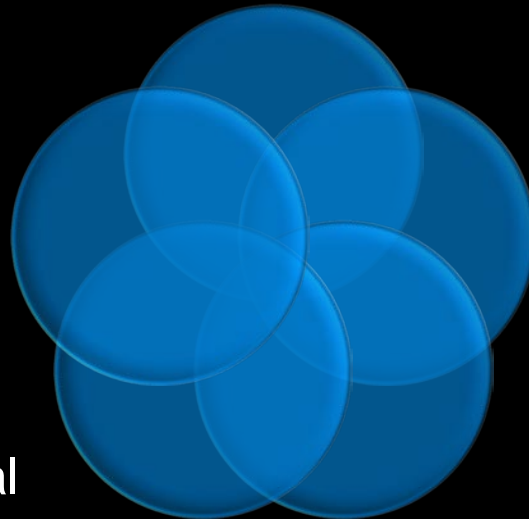
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Steve Kopp
Nawajish Noman
Caitlin Scopel
Daniel Siegel

Jeff Shaner

Product

Business Development



Professional Services

Solutions

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Professional
Services

Training

Tosca Hoffman
Matt Groves

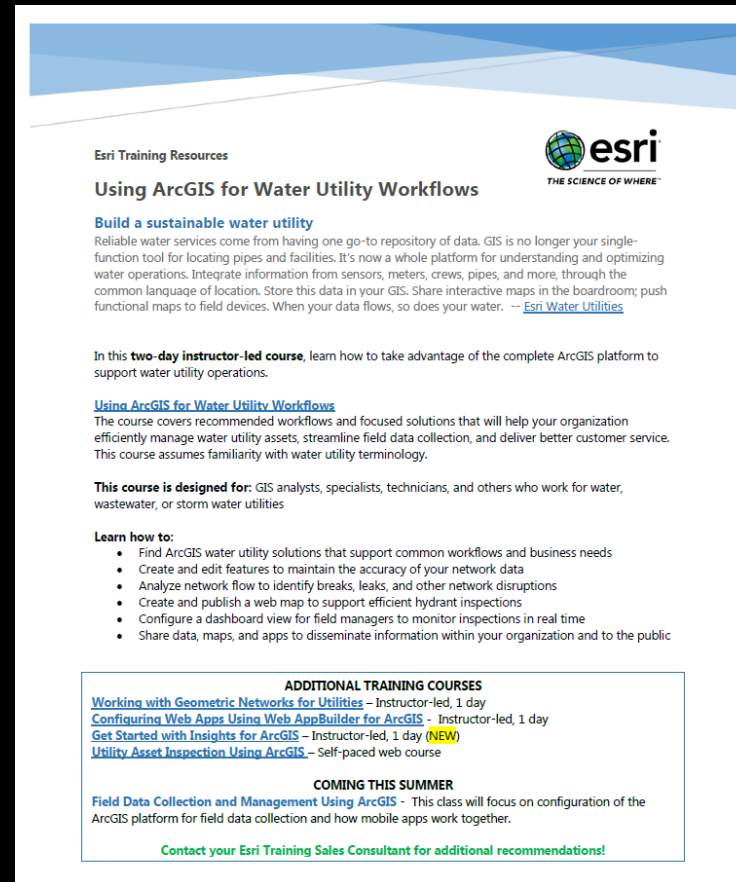
Product


Steve Kopp
Nawajish Noman
Caitlin Scopel
Daniel Siegel

Jeff Shaner

Training

Using ArcGIS for Water Utility Workflows Instructor-Led Course



Esri Training Resources 

Using ArcGIS for Water Utility Workflows

Build a sustainable water utility
Reliable water services come from having one go-to repository of data. GIS is no longer your single-function tool for locating pipes and facilities. It's now a whole platform for understanding and optimizing water operations. Integrate information from sensors, meters, crews, pipes, and more, through the common language of location. Store this data in your GIS. Share interactive maps in the boardroom; push functional maps to field devices. When your data flows, so does your water. -- [Esri Water Utilities](#)

In this **two-day instructor-led course**, learn how to take advantage of the complete ArcGIS platform to support water utility operations.

[Using ArcGIS for Water Utility Workflows](#)
The course covers recommended workflows and focused solutions that will help your organization efficiently manage water utility assets, streamline field data collection, and deliver better customer service. This course assumes familiarity with water utility terminology.

This course is designed for: GIS analysts, specialists, technicians, and others who work for water, wastewater, or storm water utilities

Learn how to:

- Find ArcGIS water utility solutions that support common workflows and business needs
- Create and edit features to maintain the accuracy of your network data
- Analyze network flow to identify breaks, leaks, and other network disruptions
- Create and publish a web map to support efficient hydrant inspections
- Configure a dashboard view for field managers to monitor inspections in real time
- Share data, maps, and apps to disseminate information within your organization and to the public

ADDITIONAL TRAINING COURSES

[Working with Geometric Networks for Utilities](#) – Instructor-led, 1 day
[Configuring Web Apps Using Web AppBuilder for ArcGIS](#) - Instructor-led, 1 day
[Get Started with Insights for ArcGIS](#) – Instructor-led, 1 day (NEW)
[Utility Asset Inspection Using ArcGIS](#) – Self-paced web course

COMING THIS SUMMER

[Field Data Collection and Management Using ArcGIS](#) - This class will focus on configuration of the ArcGIS platform for field data collection and how mobile apps work together.

[Contact your Esri Training Sales Consultant for additional recommendations!](#)

Need Help? Contract Esri Training at GISTraining@esri.com

Industry Solutions

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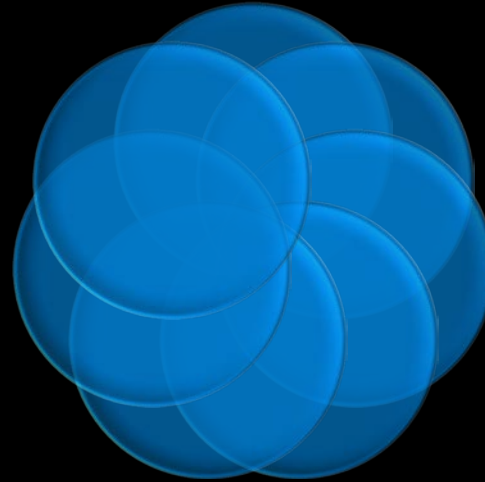
Partners / Distributors

Training

Dawn Caravallo
Frank Martin

Chrystelle Ourzik
Dave Byers
Joao Canais

Tosca Hoffman
Matt Groves



Industry Solutions Marketing



Traditional Marketing Tools

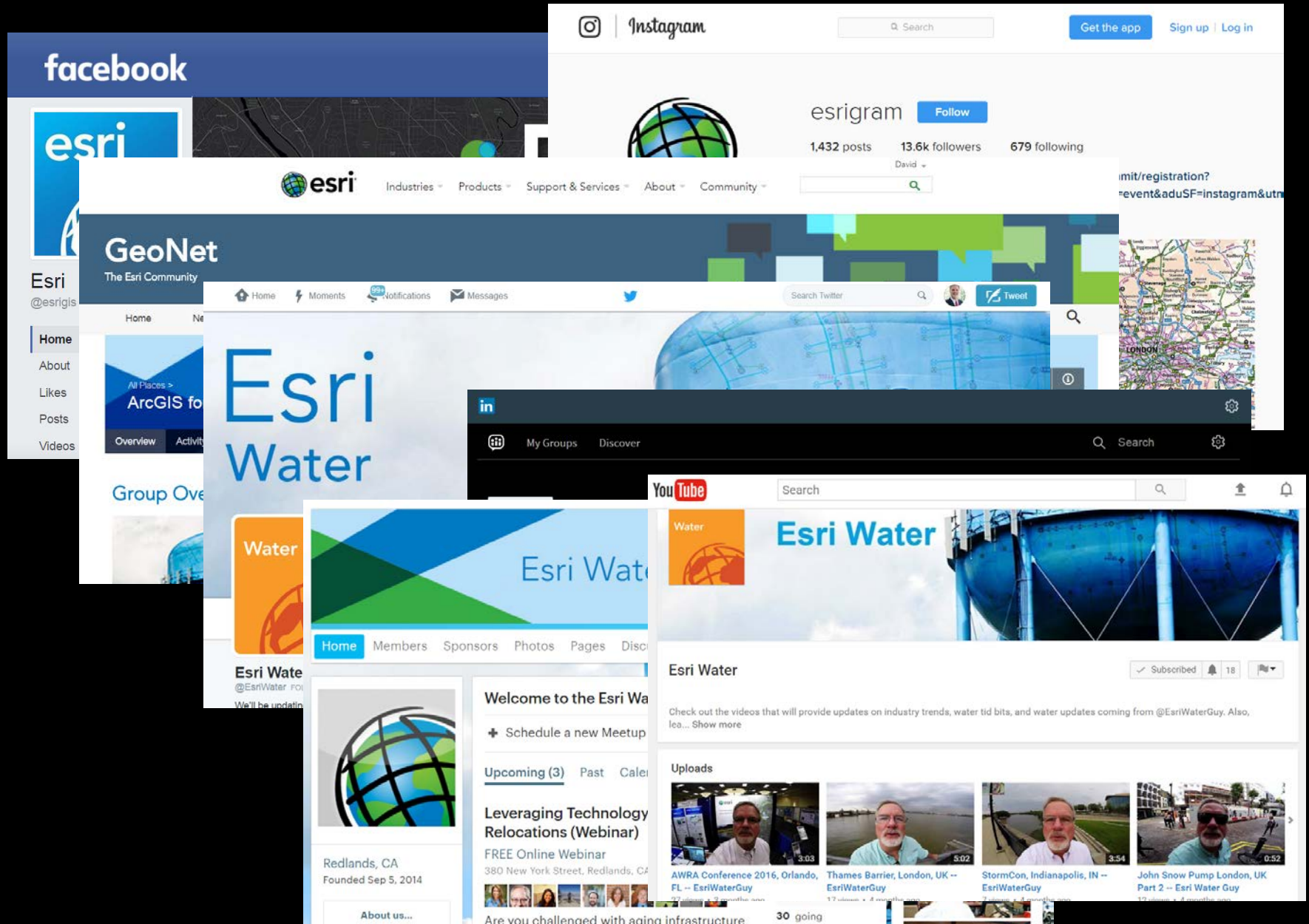
- Industry web pages
- Newsletter
- Case studies
- Video spotlights
- Publication articles
- White papers

The collage features several overlapping elements:

- esri.com website:** Includes the top navigation bar with links for Industries, Products, Support & Services, About, and Community. Two main banners are visible: "Water Resources" with a dam image and "Water Utilities" with a water treatment facility image.
- Esri News for Water & Wastewater:** A blue banner with the text "Esri News for Water & Wastewater" and a "Videos" section below it.
- Article snippet:** A snippet of an article titled "Rural High..." by Travis A. The text includes: "When I car District in t just finishe on all the a Ohio Univ Governme Developm cal resourc gether all t".
- White Paper:** A white paper titled "AN ESRI WHITE PAPER" dated "DECEMBER 2016". The cover features a map of a water utility system.
- Article: GIS and the 5 Ws:** A full article titled "GIS and the 5 Ws" by David Totman, ESRI. The article is categorized under "DEPARTMENT: TECHNOLOGY". It discusses the benefits of GIS in water utilities, covering the classic set of questions: **Who** (asset locations), **Where** (asset locations and boundaries), **What** (asset types and status), **When** (asset history and performance), and **Why** (asset failure reasons). The article concludes that GIS-based CMMS systems can help answer these questions and improve asset management.
- Map:** A detailed GIS map showing a water utility network with various assets and their locations.
- Text: Implementing ArcGIS for Water Utilities:** A large text block at the bottom right of the collage.

Social Media

- Esri
 - Facebook
 - Instagram
- Water
 - GeoNet
 - Twitter
 - LinkedIn
 - Meetup
 - YouTube

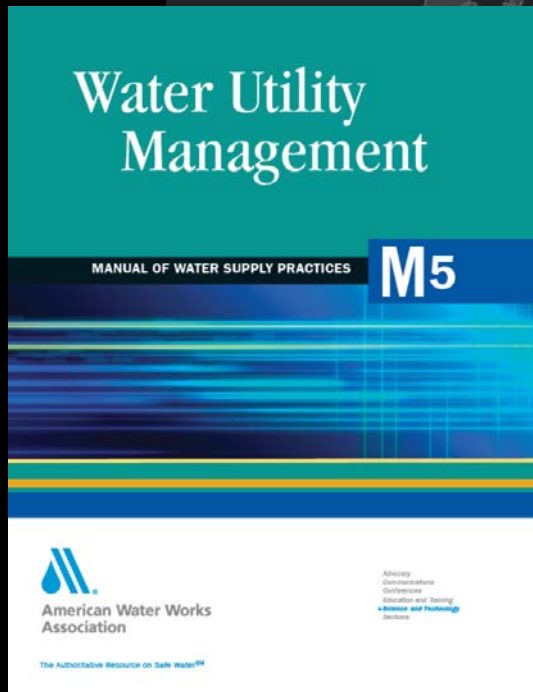


2018 Esri Water Conference
January 29 - February 01
Hilton Bayfront
San Diego, CA

Trade Associations

- **American Water Works Association (AWWA)**
- **Water Environment Federation (WEF)**
- **National Rural Water Association (NRWA)**
- **America Water Resources Association (AWRA)**
- **Florida Floodplain Managers Association (FFMA)**
- **@qua**
- **American Society of Civil Engineers (ASCE)**
- **International Standards Organization (ISO) TC 251 – ISO 55000 asset management**

AWWA International Efforts



1000 2000mi

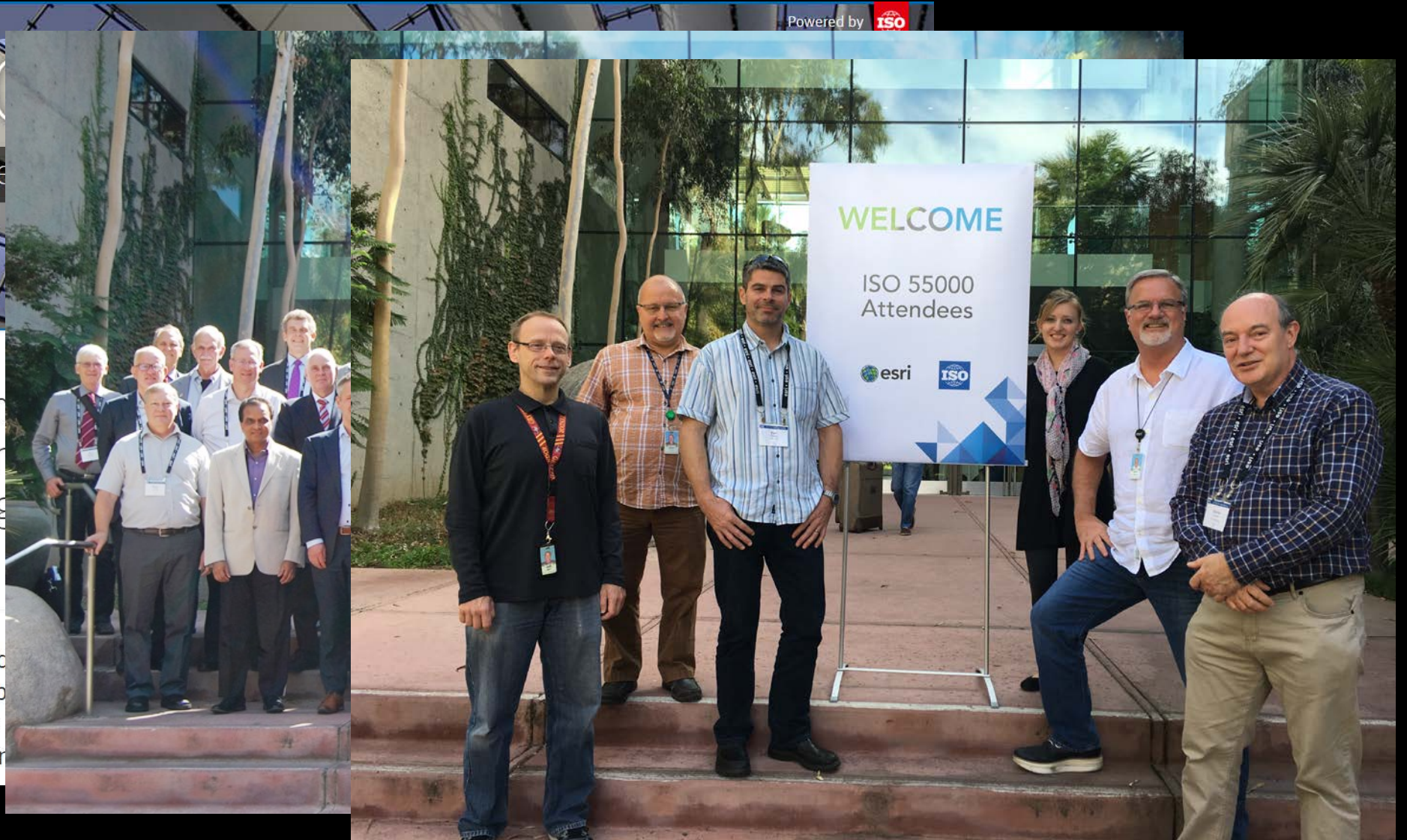
ISO 55000 – Asset Management



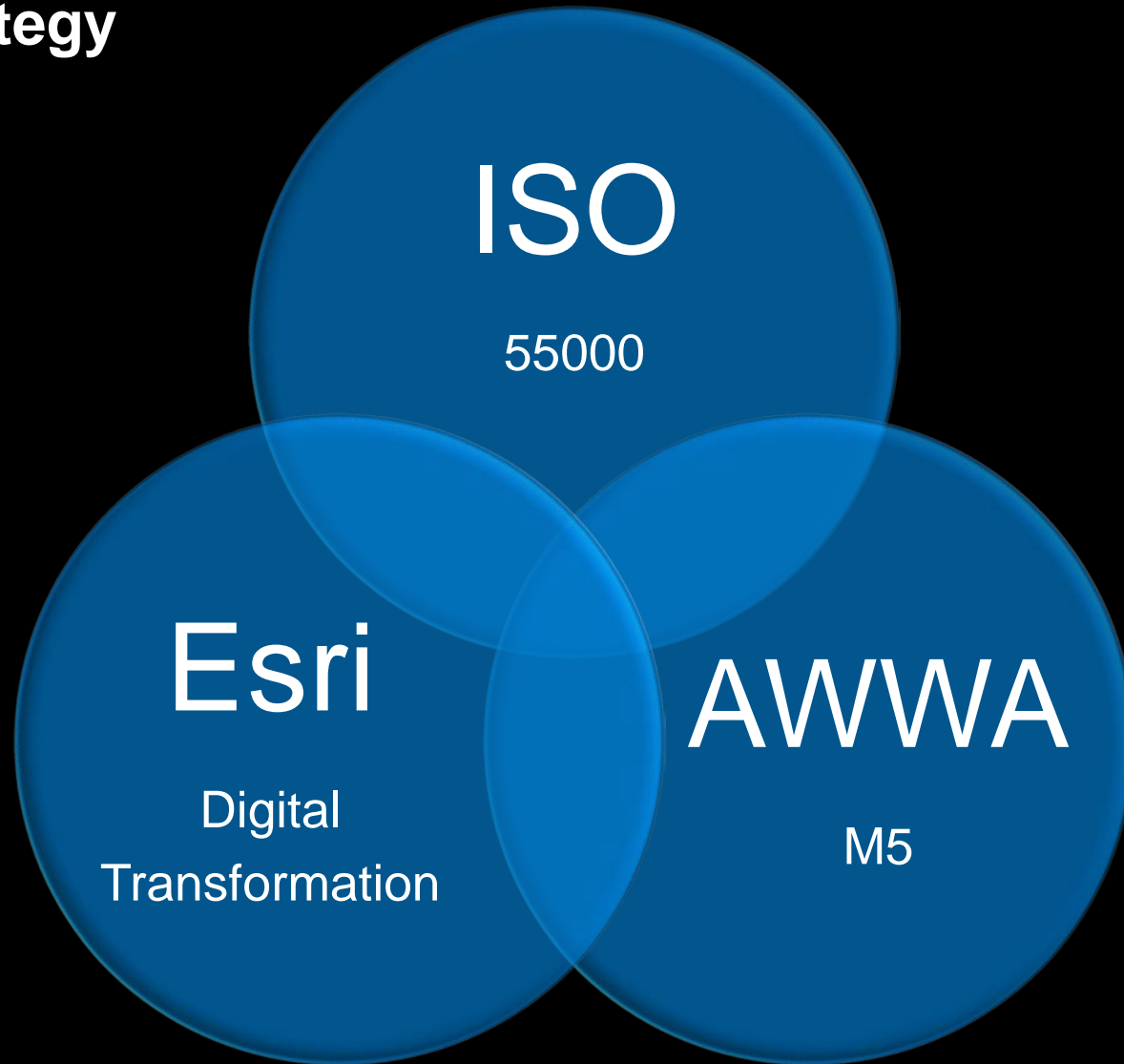
Comm
meeting
Manag

By Charles Corrie on 21 October 2016

ISO/TC 251 held its second
Chairman's Advisory Group
held their first face-to-face
enabled each of them to pr



International Strategy



Things to see this week

Includes, but not limited to:

- **ArcGIS Pro & Utility Network: Envisioning Theater**
- **Insights: the Opelika dead meter story**
- **Cost Estimator: LGIM w/current RS-Means data**

ArcGIS Pro

- *Too many things to list...*

Utility Network

- **Why develop new network management functionality?**
 - Higher performance, greater scalability, more complex modeling, cross-platform
 - Industry models
- **What does this mean to Water?**
 - Any device, anytime, anywhere full platform functionality for network features
 - Non-coincident connectivity: master meters to apartment complexes, inlets
 - Attachments: thrust blocks, rain guards
 - Containment: PRVs, lift stations, plants
 - Parametric tracing: VCP tracing for root saws, Cathodic Protection, % slope
 - Life cycle management: preliminary pipe, abandoned pipe
 - *NHD Hi-Res*

What is the Utility Network?

- **new network management functionality**
- **data model(s)**
- **storage framework**
- **rules**
- **workflows**
- **api**
- **100% full platform compliance**
- **any network: natural and built**

Insights: the Opelika dead meter story



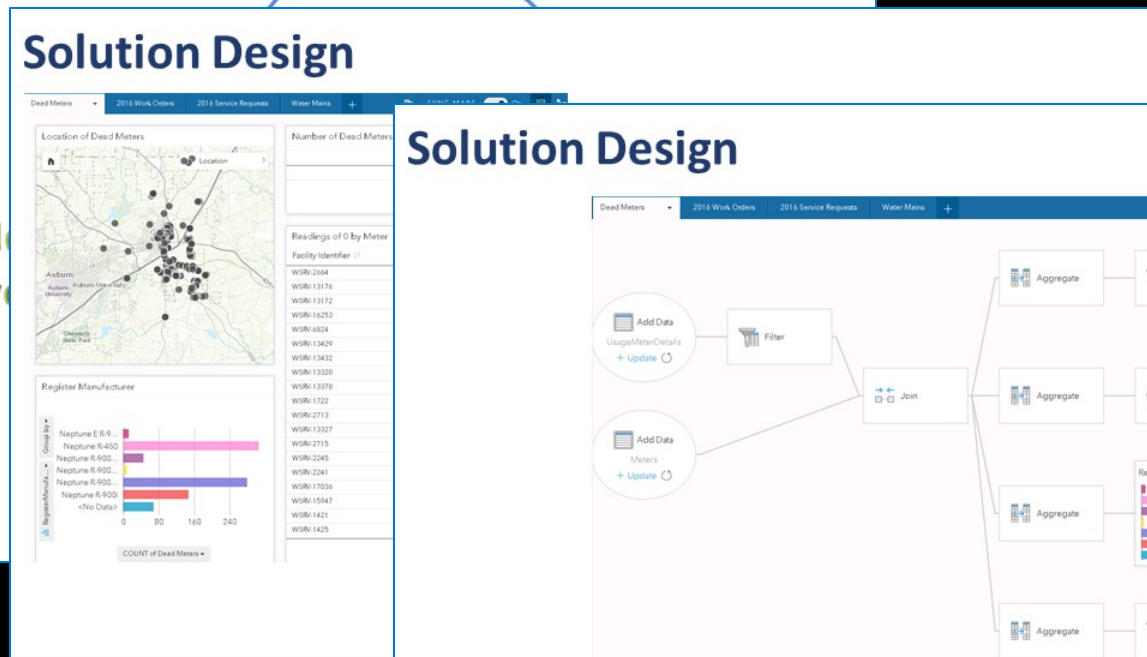
GIS Insights

Solution Design

Dead Meter

Using Insights

Dead Meter Insights = Revenue



Solution Design

Dead Meters - 2016 Work Orders - 2016 Service Requests - Water Mains

Location of Dead Meters

Number of Dead Meters

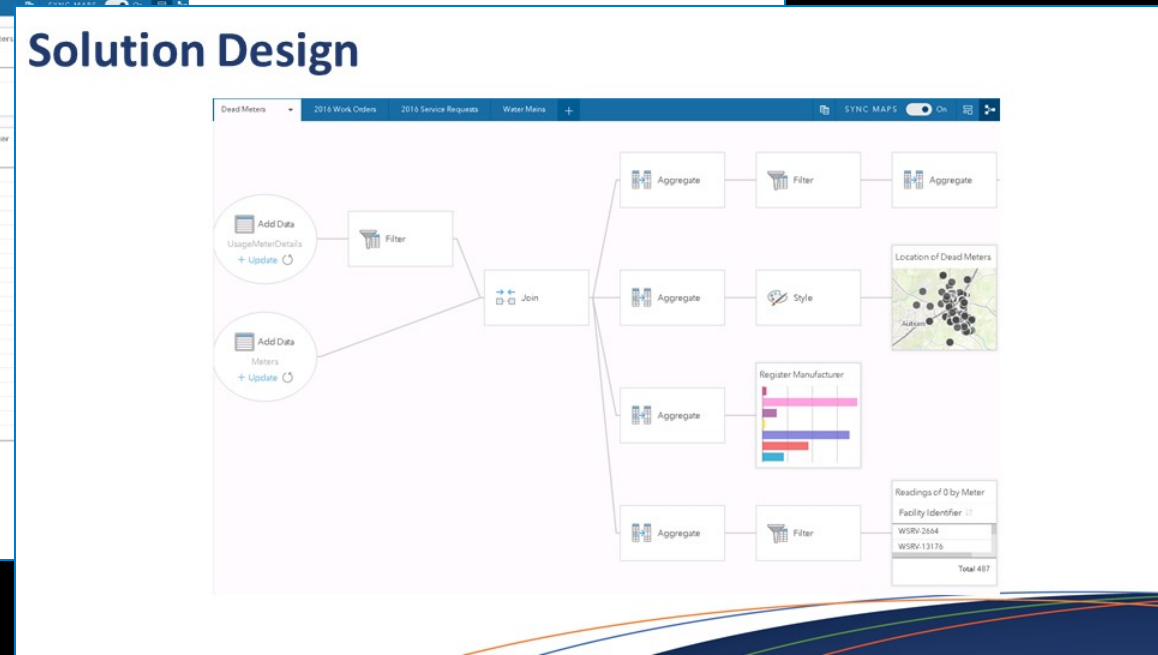
Readings of O by Meter

Facility Identifier	Count
WSRV:2684	1
WSRV:13176	1
WSRV:13172	1
WSRV:16253	1
WSRV:8024	1
WSRV:13429	1
WSRV:13432	1
WSRV:13320	1
WSRV:13378	1
WSRV:1722	1
WSRV:2713	1
WSRV:13327	1
WSRV:2715	1
WSRV:2245	1
WSRV:2241	1
WSRV:17036	1
WSRV:15947	1
WSRV:1421	1
WSRV:1425	1

Register Manufacturer

Manufacturer	Count
Neptune E.R.9...	1
Neptune R.450	1
Neptune R.900...	1
Neptune R.900...	1
Neptune R.900...	1
Neptune R.900...	1
<No Data>	1

COUNT of Dead Meters



Solution Design

Dead Meters - 2016 Work Orders - 2016 Service Requests - Water Mains

SYNC MAPS

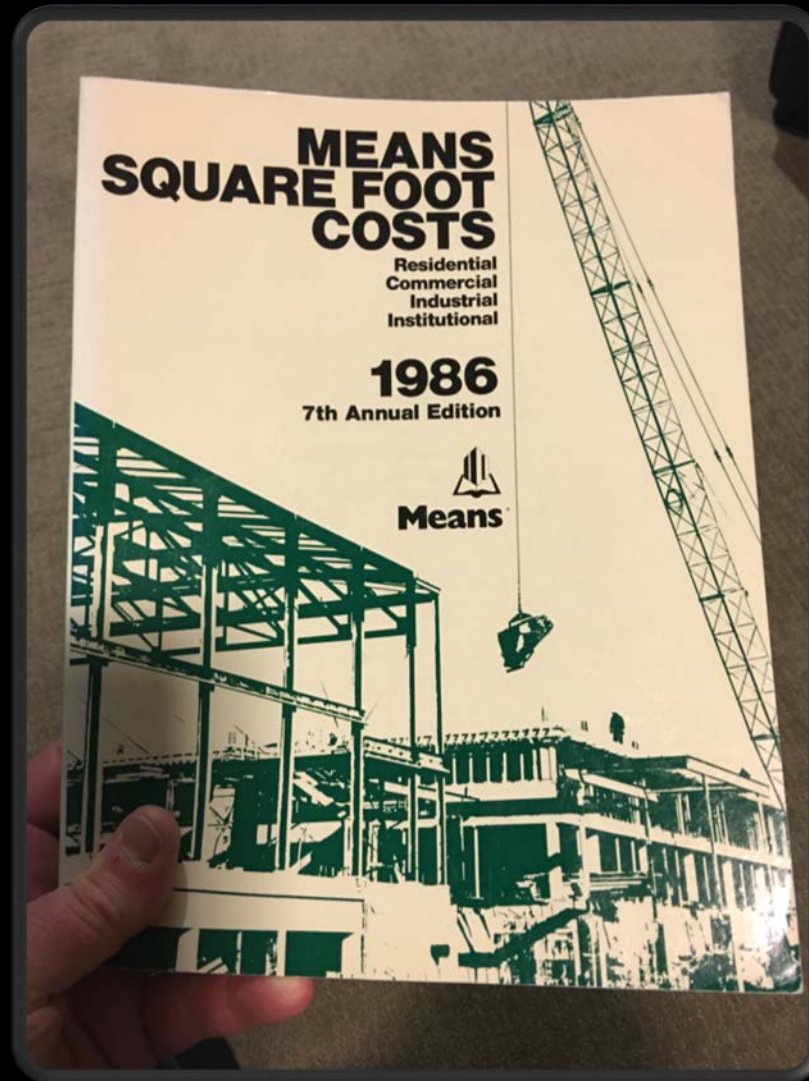
Location of Dead Meters

Readings of O by Meter

Facility Identifier

Facility Identifier	Count
WSRV:2684	1
WSRV:13176	1
Total	407

Cost Estimator: LGIM w/current RS-Means data



Cost Estimator: LGIM w/current RS-Means data

GISinc Solution Design

Identity Management
OAuth Access
Hosted Content & Services
Water Distribution Model

Construction
Using ArcGIS a

Cost Estimator

Asset	Material	Diameter	Units	Cost
Water Main	DIP	4 in	455.61 ft	\$23,527.91
Water Main	DIP	6 in	278.63 ft	\$14,573.68
Water Main	DIP	8 in	59.43 ft	\$4,351.84
Water Main	PVC	6 in	189.63 ft	\$3,436.98
Curb Stop Valve		1 in	125	\$23,104.75
Water Lateral	COP	1 in	2,975.25 ft	\$52,642.60
Total:				\$122,867.09

Recalculate



esri

THE
SCIENCE
OF
WHERE