

# Intelligentes Infrastrukturmanagement mit Connected Digital Twins

*Nora Marie Vögele, Business Development Manager, Esri Deutschland*

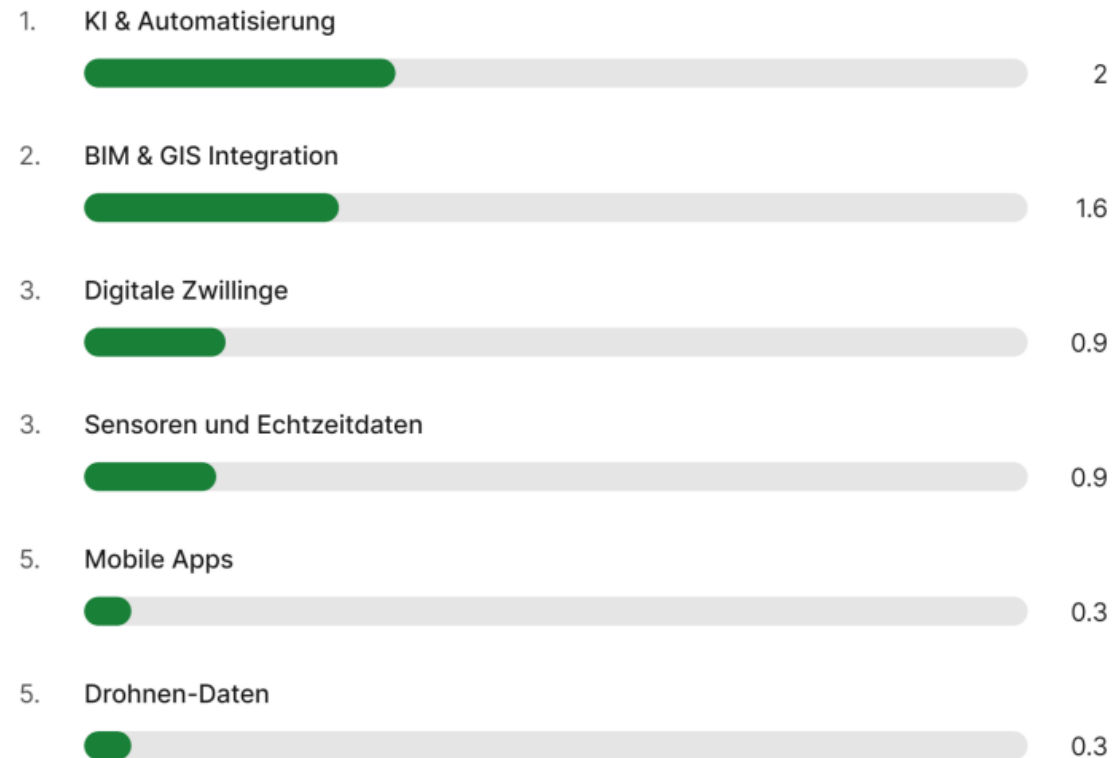
*Stefan Jung, Head of Sales Transport, Telco and Utility, Esri Deutschland*

4. Mai 2023

# Intro | Ergebnis Umfrage 2023

## Welche Innovationen sind für Sie am vielversprechendsten?

Ranking Poll 120 votes 120 participants



slido



# Industry Business Drivers

Die Herausforderungen unserer Zeit ...

PATH TO NET-ZERO



HYDROGEN'S PROMISE



CYBERRISK



FOCUS ON ESG



BATTERY AND ENERGY METALS



# Digital Twins modellieren die Realwelt

Einschließlich: Physischer Objekte, Prozesse, Beziehungen & Verhalten

Echtzeitdaten  
& Visualisierung



5D Visualisierung



Real Time Operations



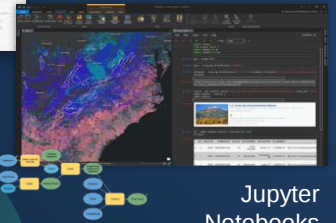
Object Detection & Extraction



Image  
Classification



Time-Series  
Forecasting



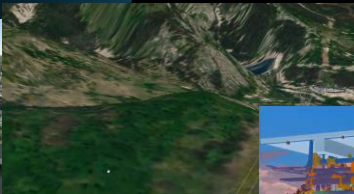
Jupyter  
Notebooks

Analysen &  
Vorhersagen

Datenerfassung  
& Integration



Reality Capture



Data Modeling



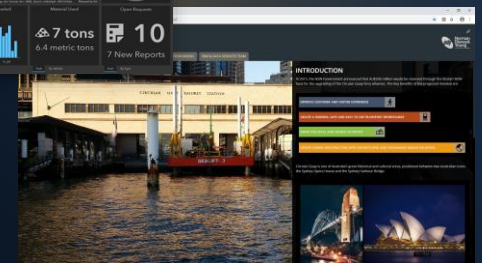
Data Integration

Digital  
Twin



Dashboard

Austausch &  
Kollaboration



Stakeholder Management

# Beispiele | Portcoast



# Mission Critical Enterprise GIS

Integriert mit anderen strategischen IT/OT Systemen



# Connected Digital Twins

Modellierung des Lebenszyklus der Assets

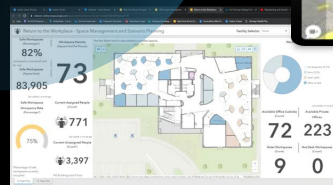
## Operations Twin



Real-Time Dashboard

Situation Awareness

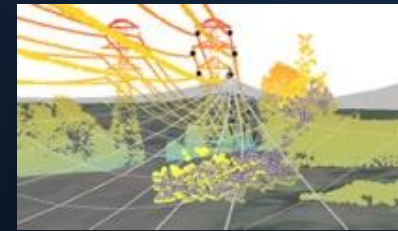
## Asset Twin



Facilities Management



Asset Inspections



Utilities / Telecom



Roads and Highways

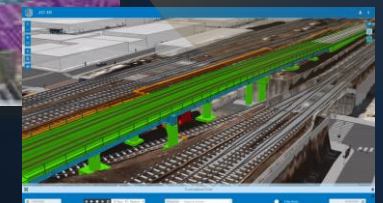


Pipelines

## Infrastructure Twin



Planning

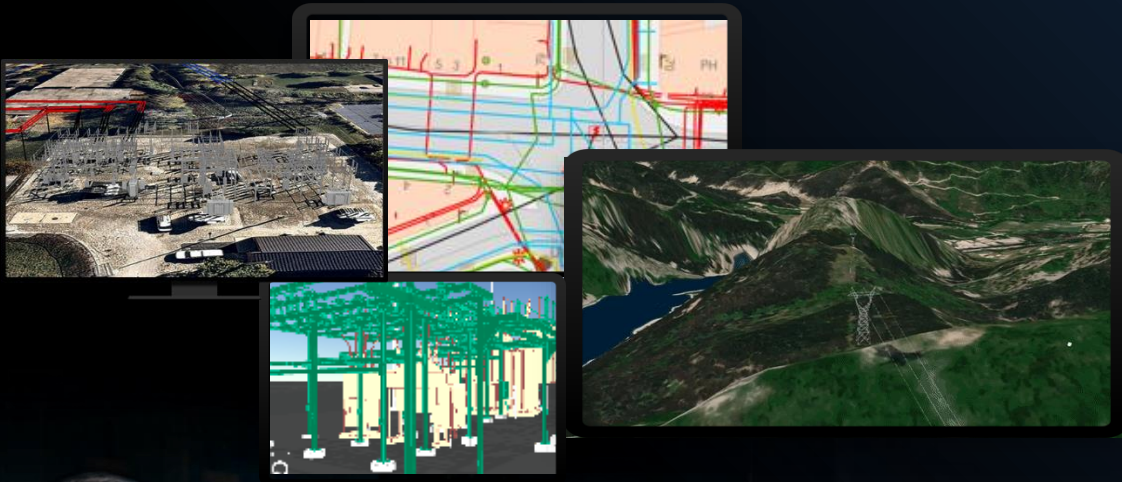


Project Delivery

## Project Twin

# Infrastructure Twin

## Modellierung komplexer Infrastrukturen



### Utility Network

- Services Based (SOA)
- Schematics
- Containments
- Generation to Customer
- Connectivity and Tracing
- Network Rules and Logic
- 3D enabled

### Roads & Highways

- Lineare Referenzierung von Netzwerken
- Verwaltung und Analyse von Straßeninformationen
- zeitbasiertes Datenmodell für Planug & Historisierung
- Basis für Straßeninformationsbank (SIB)

### Indoors

- Floor-aware maps
- Indoor 3D mapping
- Indoor Positioning
- Asset Tracking
- Routing & Wayfinding
- Space Planning

# Asset Twin

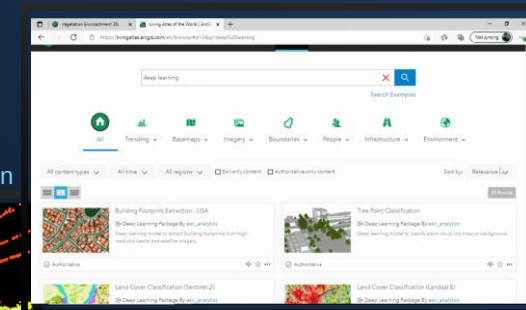
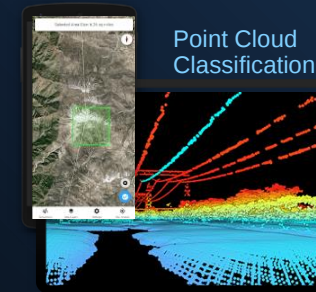
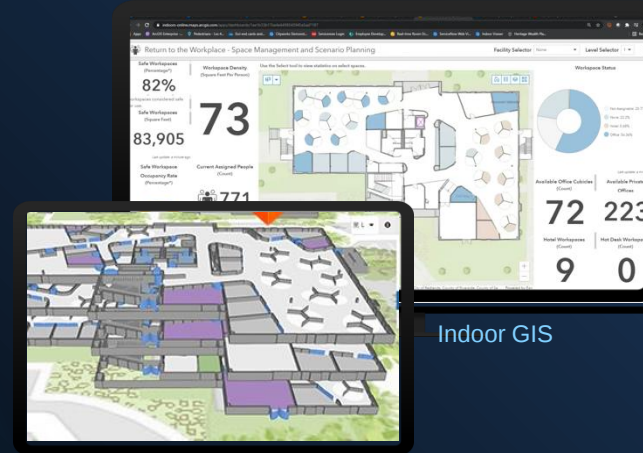
## Assets

- Asset Inspections
- Defect & Condition Assessment
- Asset Planning
- CapEx & OpEx Forecasts



## Facilities

- Indoor Inspections
- Indoor Positioning & routing
- Space management
- BIM integration



## Vegetation and Environment

- Drone Inspections
- Imagery capture & Analysis
- AI & ML
- Encroachment & Change Detection



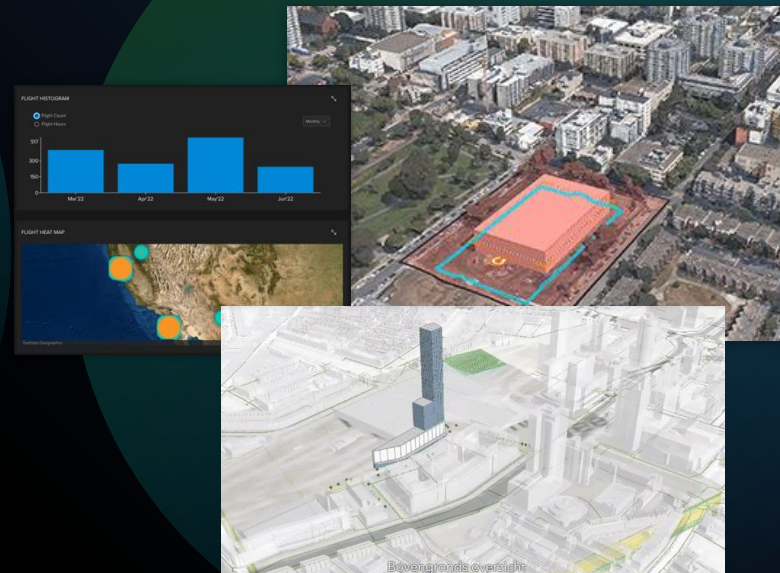
# Project Twin

Planen, Entwerfen, Bauen, Betreiben und Instandhalten

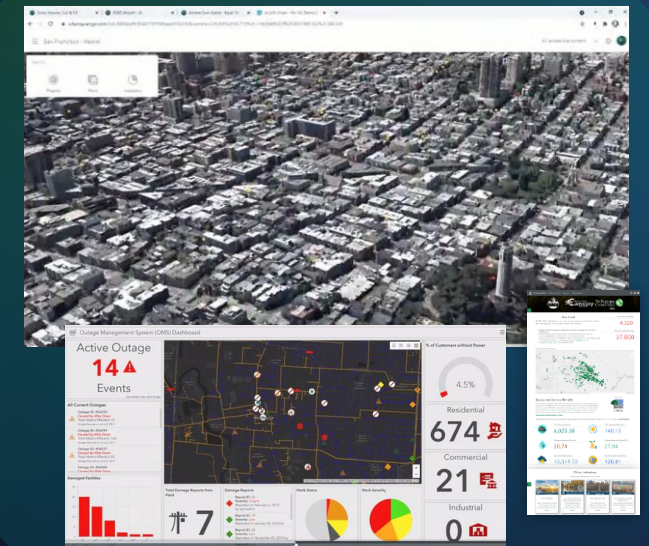
## Reality Mapping & Integration



## Progress & Tracking



## Sharing & Collaboration



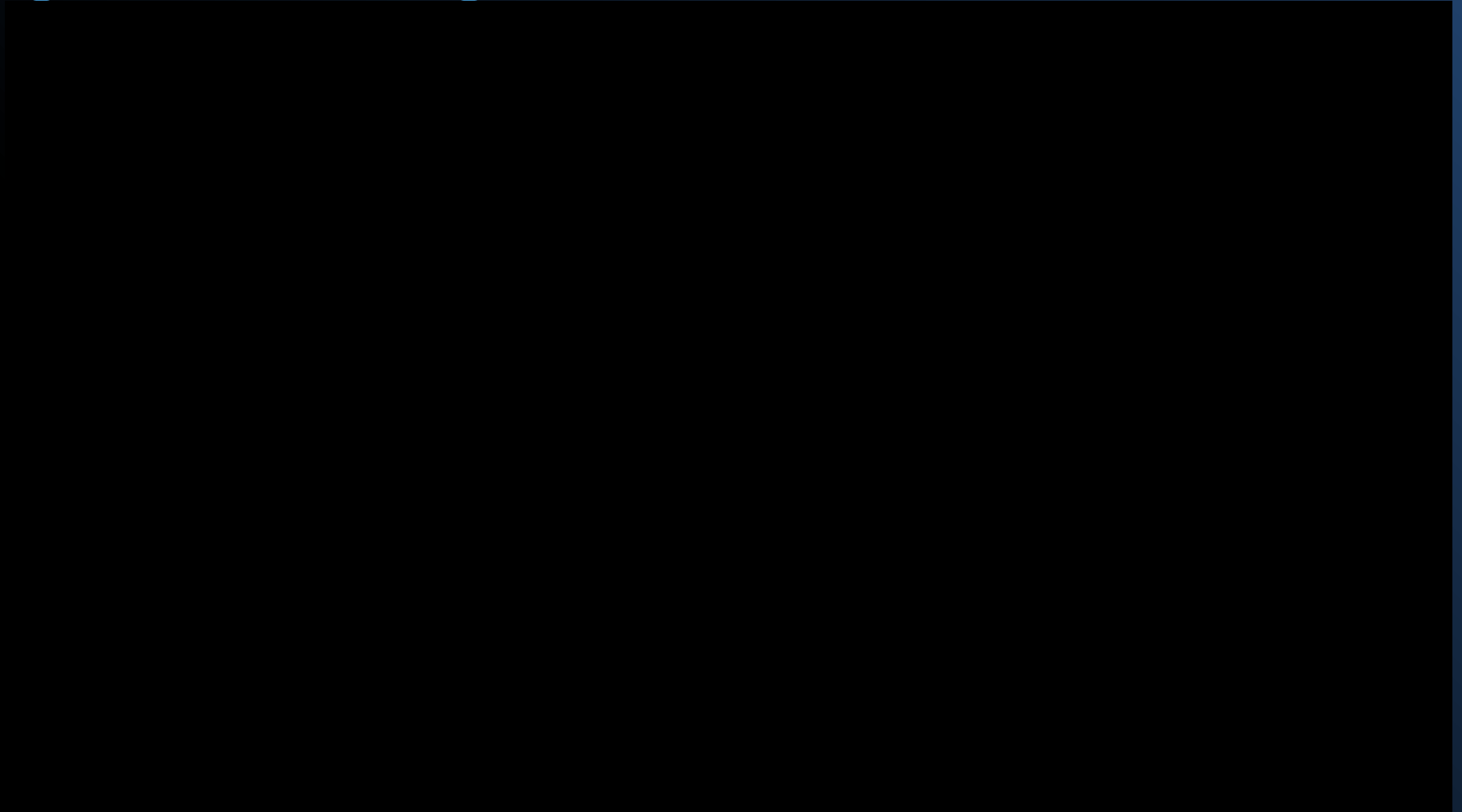
# Operations Twin



# Key Takeaways | in 6 Schritten zum Digitalen Zwilling



# Digitale Zwillinge machen: Schritt 1-4 mit ArcGIS



# Vielen Dank.



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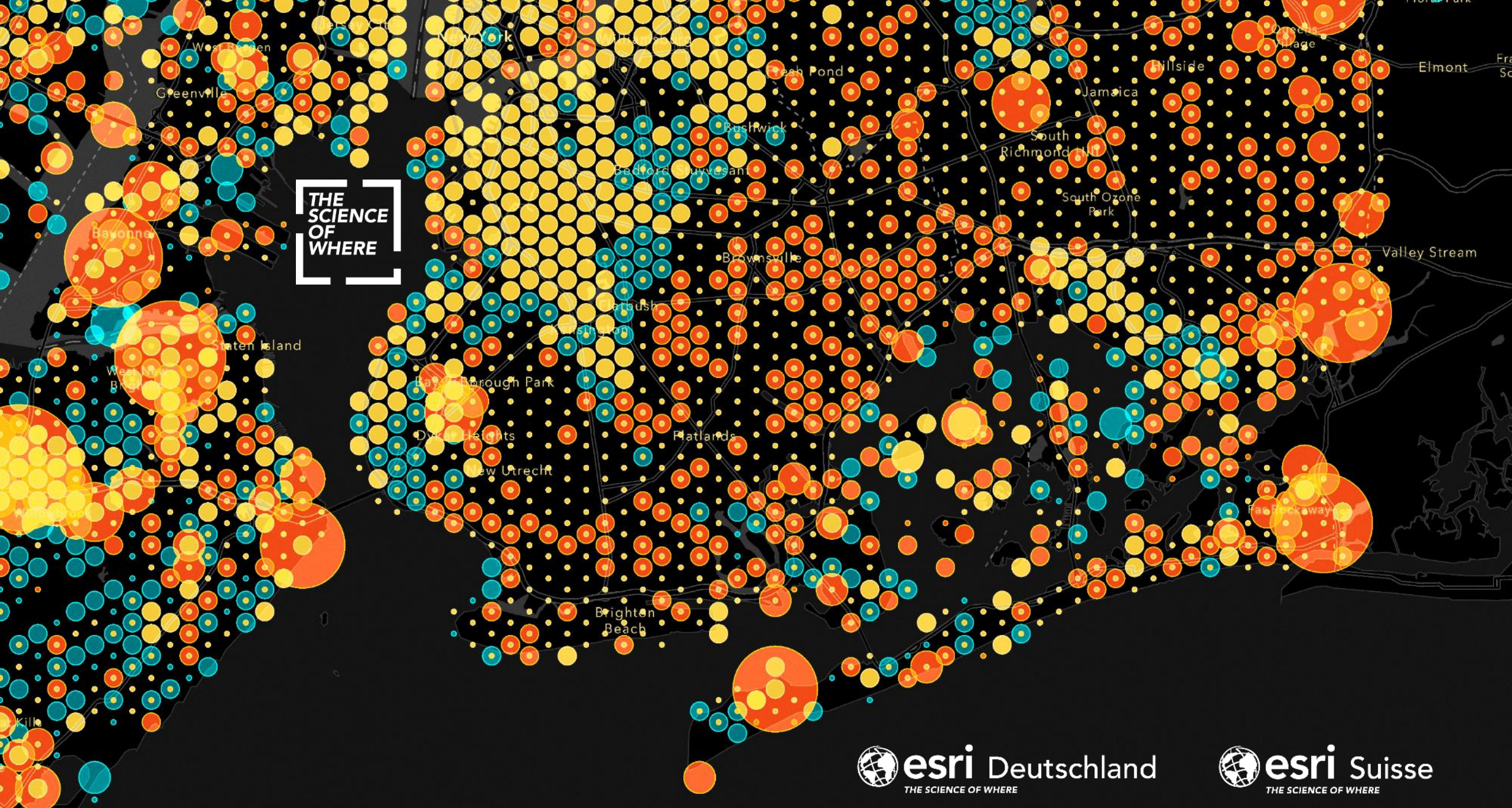


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THE  
SCIENCE  
OF  
WHERE

# Esri Konferenzen

## Esri Konferenz 2024

27. - 28. November 2024, World Conference Center Bonn

Jetzt Ticket sichern →



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## Esri International Infrastructure Management & GIS Conference

9.-11. April 2025, Frankfurt

[Email me about registration](#) →

