

Dean Angelides Corporate Director, Esri

Our World Has Many Challenges

Humans Are Living Recklessly . . .

... Out of Balance with Nature Wildfires_ Severe Droughts Pollution Water Crises Natural Human Induced Disasters Ecological **Climate Changes** Instability **Food Shortages** Pandemics Overpopulation Congested Cities Steep Decline in Biodiversity Unconstrained Political Polarization Development Social Conflic

> Challenging Our Sustainability Threatening Our Future

Creating Conflicts and Instability

Infrastructure

Economic Development

Pollution

Nature Conservation

Joolth

Health

Energy

Natural Resources

National Security

Environment Agriculture

Business Urbanization & Development

Natural Disasters

Transparent Government

Climate Change Science & Technology

Water Resources

Social Conflicts

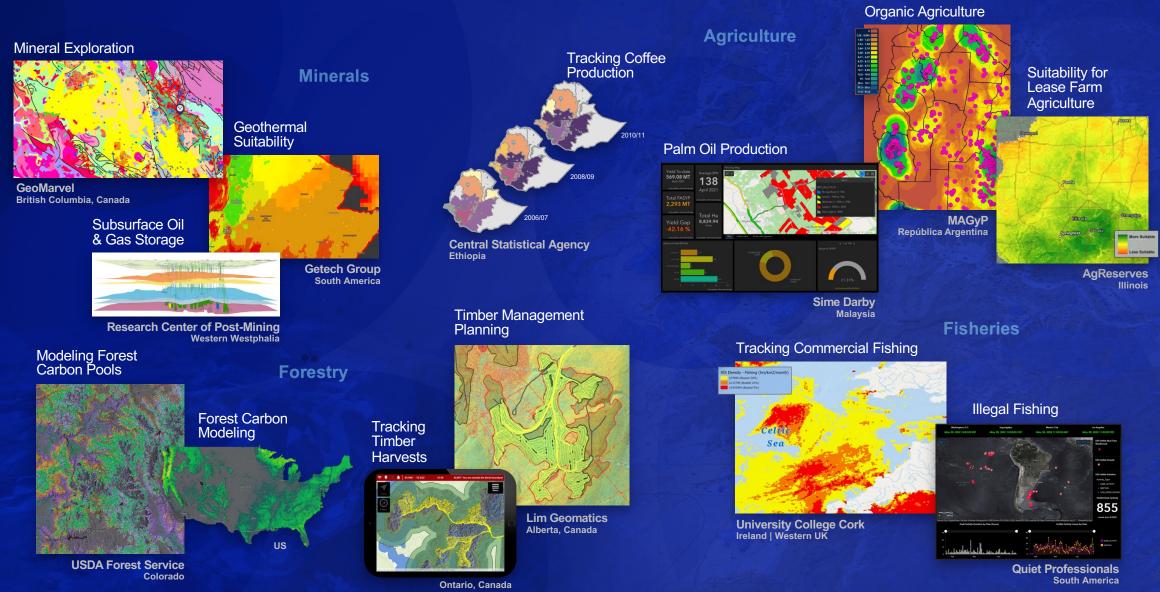
Equity

Creating a more sustainable future

YOUR WORK

Addressing All Our World's Challenges

Natural Resources Management



Environmental Assessment and Conservation

Climate Change Sea Level Rise



Samish Indian Nation Department of Natural Resources Washington

Freshwater **Fish Diversity**

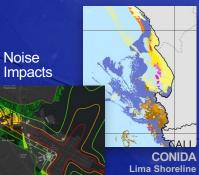


Field Museum of Natural History Guyana



Sea Turtle Patrol

Amber Kuehn Hilton Head Island, South Carolina Oil Spill Damage & Restoration



San Francisco Int'l Airport San Francisco Bay, California

Noise



2020/06/06 00:45:00 (8032)

NIED Tsukuba, Ibaraki, Japan



Extreme Heat Map

- Weather Dashboard

National

Planning

Metropolitan Council Twin Cities, Minnesota



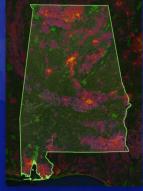
Inundation Mapping

NOAA | NWC

US

Monitoring

Australia



E.O. Wilson Biodiversity Foundation Alabama

Managing and Applying Land Information

Parcel Land Use

lue - \$0.86 mil



MipMap AlUla, Saudi Arabia

Block Assessed Value - \$0.86 mil rest Park

Eos Positioning Systems Fond-des-Blancs, Haiti

Property Valuation

Larimer County

Colorado

Mapping Boundaries of Agricultural Co-ops

3D Assessment Valuation Houseal Lavigne Allen County, Indiana





Dawood Engineering Illinois

Parcel Fabric Tax Map

County of Whiteside Sterling, Illinois



Land Parcel Reporting

Central Appraisal District

El Paso, Texas

3D Property Zoning



Deed Transaction Dashboard

County Assessor Oklahoma County, Oklahoma

GDS Latam Group

City of Buenos Aires, Argentina Parcel Visualization





Majlis Bandaraya Johor Bahru, Malaysia

Guadalajara, Spain













Urban and Regional Planning

Tracking Urban Development



Visual Impact of Proposed Bridge

Building, Facility and Campus Management



Eagle Technology Palmerston North, New Zealand

Planning Visualization

Proposed Building Evaluation



State College Borough Pennsylvania



Imagem Manaus, Amazonas, Brazil

Asset Management



Apartment Leasing

Building Management

Construction Management





3D Textured Mesh



BIM Integration



University of South Florida Tampa, Florida



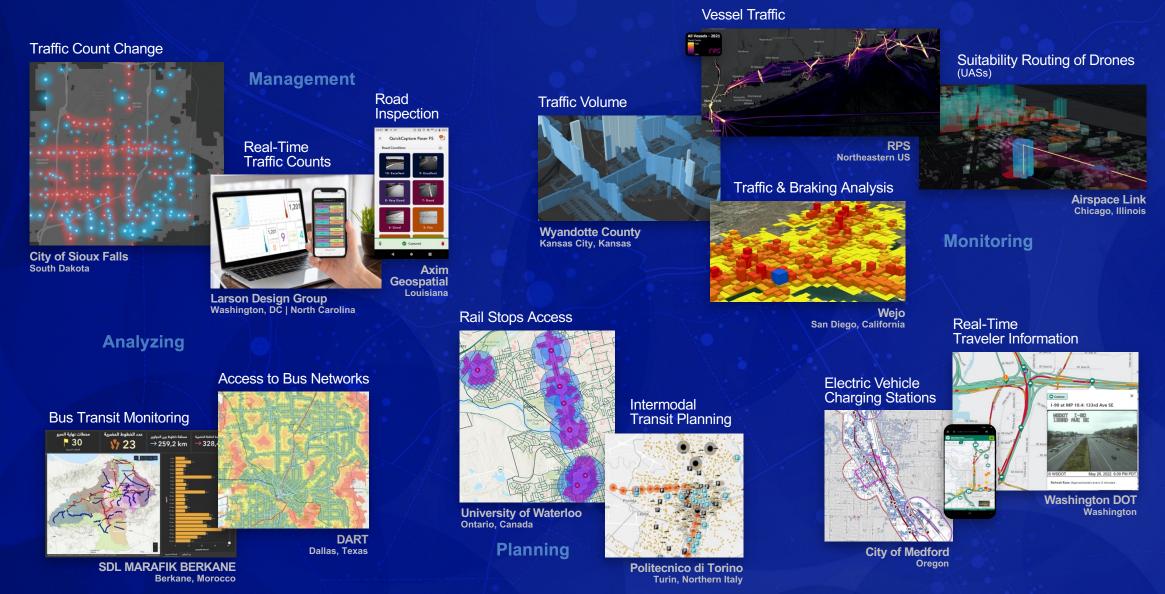
Nationwide (USA) Structures Basemap



Dallas County, Texas

11 :

Transportation Planning and Management



Water and Wastewater Management

Monitoring Water Consumption

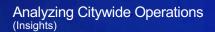


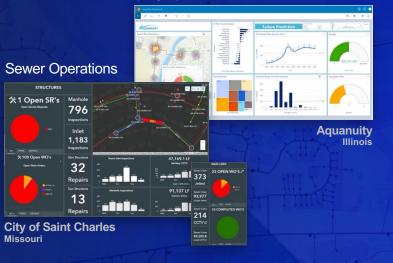
Palm Beach County Water Utilities Department Florida



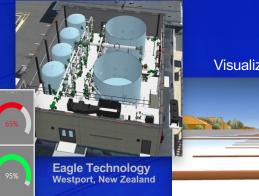


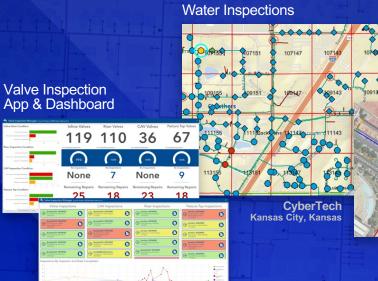
California











Pro-West & Associates North Dakota









Monitoring Outages

Trabajos Catastrales

Seville, Spain

Orange County Sanitation District California

Energy Utilities



Enel Green Power Maharashtra, India

Telecommunications

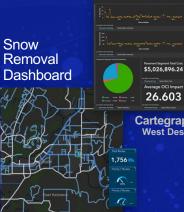
Planning & Design



Engineering and Public Works Management

Managing Fill Material Optimizing Fleet Management Organizing Volunteer Trash Collection Data Points **PT Acset Indonusa** \$ 2,725 93 38 37 51 Toll Road, Majalengka, Indonesia Cityworks St. Johns County, Florida **City of Sugar Land** Monitoring Urban Texas Infrastructure Traffic Signal Inspection (Survey123) SIGNAL HEAD Street Furniture ber 3061-SH-NB Inventory 9 WHEATON PLACE GARAGE 120 e strip n/ ctions No Municipalidad de la Ciudad de Mendoza Mendoza, Argentina **City of Columbus** City of Wheaton Ohio

Pavement Maintenance



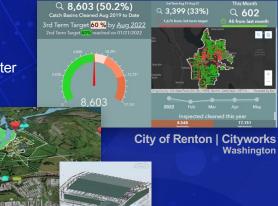
Kelowna, British Columbia





San Francisco Int'l Airport California

Tracking Pollution Permits



AECOM Wales, UK

Cartegraph Systems West Des Moines, Iowa

Jan Acusta

Q 8,603 (50.2%)

Engineering Water Treatment Plant (GeoBIM Integration)



Public Safety and Emergency Management

Mendoza, Argentina



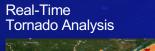
Texas

Planning for and Responding to Disasters

Hurricane Tracking & Assessment



FEMA Surfside, Florida



Eruption

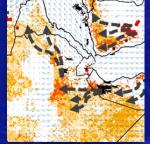
takatoa La Palma, Spain





Pamukkale University Mount Ida, Turkey





IGAD Eastern Africa

Drought & Wildfires

DTN

Kentucky | Missouri |

Arkansas | Tennessee



Flood Dashboard



eThekwini Municipality Durban, South Africa

Fire Forecast



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Flood Modeling

Ministerio Medio Ambiente San Salvador, El Salvador

Flood Simulation



Ministry of Land, Infrastructure, **Transport and Tourism** Arakawa River, Japan

Sea Level Rise

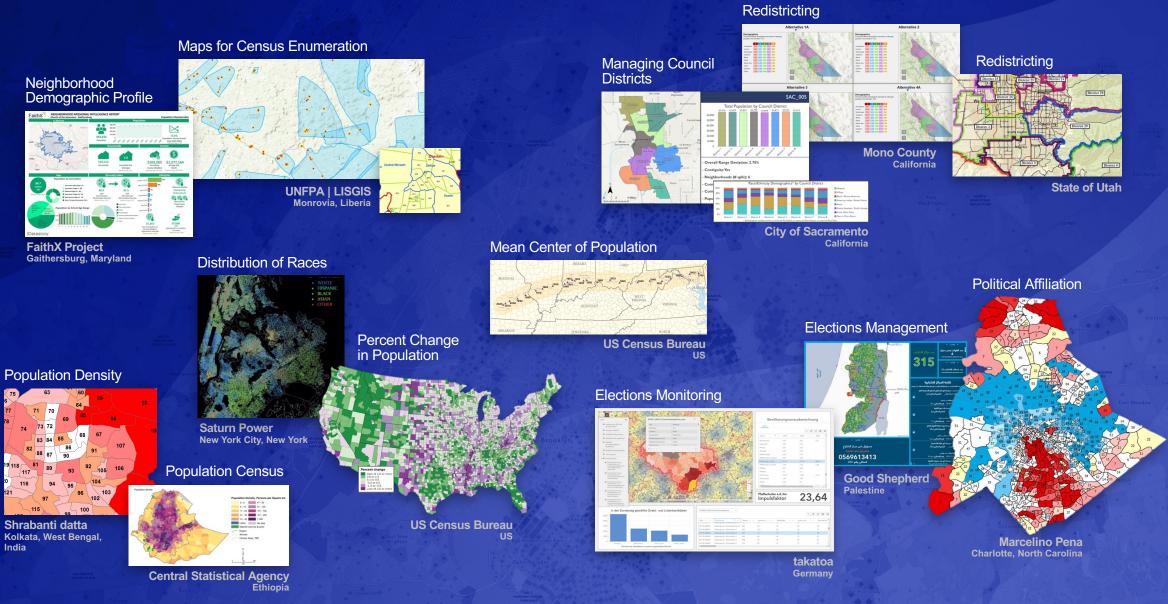


North Point Geographic Solutions Texas | Louisiana | Mississippi

Red Cross Lebanon

185

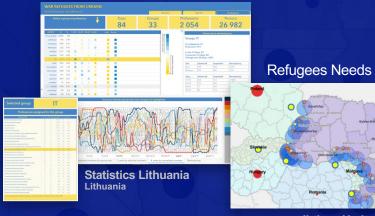
Census, Demographics and Political Redistricting



Health and Human Services

Flu Reporting Walgreens Flu Index (Week Ending April 16th, 2022) Dengue Fever Walgreens US 0 Município de Itajaí Brazil

Tracking Ukrainian Refugees



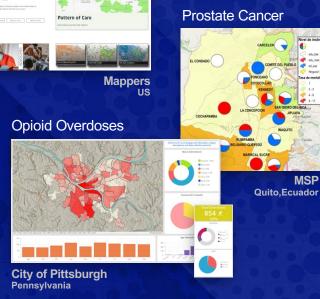
Ihtiyaç Haritasi Eastern Europe

High Lead



ALS Patterns of Care

GEOSPATIAL HUB



Polio Eradication



MSP

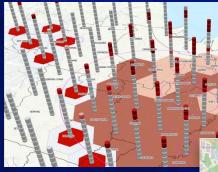
National Emergency Operations Center for Polio Pakistan

Business Analysis and Economic Development

Local Business

Promotion

Hot Spot Customer Analysis

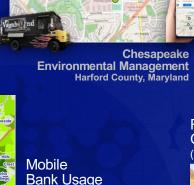


Jakarta, Indonesia

Communities in Need (Maxed Out Credit Cards)



Retail Profit Management San Diego, California





San Francisco, California





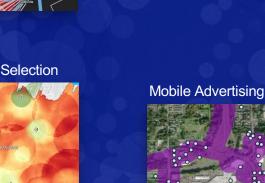
County of Tippecanoe Indiana

Retail

Retail Site Selection



CCIM Seattle, Washington



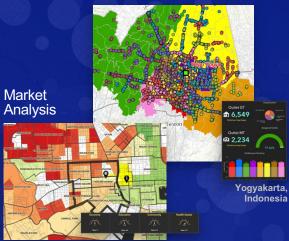
Housing Costs & Travel Time

Environics Analytics Group Toronto, Canada



Columbia Distributing to o staut **US Pacific Northwest**

Route-to-Market Optimization



Datastory Baltimore, Maryland

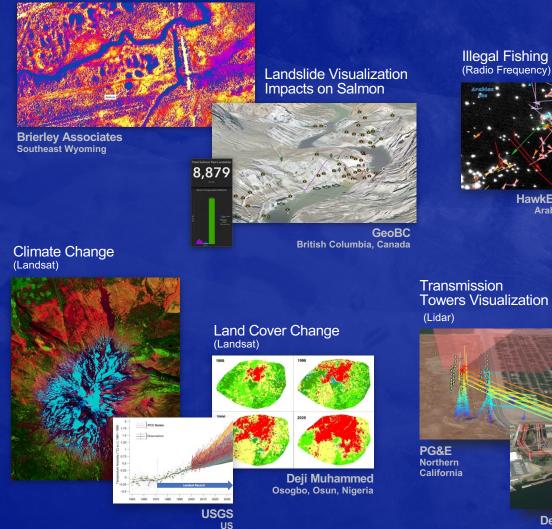




Saizeriya Co. Japan

Imagery and Remote Sensing

Sinkhole & Mine Subsidence (Thermal Orthomosaic)

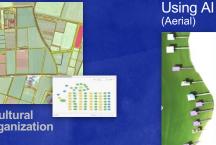




Department of Energy—BPA

Northwest US

Monitoring EU Agricultural Payments



Visualizing Industrial Facilities (Drone / 3D Mesh)



Openware Al-Ahmadi and Al-Abdullah Minas Harbors, Kuwait

(SkySat)

University of

Tennessee

Chattanooga,

Tennessee

Trinity River Authority Urban Forest Mapping Lake Livingston, Texas

Vegetation Change (Lidar and GeoAI)

Detecting New Structures



Florida Department of Environmental Protection Little St. George Island, Florida

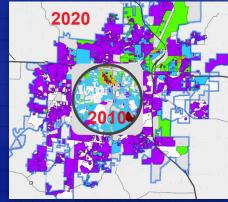
Social Equity

Vulnerable Populations & Health



Data Vision Group New York City, New York

Reapportionment & % Black Population



City of Columbia Missouri

Gender Gap in STEM

Transit Access for Socially Vulnerable Communities

USDOT

Grant / Loan

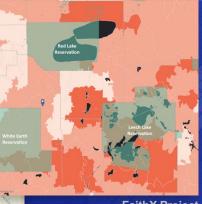
Applications & Equity

Washington, DC Region



Johns Hopkins University

Arrest Rate & Native American Reservations



FaithX Project Bagley, Wisconsin

City of Tacoma Washington

Power Plant Emissions & Environmental Justice



US EPA





Salt Lake City Department of Public Utilities Utah

Children & Poverty

Interactive Equity Atlas

City of San Antonio

Texas



NYS Council on Children and Families New York Equity Mapping

Youth Development Equity Mapping Pilot



Public Engagement and Collaboration



Government Colorado Asset Management System



Sioux Falls

South Dakota

Shawnee, Kansas

Cityworks Shawnee, Kansas

Public GIS Services **Camden County Enterprise**





Budgeting Portal



US Bureau of Reclamation US

New Jersey

National Situational Awareness



Emergency Management

🙈 Walmart Emergency Wanagement Hub



Walmart US

0 **FEMA**

Comprehensive Planning



Polk County, Minnesota

VISION

GIS Mapping Common Ground

Creating Agreed Upon Understanding . . . A Foundation for Positive Action

Mapping ... and The Geographic Approach

Are Powerful Means for . . .

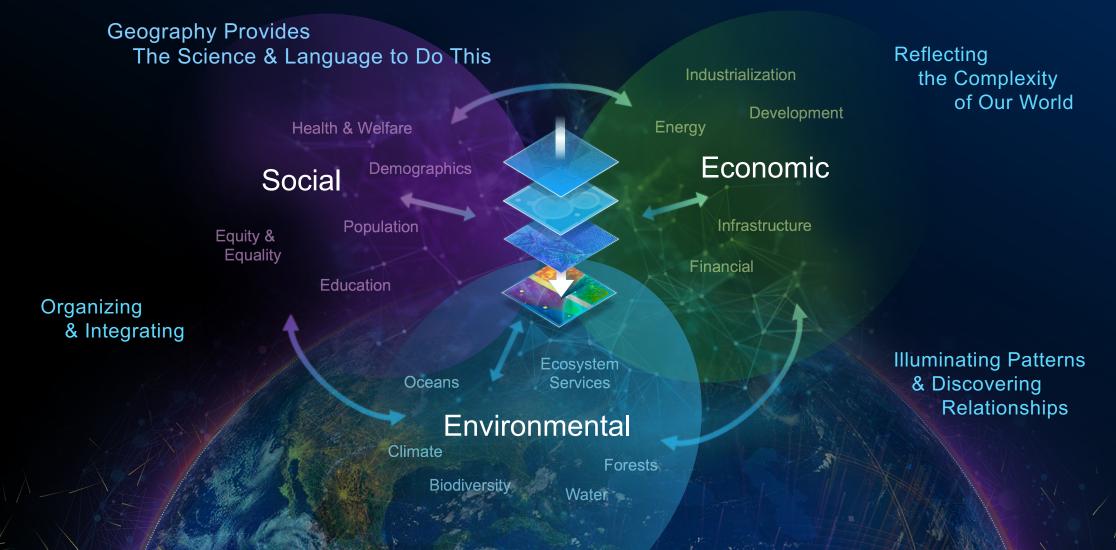
Creating Understanding . . . Exploring Alternatives . . . Finding Solutions . . . and Reaching Agreement

Creating Agreed Upon Understanding

Mapping Common Ground

A Foundation for Positive Action

Mapping Common Ground Requires We Consider All the Factors



The Geographic Approach

A Way of Thinking and Problem Solving That Integrates Geographic Science & Information Into How We Understand and Manage Our Planet

Science Based

Integrated

Holistic

Spatial Understanding Supporting Multi-Objective Solutions

Collaborative

GeoScience and Understanding An Inclusive and Multi-Disciplinary Process Impacting Every Sector of Society

The Geographic Approach Integrates and Supports Powerful Methodologies

A Language for Communicating Content and Context GeoVisualizations Designing for a Sustainable and Inclusive Future

GeoDesign

Engaging All the Stakeholders GeoCollaboration Planning

Decision Making

Engineering

Operations

Accounting for All Factors GeoAccounting

Managing

Creating Insights and Understanding GeoAnalytics

> GeoScience and Understanding

> > All Critical for Maintaining Sustainability

GIS Enables The Geographic Approach

Data <u>C</u>ollection

Visualization & Mapping

Analysis & Modeling

Planning & Geodesign

Decision Making

Action

A Process for Creating Understanding & Facilitating Collaboration

Mapping Common Ground

Geospatial Professionals Are Already Mapping Common Ground

Mapping All the Factors

Creating Understanding . . . Facilitating Collaboration . . .

Reducing Violence

Prioritizing Investment

Community Planning

Conservation Planning

Applying Science

Finding Equitable Outcomes

Addressing Drug Addiction

Organizing Communities

Planning for Sustainability

Environmental Assessment

Resolving Conflicts

Addressing Homelessness

Helping Homeless

Siting Renewable Energy

Managing Resources

UN Global Sustainable Development Goals (SDGs)



Community Planning







Leveraging GIS Technology At Many Scales . . .



A Growing Network of Distributed Shared Services

Millions of Users

Sharing 10s of Millions of Datasets

Serving Billions of Maps Daily

Reaching Billions of People with Stories About Our World

> Enabling . . . Shared Understanding, Collaboration and Efficient Action

Shared Services

Portals

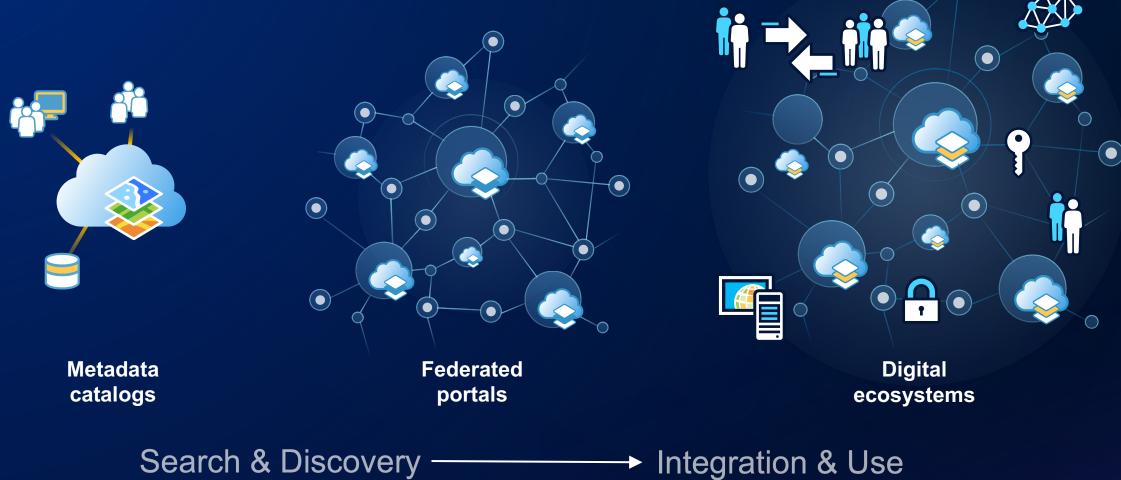
Key for Mapping Common Ground At All Scales

"A Global

Nervous System"

Geospatial Knowledge Infrastructure

Expanding SDI beyond data to knowledge and understanding





Mapping Common Ground

Is Essential for Addressing Our Greatest Challenges



Mapping the Future We Want to See

Geospatial Professionals

Have a Special Responsibility **To Help Others** Find Common Ground

Providing Leadership

Building Trust

Collaborating Listening

Resolving Conflicts

Understanding What's Needed Facilitating Agreements

Communicating

Supporting Communities

Designing Solutions

Exploring What's Possible. Inspiring Action for a Sustainable Future