

IGIF and GKI:

States Working Beyond Borders

in the National Geospatial Ecosystem

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Everyone wants their community to be...

Sustainable

Transparent

Resilient

Healthy

Safe

Prosperous

Livable

Collaborative

Innovative



Geospatial ecosystems

New patterns
of GIS are
emerging



A system of systems

Abstract Concept & Model

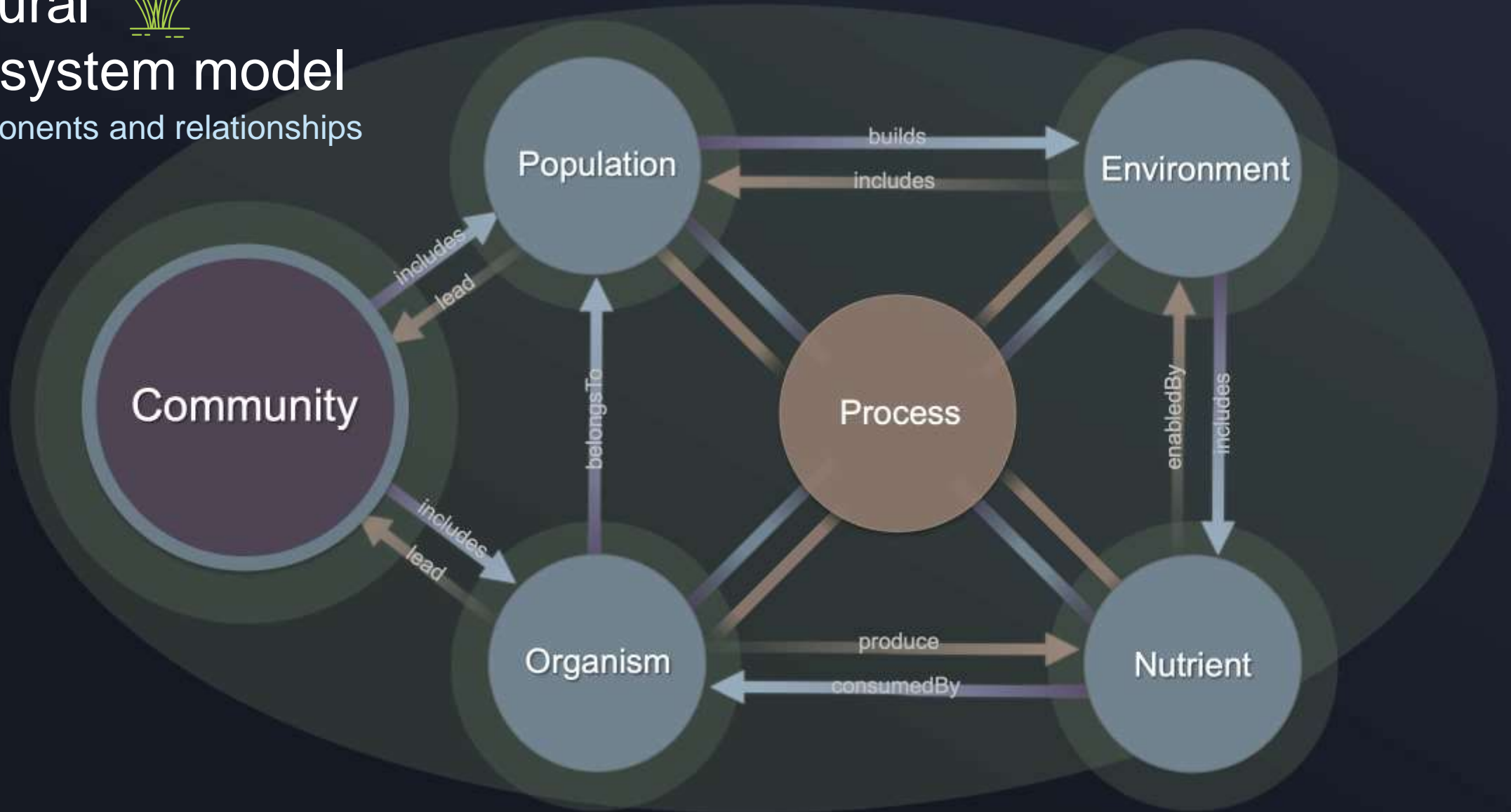
Geospatial Ecosystems

Natural



ecosystem model

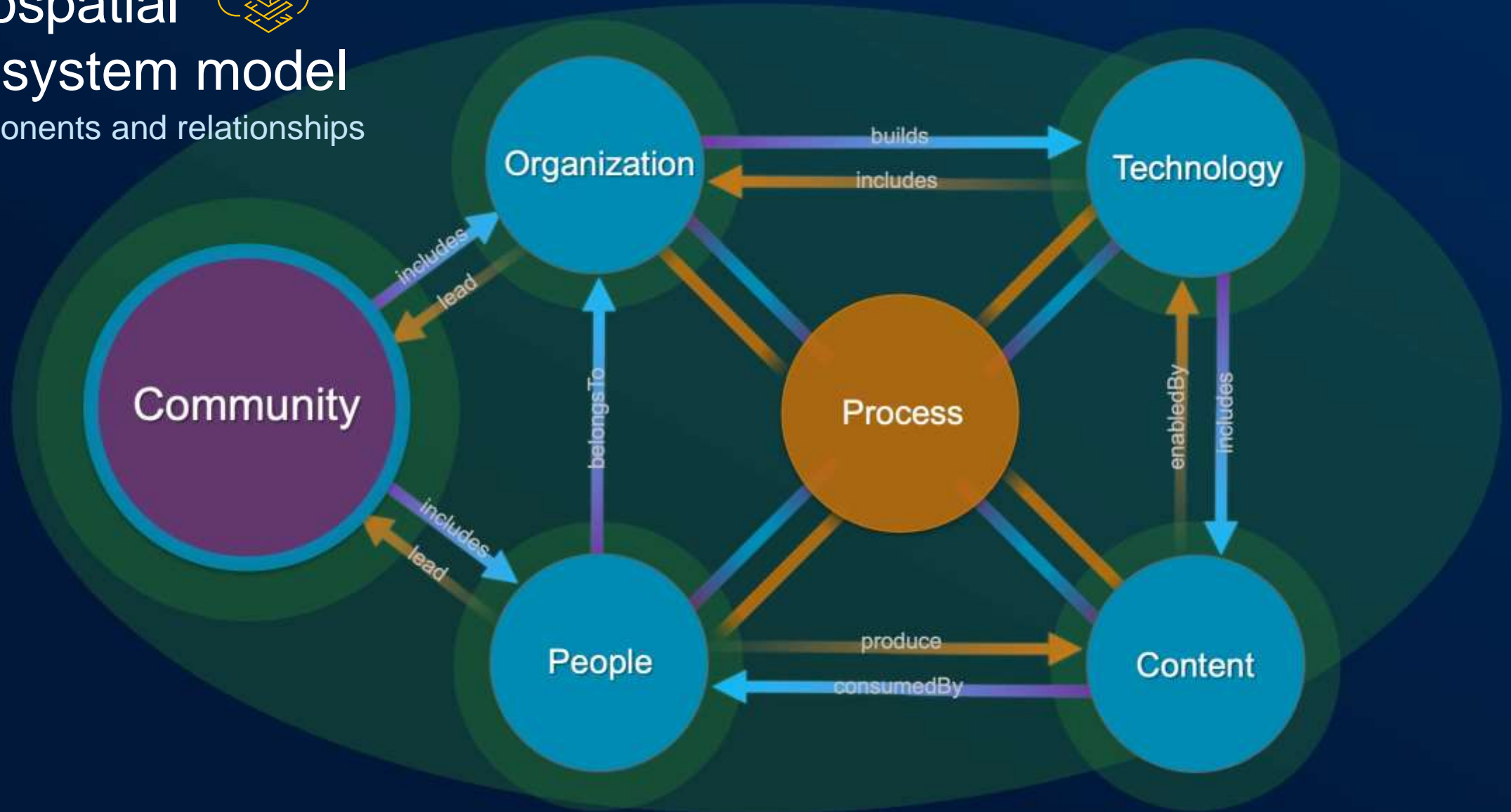
Components and relationships



Geospatial ecosystem model



Components and relationships



Ecosystem services

The direct and indirect contributions for human well-being and quality of life ...



Topical Programs



Health

Education

Agriculture

Energy

Sustainable Development

Climate Resilience

Broadband Access

Equity

Disaster Management

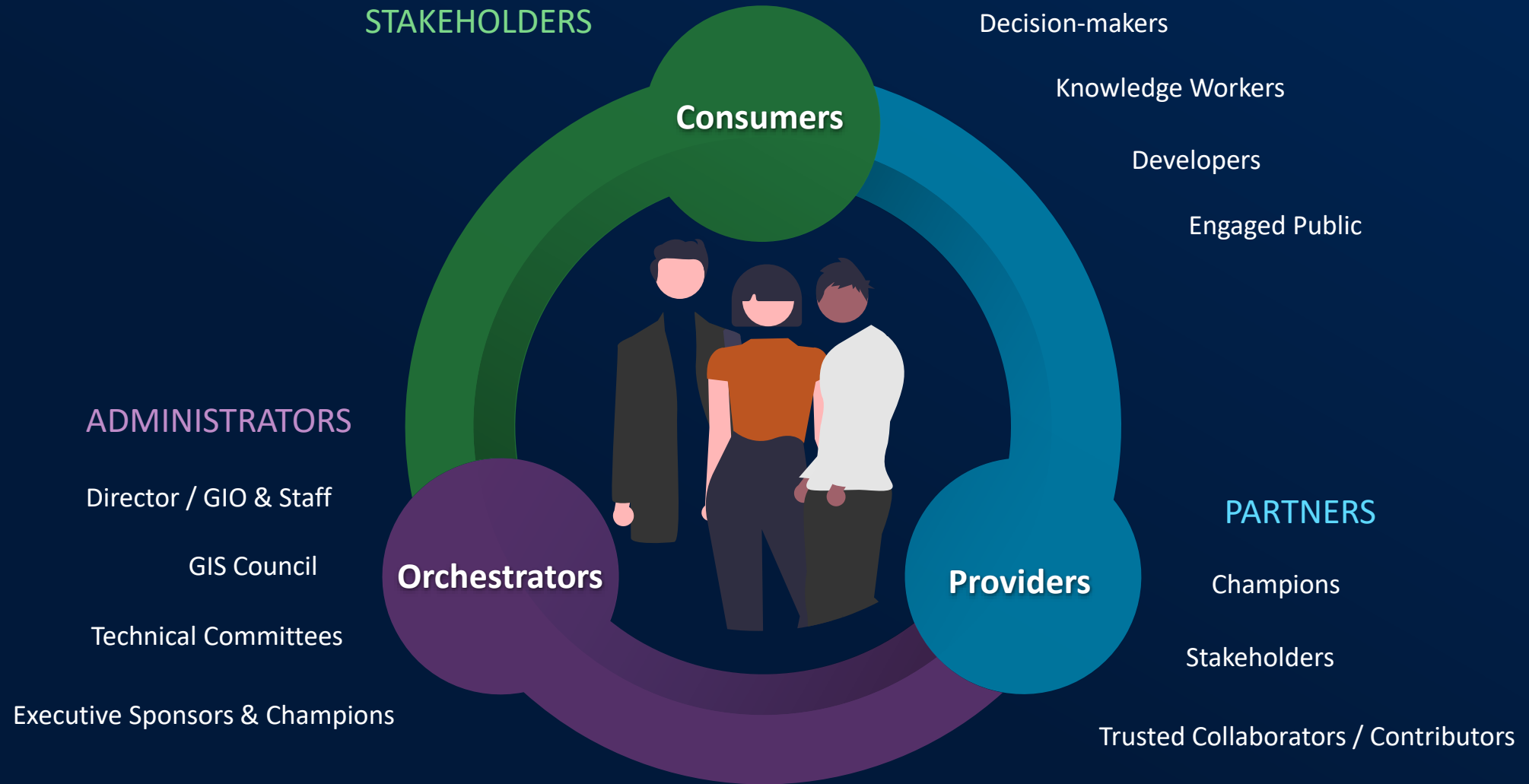
Infrastructure

Mobility

Biodiversity

... *The **natural capital** of geospatial ecosystems.*

Communities: *Sharing and collaboration are key*





States in the National Geospatial Ecosystem

Ecosystems come in many sizes

*"We have entered a moment in which **siloed data** can become a **thing of the past**. The individual work that we all do can be interlaced to form a seamless, uniform **geospatial fabric of the world**."*

– *Weaving the Fabric*, Greg Bunce, UGRC Geospatial Data Coordinator

Foundation Data Initiatives

This pattern involves organizations weaving the fabric of geospatial data. They use ArcGIS Hub as a platform for collaborative data initiatives to engage partners and organize framework data workflows.

Foundation Data Communities

The screenshot shows the Alaska Geospatial Council website. The main heading is "Explore AGC Technical Working Groups". Below this, a paragraph states: "The AGC Technical Working Groups are the **backbone of the Council**. These groups work to identify gaps in statewide data and coordinate amongst stakeholders to address mapping deficiencies." There are four cards for different working groups: Transportation Technical Working Group, Coastal and Ocean Technical Working Group, Geodetic Technical Working Group, and Wetland Technical Working Group. Below these is an "Upcoming Events" calendar for November 2021, with events listed for December 1st, 2nd, 7th, and 22nd. A "Learn More" button is visible on the left side of the working groups section.

The screenshot shows the State of Alaska Open Data Geoportal website. The header includes the Alaska state logo and navigation links for "State Employees", "Departments", and "myAlaska". The main heading is "Open Data Geoportal". A large banner features a map of Alaska and text: "This is a cooperative project coordinated by the Alaska Geospatial Council. The data and services available are hosted by public agencies. Access to the data would not exist without coordination from contributing members. The Geoportal is hosted by the Alaska Geospatial Office." There is a search bar below the banner.

The screenshot shows the Coastal & Ocean Technical Working Group website. The main heading is "Coastal & Ocean Technical Working Group". Below the heading is the tagline: "Aligning coastal and ocean mapping missions with Alaska's people and programs." There is a logo for the Alaska Geospatial Council and a paragraph describing the council's role: "The Alaska Geospatial Council provides inter-agency coordination between local, state, federal, tribal, academic and private organizations on geospatial initiatives. Through effective collaboration the council aims to improve the availability and quality of geospatial information and ensure it is publicly available to support data driven decisions." There is also an "Announcements" section with a link to register for the 2021 Alaska Coastal & Ocean Mapping Summit.

<https://statewide-geoportal-1-soa-dnr.hub.arcgis.com/>
<https://agc.dnr.alaska.gov/>

Foundation Data Hub pages

<https://opendata.dc.gov>

<https://opendata.dc.gov/pages/addressing-in-dc>

<https://opendata.dc.gov/pages/connect-web-services>

The screenshot displays the Open Data DC website interface. At the top, a navigation bar includes the Open Data DC logo and links for App Gallery, Data Stories, Developer Starter Kit, Data Policy, Feedback, and Handbook. Social media icons for Twitter and Facebook are also present. The main content area is divided into several featured cards:

- DC COVID-19 Response:** A card with a background image of hands being washed. It describes overall coronavirus testing, quarantine, recovery, and deaths, along with demographics by race, gender, ethnicity, and age. It includes a 3-star rating and a note that data are preliminary and subject to change.
- Aerial Imagery & LiDAR:** A card with a background image of aerial photography. It states that DC collects orthophotography and LiDAR data on a regular basis for web-based visualizations and derivative data like buildings, roads, and elevation models. It includes a 3-star rating and a link to preview and download the latest 2019 capture.
- Addressing in DC:** A large card with a background image of a residential street. It highlights intelligent search functionality for finding and verifying addresses, place names, blocks, and intersections. It includes a 3-star rating and the phrase "It's more than just address points."
- Public Lands:** A card with a background image of a government building. It asks where government properties are and explains that government property is sometimes gifted, acquired, developed, and transferred. It includes a 3-star rating and notes that transactions are frequently updated.
- Citywide Domain Lookup Tables:** A card with a background image of a document. It promotes the use of standardized data values and elements across the District's IT enterprise. It includes a 3-star rating.
- Cataloging:** A card with a background image of a catalog. It features the heading "Enterprise Dataset Inventory" and states that 82 agencies recorded 1,915 enterprise datasets, up from 1,779 in 2019. It includes a 3-star rating and the text "Publicly acknowledging District datasets."

The "Addressing in DC" card contains the following text:

Addressing in DC
Finding and verifying addresses, place names, blocks and intersections.

The District of Columbia government uses the Master Address Repository (MAR) to implement intelligent search functionality for finding and verifying addresses, place names, blocks and intersections. It provides complete standardization of addressing components so that agency applications and systems maintain clean integration. Most often the MAR is solely known for its address points. But did you know it is also a web data service, a standalone app, a toolbar and website? Did you know uses of the MAR go beyond DC government and are available for public use in your applications? Take a look at what we've done with it and then make it your own.

Addressing in DC | MAR Web Services

Before the MAR

The format and quality of address information varied considerably across government enterprise systems, making it nearly impossible to identify all of the activity associated with a given address. Police reports recorded by MPD likely contained different addressing formats than drivers licenses at the DMV. Address anomalies, which do not fit logically into the DC address grid, were never tracked or accounted for. We have all seen these types of locations such as even numbered addresses incorrectly found on an odd side of streets.

The card also includes a map showing a street grid with a highlighted area and the text: "1200 Pennsylvania Avenue NW bounded by 12th and E Streets NW."

Data Collaborations



Uses

This statewide resource informs decisions in many areas such as economic development, emergency management, transportation planning, land development, utility management, public health, and forestry. For example:

- Next Generation 911 will require accurate data about location, including parcels and site addresses, integrated across jurisdictional boundaries, to match with emergency service areas.
- Businesses are benefiting from the collection of parcels across county boundaries. For example, Duke Energy uses parcels to determine land ownership when creating and maintaining utility rights-of-way and when engineering new power lines.
- Current parcel data for coastal counties are now available from NC OneMap in the event of a hurricane that interrupts county data operations.
- The US Census Bureau is applying NC parcel boundaries to improve Census boundaries and using parcel site addresses to support a complete count of NC residents.

NC OneMap is a strategic resource providing a collection of authoritative data and web services. It is an organized effort of numerous partners throughout North Carolina, involving local, state, and federal government agencies, the private sector and academia. Search for or browse the data, use it in your applications, analyze it with your tools, or build apps using the APIs.

<https://www.nconemap.gov/>

<https://www.nconemap.gov/pages/parcels>

<https://www.esri.com/en-us/landing-page/product/2020/nc-onemap-case-study>

Whole-of-government collaboration

Governmentwide or whole-of-government approaches involve sharing and collaboration among agencies, departments, and bureaus at the same level of government.

Partnerships and Capacity Building



CA CALIFORNIA GOV STATE GEOPORTAL

Organizations Featured Apps Training Get Involved FAQs

Contributing Organizations

California has long been a leader in developing authoritative geospatial data. Below is a list of the departments, boards, and offices that contribute to the CA State Geoportal.

California State Geoportal

Unlocking the Power of Government Data



CalEPA



CAL FIRE



CalPERS



Coastal Commission



Coastal Conservancy



Dept. of Child Support Services



Dept. of Conservation

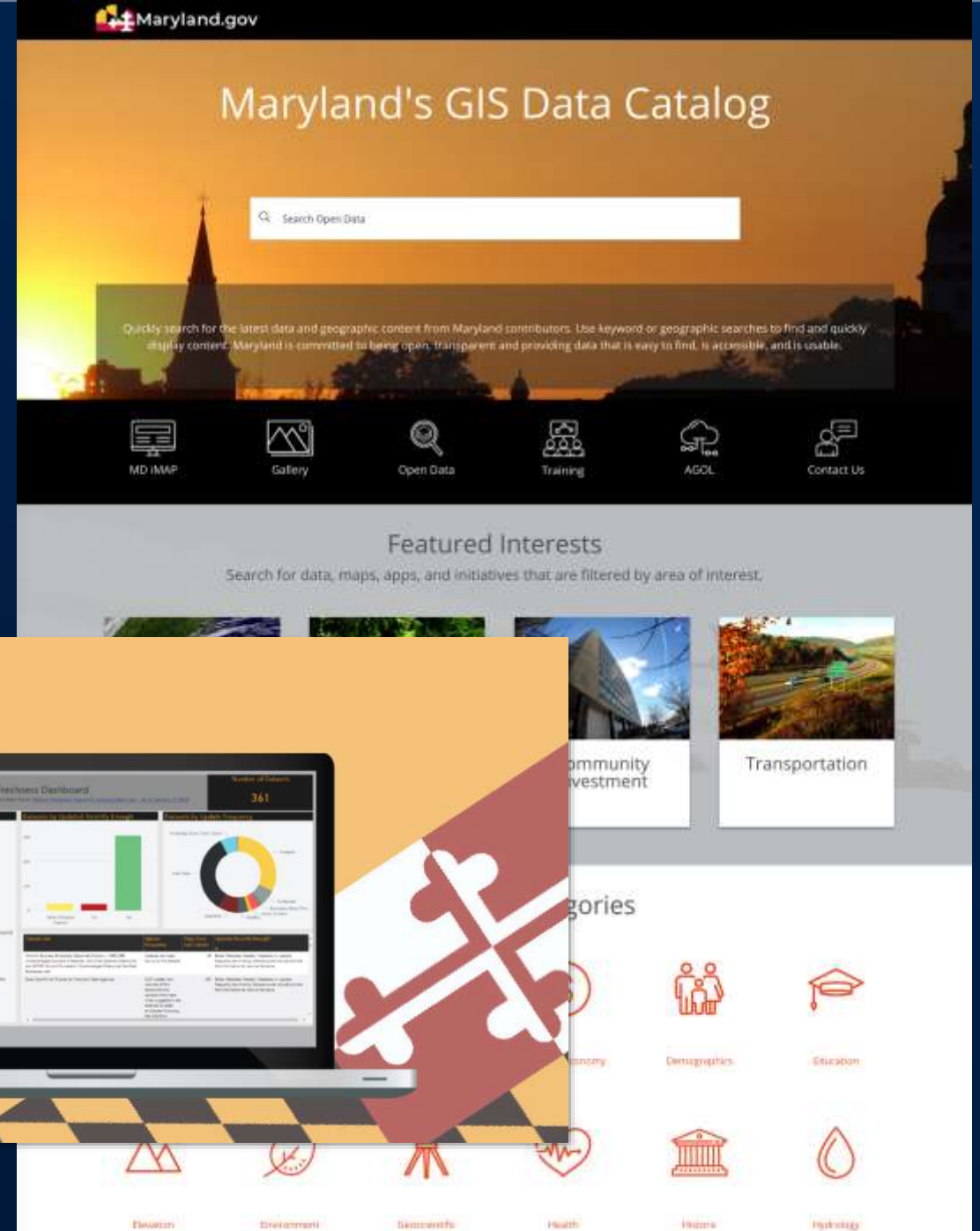


Dept. of Education

<https://gis.data.ca.gov/pages/organizations>

<https://www.governing.com/next/ambitious-scheme-to-bring-all-of-a-states-data-together.html>

Current and Authoritative



Data Visualizations

Maryland's Dataset Freshness Dashboard

Each dataset on Maryland's Open Data Portal is updated regularly. This dashboard shows how many datasets have been updated, or have not been updated, recently enough. The dashboard is updated on a daily basis.

Launch



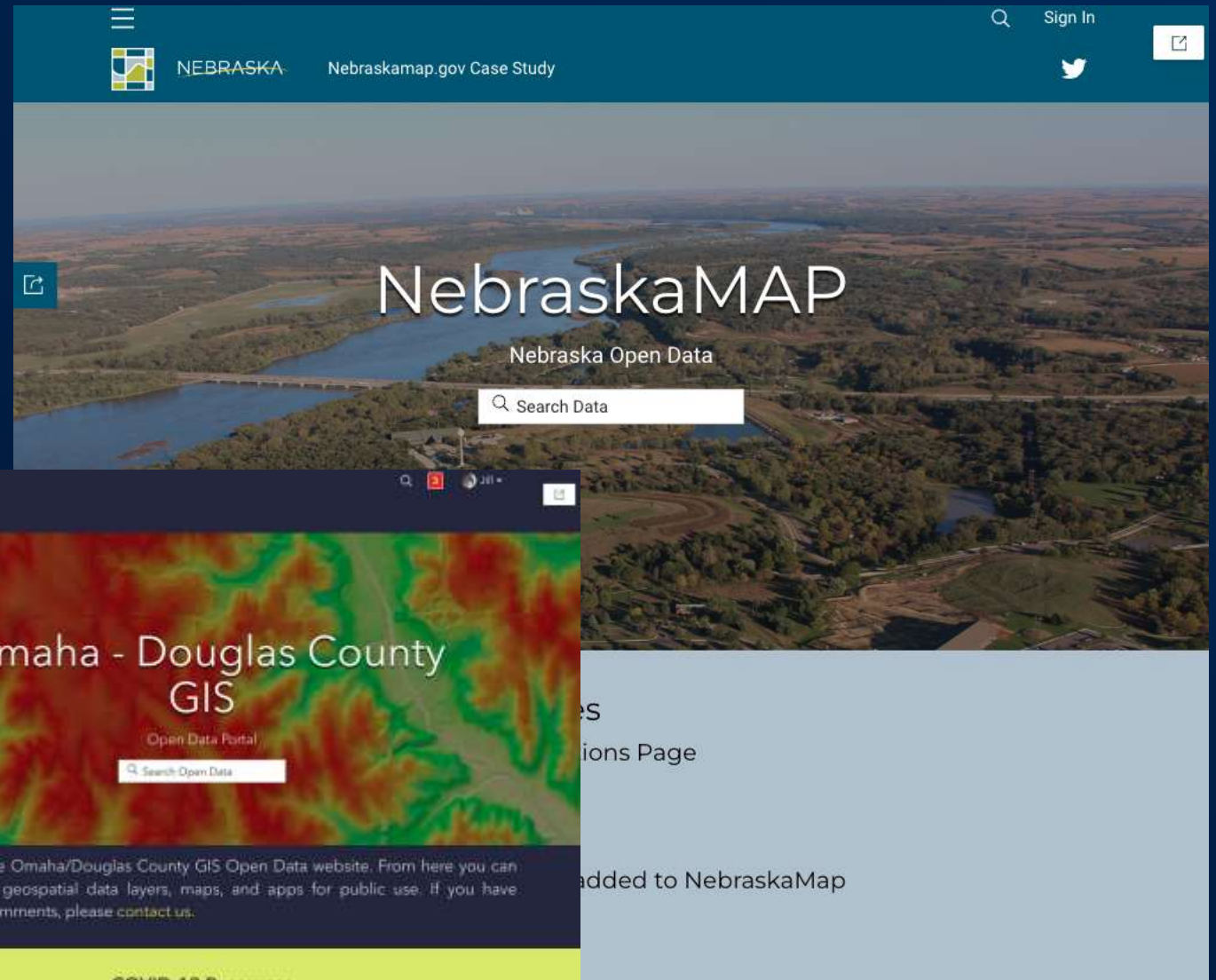
<https://data.imap.maryland.gov/>

Multi-level collaboration

Multi-level collaboration involves sharing and collaboration among partners from different jurisdictional levels, often combined with WoG approaches.

NebraskaMap and Omaha, NB

The state and its largest local government partner, Omaha-Douglas County, wanted to create a **collaboration space** to share authoritative data.



<https://www.nebraskamap.gov/>

<https://data-dogis.opendata.arcgis.com/>

<https://www.esri.com/en-us/landing-page/product/2019/nebraska-office-cio-case-study>

Result: Local-State Collaboration

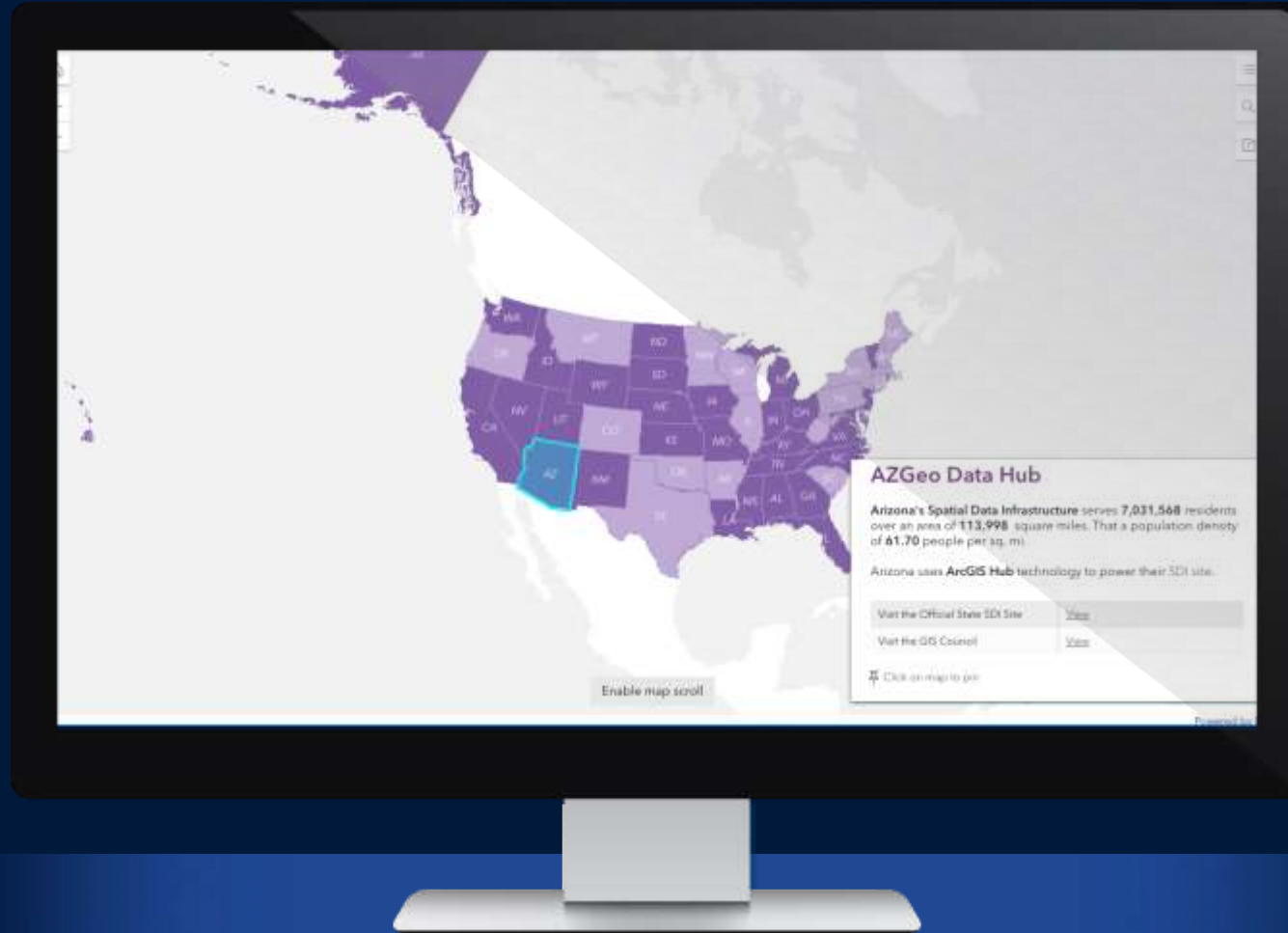
Source ^

Apply source

- Douglas County
- State of Nebraska
- Nebraska Game & Parks Commission
- State of Nebraska Office of the CIO
- Nebraska Department of Natural Resources

The screenshot shows the Nebraskamap.gov Case Study web application. The header includes the Nebraska logo, the text 'NEBRASKA - Nebraskamap.gov Case Study', a search bar, and a 'Sign In' button. Below the header is a navigation menu with tabs for 'All', 'Events', 'Data', 'Documents', and 'Apps & Maps'. A search bar is positioned above the main content area. The main content area displays a list of results for 'Local Historic Districts' and 'Local Historic Landmarks'. The 'Local Historic Districts' entry shows it is a Feature Layer with 4 rows, last updated on October 9, 2022, and tagged with Landmarks, Historic Preservation, and Local History. The 'Local Historic Landmarks' entry shows it is a Feature Layer with 116 rows, last updated on October 9, 2022, and tagged with Landmarks, Historic Preservation, and Local History. A 'Filters' section on the left allows users to filter by 'Content Type' (Feature Layer, Web Mapping Application, Web Map, Image Service, Application) and 'Source' (Douglas County, State of Nebraska, Nebraska Game & Parks Commission, State of Nebraska Office of the CIO).

New patterns are emerging



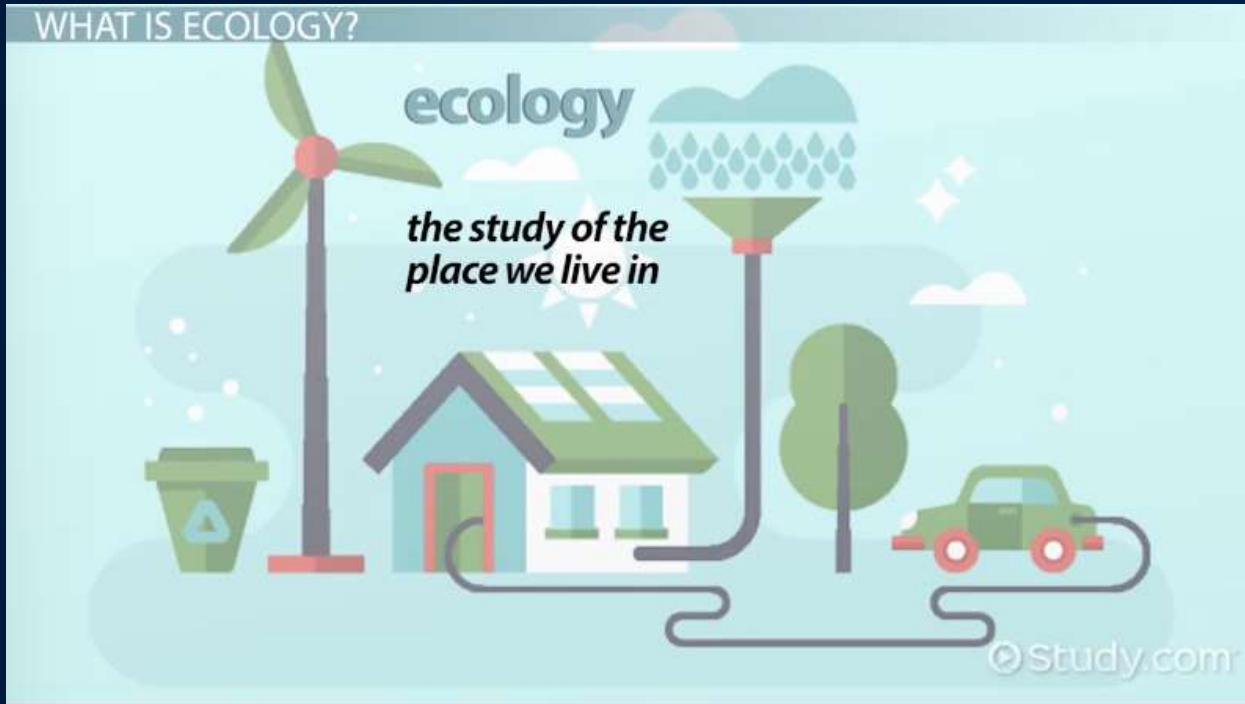
It begs an exciting question:

**What new capabilities
might this enable?**



We need 'Geospatial Ecology'

We must study the interrelationships of geospatial communities with their environment and each other...

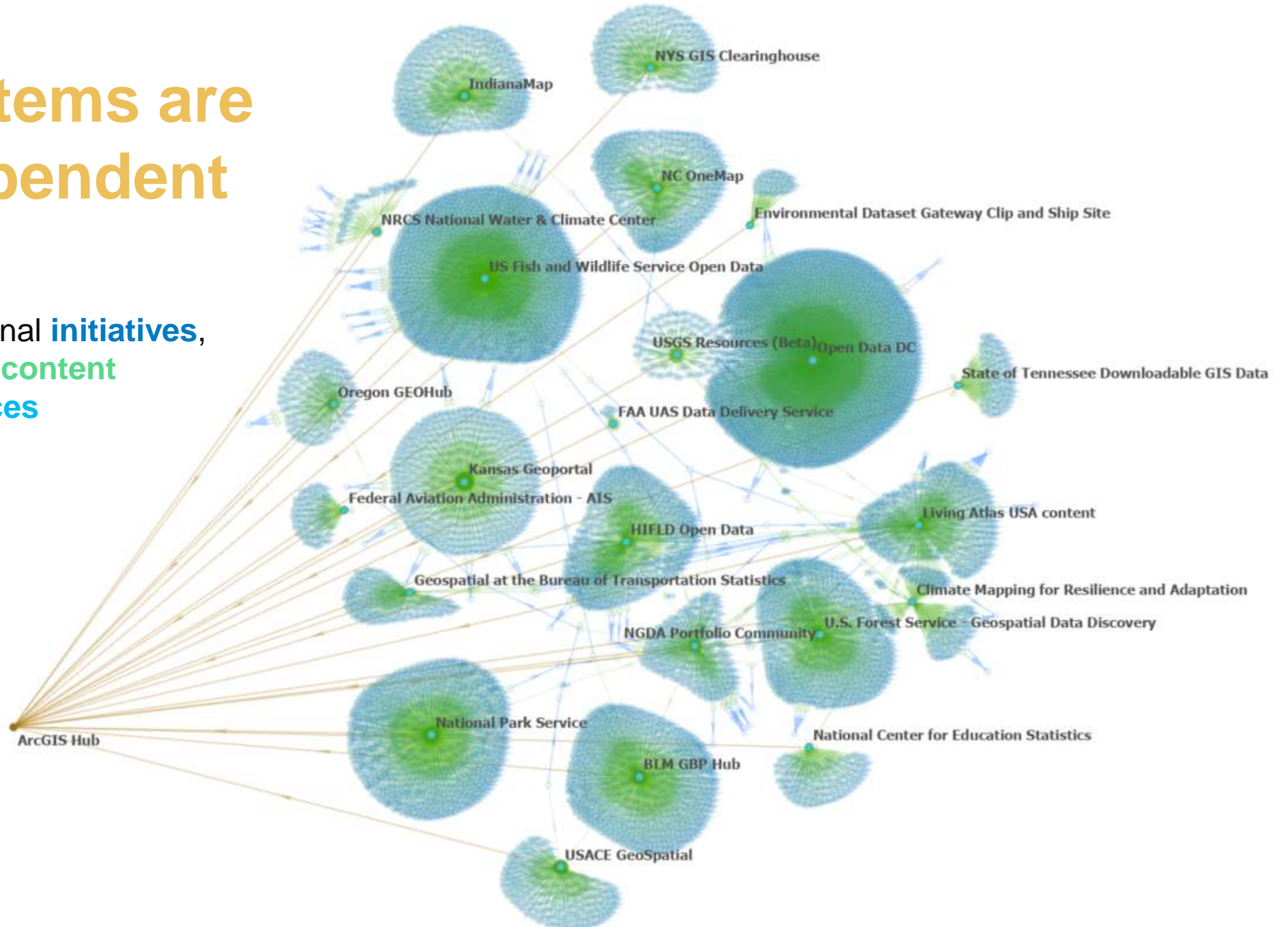


Geospatial Ecology

to improve ecosystem health and sustainability.

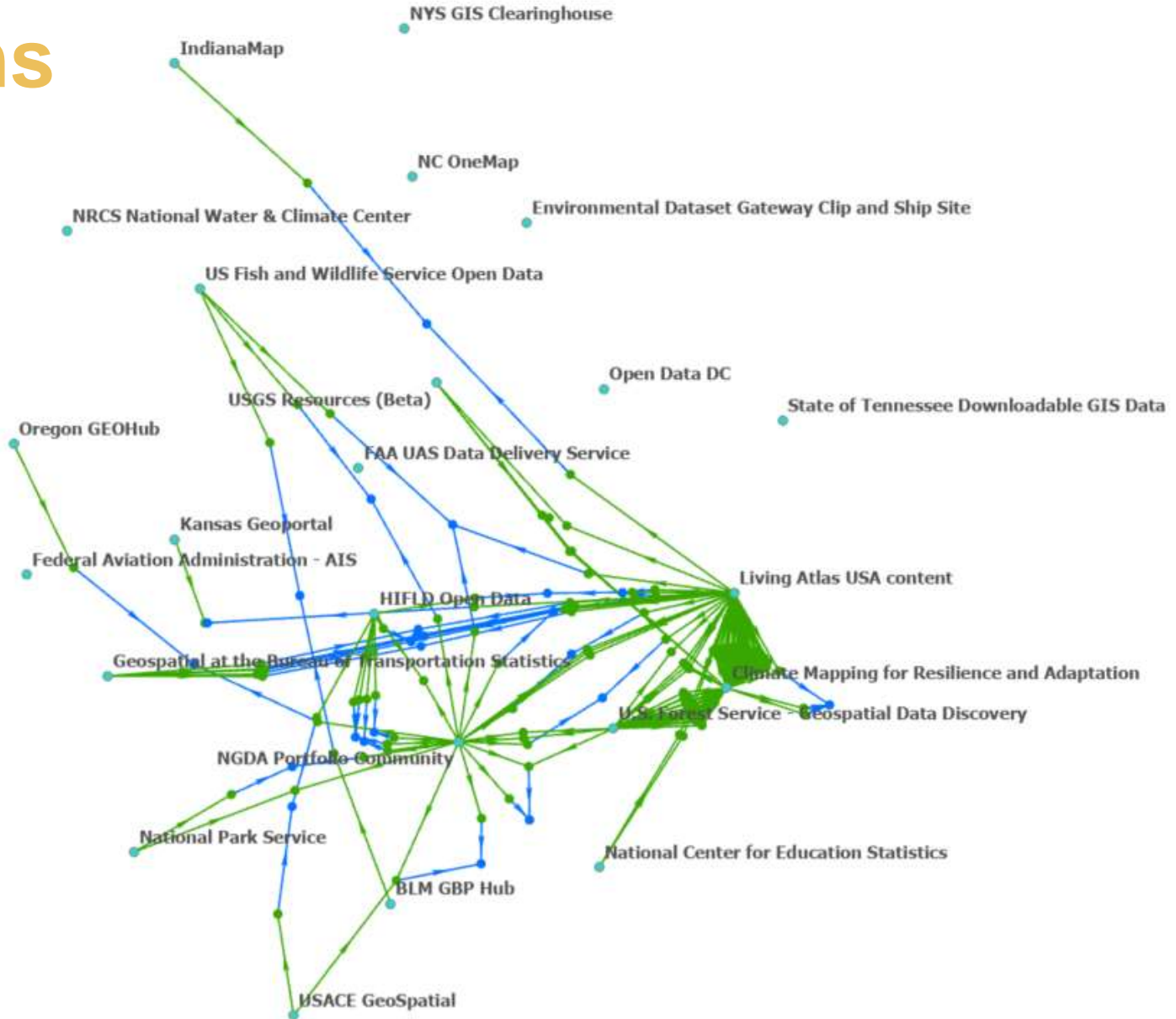
Ecosystems are interdependent

- State and National initiatives, connected with content and web services



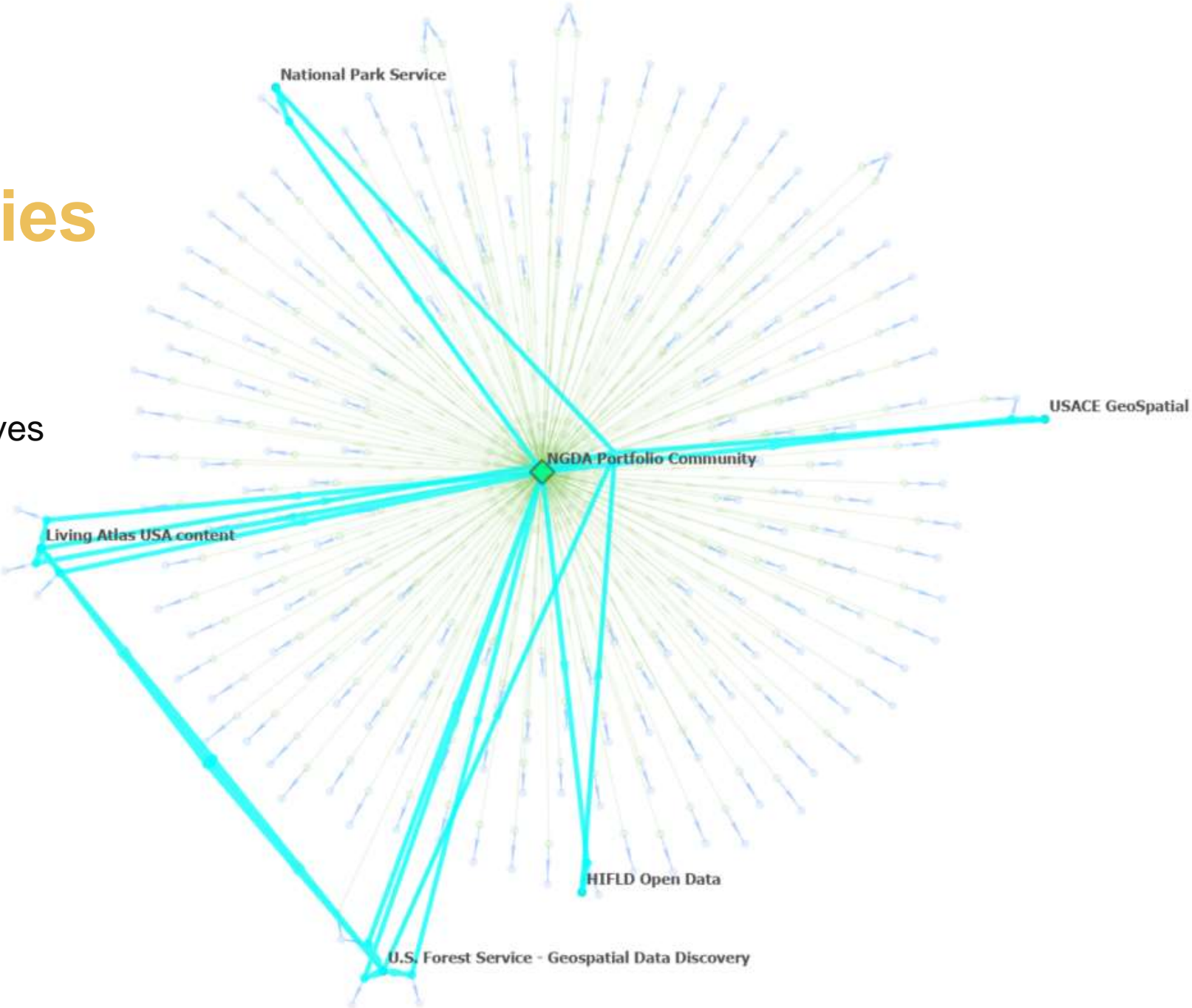
System of systems emerges

Interconnected **content** and **web services**



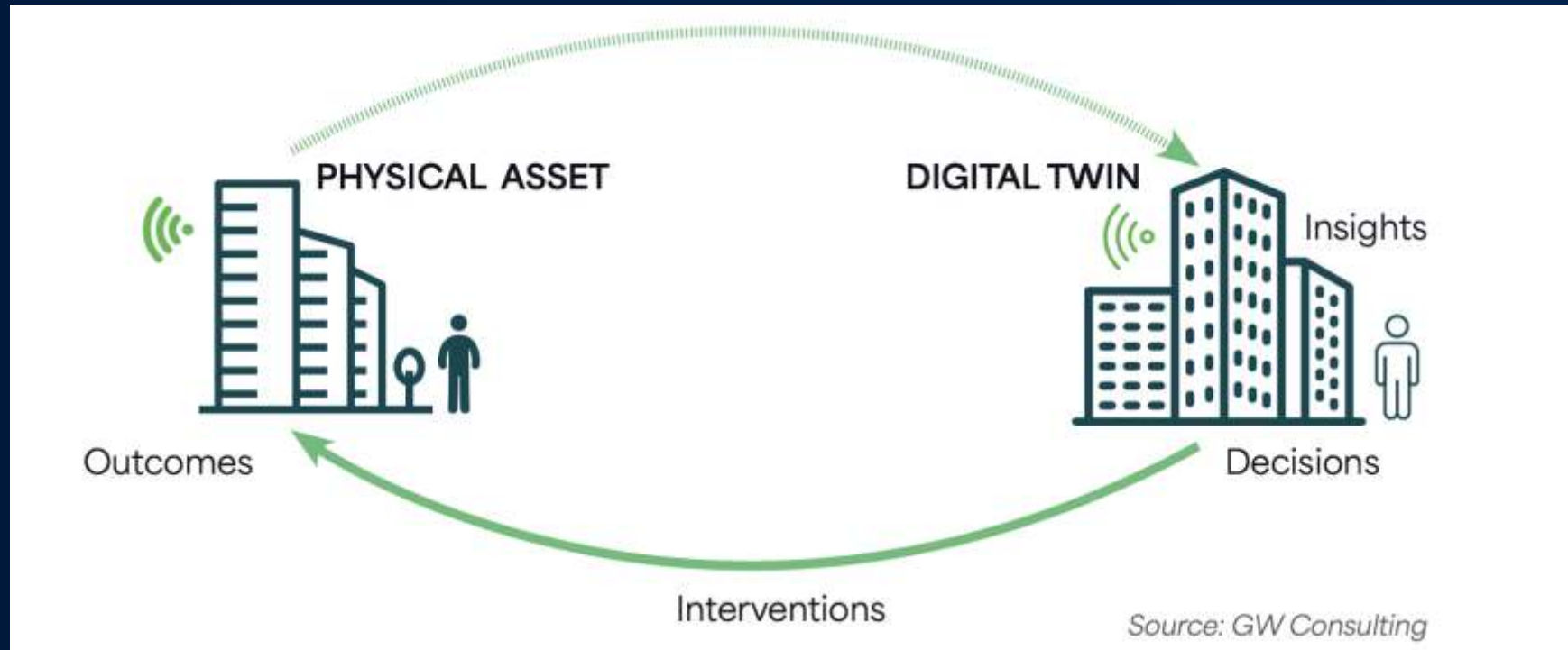
NGDA Communities

Interconnected
programs and initiatives



Key takeaways

1. Healthy geospatial ecosystems are **important**



2. Understanding geospatial ecology can **help us evolve**

*“To move from the present to **the future desired state**, the national geospatial information ecosystem will **need to undergo a shift** in its future geospatial, technological, and human resource arrangements.”*

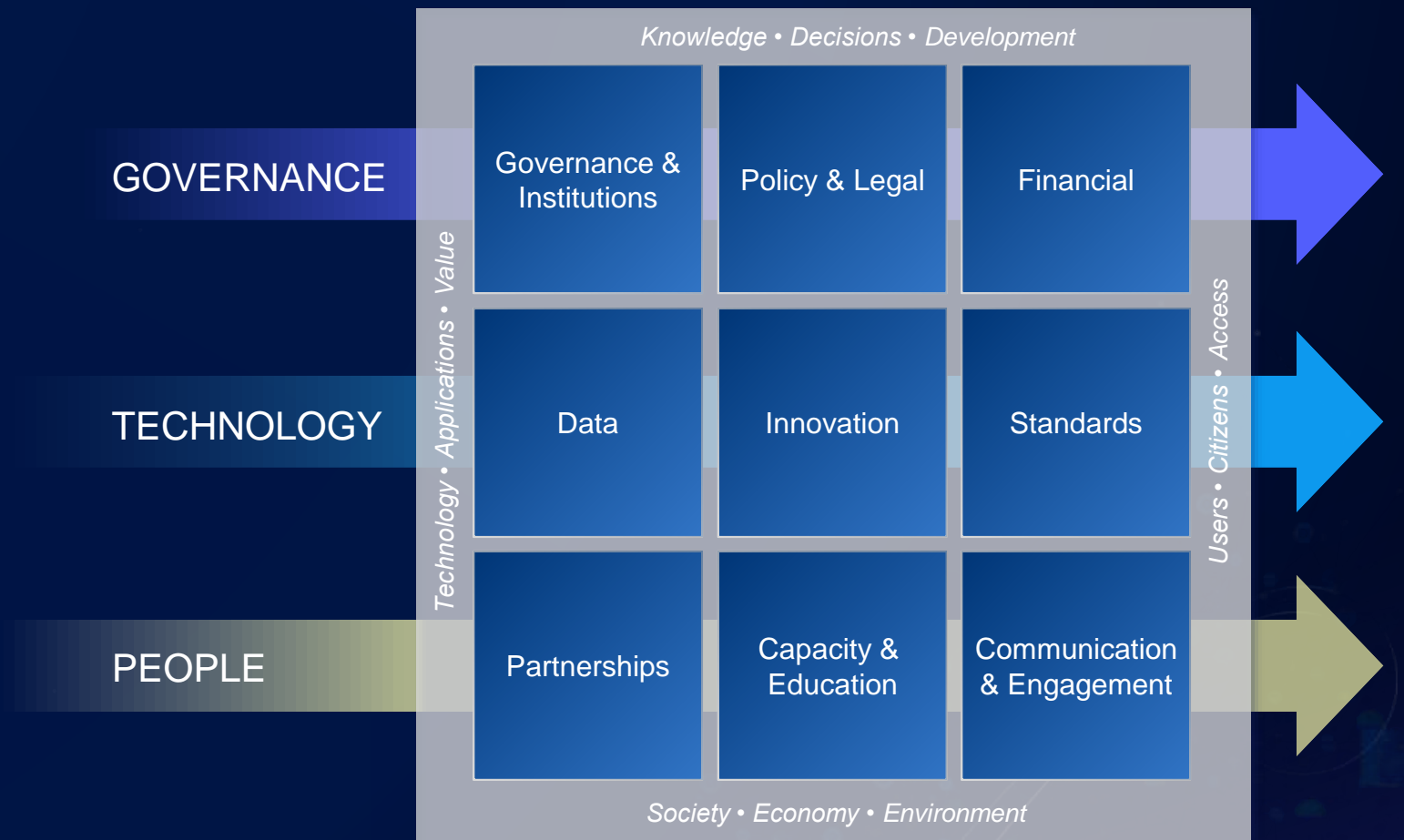
– UN-GGIM Secretariat, July 2022

... envision and model ideal scenarios, identify gaps, and seek opportunities for intervention.

3. An **integrated and holistic** approach is needed

- The IGIF is an adaptable implementation framework

The Integrated Geospatial Information Framework provides a basis and guide for developing, integrating, and strengthening geospatial information management.



Explore the story...



<https://storymaps.arcgis.com/stories/f9bf7c7e80f447e194f33a20b6fe46c2>



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**THE
SCIENCE
OF
WHERE**[®]