

EuroGeographics  
General Assemble 2019

## **The International Response - Global**

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Paul E. Smith  
Product Strategy & Business Development  
October 8, 2019

# Background – Started as a Land Use & Urban Planner (Geodesign)



Ian McHarg was a Scottish landscape architect and writer on regional planning using natural systems. His 1969 book **Design with Nature** pioneered the concept of ecological planning.

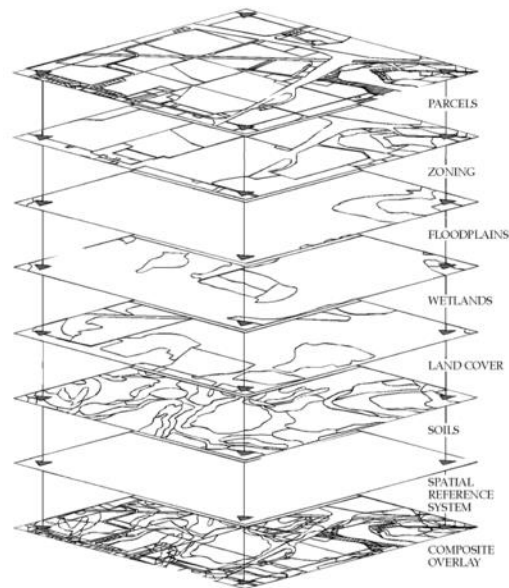


Figure 3: Concept for a Multi-Purpose Land Information System (1984)  
Source: Sullivan, Chisman and Niemann (1984)



Figure 2.17: Illustrative Site Plan

## Digital Experience – CAD, GIS, and Mapping of the Physical World



1990s

2000s

2010s





# Supporting the startup ecosystem – Seed Funding & Access to Technology



Delivering the World's Largest Online Library of Aerial / Satellite Imagery and Maps

Products

Industries

Our Content

Our Company

Find Image

Help

Launch Viewer

ImageAtlas

United States

International

Find and purchase images.

Address

City

State

ZIP Code (optional)

Launch Viewer and Find Image

From standard images and maps

to detailed property information.

Breaking News

Property Analyst Now Available

GlobeXplorer's next-generation real estate information viewer is now available. Try the free San Francisco County demo now.

GlobeXplorer Acquires AirPhotoUSA

We've just purchased the nation's leading hi-resolution aerial firm.

GlobeXplorer Earth Mapping Blog!

See our president's insights on GlobeXplorer and the spatial industry.

Image Viewers

ImageAtlas

2D and 3D Viewers

Incorporate our suite of online imagery and map viewers into your web site or intranet, complete with shopping carts and custom branding.

→ Product Information

→ Industry Solutions & Case Studies

→ Free Trial: Try our new Property Analyst real estate research viewer!

Developer Tools

ImageBuilder

Custom Viewing Solutions

Seamlessly integrate aeriels, satellite images, and property information into your web application with our developer toolkits and mapping API's.

→ Product Information

→ Industry Solutions & Case Studies

Mapping Services

ImageConnect

GIS and CAD Plug-ins

Download geo-referenced aerial and satellite photos into your mapping projects with our extensions and web services.

→ Product Information

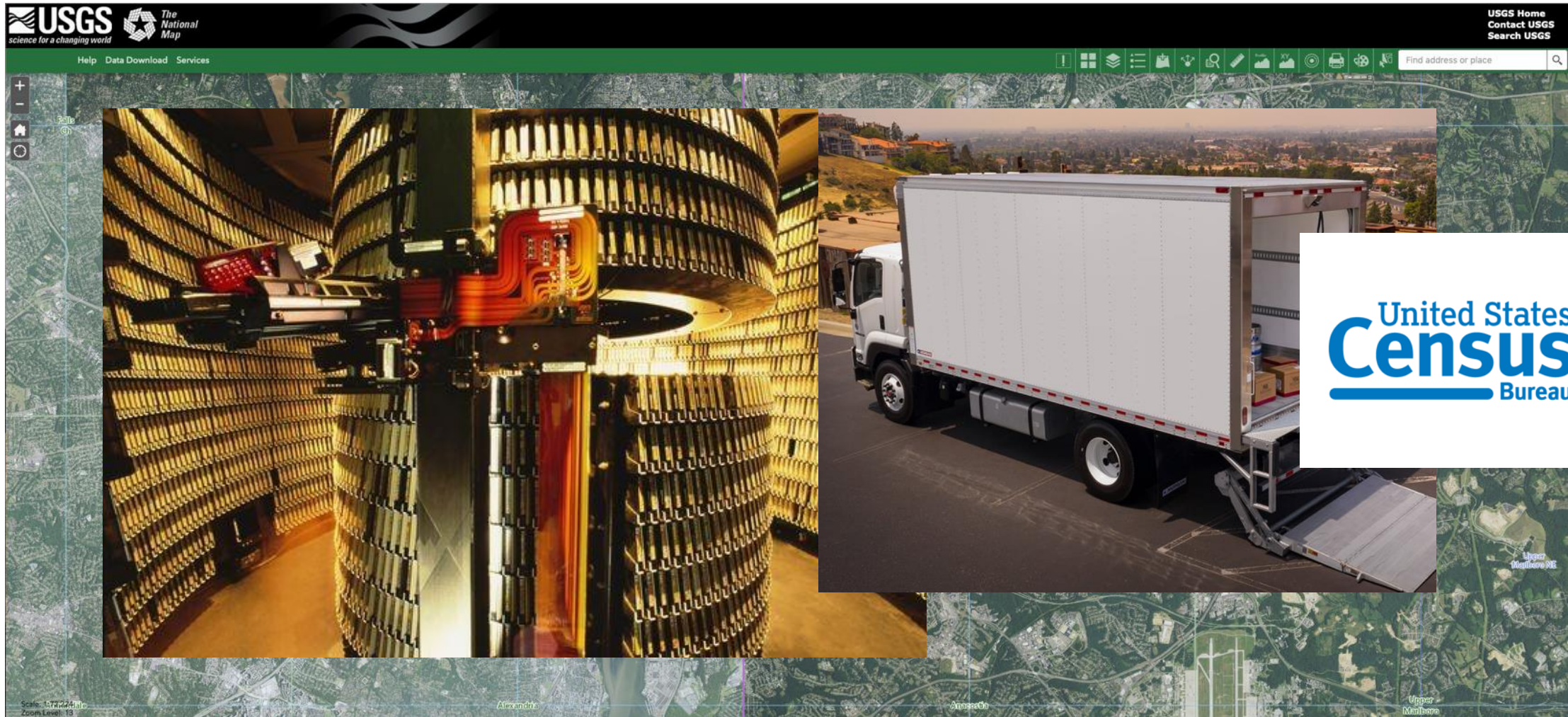
→ Industry Solutions & Case Studies

Content Partners





# The lesson of the pre-Cloud – the power of bringin geo content online



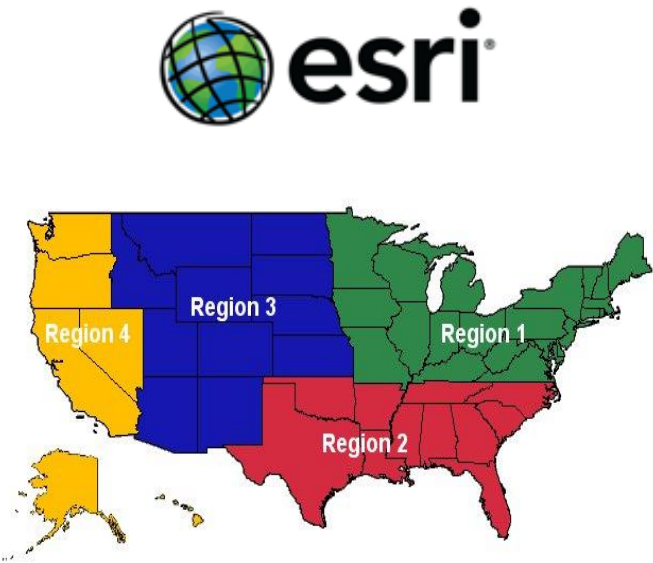
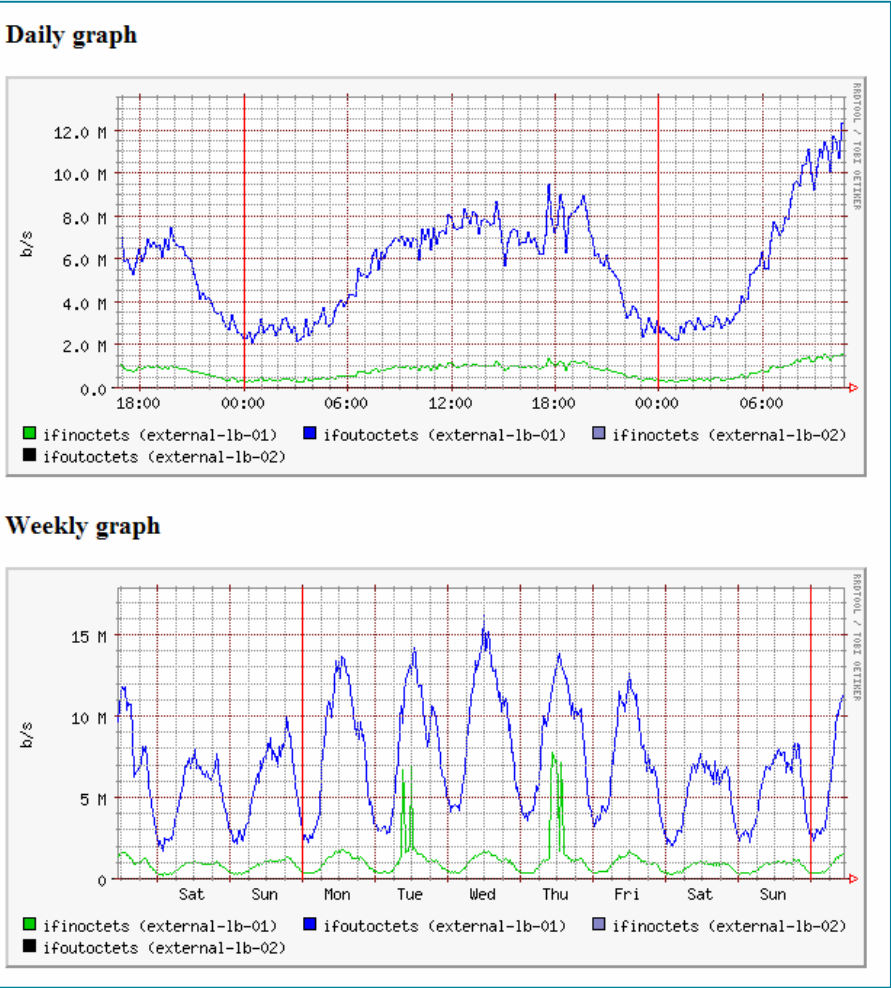


# Network / Development Operations – The benefit of usage statistics for better products



A eulogy for Mapquest (Oct 4, 2019)

“Once the dominant mapping site, the decline of Mapquest is a story of disruptive competition and corporate complacency.”

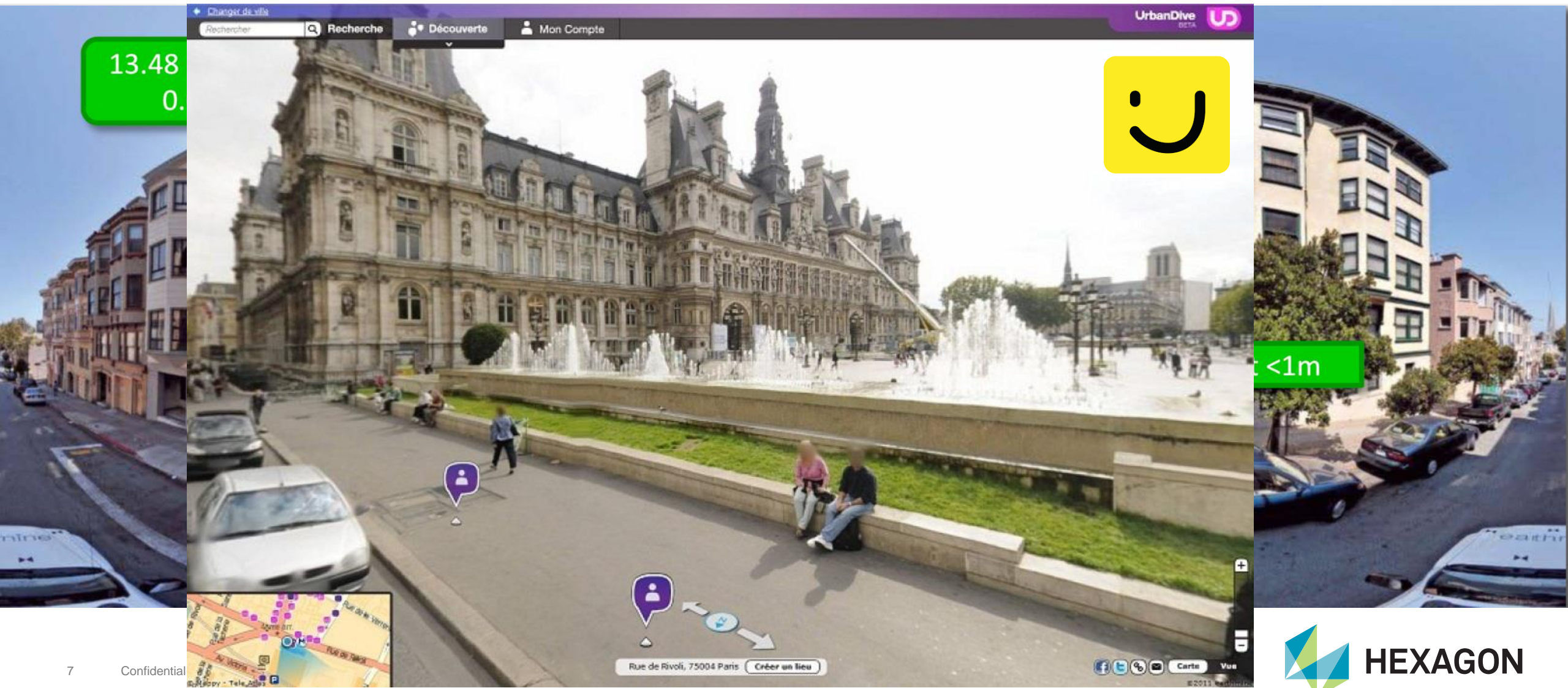


By U.S. Region (See region map)

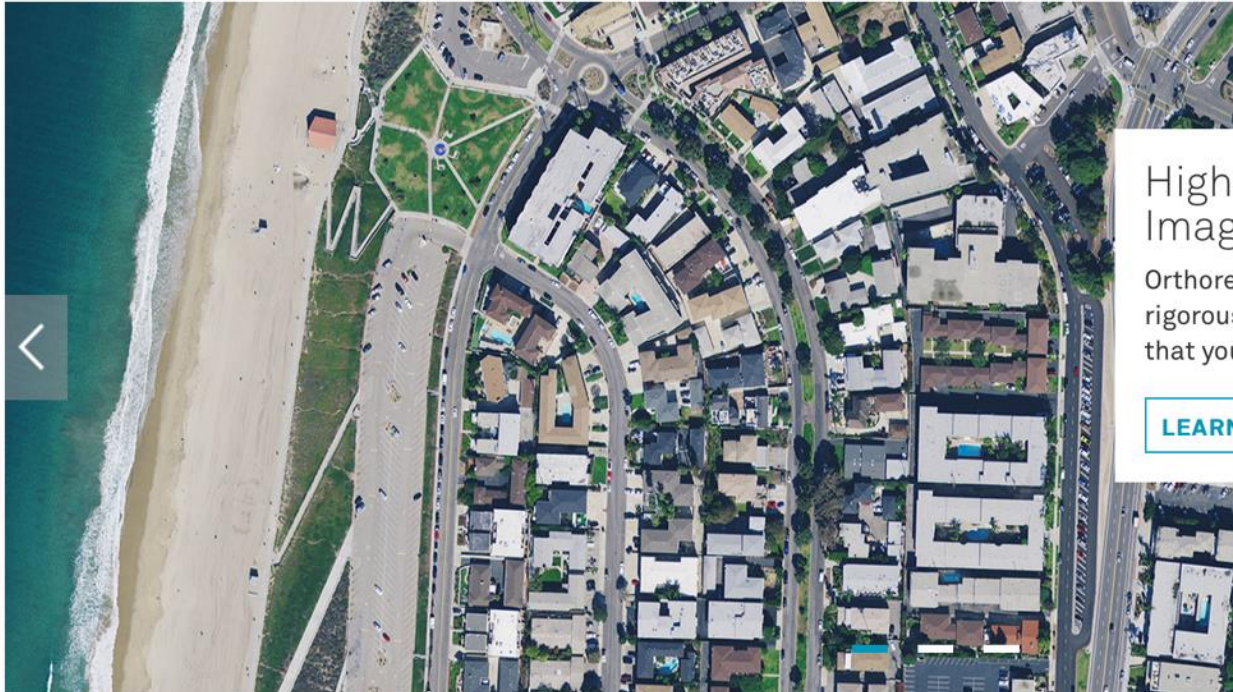
Number of Dedicated Seats	ImageConnect Annual License Fee Per Seat
1 User	\$2,500
Up to 5 Users	\$1,750
Up to 15 Users	\$1,225
Up to 25 Users	\$850
Up to 50 Users	\$600
Up to 100 Users	\$400
Up to 250 Users	\$275
Up to 500 Users	\$200
Enterprise License	Call



earthmine – street-level imagery / 3D depth map products







Highly Accurate Aerial Imagery

Orthorectified imagery that undergoes rigorous quality control to provide a product that you can trust and use with confidence.

[LEARN MORE](#)





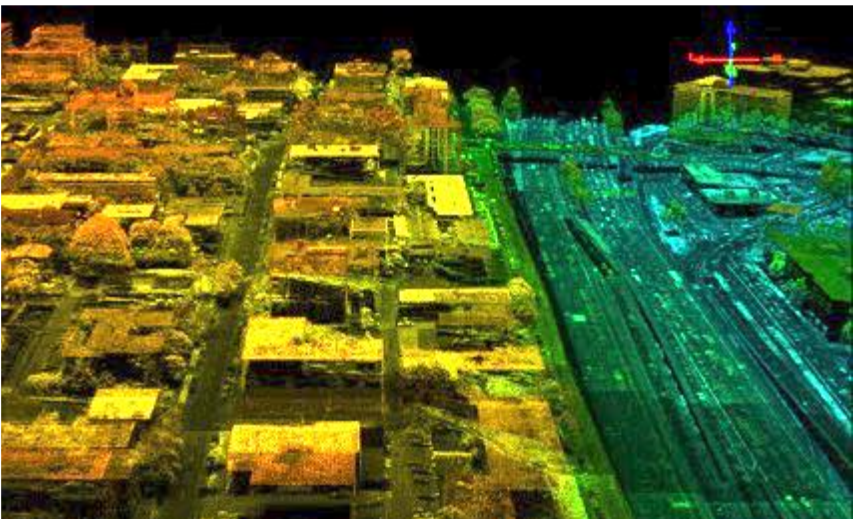
# HxGN Content Program – Derived from Leica Geosystems Airborne Sensors



Aerial Imagery Sensors (RGB)



Aerial / Oblique / LiDAR Sensor



Aerial LiDAR Sensors (XYZ)



DMCIII



ADS100



CityMapper



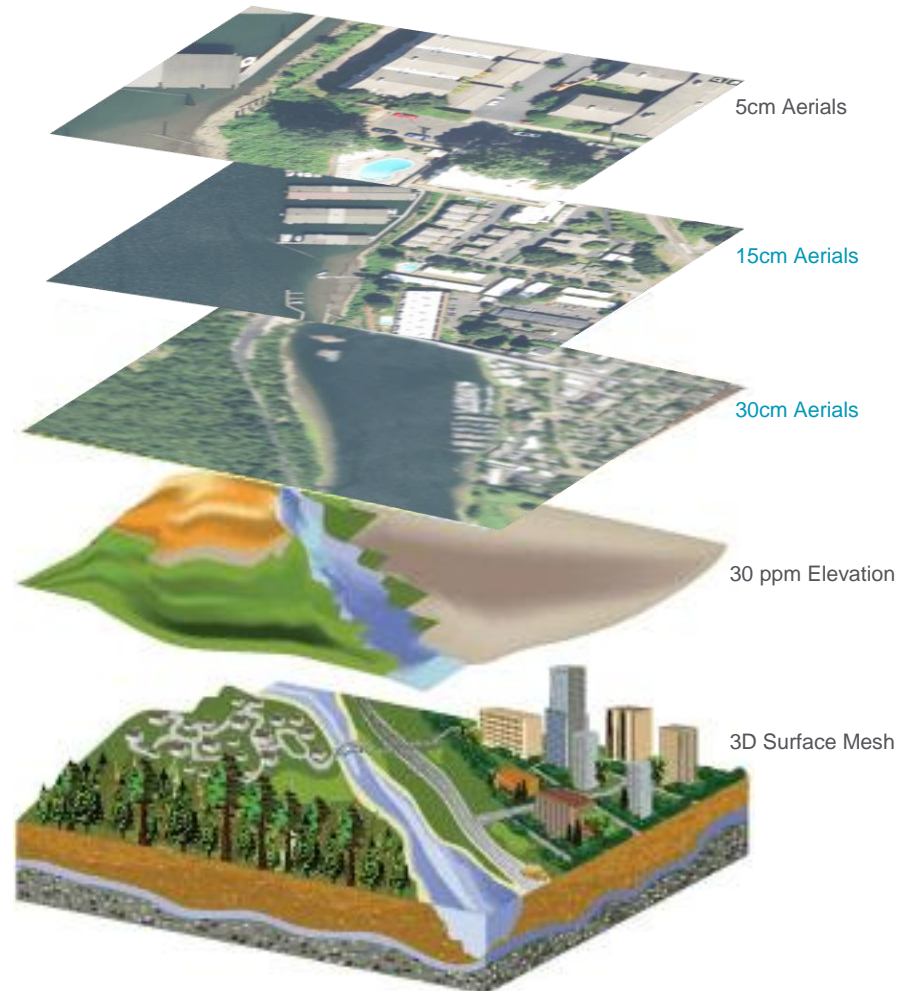
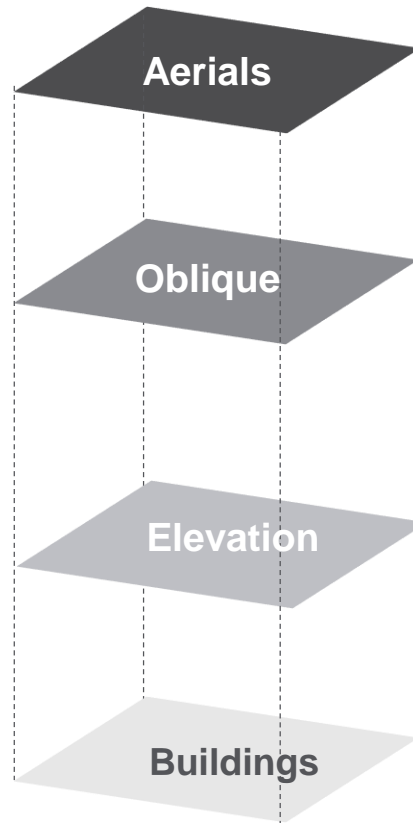
TerrainMapper



SPL100

# HxGN Content Program – Multiple Portfolio Types & Delivery Methods

## Content Types



## Delivery Solutions

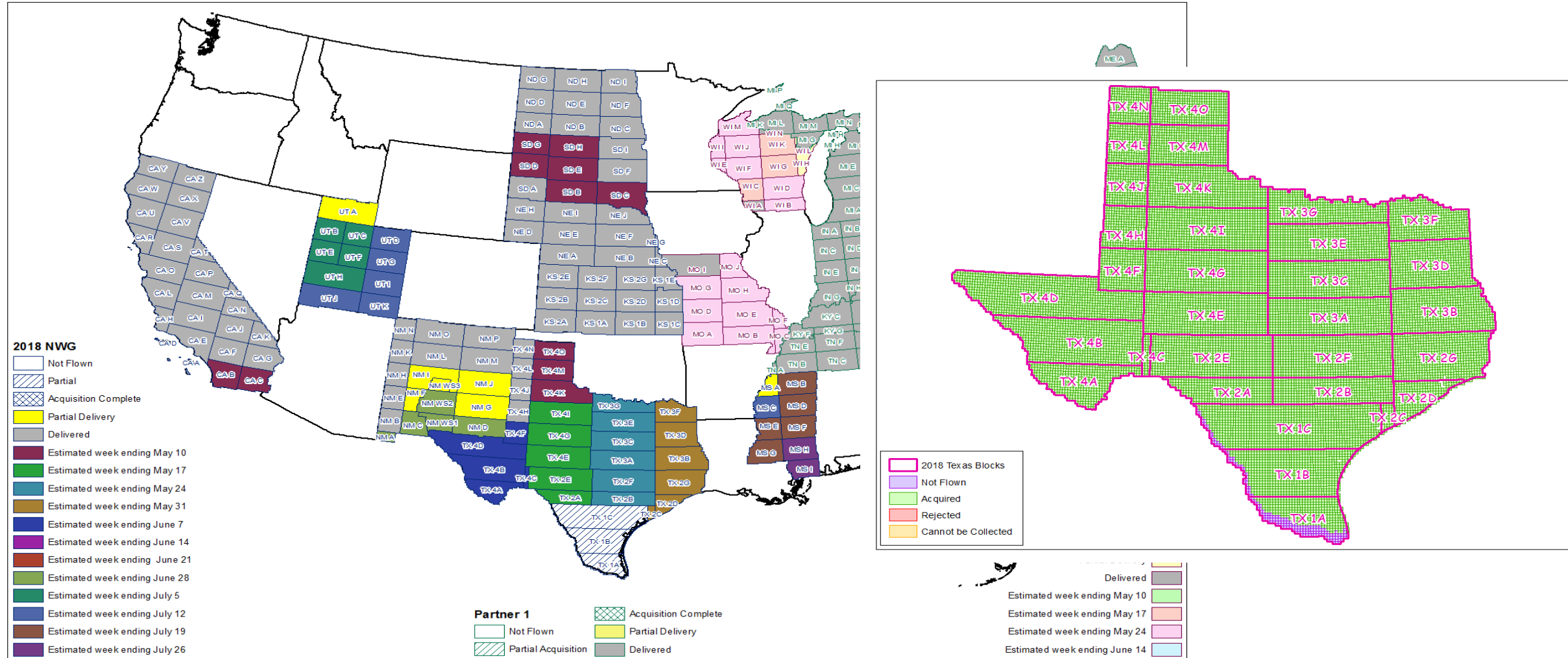
**Streaming** — accessed via OGC [web map service](#) supporting the most demanding users needing accurate, high-resolution base maps.

**Analytics** — [cloud-based access](#) to a rich, library of aerial imagery and elevation data ready for your own machine learning and AI analysis.

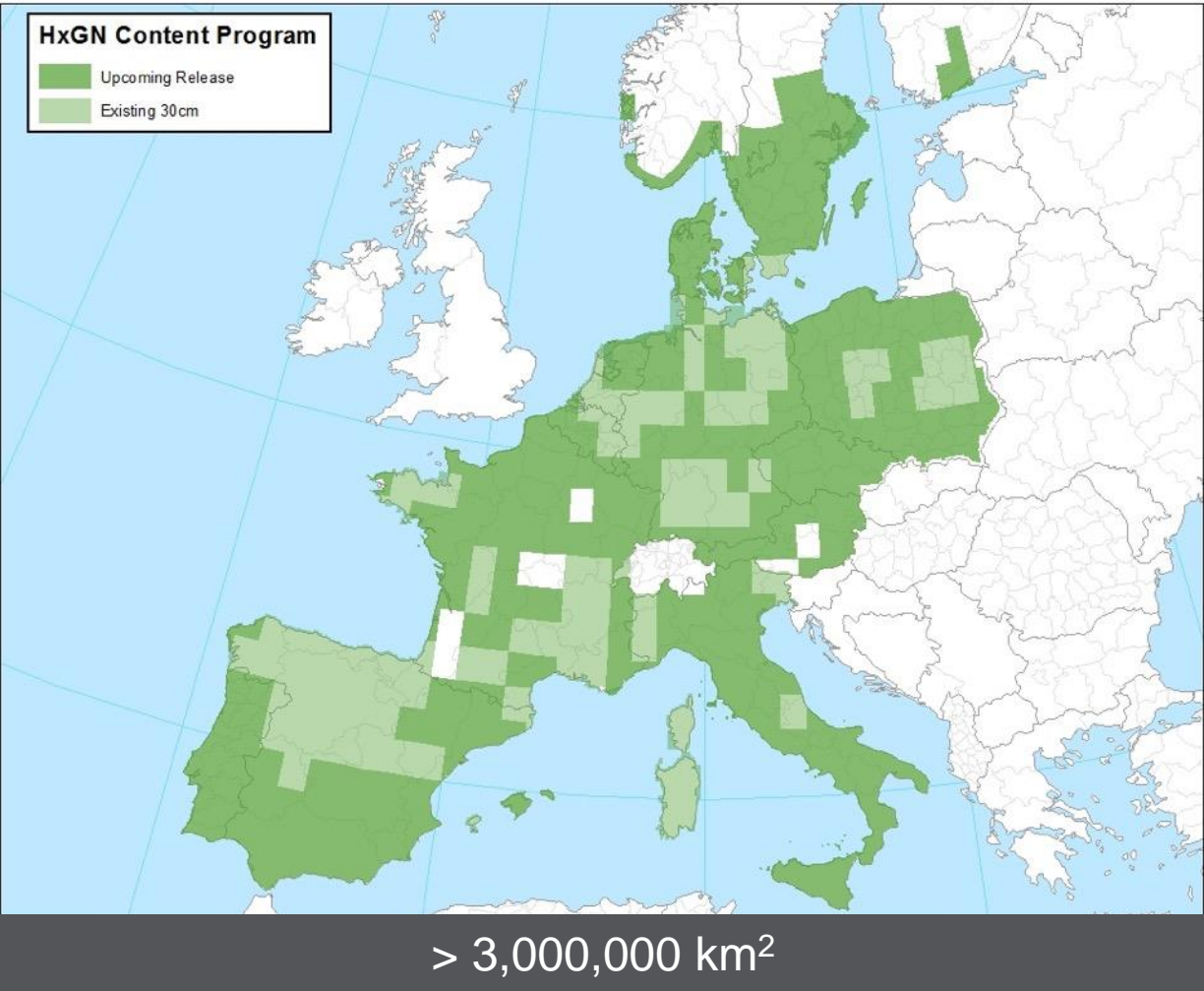
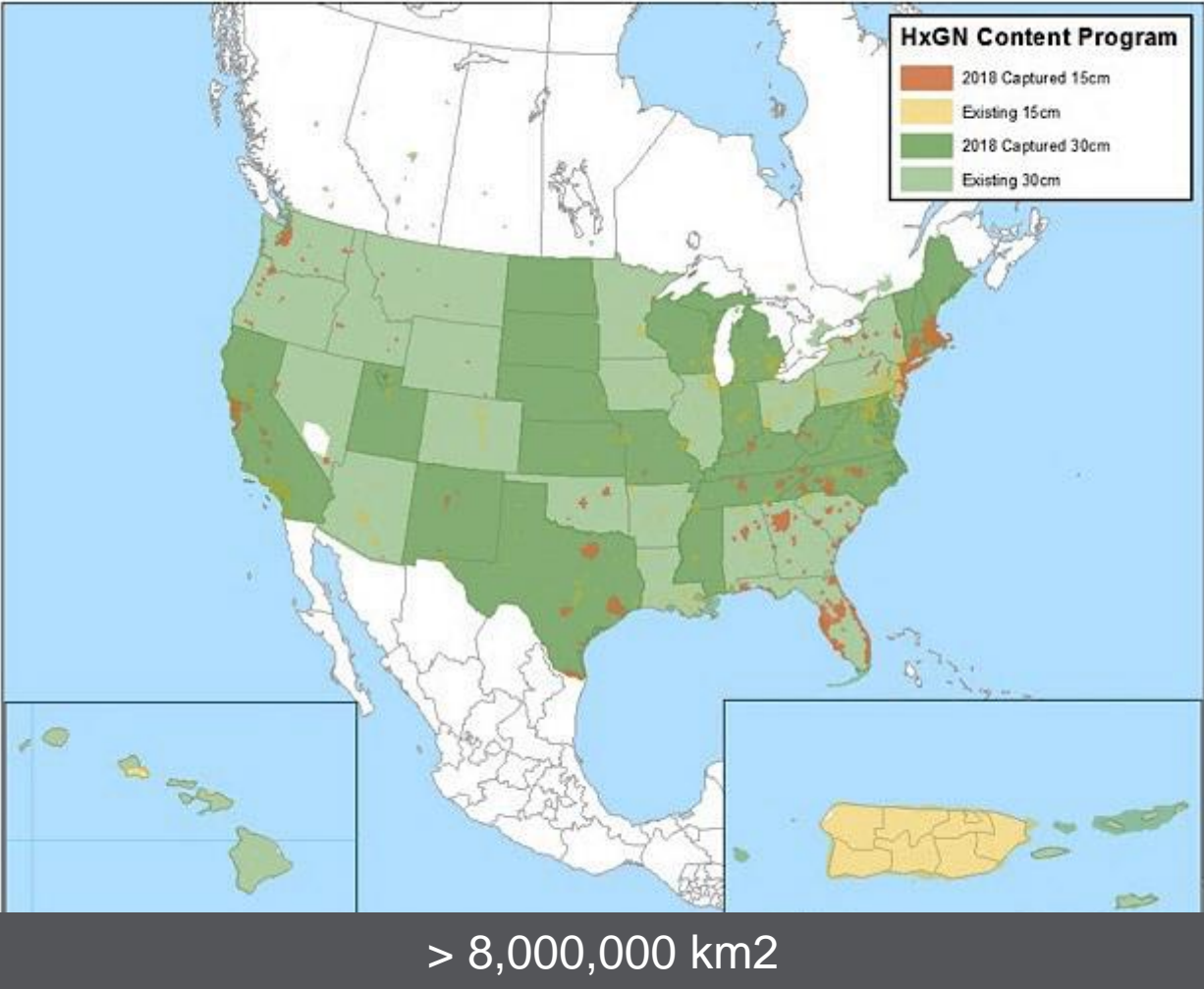
**Downloads** — a transactional [storefront](#) to purchase and download geo content for mapping, GIS, and On-premise use.



## Collaboration – HxGN & USDA's NAIP Program w/ acquisition & production partners

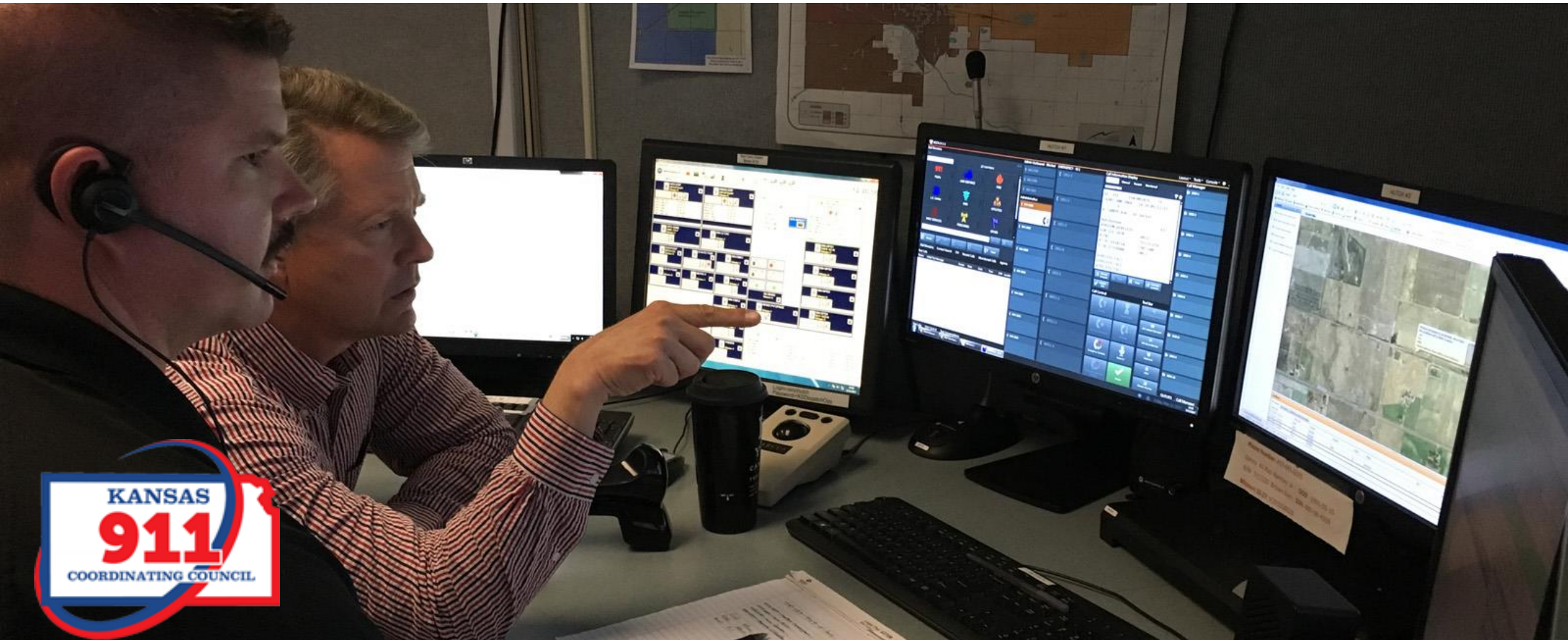


# HxGN Content Program – Continental Aerial Imagery Coverage



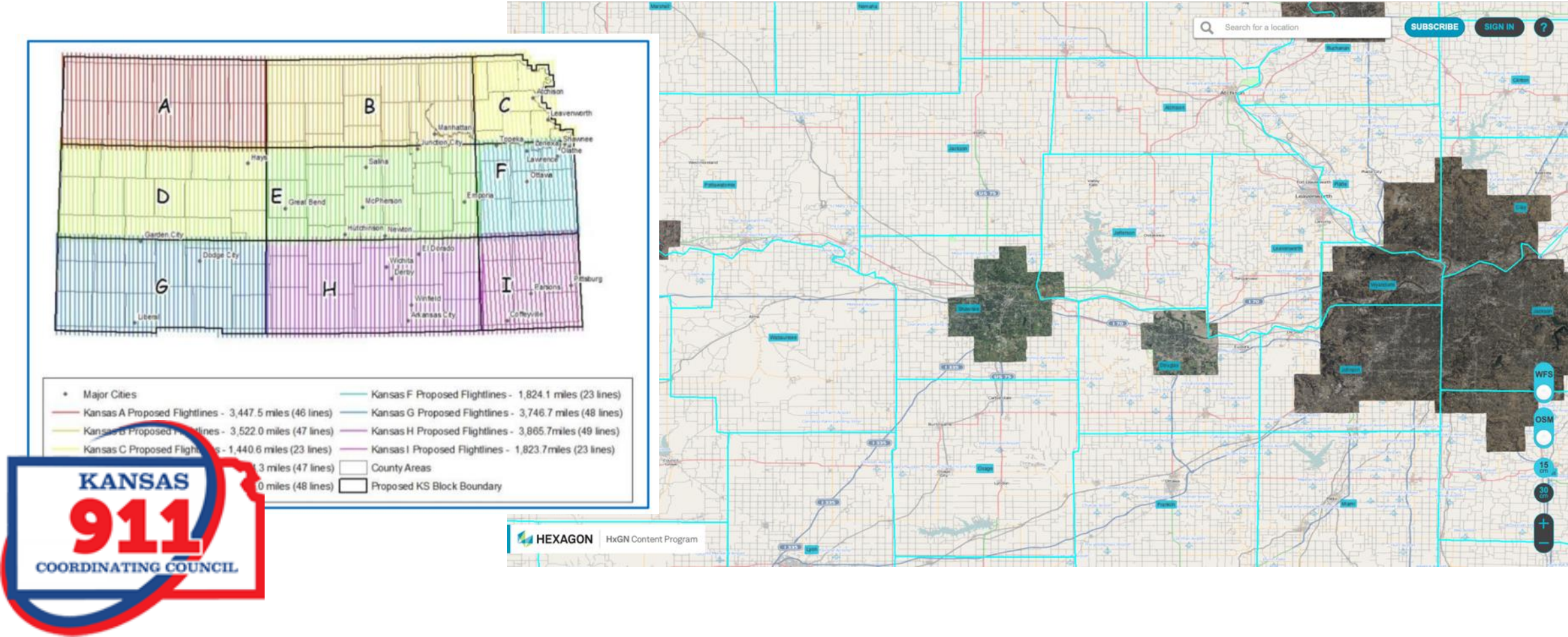


## HxGN Content Program – State Government Collaboration > State of Kansas 911



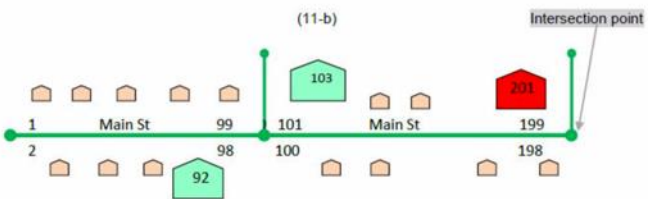


# HxGN Content Program – State Government Collaboration > State of Kansas 911





# HxGN Content Program – State Government Collaboration > State of Kansas 911



Fails to meet standard



Meets recommendation

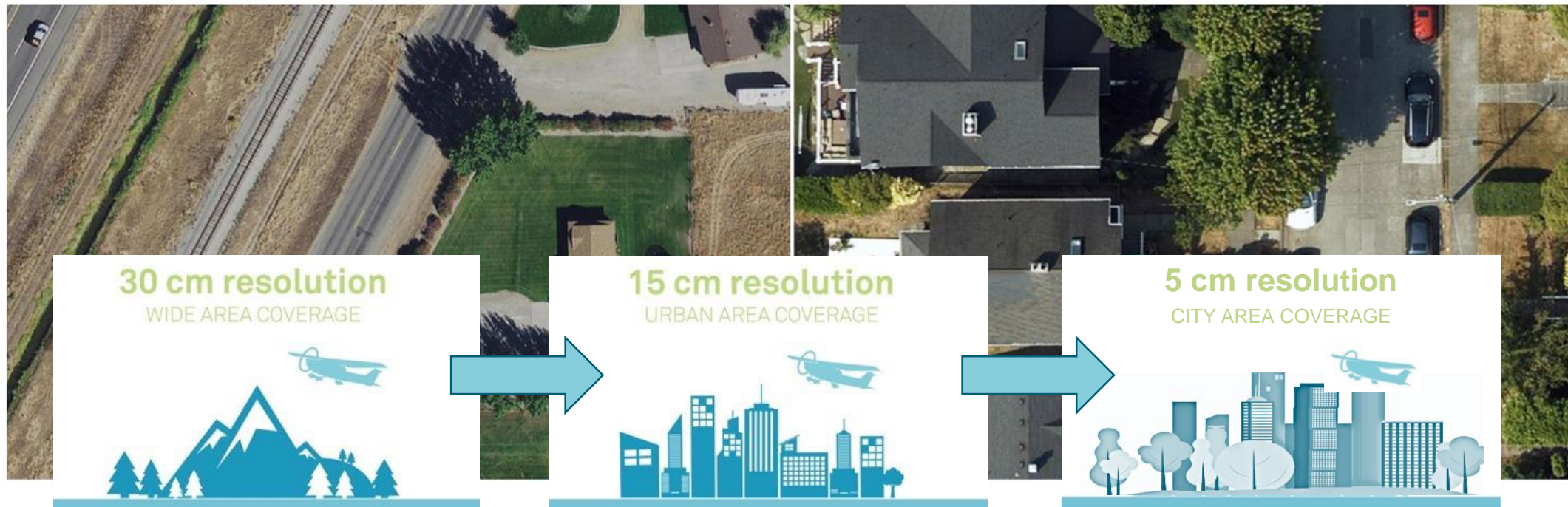




# Business & Technology Innovation – Increasing US aerial coverage and resolution

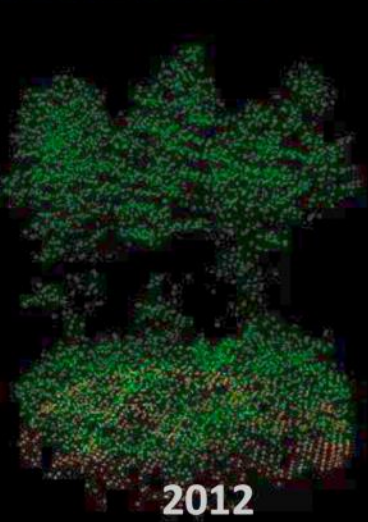
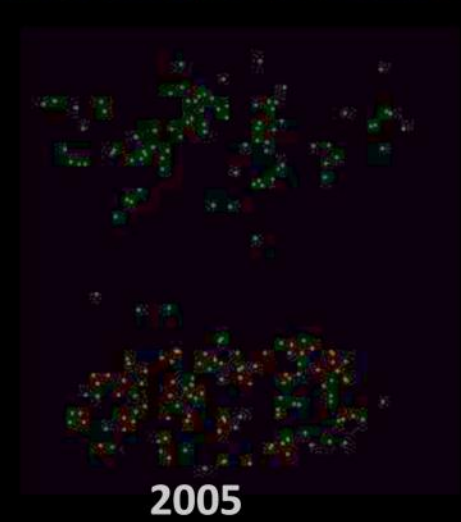
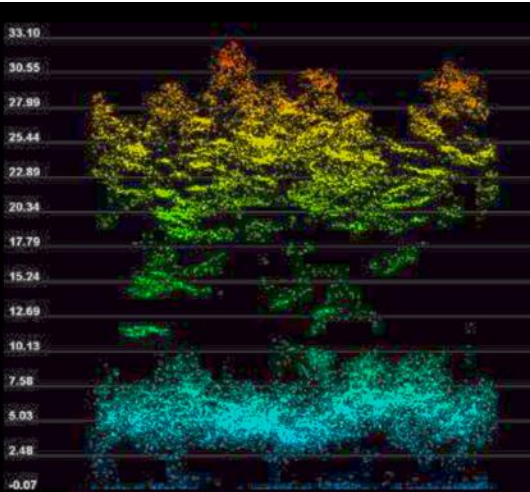
Sept 24, 2019

HxGN Content Program launches high-definition aerial data in the United States

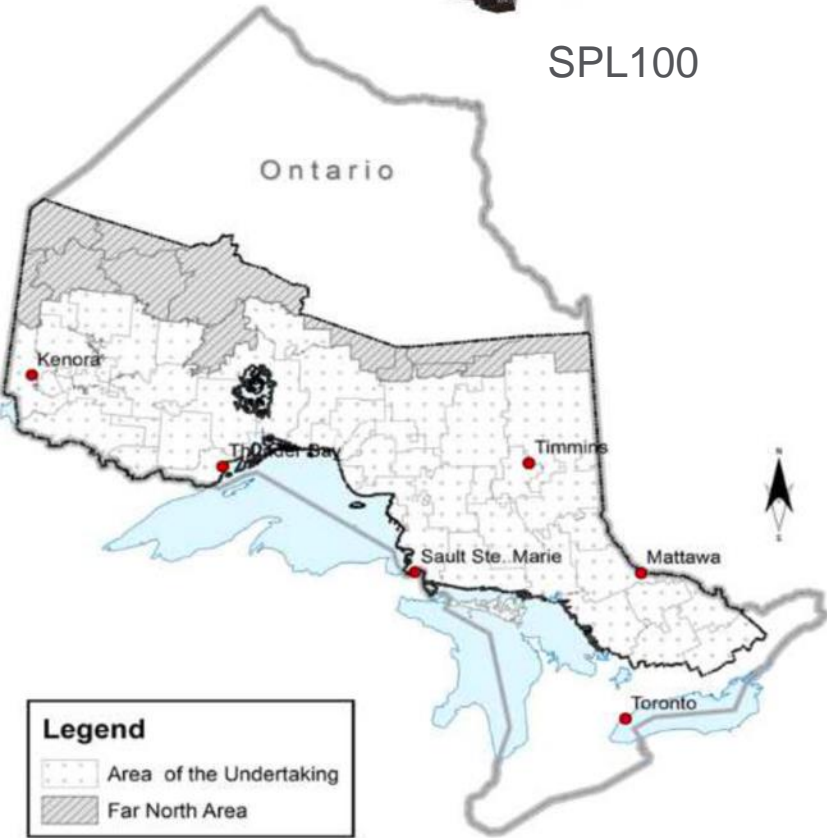




# Hardware Innovation – Ontario Ministry of Natural Resources Case Study



SPL100



# Open Source Software / Data – a brief overview & machine readable data standards

## THE WORLD BANK



 **creativecommons**  
(International)



**Public Domain**  
(Copyright free in USA only)



**OpenStreetMap**

Open Database License (ODbL)

(International)

(If redistributed > share-alike)



**QGIS**

*Leaflet*

**PostGIS**

**OpenLayers**

...and many more.

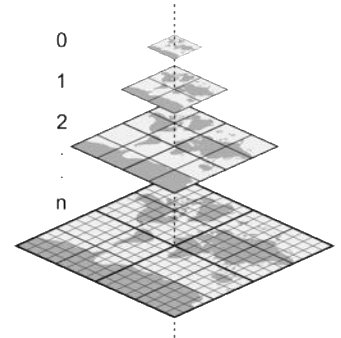
## 2D – Imagery Standards for machine learning



CLOUD OPTIMIZED  
**GEOTIFF**



**SpatioTemporal**  
Asset Catalog



**ARD** (Analysis Ready Data)

## 3D – Geometry Standards



(GL Transmission Format)



**CESIUM**  
**3DTiles**



**HEXAGON**

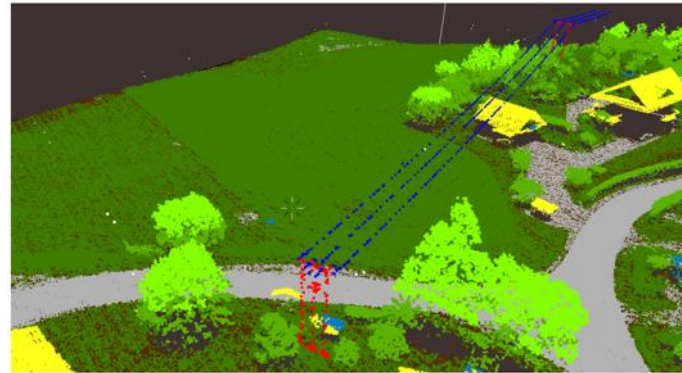


# Creating an AI / Deep Learning Ecosystem

Automated Base Mapping – less frequent > imagery & LIDAR



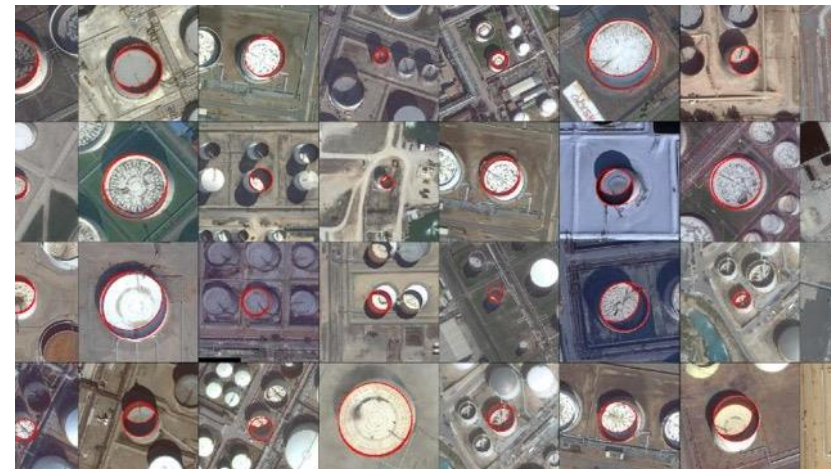
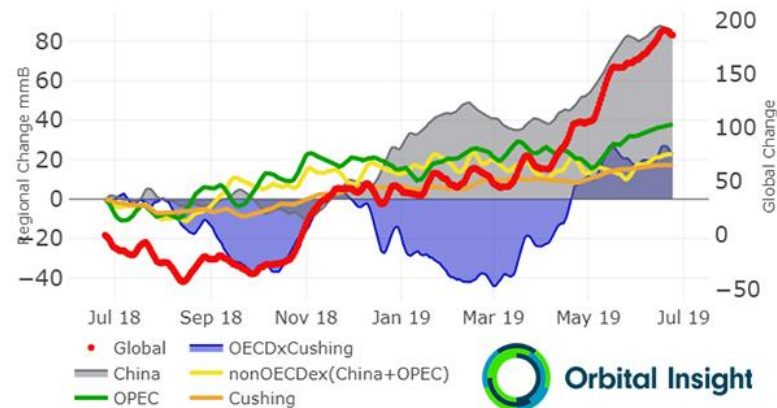
Aerial



Site Monitoring – continuous > imagery & MS



Satellite





## Technology Innovation – C3 Technologies > pioneer in automated 3D mapping (2008-2011)

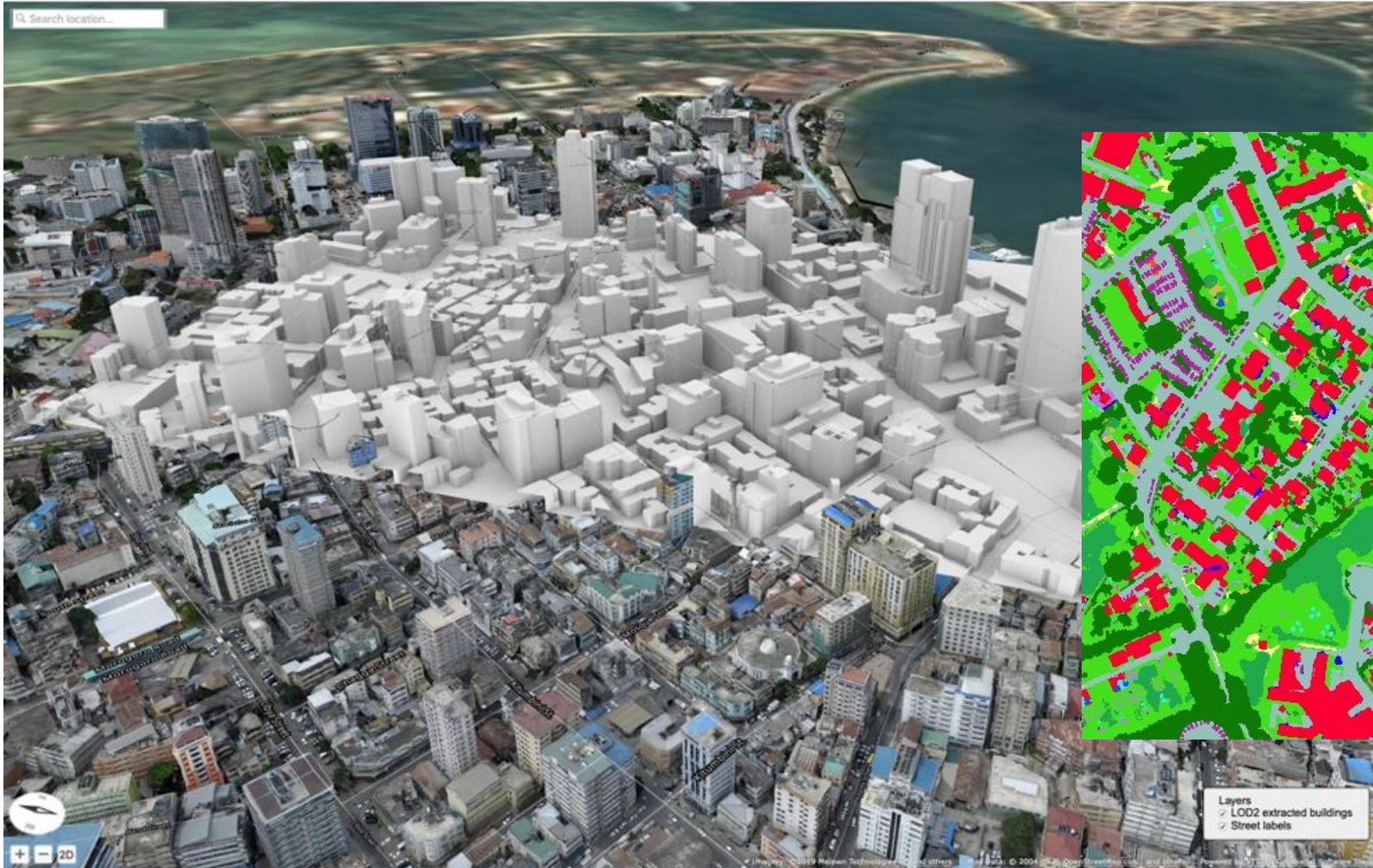


2011





## Software Innovation – Building a new Digital Reality (Melown acquisition)





## Hexagon R&D Activities – BIM & Geodesign Combined





Thank you.

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