

Getting Started: Building Your Spatial Foundation

Brian Baldwin – Esri (bbaldwin@esri.com)

Ken Kato – University of Oregon

Adam Lawver – Michigan State University



Webinar Housekeeping

- Please enter your questions in the chat box
- Microphones will be muted
- Q&A session at the conclusion of the webinar
- Webinar is being recorded
- Slides will be available
- Survey following the webinar



Welcome to the 'Campus Operations' webinar series!

- **Webinar 1 (September 16)–Getting Started: Building Your Spatial Foundation**
- Webinar 2 (October 7) - Bringing GIS Indoors: Space Planning and Optimization
- Webinar 3 (October 28) - Building a Mobile Workforce: Getting Decision Support into the Field
- Webinar 4 (November 18) - Optimizing Utilities: Digitally Transforming Network Management



Goals for the series

- GIS is more than maps
- Build community
- Share best practices
- Highlight the value of 'enterprise' GIS
- Configuration vs. customization



Campus Operations in
Higher Education
Webinar Series



Getting Started: Building your Foundation - Outline

- Why GIS?: Building a Geospatial Strategy
- Michigan State – Adam Lawver
- University of Oregon – Ken Kato
- Resources
- Q&A





Workforce
turnover



Covid-19



Shrinking
budgets



Data silos

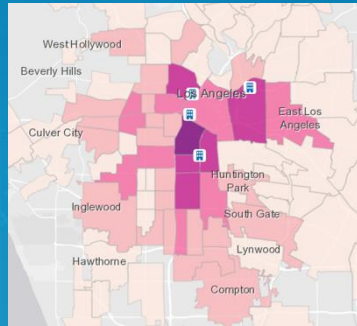


Hiring/retaining
talent



GIS today

Racial and Ethnic Disparities

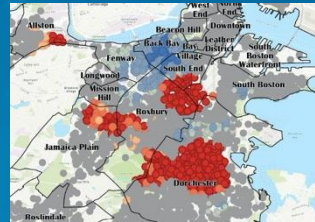


USC
California

Water Management



Hot Spot Patterns

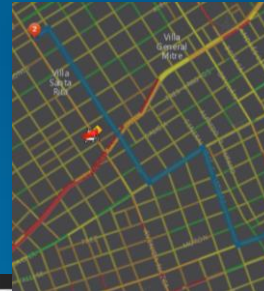


Northeastern University
Boston, Massachusetts

Tree Inventory



Emergency Routing



Travel Analysis

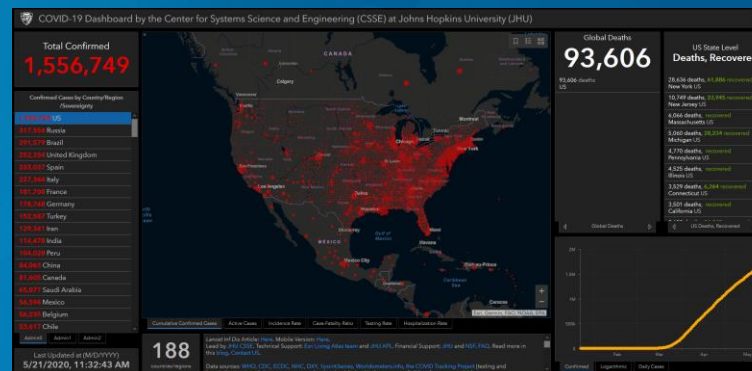


Wi-Fi Planning



Chicago

COVID-19 JHU Dashboard



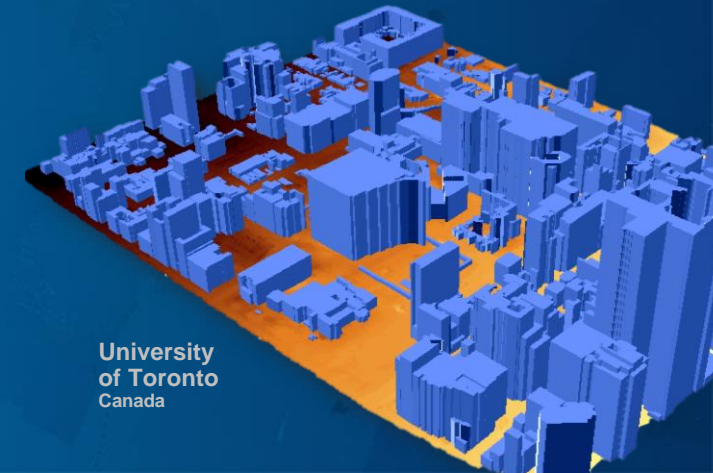
3D Maps



Sidewalk Ramp Status



Campus Visualization



University of
Toronto
Canada

Geospatial Infrastructure Is Transforming Campus Operations

Integrating and Leveraging Many Technologies

Institution wide licensing (US)



An aerial photograph of a city grid, likely New York City, is shown in a dark blue, semi-transparent overlay. The grid pattern of streets and buildings is visible across the entire background. Centered over this image is the text "Do you have a Geospatial Strategy?" in a white, sans-serif font.

Do you have a Geospatial
Strategy?

The background of the slide features a stylized globe with a grid of latitude and longitude lines. The globe is rendered in shades of blue and teal, with a semi-transparent effect that allows the text to be clearly visible. The grid lines are thin and light blue, creating a subtle pattern across the globe's surface.

A **Geospatial Strategy** is a business-oriented plan that defines how a university will use GIS to achieve its goals and desired outcomes.

The plan includes considerations of people, process, and technology needed to meet goals and overcome challenges.

Developing & Executing a Geospatial Strategy

The Esri Method

Understand → Plan →



Revisit

...Maximize Impact

Prioritization





"At the heart of all of this decision making...is data that we can manage, report, visualize, and manipulate through GIS"

Brian Swanson - Assistant VP and CFO,
University of Minnesota

Adam Lawver

Michigan State University



Michigan State University: Seeing Challenges as Opportunity

Esri Getting Started: Building Your Spatial Foundation

Adam Lawver, Director of Campus Services, Infrastructure Planning and Facilities



INFRASTRUCTURE PLANNING
AND FACILITIES

Michigan State University

**Top 100 Global
University**

**Leading
research
institution
(\$700M)**

50,000 students

**5400 acres of
land**

**17 degree
granting
colleges**

**24M square feet
of space**



Infrastructure Planning and Facilities

Infrastructure Planning and Facilities (IPF) is responsible for **planning, building, maintaining, energizing, and beautifying** the physical campus of Michigan State University.

Purpose

We deliver services and facilities that help Spartans change the world.

We value our people, our partners, and stewardship of our resources.

Operations

We manage all facets of facilities and campus park

+

Power plant and well system

+

Capital Construction

People

We employ approximately 1,300 employees (full time, part time, & student)



Learning to work smart(er)

- Problems appear in loops. What stage of maturity is your business?
- Individual technologies to create cost or energy savings
- Exploration of operational technologies including augmentation
- How do you create a portfolio of innovation best practices – across your organization? Innovation breeds more innovation.
- The payback may not always be favorable – but any idea will create loops of learning through educated risk

A Silo Mentality

Infrastructure Planning & Facilities

Operational efficiency
Building Automation
Mobile Robotics
Transportation on demand
Utility master plan

MSU IT Services

Network
Cybersecurity
Data and analytics
WiFi
Fiber
Cellular
GIS

MSU Police

Safety
Awareness
Enforcement
Traffic Management

Senior Administration

Positioning MSU as a leader
V2X
Mobility Initiative
Energy Initiatives

Academic and Socio-mobility Research

Engineering research
Social, economic, and policy research
Sustainability research

Private-Public Partnerships

MSU Innovation Center
Coordination with industry partners to explore social implications and advance technology

/ / / / / / / /



**How many organizational habits
were formed before an evidence-
based approach?**

////////



The Business Case



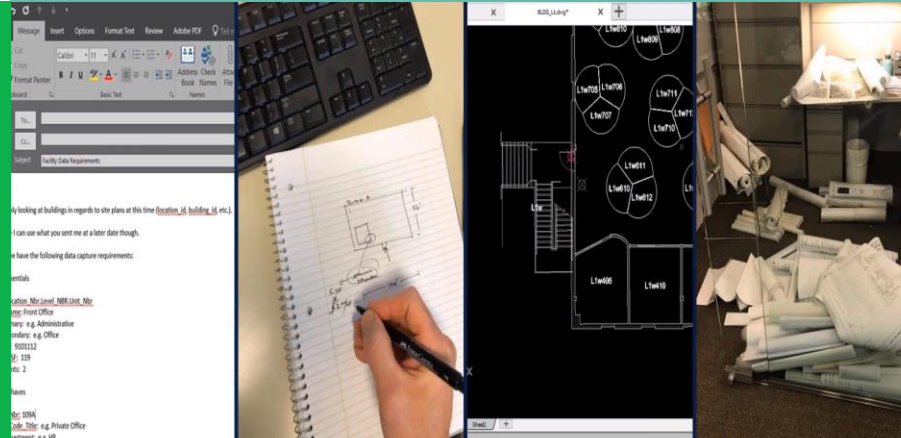
Interoperability of Facilities Information to Improve Workforce Efficiency

\$0.33/SF per Year



‘Bet on Everyone’

Equipping the 21st century workforce with access to information at the point of decision-making.



Mobile Robotics & Operational Dashboards

Machines complementing Humans



INFRASTRUCTURE PLANNING
AND FACILITIES

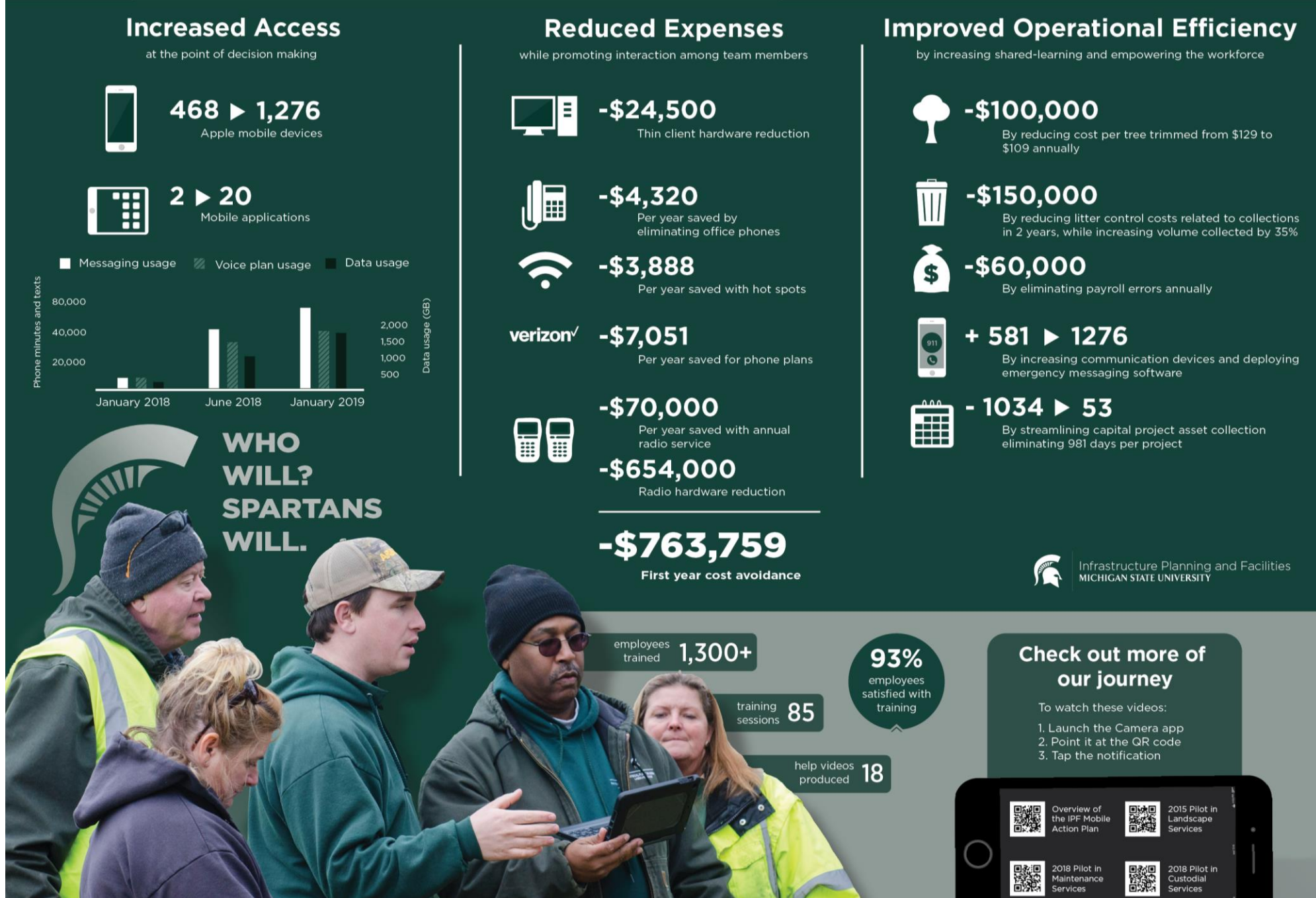
Bet on Everyone

3-30-300 Rule

FY17-18 76,298 WO's
FY18-19 89,822 WO's
FY19-20 108,346 WO's
(8 months in....)

15% more volume 18-19
17% more volume 19-20

Same FTE count....



Infrastructure Planning and Facilities
MICHIGAN STATE UNIVERSITY



INFRASTRUCTURE PLANNING
AND FACILITIES

Interoperability of Facilities Information to Improve Workforce Efficiency

\$0.33/SF
waste-in-process



U.S. Department of Commerce
Technology Administration
National Institute of Standards and Technology

Advanced Technology Program
Information Technology and Electronics Office
Gaithersburg, Maryland 20899

NIST GCR 04-867

Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry

Michael P. Gallaher, Alan C. O'Connor, John L. Dettbarn, Jr., and Linda T. Gilday



<https://nvlpubs.nist.gov/nistpubs/gcr/2004/NIST.GCR.04-867.pdf>



GIS Indoors webinar March 2019



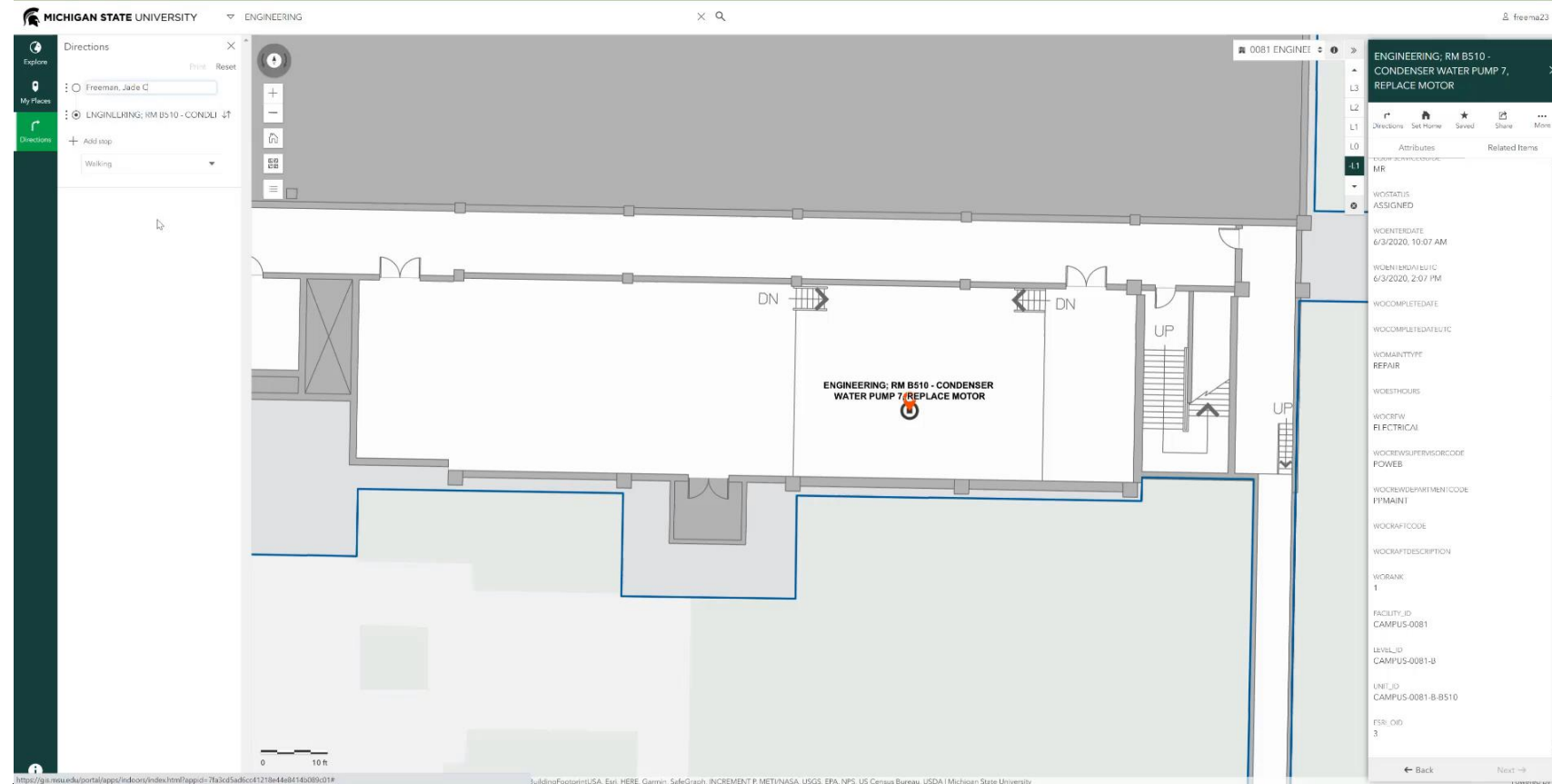
INFRASTRUCTURE PLANNING
AND FACILITIES

Workforce Routing through Integration of IWMS and Assets

24,000,000 GSF

\$0.33/SF waste-in-process

\$7.9 million annually



Asset

Location

IWMS

O&M Documents

Condition

Facility Condition
Assessment



INFRASTRUCTURE PLANNING
AND FACILITIES

Mobile Robotics

Autonomous Vehicle
Industry & Mobile Robotics
Industry

Fleet of Mobile Robotics

“Up-Skill” workforce to
reallocate to tasks
currently not being done.



Operational Dashboards

Trust and buy-in through public display of outputs

Connection to mission and purpose....every day.

Pride and wins for teams



The ROI Value Proposition

**Monetary return
or savings**

**Staying relevant
– core to the
mission**

**Advancing
research (living
laboratory)**

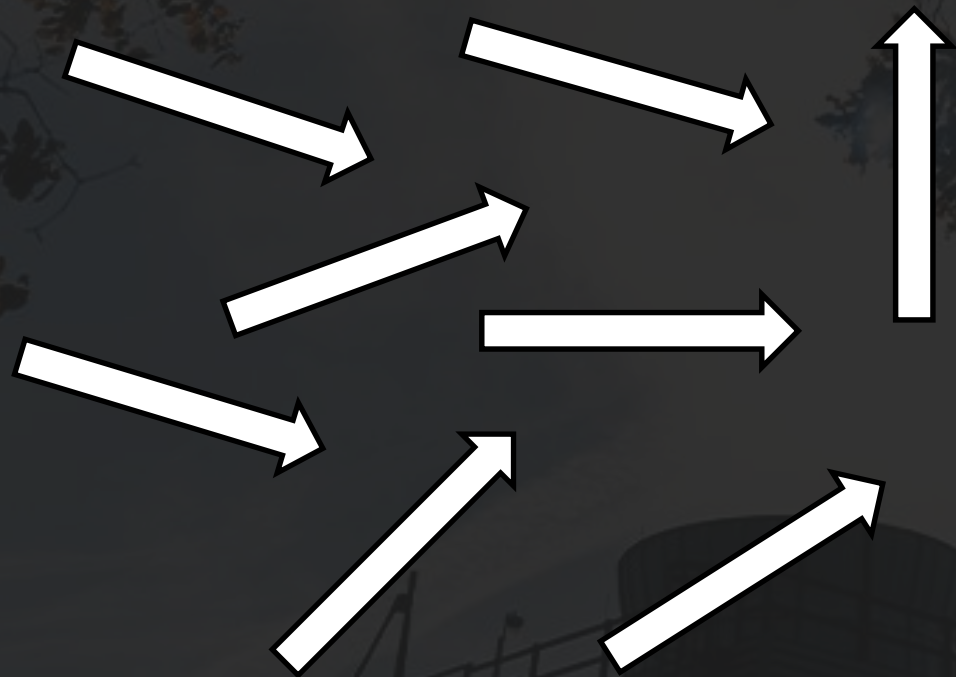
**Faculty/student/
staff recruitment
and retention**

**Long term
sustainability**

**Student
outcomes**



The Opportunity



Ken Kato

University of Oregon



Key Takeaways

- 'Spatial glue'
- Build a geospatial strategy for your organization
- Agile approach
- Review where 'GIS' currently resides at your institution
- Operational awareness



Resources

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Covid-19 Resources

Covid-19 will continue to have a dramatic impact on both the academic as well as operational aspects of higher education. The resources below are just a subset of many of the videos, blogs, and solutions that Esri has released to assist.



Resources		
	What	Description
Solution	Solution	Gallery listing all of the "click" solutions

Actions

- **Contact account managers**
 - Where do I start?
 - What's my licensing?
 - How do I build a geospatial strategy?
- **Questions/Issues:**
 - Brian Baldwin – bbaldwin@esri.com
- **Resource pages/links**



Thanks so much!

Q&A

