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Building a Framework for Indiana Geospatial Education

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Building a Framework for Indiana GeoSpatial Education

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PRESENTATION

I. Purpose of Discussion
II. Higher Level Goals
III. Detailed Justification for GIS/GeoSpatial Learning
IV. Major Action Steps
V. Action Step 1 & 2: Survey Draft Participation ? Mapping Learning Objectives and Geospatial Data

I. PURPOSE

Why an Indiana geospatial technologies K-12 educational framework?

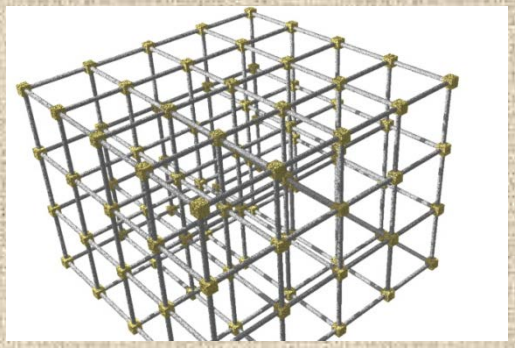
To address state GIS workforce capacity and innovation, and to elevate Indiana as a prominent national leader in spatial data education: knowledge, skills, applications, research, and provider.

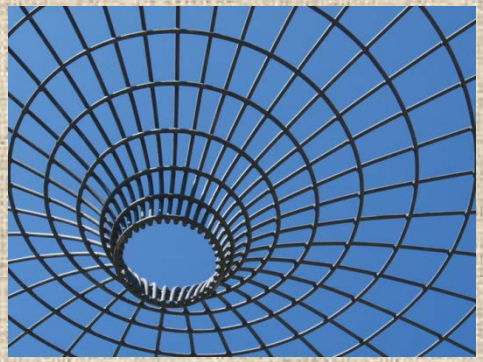
Why are we having a state GIS Conference?

What critical skills are we seeing here at our conference that

- may be transferable to the K-12 arena,
- are seen as vital, and
- are measured in terms of math, science, or social sciences learning?

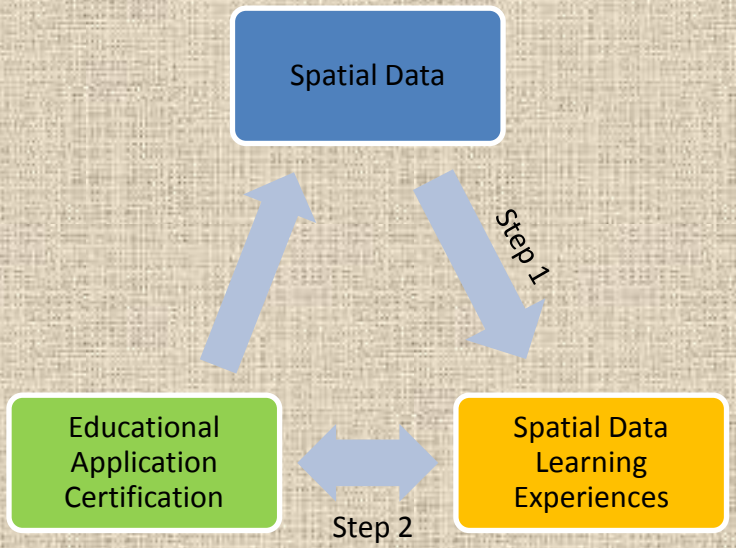
What funds ---- that are already utilized in geospatial technology fields for a variety of data acquisition, management, and research ---- could reduce learning costs for K-12 students and educators in regards to professional development and curriculum creation?





II. HIGHER LEVEL GOALS

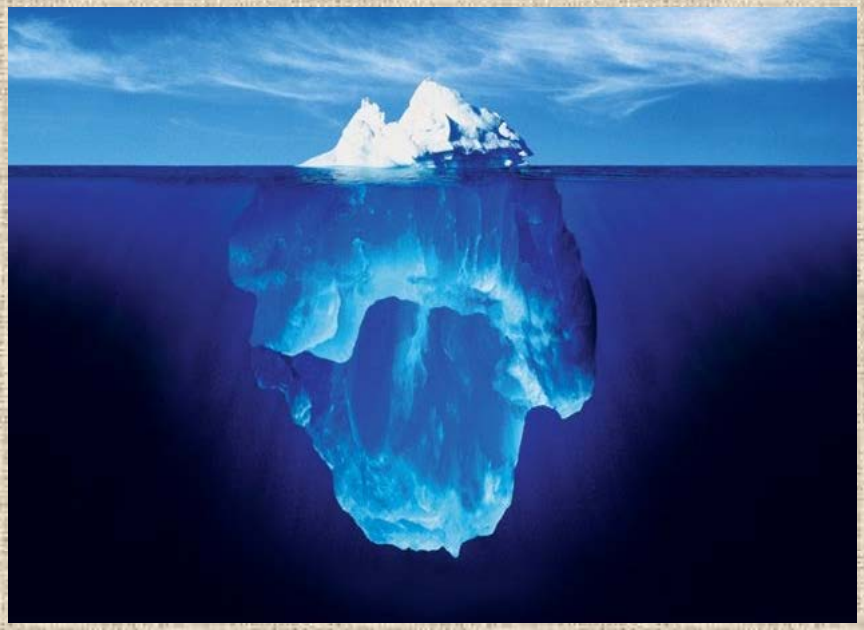
1. Making K-12 GIS/geospatial learning sustainable
2. Effective teacher training
3. Identifying geospatial data champions
4. Identifying Indiana state government spatial data advocates √
5. Identifying university K-12 educational advocates
6. Intentional K-12 acknowledgement of GIS use and learning collaboration on spatial data in terms of math, science, reading and social sciences learning



Challenges to adding GIS or geospatial learning to the existing K-12 curriculum:

- Lack of time: school day and school year
- Lack of funding for professional development
- Lack of funding to create dynamic and appropriate curriculum materials
- Energy to make it sustainable
- Need geospatial data champions at local, city, and state levels
- Indiana state government spatial data advocates… Where are they?
- University geospatial advocates to support K-12 education transfer
- Need MORE K-12 learning collaboration regarding spatial data in terms of math, science, reading/writing, and social studies/sciences learning

- Paradigm shift >>> changes that the state political machinery might not be ready to address and citizens might not understand … Connecting real, 21st Century employment knowledge, skills, applications, and research to the K-12 curriculum.



III. DETAILED JUSTIFICATION for GIS/GeoSpatial Learning

Everyone Benefits

from a geospatial technologies perspective
from a data learning perspective

- ✓ Agricultural community
- ✓ Business
- ✓ Economics
- ✓ Employee pipeline
- ✓ STEM education pipeline
- ✓ Local, City/County, State, Federal Government
- ✓ Citizens

Now is the time to grow the cause of purposeful and intentional K-12 geospatial technologies education in Indiana!

Next biggest issues in Geospatial Learning …

- Drones as learning and data dissemination tools
- Using public spatial data to build a greater spatial literacy
- Educator training and educational acceptance of spatial cognition

Assets already available …

- GIO IGIC INView IGS IN Spatial Data Portal INMap Polis Center GENI ICSS ICEE IESTA HASTI and more
- K-12 curriculum inclusion – IN and national (Social Studies/Geography, English/Language Arts, Science, Technology): late '90's to present
- *GeoSpatial Technologies for IN Educators and Students* website http://www.iupui.edu/~gst
- Curriculum
- IN/ESRI Statewide Site License for K-12 Purposes
- Amazing research and applications at post-secondary institutions and within government and private businesses: DNR, IGS, IDoT, ISDH…
- YOU, YOU, YOU

IV. MAJOR ACTION STEPS

- A survey that connects educators to the Indiana geospatial workforce ∫
- Crowd sourced research effort with Purdue, IUPUI & other to promote GIS/ geospatial learning on a long-term basis ∫
- Establish a network for university, state agency, and education stakeholders for more in-depth action in the next year ∫
- Utilize area GIS Days to disseminate geospatial teacher training or summer data science engagement opportunities ∫
- A collaboration to map learning objectives to geospatial data ∫
- An educational recognition of spatial cognition as learning modality via the National Academy of Sciences ≈

∫ = doable working together
≈ = challenging to improve networking

To share ideas and become engaged, contact
Dewayne Branch at bbranch@purdue.edu

THANK YOU!

V. ACTION STEPS 1 & 2

Do you want to assist with

1. creating (or participating in) a short survey to capture information about connecting educators & IN geospatial technology specialists?
2. collaborating to map IN learning objectives/ academic standards to geospatial technologies?

Framework for GeoSpatial Technologies Integration: GIS Resource Specialist as Facilitator, Purdue University as a Model