

Nine Steps to a Highly Successful Geospatial Industry Career

*King County GIS User Group
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Why is the topic important?

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GIS-Pro Vanguard Cabinet - Young Professional Panel

Title: 10,000 hours to become a GIS-pro?

What does it take to become a GIS professional? Malcolm Gladwell, in his book 'Outliers: The Story of Success', discusses how individuals that are truly expert in their subject area don't get there by chance, but rather by dedicated practice (he cites 10,000 hours as a common threshold). Does this hold true for GIS professionals? Is there a roadmap that can help guide you through to your ultimate career goals?

This panel, moderated by members of the URISA Vanguard cabinet, will dive into navigating through the morass of certifications programs, building an effective professional portfolio, and finding and engaging with a GIS mentor. This discussion is relevant whether your just starting out in your career, or your a seasoned GIS practitioner looking to refresh your own career or help guide others.

Topics

- What is a competency model?**
- What is the GTCM?**
- Why should you care about the GTCM?**
- Questions?**

What is a 'Competency Model'?

A description of the types and range of knowledge, skills, and abilities needed within a profession to gain a competitive advantage:

I am 'competent' if I have:

- Knowledge
- Skill
- Ability

Precursor: USM/NASA Geospatial Competency Model

Building the Geospatial Workforce

Cyndi H. Gaudet, Heather M. Annulis, and Jon C. Carr

| TABLE I Geospatial Technology Role Definitions | |
|---|--|
| Applications Development | Identify and develop tools and instruments to satisfy customer needs |
| Data Acquisition | Collect geospatial and related data |
| Coordination | Interorganizational facilitation and communication |
| Data Analysis and Interpretation | Process data and extract information to create products, drive conclusions, and inform decision-making reports |
| Data Management | Catalog, archive, retrieve, and distribute geospatial data |
| Management | Efficiently and effectively apply the company's mission using financial, technical, and intellectual skills and resources to optimize the end products |
| Marketing | Identify customer requirements and needs, and effectively communicate those needs and requirements to the organization, as well as promote geospatial solutions |
| Project Management | Effectively oversee activity requirements to produce the desired outcomes on time and within budget |
| Systems Analysis | Assess requirements for system capacities including inputs, outputs, processes, timing, and performance, as well as recommend necessary additions or adaptations |
| Systems Management | Integrate resources and develop additional resources to support spatial and temporal user requirements |
| Training | Analyze, design, and develop instructional and non-instructional interventions to provide transfer of knowledge and evaluation for performance improvement |
| Visualization | Render data and information into visual geospatial representations |

Precursor: USM/NASA Geospatial Competency Model

Figure 1
Geospatial Technology Competency Model®

| | | ROLES | | | | | | | | | | | | |
|-----------------------------------|-----------|---|--------------|------------------|---------------|-----------------|------------|-----------|--------------------|------------------|--------------------|----------|---------------|---|
| | | Applications Development | Coordination | Data Acquisition | Data Analysis | Data Management | Management | Marketing | Project Management | Systems Analysis | Systems Management | Training | Visualization | |
| COMPETENCIES | Technical | Ability to Assess Relationships Among Geospatial Technologies | | • | | | | • | • | | • | • | • | • |
| | | Cartography | | | • | • | | | | | | | | • |
| | | Computer Programming Skills | • | | • | | • | | | | • | | | • |
| | | Environmental Applications | • | | | • | | | | | | | | • |
| | | GIS Theory and Applications | • | | | • | • | • | | • | | • | • | • |
| | | Geology Applications | | | | • | | | | | | | | |
| | | Geospatial Data Processing Tools | | | • | • | | | | | • | • | • | • |
| | | Photogrammetry | • | | • | • | | | | | | | | • |
| | | Remote Sensing Theory and Applications | • | | • | • | | | | | | • | | • |
| | | Spatial Information Processing | • | | • | • | | | | | | | • | • |
| | | Technical Writing | • | • | | • | | • | • | • | • | • | • | • |
| | | Technological Literacy | • | | • | • | • | • | | • | • | • | • | • |
| | | Topology | | | | • | | | | | | | | • |
| | Business | Ability to see the "Big Picture" | • | • | | | • | • | • | | • | • | • | |
| | | Business Understanding | | • | | | | • | | • | | | | |
| | | Buy-in/Advocacy | | • | | | | • | • | | • | | • | • |
| | | Change Management | • | • | | • | • | • | • | • | • | • | • | • |
| | | Cost Benefit Analysis / ROI | | • | | | • | • | • | • | | • | • | • |
| | | Ethics Modeling | | | | • | | • | • | • | | • | • | • |
| | | Industry Understanding | • | • | | | | • | • | | | | • | • |
| Legal Understanding | | | • | | | | | | | | | | | |
| Organization Understanding | | | • | | | | • | | | | • | | | |
| Performance Analysis & Evaluation | | | • | | | • | | • | • | • | • | | | |

Precursor: USM/NASA Geospatial Competency Model

**Figure 1
Geospatial Technology Competency Model®**

| | | ROLES | | | | | | | | | | | | | |
|---------------------|----------------------------------|--------------------------|------------------|------------------|---------------|-----------------|------------|-----------|--------------------|------------------|--------------------|----------|---------------|---|---|
| | | Applications Development | Coordination | Data Acquisition | Data Analysis | Data Management | Management | Marketing | Project Management | Systems Analysis | Systems Management | Training | Visualization | | |
| COMPETENCIES | Analytical | Creative Thinking | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | Knowledge Management | | ● | | ● | | ● | | ● | | ● | ● | ● | ● |
| | | Model Building Skills | ● | | | | ● | ● | | | | ● | ● | ● | ● |
| | | Problem-Solving Skills | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | Research Skill | ● | | | ● | | | | | | | ● | | |
| | | Interpersonal | Systems Thinking | ● | | | | | ● | | | ● | ● | ● | ● |
| | Coaching | | | ● | | | | | ● | | | | ● | | |
| | Communication | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Conflict Management | | | ● | | | | | ● | | ● | | ● | ● | |
| | Feedback Skills | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Group Process Understanding | | | ● | | | | | ● | | ● | | ● | ● | |
| | Leadership Skills | | | ● | | | ● | ● | ● | ● | | ● | ● | ● | ● |
| | Questioning | | | ● | | | | | ● | ● | | ● | ● | ● | |
| | Relationship Building Skills | | | ● | | | | | ● | ● | ● | ● | ● | ● | |
| | Self-Knowledge / Self-Management | | | ● | | | | | ● | ● | | ● | ● | ● | |

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US Department of Labor Employment and Training Administration

ETA Industry Competency Initiative

'Develop and maintain dynamic models of the foundation and technical competencies that are necessary in economically vital industries and sectors of the American economy. The goal of the effort is to promote an understanding of the skill sets and competencies that are essential to educate and train a globally competitive workforce.'

The models serve as a resource to:

- Identify specific employer skill needs**
- Develop competency-based curricula and training models**
- Develop industry-defined performance indicators, skill standards, and certifications**
- Develop resources for career exploration and guidance**

The Geospatial Technology Competency Model

Competency Model

features

- User Guides 
- Find Resources
- Users Showcase
- Industry Competency Models
- Tools

exploring industries

- Advanced Manufacturing
- Aerospace
- Automation
- Bioscience
- Construction - Commercial
- Construction - Heavy
- Construction - Residential
- Energy
- Entrepreneurship
- Financial Services
- Geospatial Technology
- Health: Allied Health
- Health: Electronic Health Records
- Hospitality/Hotel and Lodging
- Information Technology
- Long-term Care, Supports, and Services
- Mechatronics
- Retail
- Transportation
- Water Sector

www.careeronestop.org/CompetencyModel/ETA_industry_competency_initiative.aspx

US DOLETA Competency Model Pyramid

For DOLETA, a “competency” is the capability to apply or use a set of related knowledge, skills, and abilities required to successfully perform “critical work functions” or tasks.

A “competency model” is a collection of competencies that together define successful performance (Ennis 2008).

The Competency Modeling Initiative promotes the development of industry-driven competency models in high-growth, high-demand industries.

DOLETA identified “geospatial technology” as a high-growth industry in 2003.

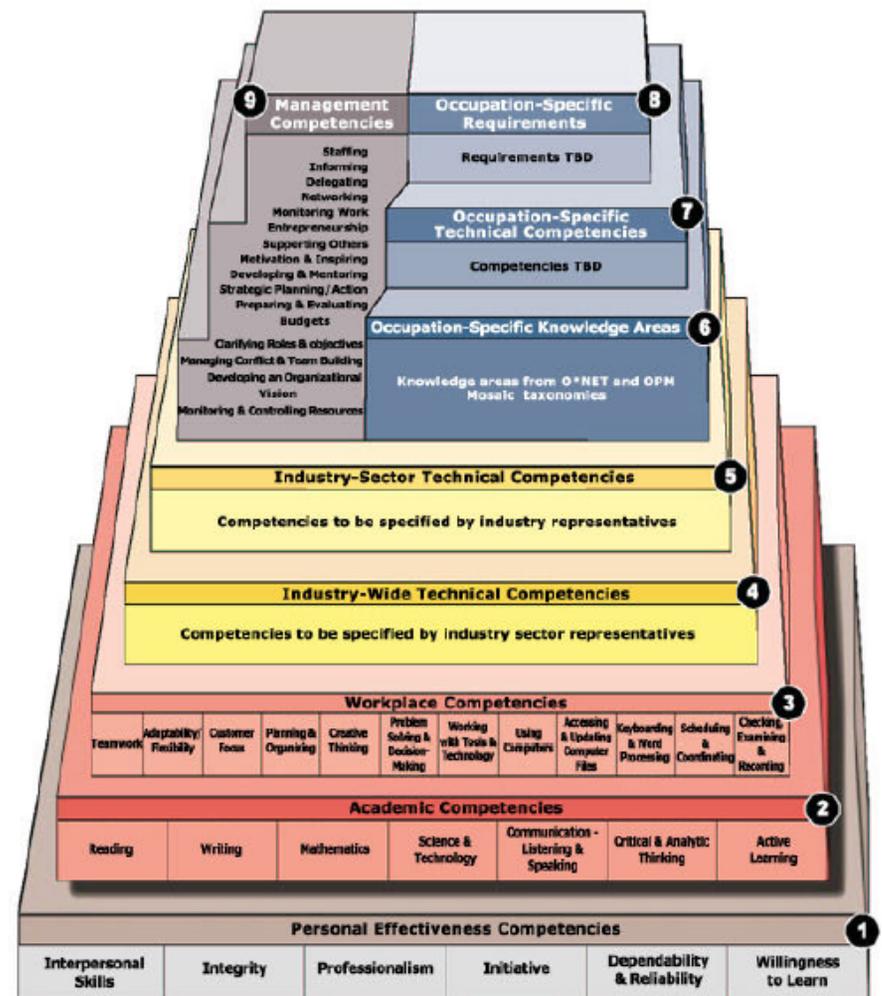
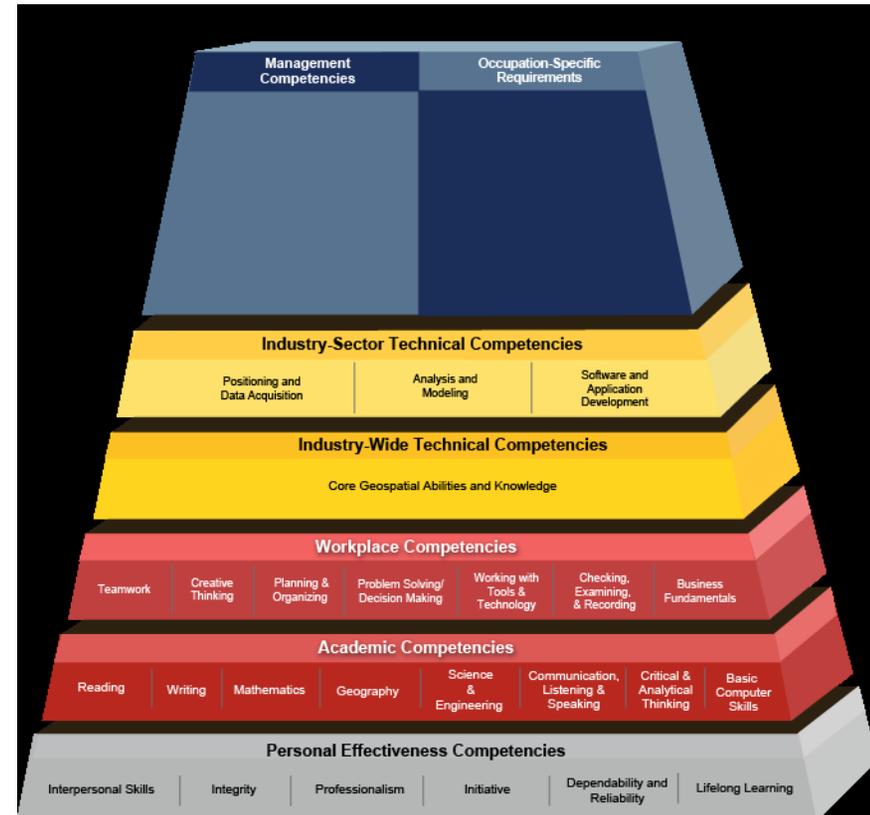


Figure 2. Competency Model Building Blocks

GTCM and the Missing Tier 9 – Management Competency

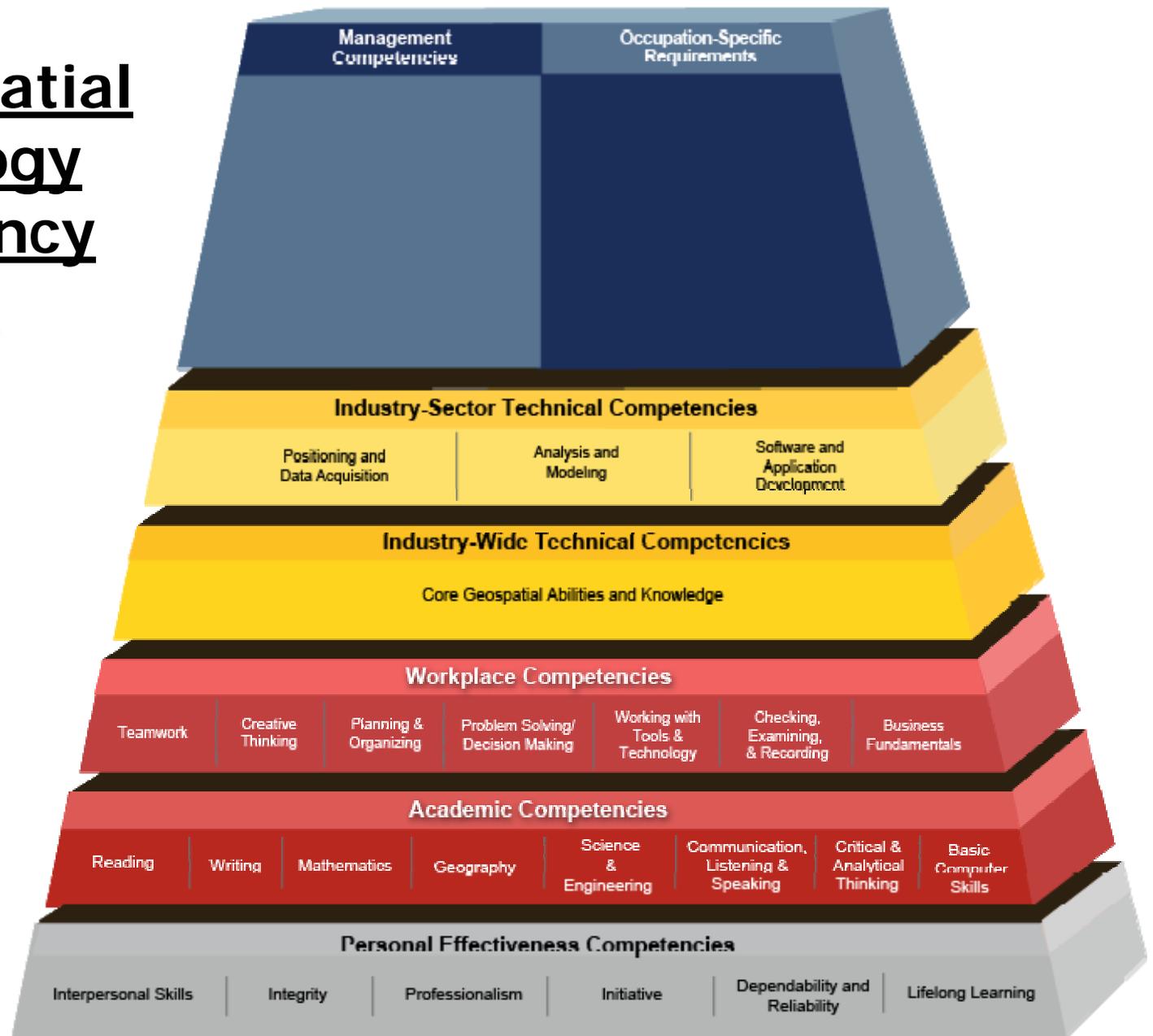


In 2010, DOLETA issued a Geospatial Technology Competency Model (GTCM) that specifies the foundational (Tiers 1-3), industry-wide (Tier 4), and industry sector-specific (Tier 5) expertise characteristic of the various occupations that comprise the geospatial industry

(www.careeronestop.org/CompetencyModel/pyramid.aspx?GEO=Y).

Descriptions of individual geospatial occupations, including occupation-specific competencies and job requirements (Tiers 6-8), are published in DOLETA's O*NET occupation database (<http://www.onetonline.org/>).

The Geospatial Technology Competency Model



2010 -URISA Commits to Develop Tier 9: The Geospatial Management Competency Model

URISA GMCM Core Team:

- David DiBiase
- Patrick Kennelly
- Greg Babinski

- Coordination with USDOLETA

- Public Review Period Ended 3/31/2012

http://www.urisa.org/files/GMCM_review_draft_3-15-12.pdf

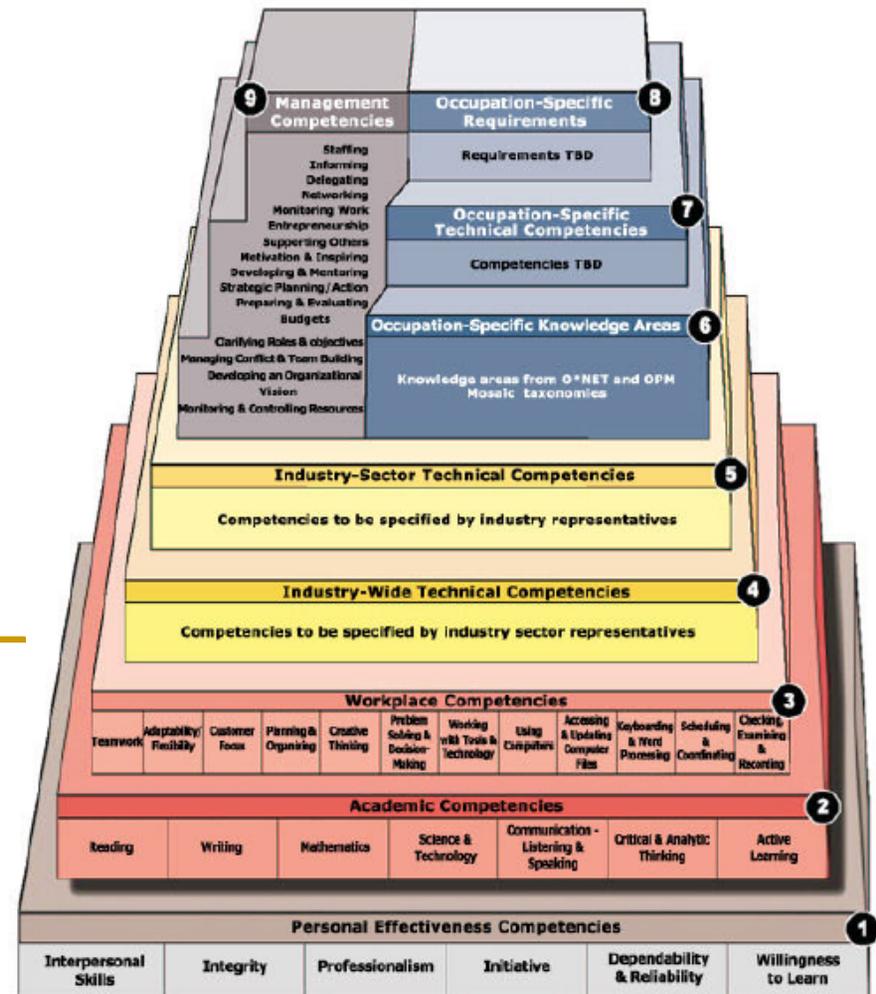
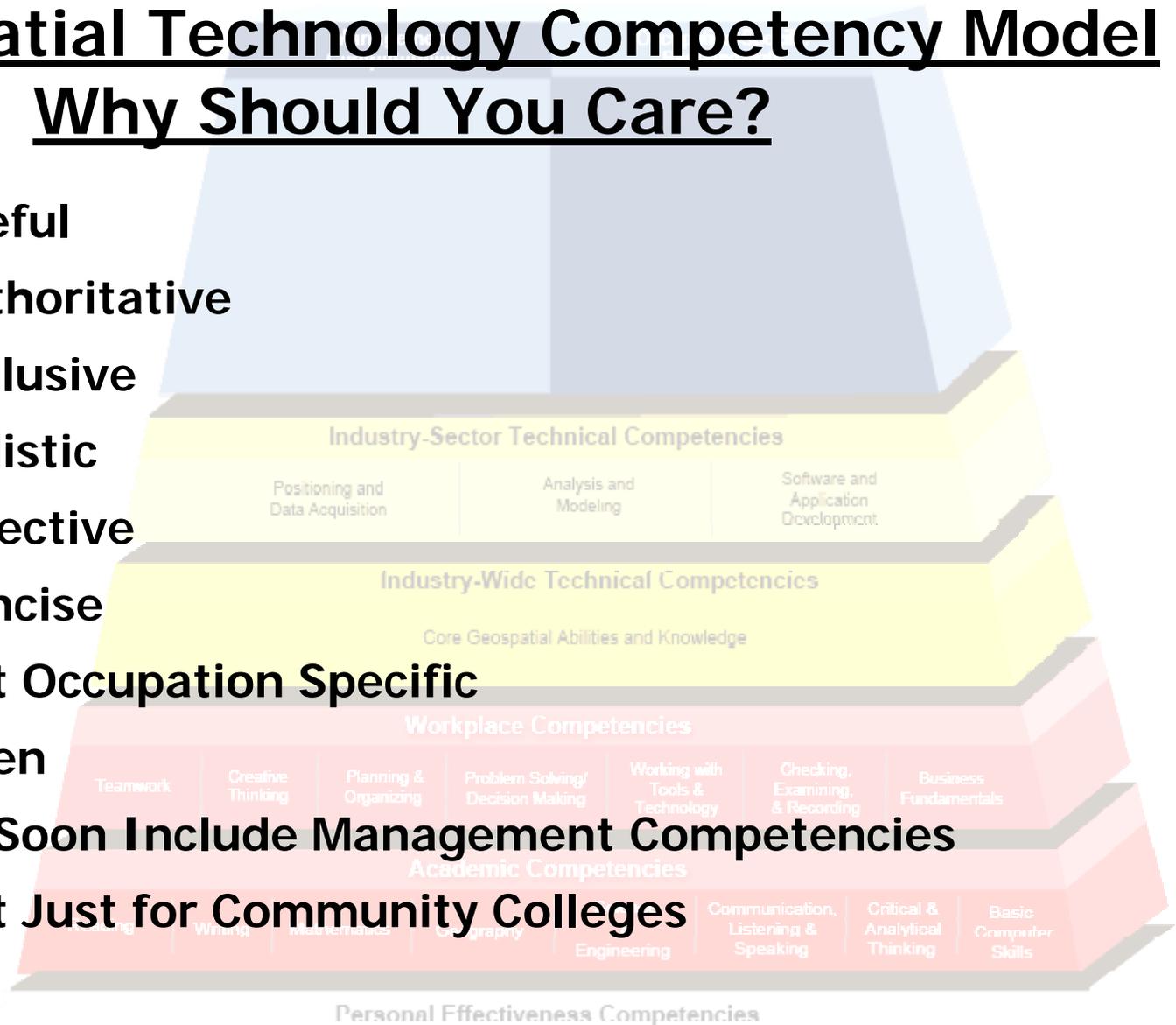


Figure 2. Competency Model Building Blocks

The Geospatial Technology Competency Model

Why Should You Care?

- ✓ It's Useful
- ✓ It's Authoritative
- ✓ It's Inclusive
- ✓ It's Holistic
- ✓ It's Selective
- ✓ It's Concise
- ✓ It's Not Occupation Specific
- ✓ It's Open
- ✓ It Will Soon Include Management Competencies
- ✓ It's Not Just for Community Colleges



Thanks to David DiBiase, www.directionsmag.com/articles/ten-things-to-know-about-the-gtcm/240972

Three Suggestions for a Highly Successful Geospatial Industry Career

- 1. Develop a small posse of peers and mentors**
- 2. Maintain a separate life of family and friends**
- 3. Get access to big, disruptive, challenging ideas**

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