GIS IN MINING OPERATIONS

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IMPLEMENTING CRADLE TO GRAVE GIS SUPPORT THROUGHOUT THE MINE LIFECYCLE

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Areas of Interest

- What is a GIS?

- When should a GIS be implemented?

- Examples of GIS in mine development

- What's next?

- Questions and Answers

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What is a GIS?

- **Geographic Information System** n. – A system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data. (http://en.wikipedia.org/wiki/Geographic_information_system; 2012)

- This includes:
  - Global Positioning System (GPS) data
  - Light Detection and Ranging (LIDAR) data
  - Environmental and Exploratory Sample Results
  - Aerial Imagery
  - Puny Humans, and much, much more...

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When Should a GIS Be Implemented?
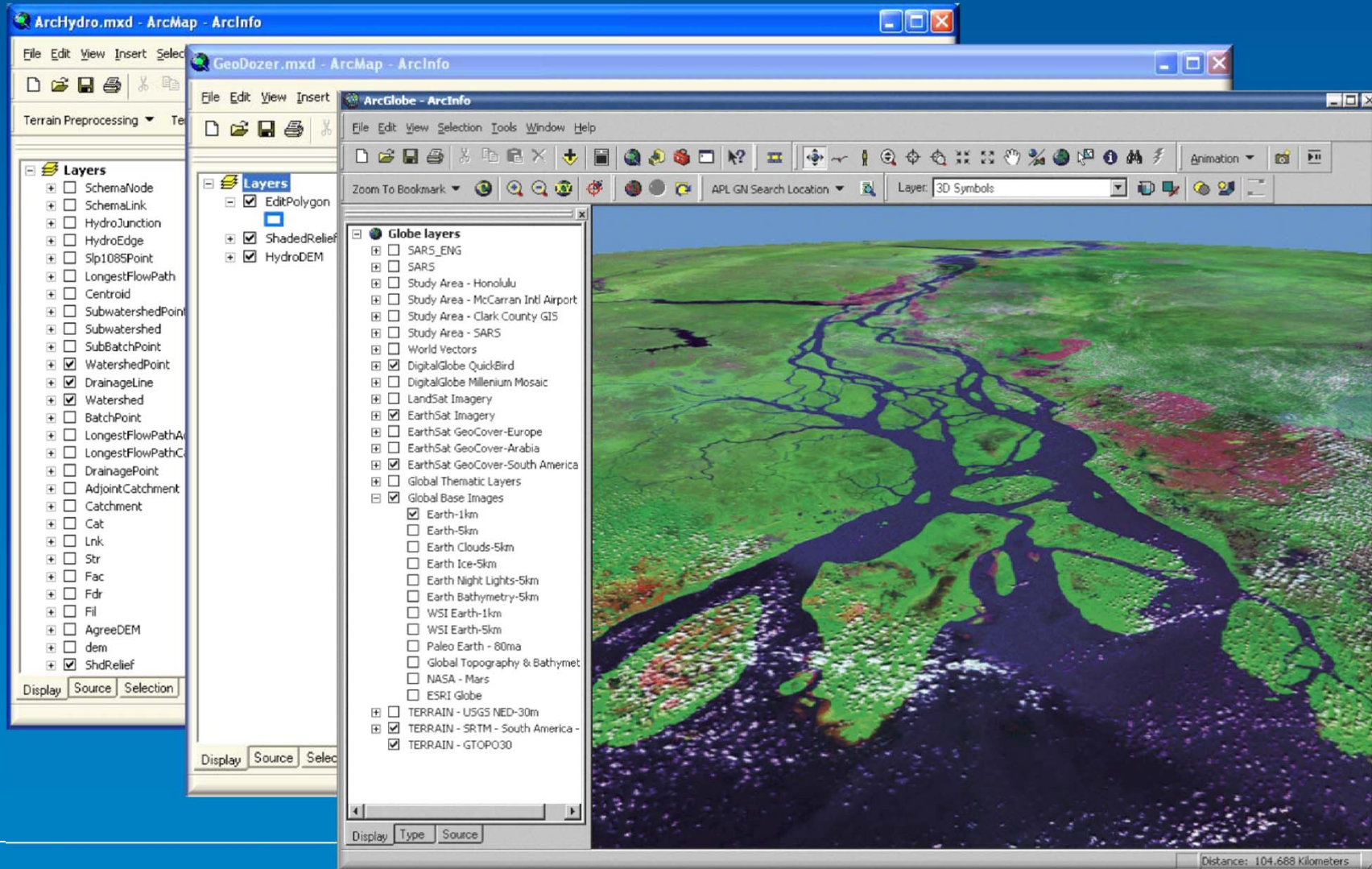
Planning and Permitting Phase

GIS as a regulatory framework:

- Existing federal and state data inclusion
- Clarity of purpose and potential impact
- High quality visuals augment deliverables
- Verifiable and defensible metadata
- Foundational GIS = future planning platform

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Future Expansion and Exploration

Mine and Facility Design/Construction

- All aspects of the design build process will have a spatial component.

- GIS platform ensures seamless data sharing among software packages

- Uniquely positioned to help with hydrologic models and planning

Mine and Facility Design/Construction

Operations and GIS

- Continued environmental compliance

- Monitor various assets and resources using your GIS

- H&S Performance

- Raw Data Collection
  + Spatial Component
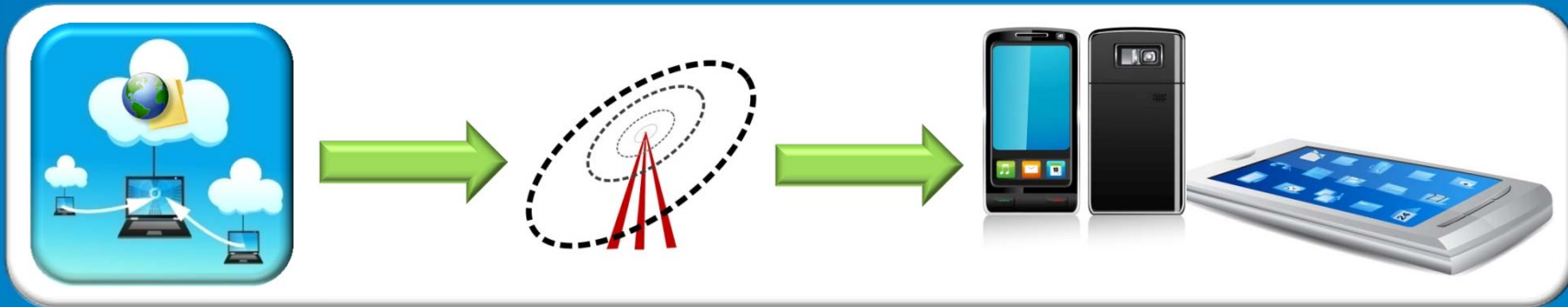 = "The Big Picture"

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Mine Closure

- GIS is your toolbox for all phases of a mine closure and monitoring plan.

  - Reclamation Planning
  - Hydrologic Management
  - Long-Term Monitoring Plans
  - Streamline Your Closure Process

...so what's next?

- Today is good, tomorrow will be exceptional.

- Mine life spans ranging from 5 years to decades...

- That's a lot of large circles!

Envisioning emerging technology for 2012 and beyond

Research & visualization by Michell Zappa

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Capitalize on Emerging Tech

- Mobility and Real-time Data

- Mobile devices accessing common datasets for entire workforce

- Passive syncing and real-time field data collection, analysis, and annotation

Capitalize on Emerging Tech

- The geospatial industry is exploding

- Position your business to profit from innovation

- Don't forget the humans!

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Invest in Innovation

1. Which factors that your industry takes for granted...should be eliminated?

2. Which factors that your industry emphasizes...should be minimized?

3. Which factors should be emphasized well above the industry standard?

4. Which factors...should be created?

Deyer, J Gregersen, H, & Christensen, C (2011). The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators. Harvard Business Review Press.

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