

First Principles of Geospatial Intelligence

Dr. Todd S. Bacastow
Presented by Steve Handwerk
Penn State University
June 2016

First Principles Defined

- The fundamental concepts or assumptions on which a theory, system, or method is based.
The Oxford Dictionary
- They are:
 - Fundamental truths from which inferences are made and conclusions based
 - Self evident through discovery
 - Underlying and governing principles of a worldview
- The early Greeks used them to:
 - Express fundamental laws
 - Explain their ultimate objectives

Why are they important?

- Using the knowledge paradigm, first principles:
 - Allows a profession to redefine its work
 - Defends its jurisdiction from interlopers
 - Provides agility to seize new opportunities
 - Helps recognize continued advancement of an individual's expert knowledge

First Cut for GEOINT

March 2016

- Seeks knowledge to obtain an information edge
- Analysis occurs as a natural human-scientific/technical-human sequence
- Reveals how human intent is constrained by the physical landscape and human perceptions of Earth
- Seeks to anticipate patterns of life over time
- Data and technical systems used by analysts are human creations

First Principles 2.0

June 2016

- Seeks to achieve an information edge (secrecy)
- Is fundamentally a human process (methodology)
- Integrates any available information (multi-source)
- Reveals how action is constrained by the physical landscape, time, and human perceptions of the Earth (time-geography is the core)
- Reshapes understanding by discovering relationships in space and time (unknown-unknowns)

What will they do for us?

- Provides an understanding of how GEOINT happens
- Exposes geospatial thinking skills
- Guide us when encountering new problems
- Helps with new ideas such as ABI
- Discourages buttonology
- Encourages judgment

What's next?

- This is a work in progress
- Begins to establish a base for the growth of the discipline
- Meant to encourage dialogue both nationally and internationally
- Questions/comments/revisions welcomed:
- Todd Bacastow
 - tsb4@psu.edu
 - 814-863-0049