

# Geospatial Data Management: Cradle to Grave & Beyond

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# What is Geospatial Data

- From Webopedia

- See Spatial Data

- From Dictionary.com

- pertaining to the geographic location and characteristics of natural or constructed features and boundaries on, above, or below the earth's surface; esp. referring to data that is geographic and spatial in nature

Webster's New Millennium™ Dictionary of English

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# What is Geospatial Data

- From The Free Dictionary by Farlex
  - The concept for collection, information extraction, storage, dissemination, and exploitation of geodetic, geomagnetic, imagery (both commercial and national source), gravimetric, aeronautical, topographic, hydrographic, littoral, cultural, and toponymic data accurately referenced to a precise location on the earth's surface.
  - These data are used for military planning, training, and operations including navigation, mission planning, mission rehearsal, modeling, simulation and precise targeting.

# What is Geospatial Data

- From The Free Dictionary by Farlex (cont.)
  - Geospatial information **provides the basic framework for battlespace visualization**. It is information produced by multiple sources to common interoperable data standards. It may be presented in the form of printed maps, charts, and publications; in digital simulation and modeling databases; in photographic form; or in the form of digitized maps and charts or attributed centerline data.
  - Geospatial services include **tools** that enable users to access and manipulate data, and also includes instruction, **training**, laboratory support, and guidance for the use of geospatial data. Also called GI&S.

Dictionary of Military and Associated Terms. US Department of Defense 2005.

Cradle

A stylized map of the Earth, showing the continents in green and the oceans in blue. The word "Cradle" is written in yellow text over the North Atlantic Ocean. The map is set against a dark blue background with a grid of light blue lines representing latitude and longitude. The continents shown include North America, South America, Europe, Africa, and parts of Asia and Australia.



# Cradle



- Regional Studies
- New Block(s) being Tendered
  - Gather all data company currently owns
    - 1990's 1980's – 1970's – 1960's - even further back if needed
    - Seismic, Wells, Geological & Geophysical Studies, Maps, Remote Sensing, Block Boundary definitions
    - Some data in digital form, some in hardcopy only
    - Some data has complete CRS information some does not
  - Purchase additional data if available
    - Vendors / Data Brokers
    - Governments

\*Note – Failure to address a standardized CRS at this early stage can have undesired consequences later

Cradle



# Advancing from Cradle

## ■ Block(s) Awarded

- Environmental Study conducted
- 2D Seismic Survey Planned, Acquired, Processed & Interpreted – Gravity/Magnetic Survey acquired
- 3D Seismic Survey – same as above
- Site Surveys – same as above
- Exploration Wells Drilled
- Discovery or Discoveries
- Additional 2D and 3D Seismic Surveys
- Additional Site Surveys
- Development Wells and Near Field Wildcats Drilled
- Possible 4D Seismic Planned, Acquired, Processed & Interpreted

\*Note – tremendous amount of geospatial data generated – good data management processes needed



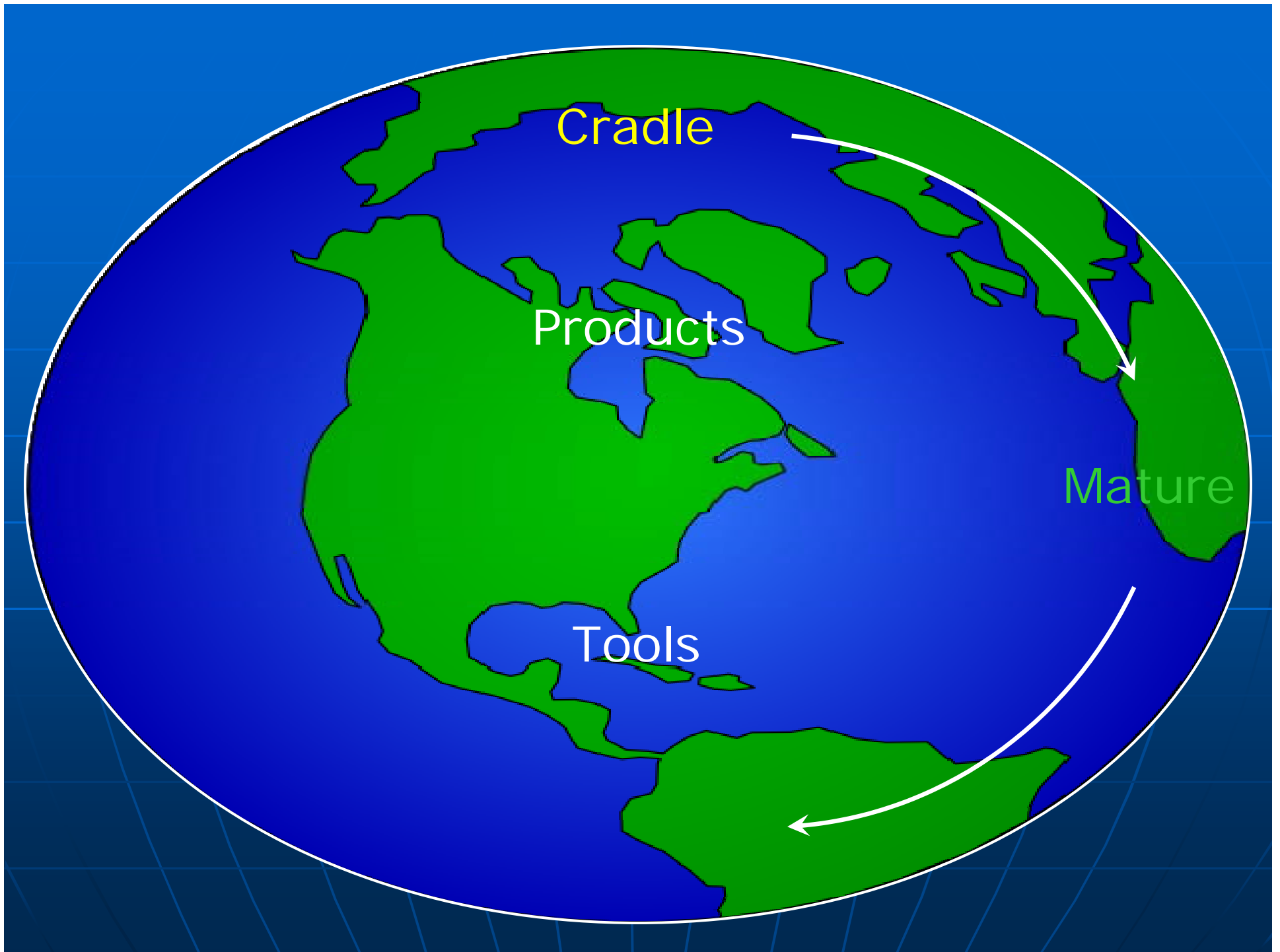


Cradle

Mature

# Mature

- Continue Development Well Drilling
- Possibly locate Facilities in the area
- Begin Production Drilling Activities
- Acquire more 3D's or reprocess previous 3D's
- Acquire another 4D Survey
- Possibly plan, survey, build Pipeline Route
- More Production Drilling
- Additional 4D Survey's
- \* Note - Engineering involvement during this period is greater with many of the tools being used to handle geospatial data not the same as those used by Geoscientists



# Products & Tools

## ■ Products

- Seismic, Navigation, Land Survey Data, Wells, Well Locations, Well Logs, Cores, Geological & Geophysical Studies, Maps, Remote Sensing (Satellite, Air Photos, Lidar, etc), Block Boundary definitions, Environmental, Archeological, Gravity/Magnetic, Site Survey, Cadastral Maps, Facilities, Pipeline

## ■ Tools

- Geoscience Interpretation Systems, Geographical Information Systems, GPS, GPS Processing Software, Digitizing Equipment, CAD Systems, Corporate Datastores, Information Management Systems, Middleware Applications, Coordinate Conversion Applications,



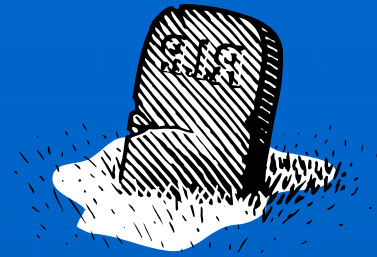
# Training

- Mapping capabilities of geospatial data has moved from dedicated expert groups handling to GG&E desktops
- The amount of geospatial data now being handled within companies is huge
- Training in geodesy and cartography is even more critical now than it was 25 years ago for all employees that handle geospatial data
- Also training in proper data management of geospatial data including storage, archival, retrieval, release should no longer be reserved for a chosen few





# Grave



- Cap Wells
- Environmental Impact Survey
- Site Cleanup
- Farm-out to another company





# Beyond

- The year is 2029
- Competitor has new discovery near old abandoned field
- Re-enter Old Abandoned Field
- Repeat same steps outlined in Cradle stage
  - Gather all data company currently owns
    - 2010's - 2000's – 1990's – 1980's - even further back if needed

This is when all the hard work to manage your geospatial data will pay back dividends

# The Tie that Binds

- Geospatial Data provides the basic framework that ties the Upstream Activities all together

