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Presentations

Title

Data: Unstable in concept and context

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Data: Unstable in Concept and Context

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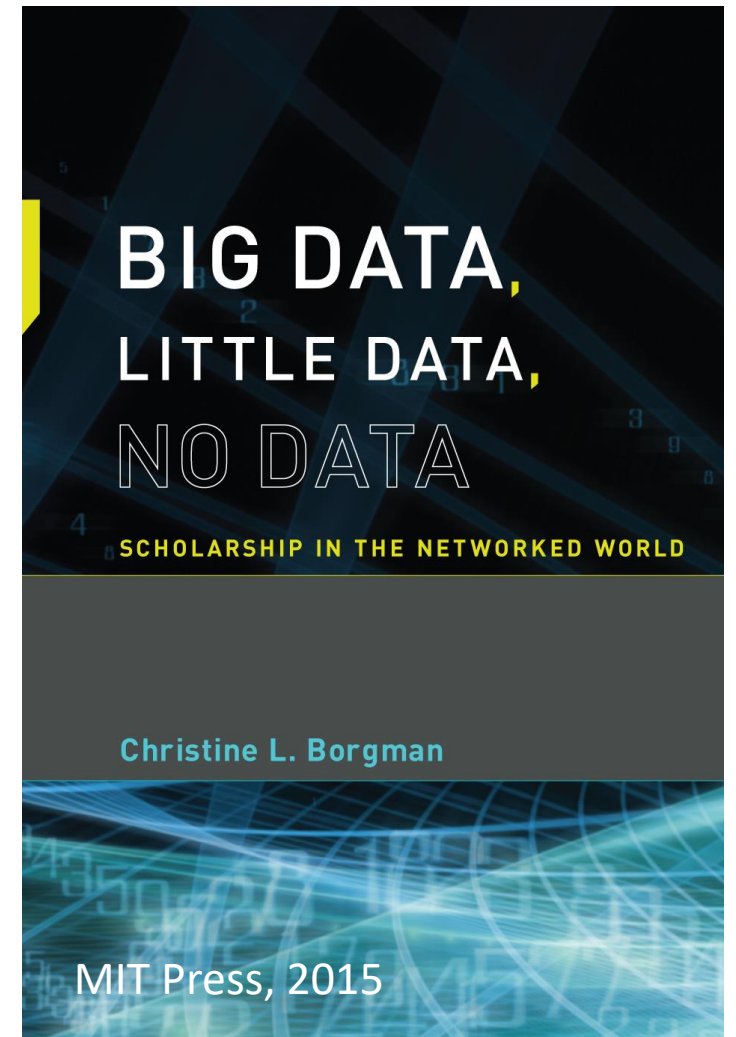
@scitechprof

Rich Context Workshop

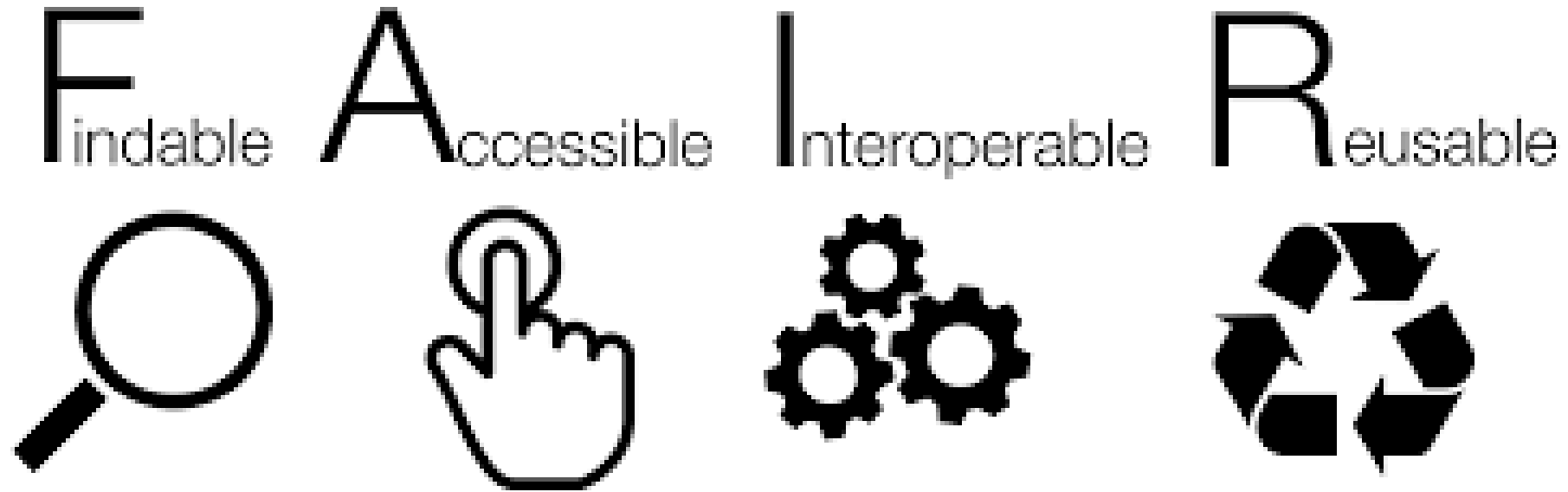
Lightning Talk

National Press Club, Washington, DC

15 November 2019



Data Stewardship: The Ideal



Wilkinson, et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3, <http://dx.doi.org/10.1038/sdata.2016.18>

Cassini-Huygens: Mission to Saturn BY THE NUMBERS

2.5 MILLION
COMMANDS
executed

4.9 BILLION
MILES TRAVELED
since launch
(7.9 BILLION KILOMETERS)

635 
SCIENCE DATA
collected

3,948
SCIENCE PAPERS
published

6 NAMED MOONS
discovered

294 ORBITS
completed

162 TARGETED
FLYBYS
of Saturn's moons

453,048
images taken

27 NATIONS
participated

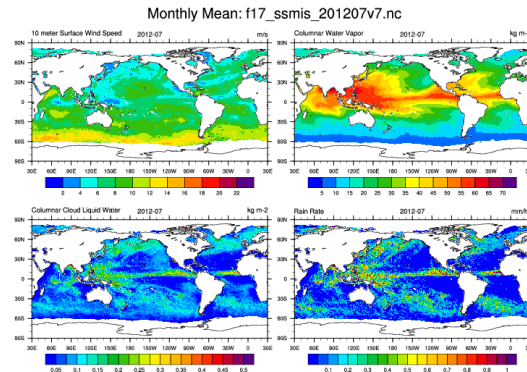
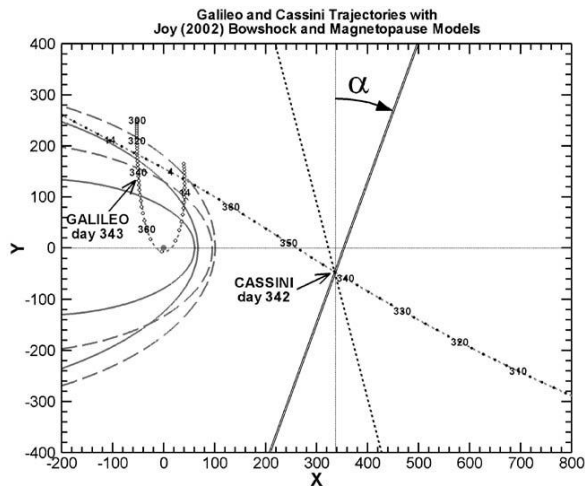
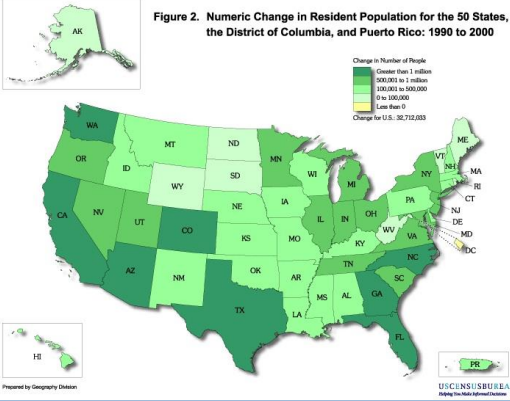
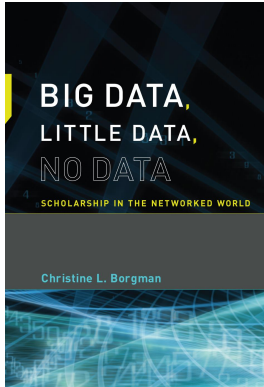
360 ENGINE
burns



NASA Jet Propulsion Laboratory
California Institute of Technology

@CassiniSaturn
saturn.jpl.nasa.gov

Data are representations of observations, objects, or other entities used as evidence of phenomena for the purposes of research or scholarship.

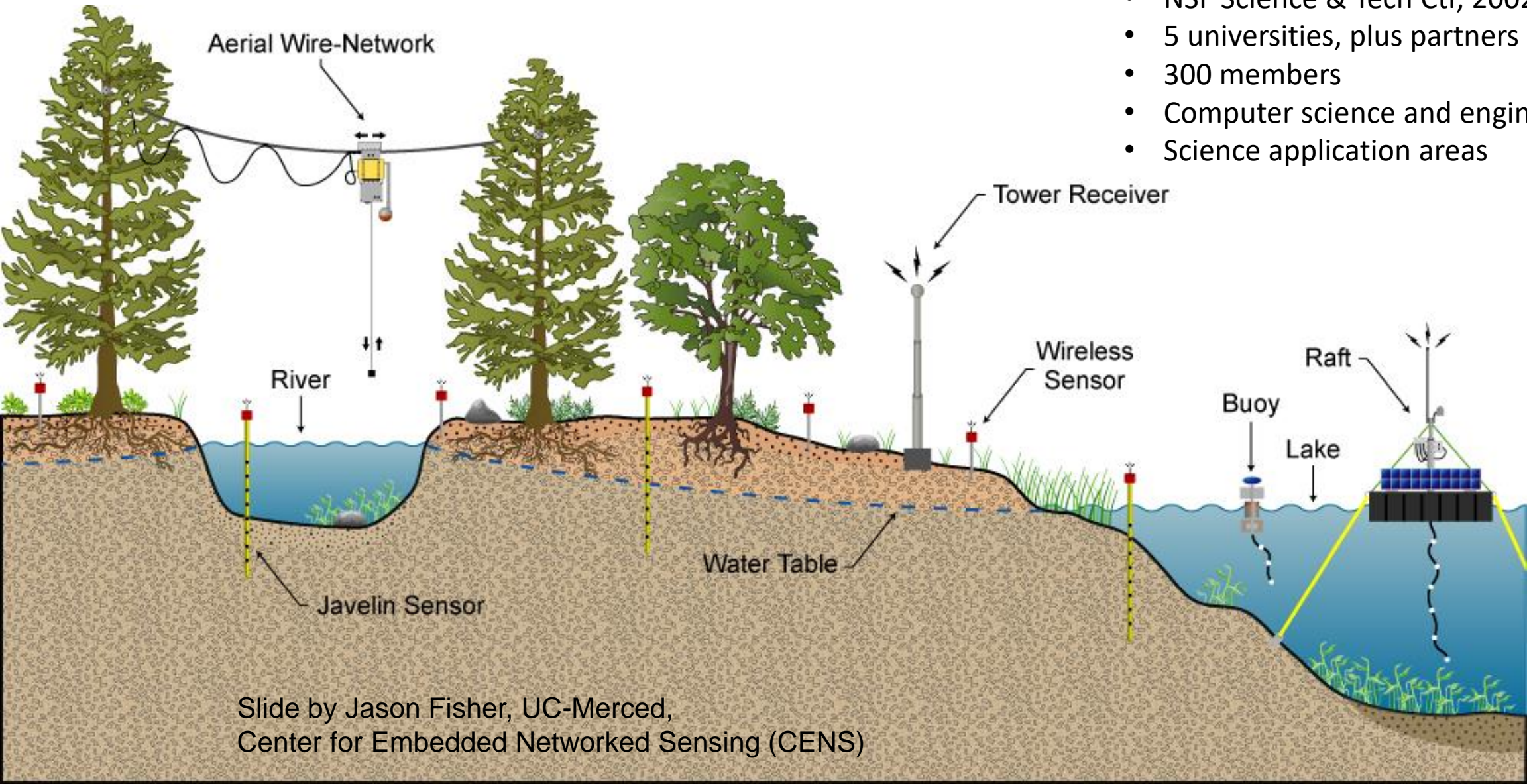


Kivelson, M. G., & Southwood, D. J. (2003). First evidence of IMF control of Jovian magnetospheric boundary locations: Cassini and Galileo magnetic field measurements compared. *Planetary and Space Science*, 51(13), 891–898. [https://doi.org/10.1016/S0032-0633\(03\)00075-8](https://doi.org/10.1016/S0032-0633(03)00075-8)



Center for Embedded Networked Sensing

- NSF Science & Tech Ctr, 2002-2012
- 5 universities, plus partners
- 300 members
- Computer science and engineering
- Science application areas



Slide by Jason Fisher, UC-Merced,
Center for Embedded Networked Sensing (CENS)

Science \leftrightarrow Data

Engineering researcher:

“Temperature is temperature.”



CENS Robotics team

Science \leftrightarrow Data

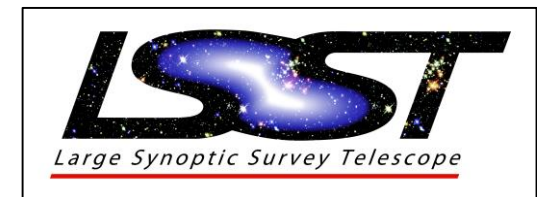
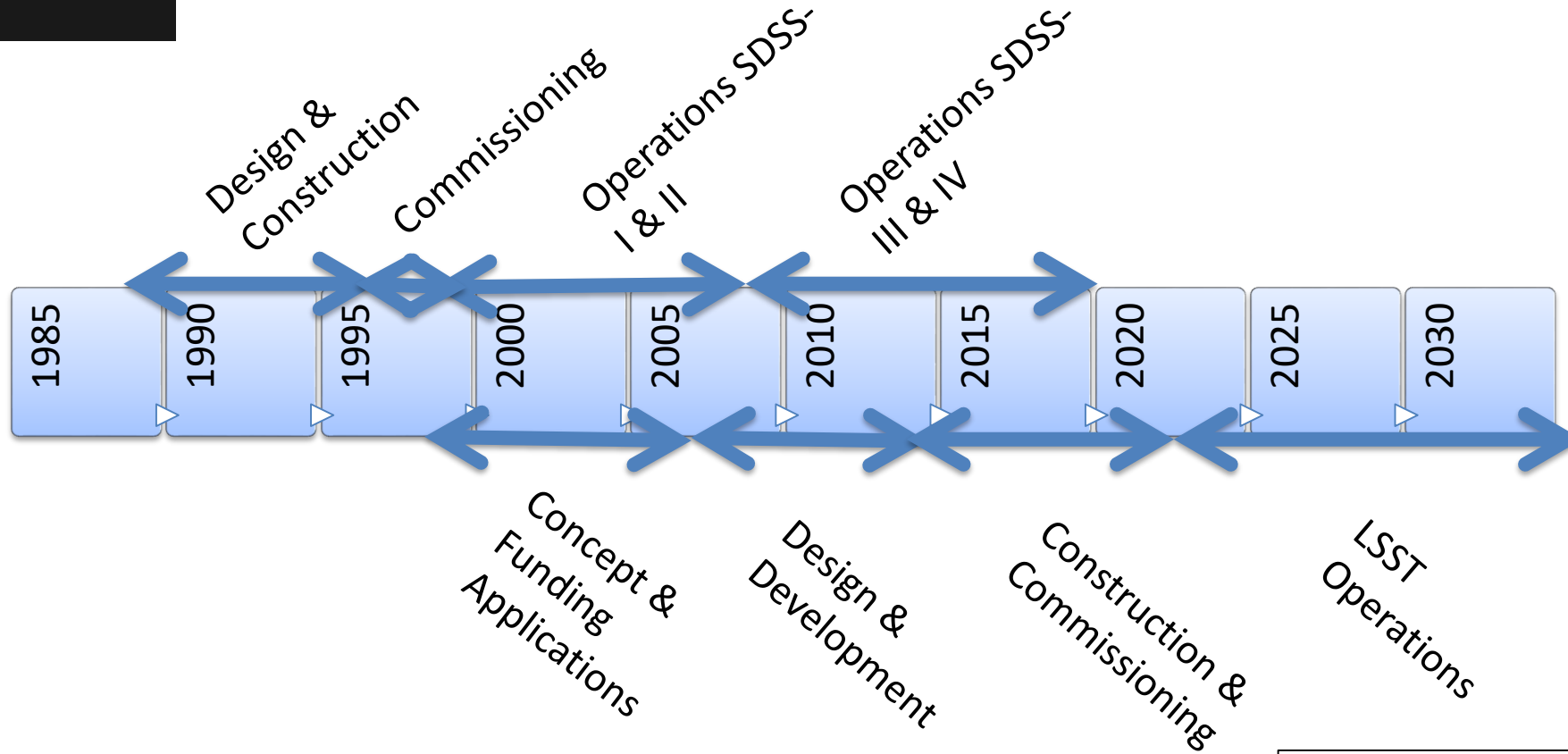
Engineering researcher:
“Temperature is temperature.”



CENS Robotics team

Biologist: ***“There are hundreds of ways to measure temperature.***
‘The temperature is 98’ is low-value compared to, ‘the temperature of the surface, measured by the infrared thermopile, model number XYZ, is 98.’ That means it is measuring a proxy for a temperature, rather than being in contact with a probe, and it is measuring from a distance. The accuracy is plus or minus .05 of a degree. I [also] want to know that it was taken outside versus inside a controlled environment, how long it had been in place, and the last time it was calibrated, which might tell me whether it has drifted..”

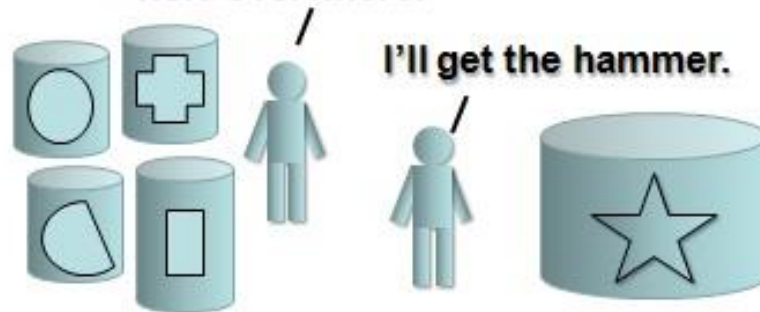
Project Timelines



Data Stewardship: The Reality



We just need to migrate the data from these systems to fit into that hole over there.



<http://www.datamartist.com/data-migration-part-1-introduction-to-the-data-migration-delema>



Graduate students



Post-doctoral fellows