

A Modeler's Achilles Heel and SGMMA Success



by

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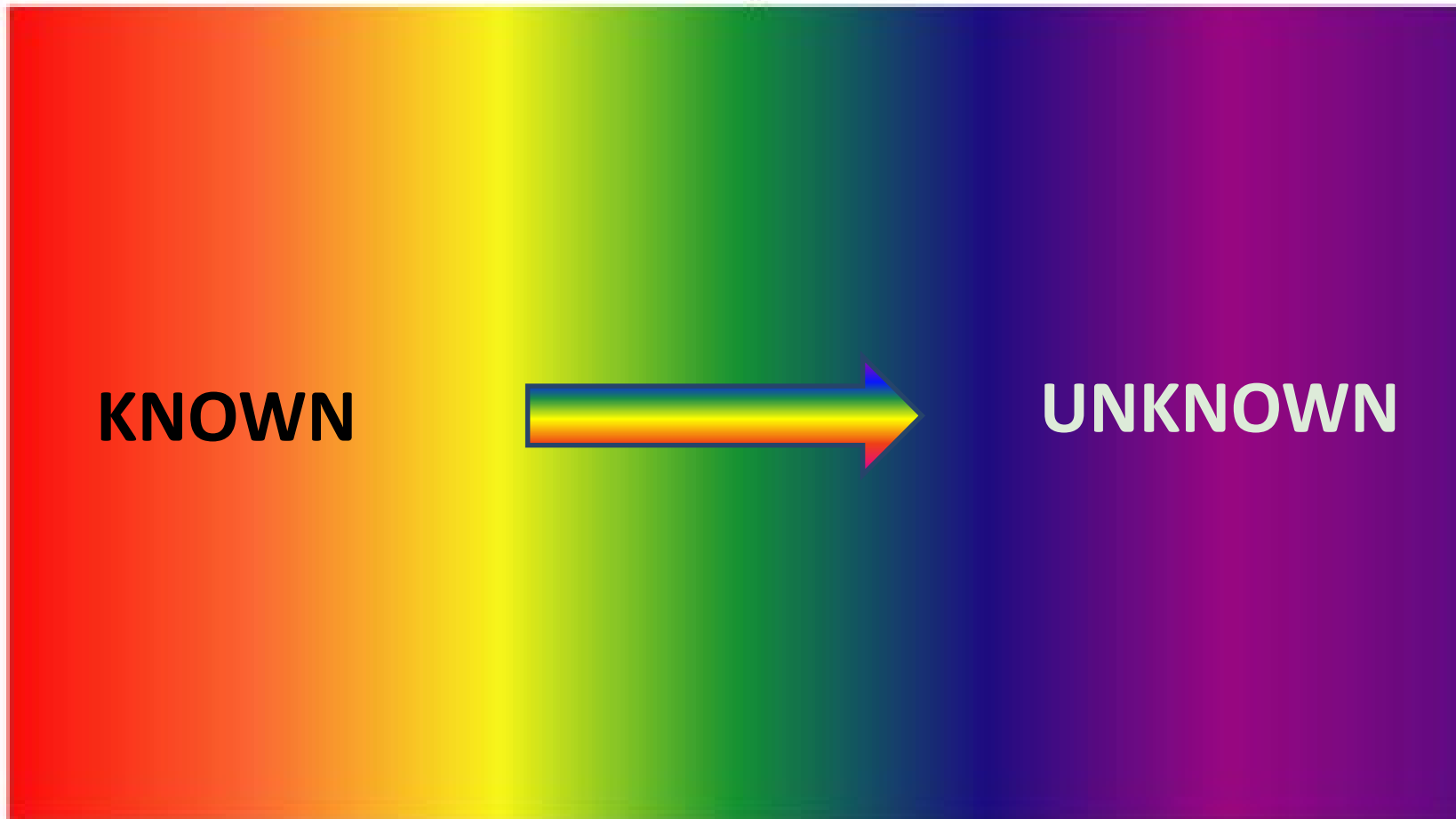
CWEMF Annual Meeting
April 2, 2018

Thank
you



- Thanks to the CWEMF for the Hugo B. Fischer award
- Credit belongs to a lot of people
 - My first supervisor late Dr. Young Yoon
 - Ali Taghavi and Tariq Kadir
 - My colleagues over the last 30 years – too many to name
 - My family

Hydrologic Modelers Deal with Both Known and Unknown





Johari Window of Known and Unknown

JOE AND HARRY- JOHARI

- Joseph Luft & Harry Ingham
- Group dynamics study at UCLA in 1955
- 56 personality attributes cards were distributed to subject (self) and others
- Results are sorted into 4 groups

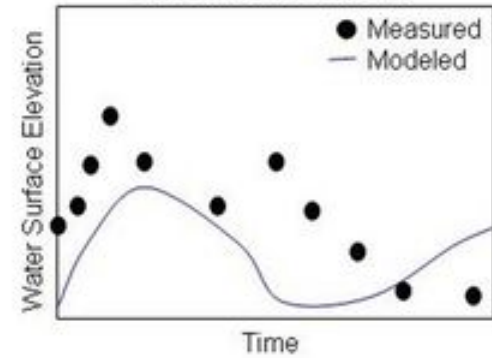
Let's look at a
real-life
application



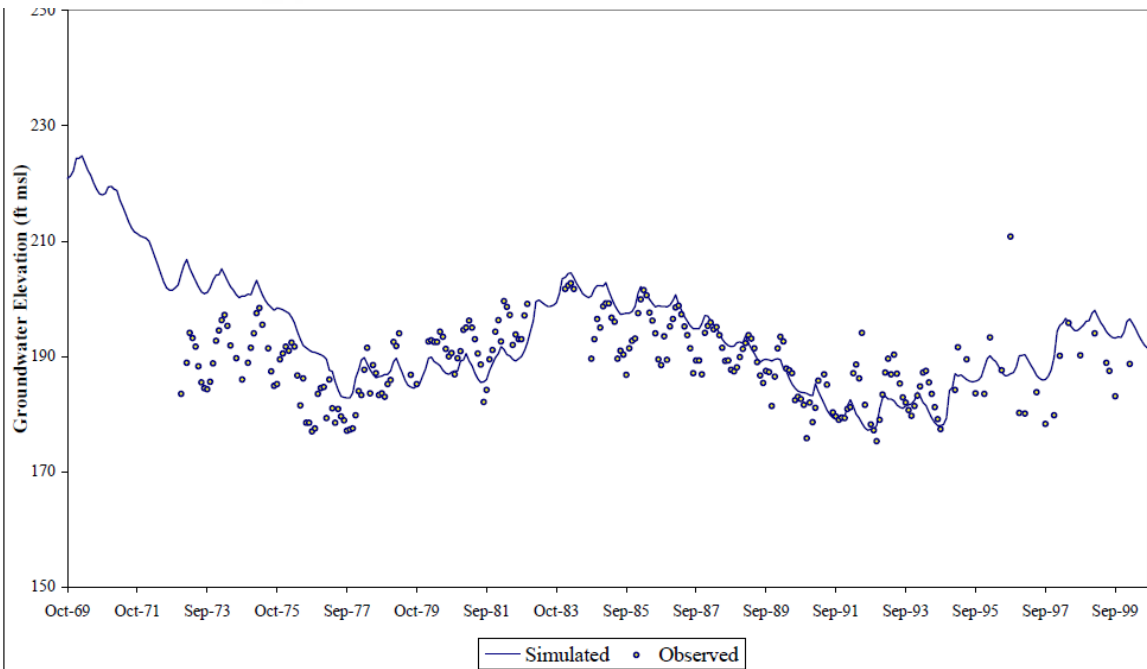
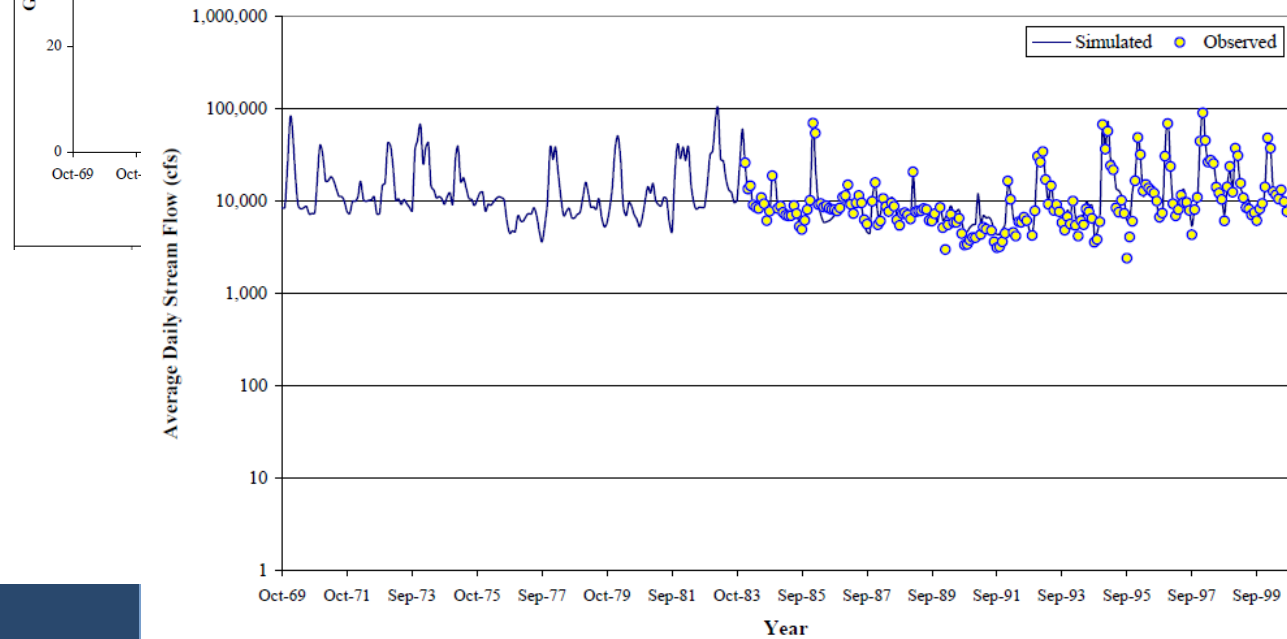
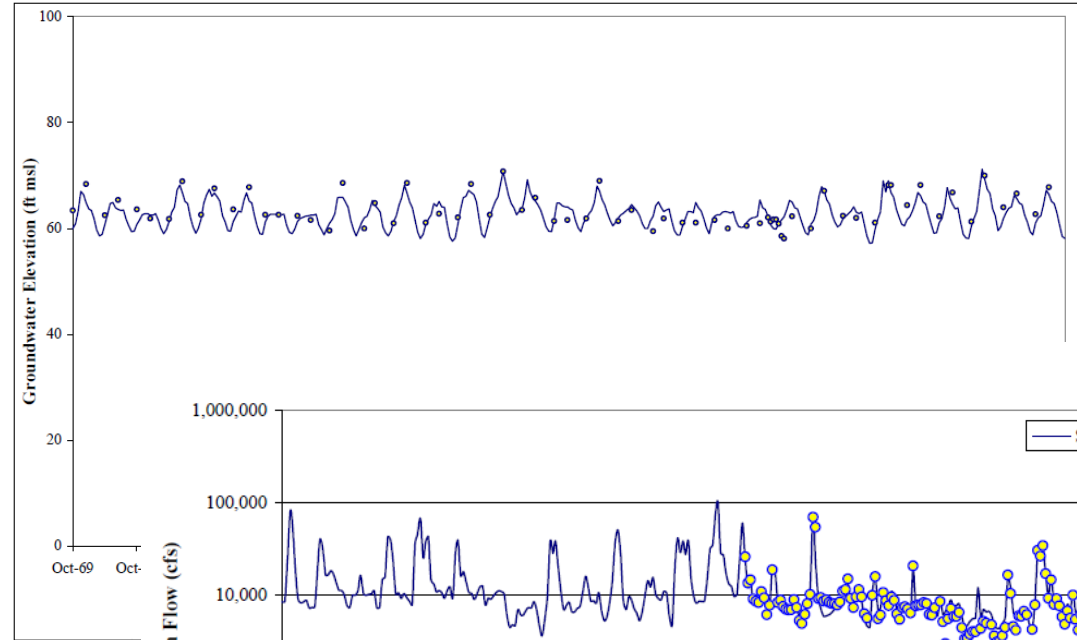
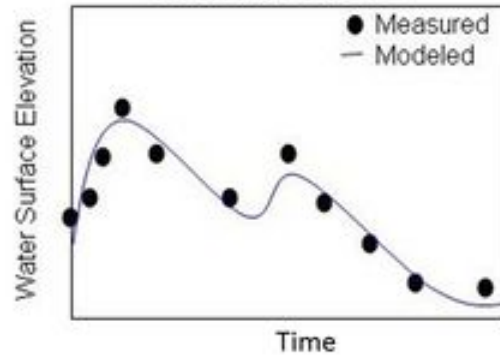
Unknown Unknown

Modeler's Dilemma: When to Stop Calibration?

Uncalibrated Model



Calibrated Model



Modelers Face Abundance of Disagreements!

Young Lady



Old Lady

Key Insights!



George Box
(1919-2013)
Statistician

“All models are wrong, but some are useful. The practical question is how wrong do they have to be to not be useful.”



William of Ockham
(1285-1347)
Philosopher and Theologian

Occam's Razor:

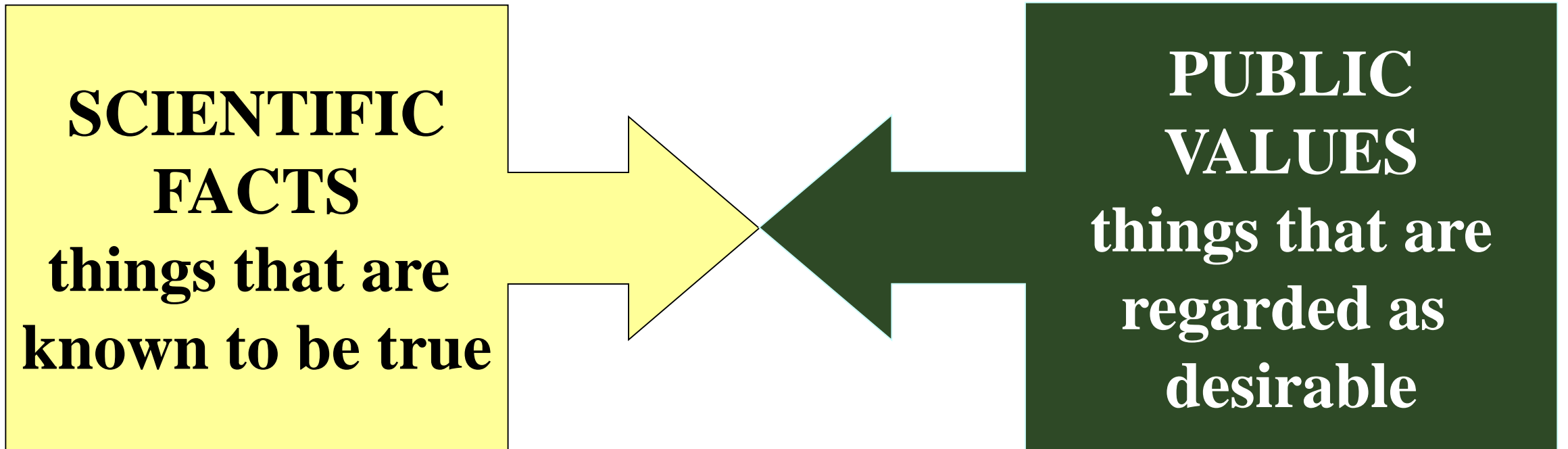
When presented with competing hypothetical answers to a problem, one should select the one that makes the fewest assumptions.

“The purpose of a hydrologic model is to support resource management decisions. All other truths on this subject are merely derivative.”



CWEMF 2005 Annual Meeting

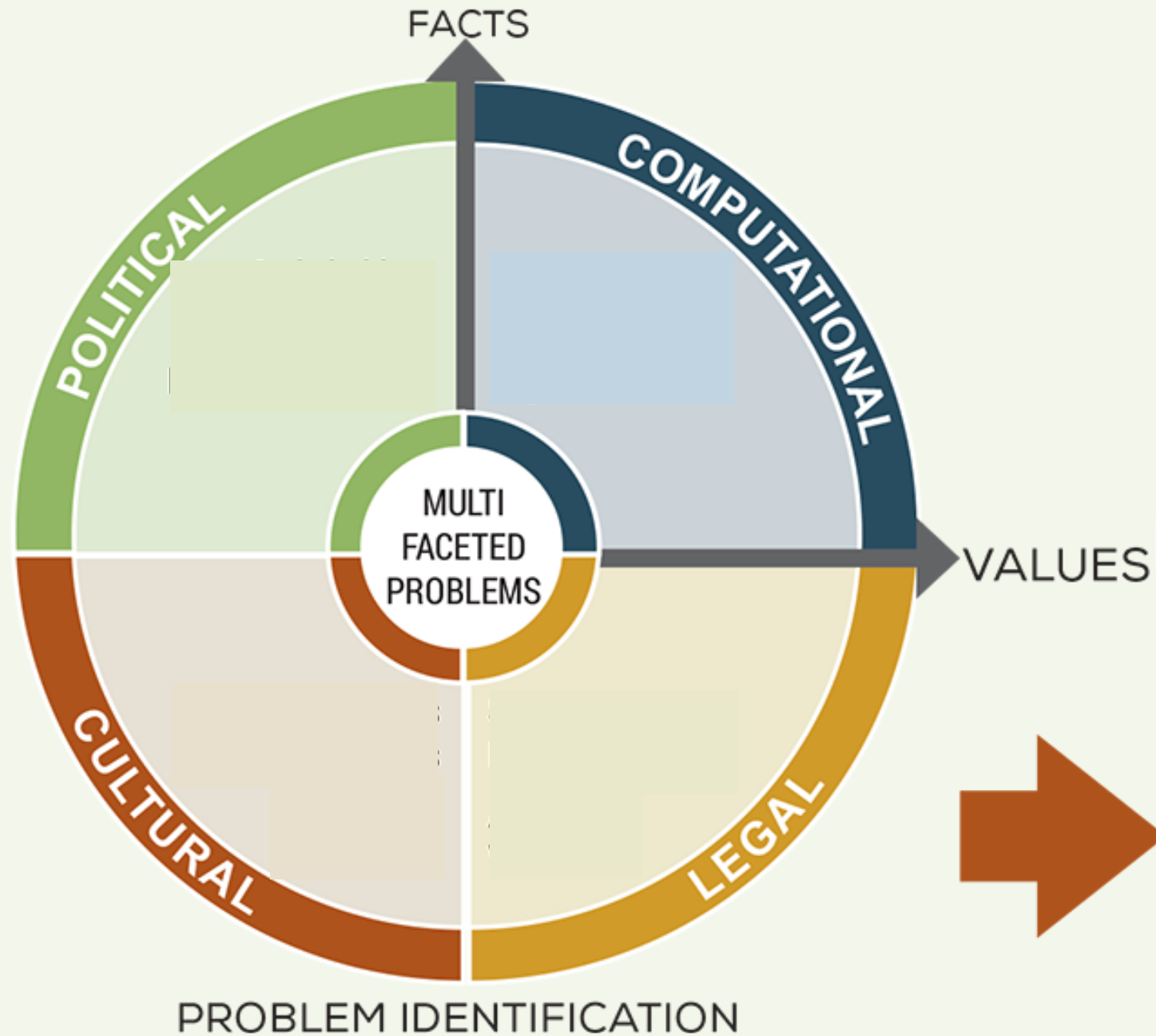
Resource Management Decisions Must Overcome Conflicts Between **Facts and Values**





The Missing Link!

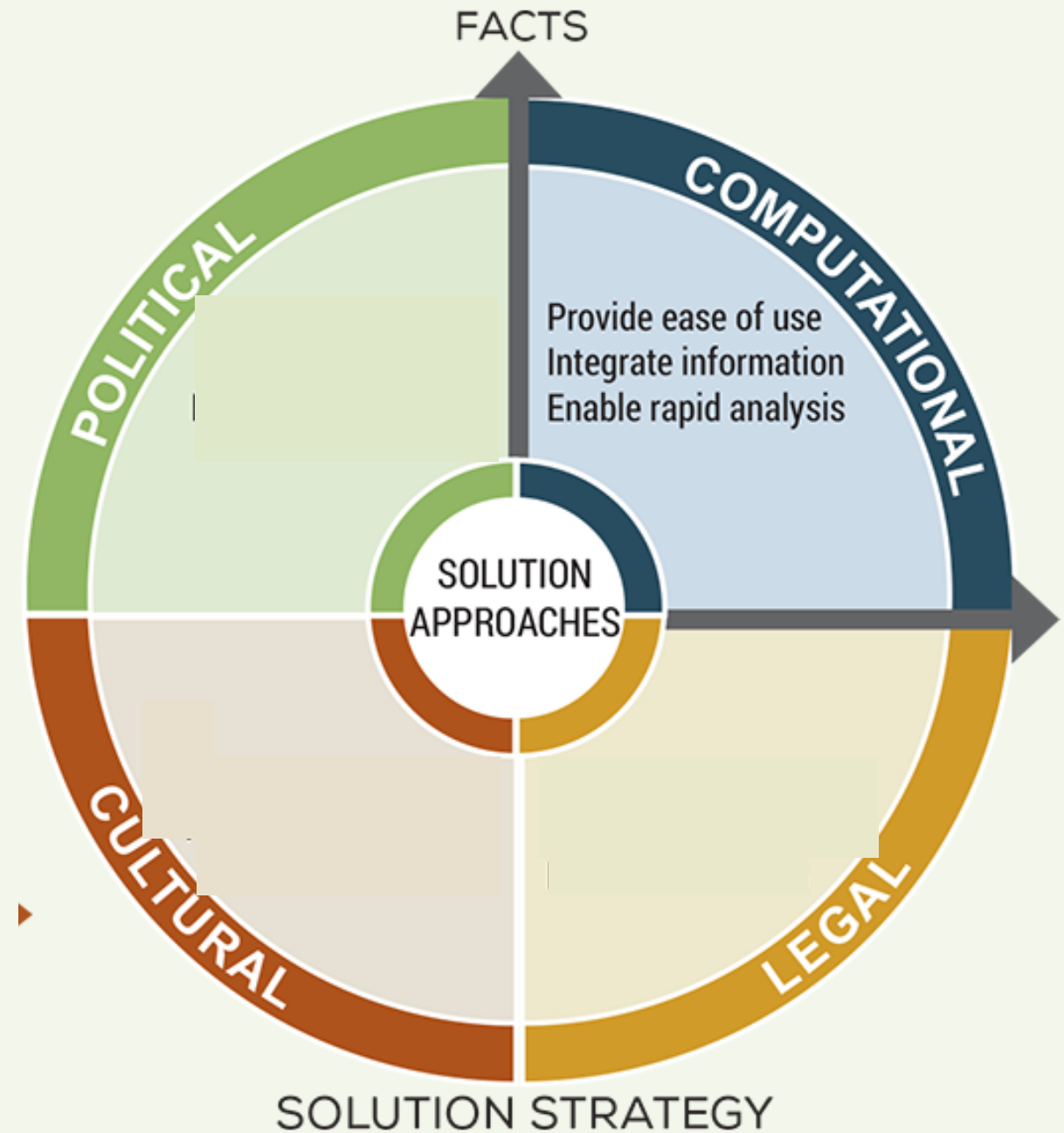
Effective Communication of Technical Information





The Missing Link!

Effective Communication of Technical Information



Effective Communication of Modeling
Results is Key to SGMA Success

We Modelers Got to Do It!