SUCCEEDING OR FAILING WITH SIMULATION. WHAT IS THE DIFFERENCE?

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Warning:

Discussion!

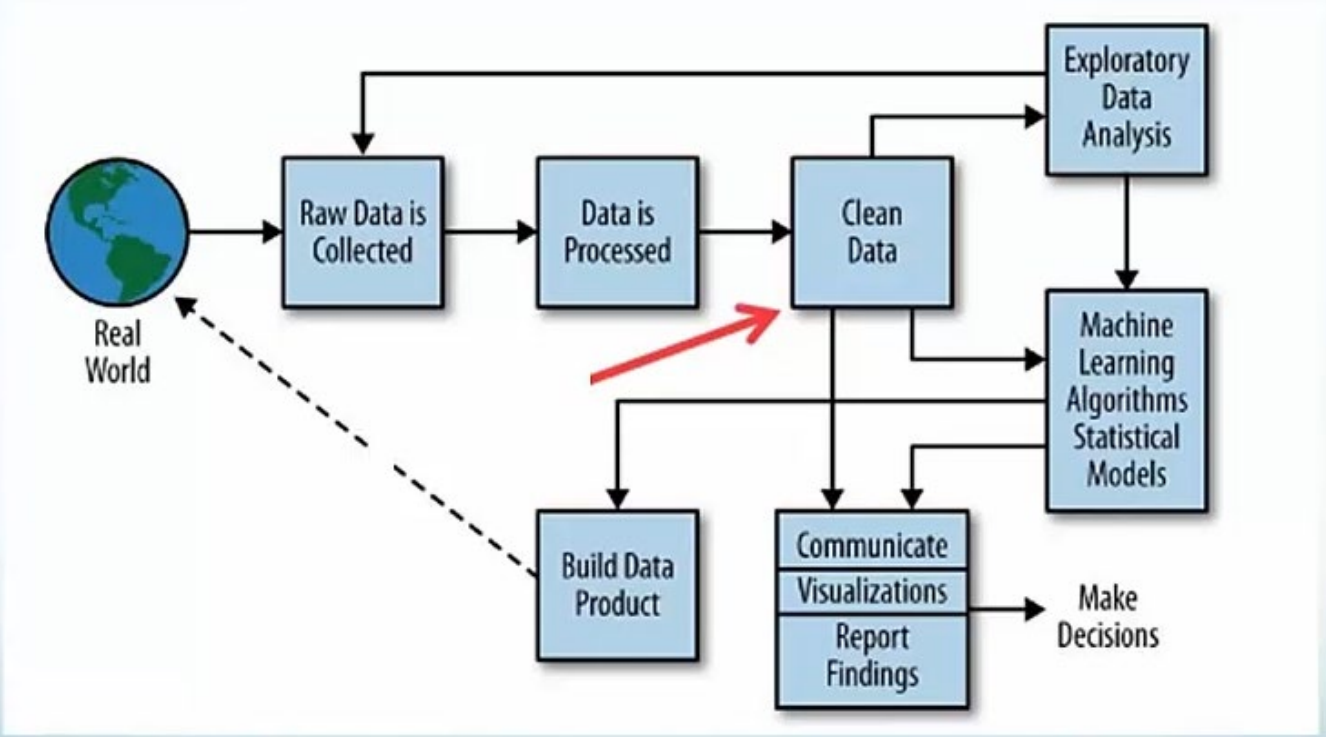
Not so many slides!

Simulation and Data Science

- Both data science and social simulations try to find structures or models that can inform us about the world in order to make “better” decisions.
- Social simulations can be validated against (Big) data
- Patterns from (Big) data can be verified by simulations

Data Science Process

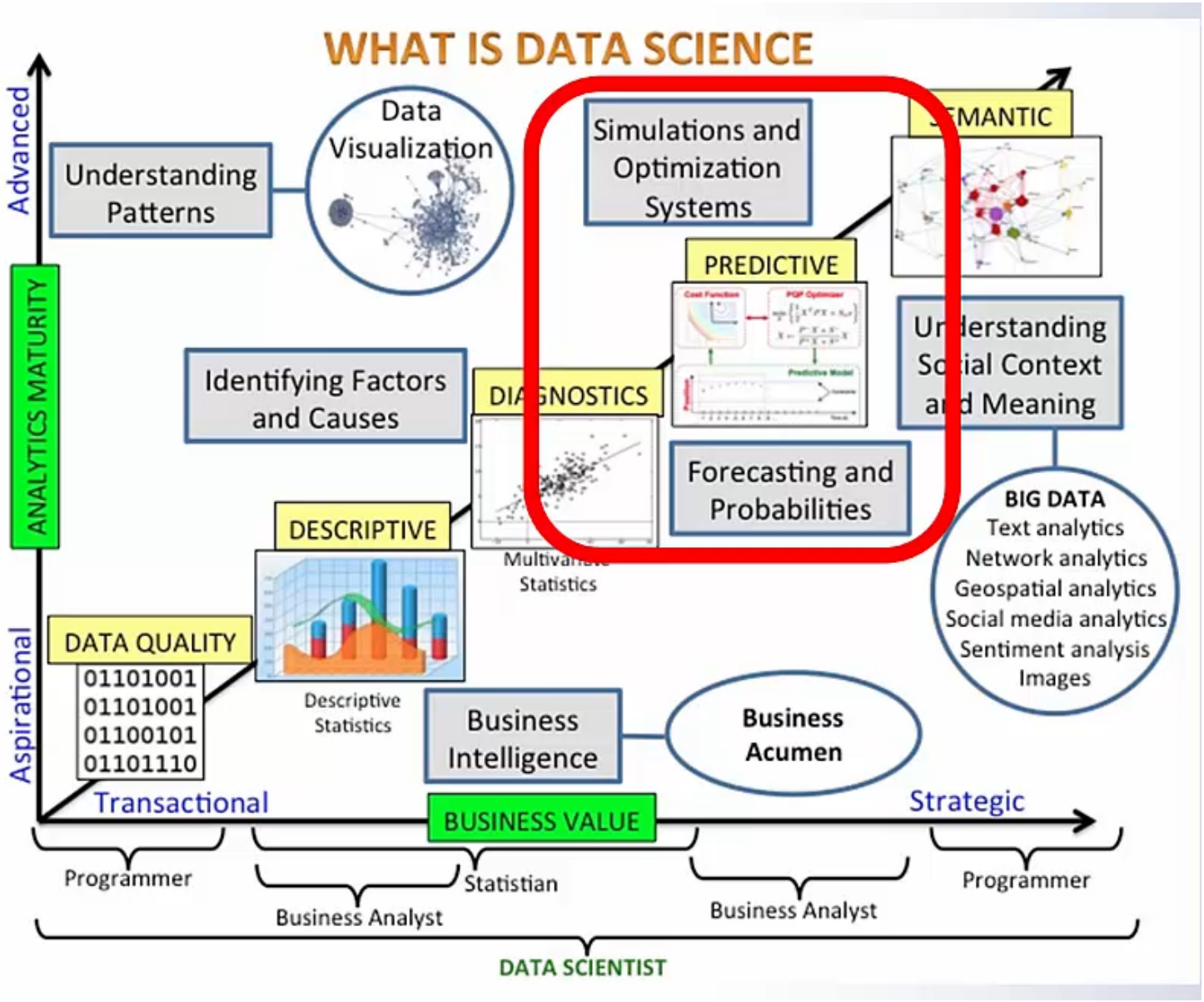
Data scientists: "Create order from chaos"



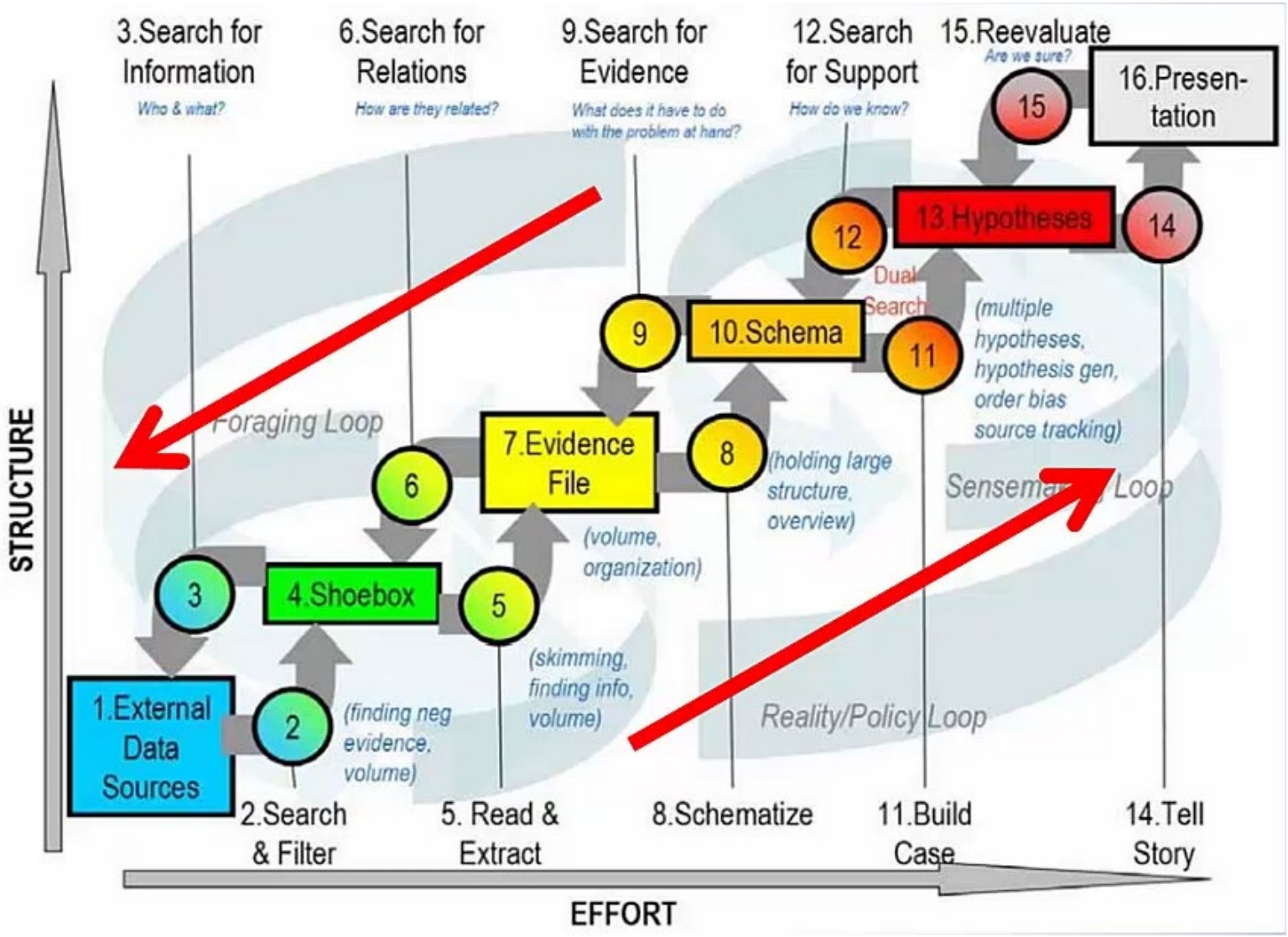
O'Neil, Cathy and Schutt, Rachel, *Doing Data Science: Straight Talk from the Frontline*, O'Reilly, 2014

Data collection, processing, cleaning is 80% of the effort

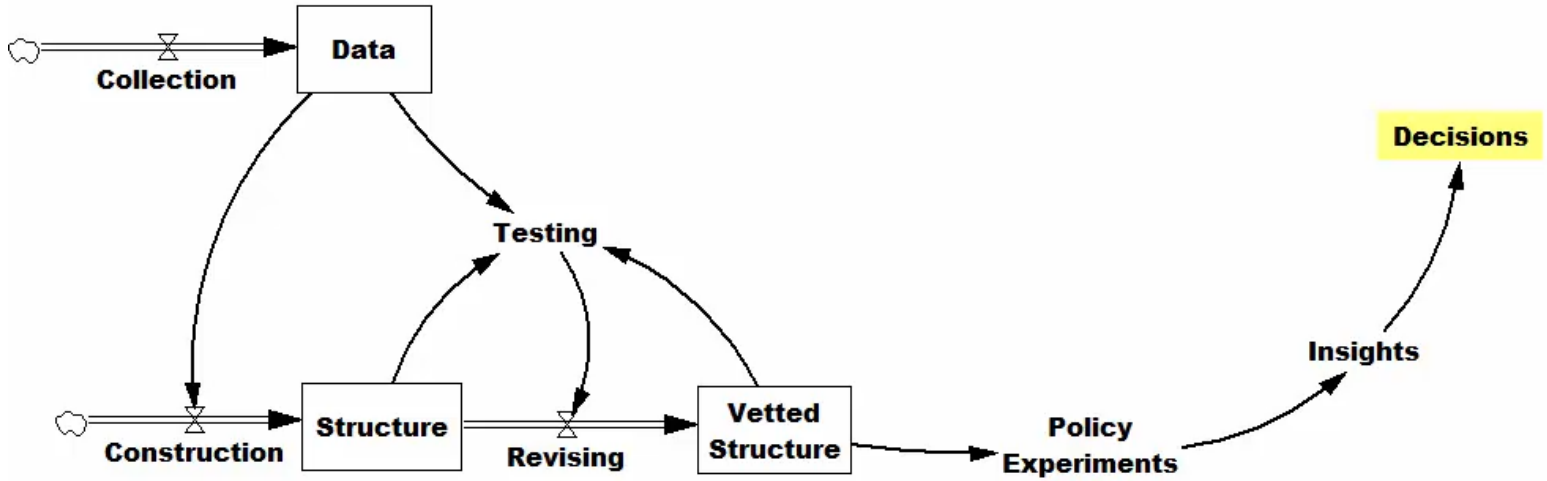
Data Science Process



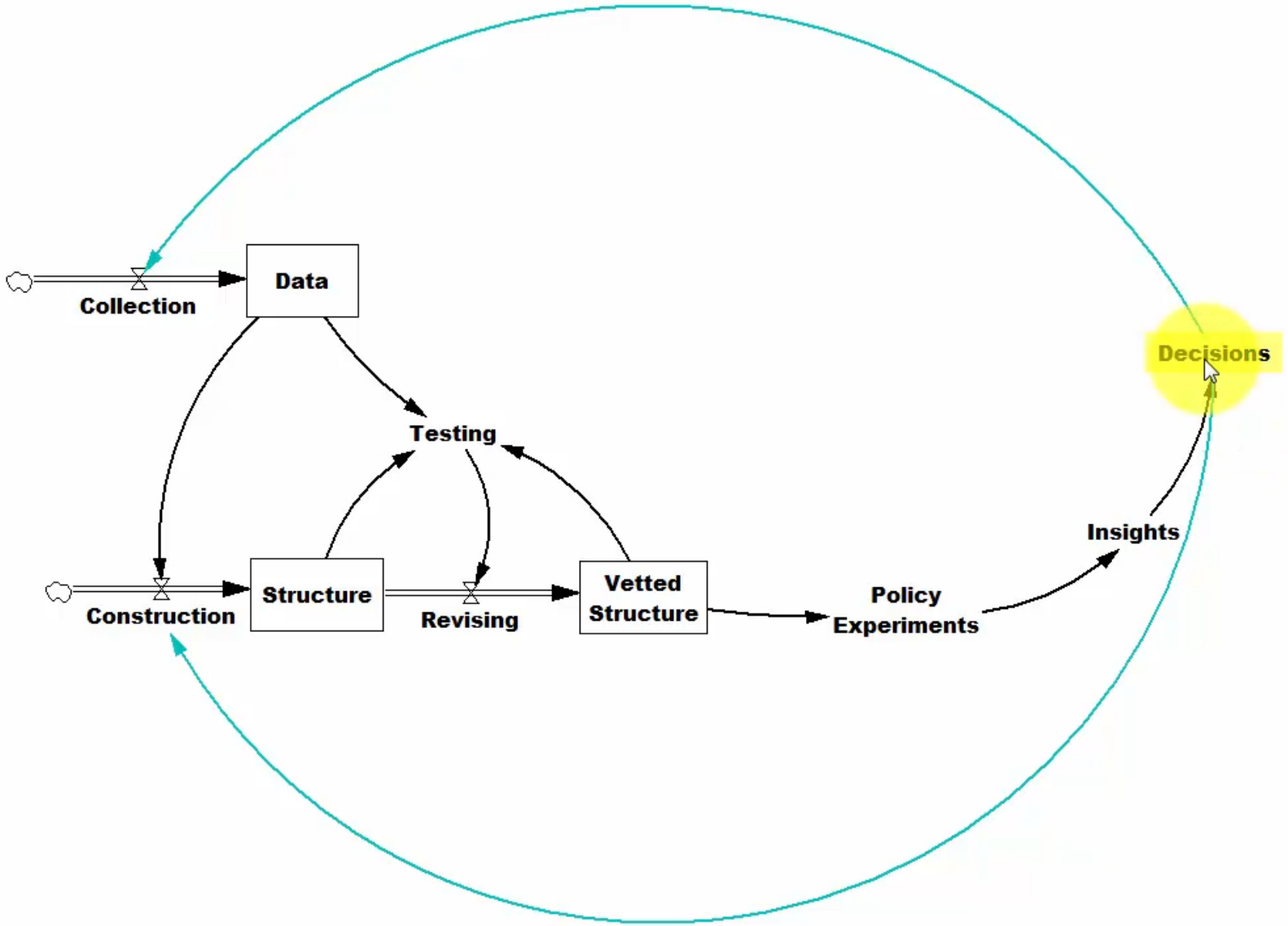
Data Science Process: two way process



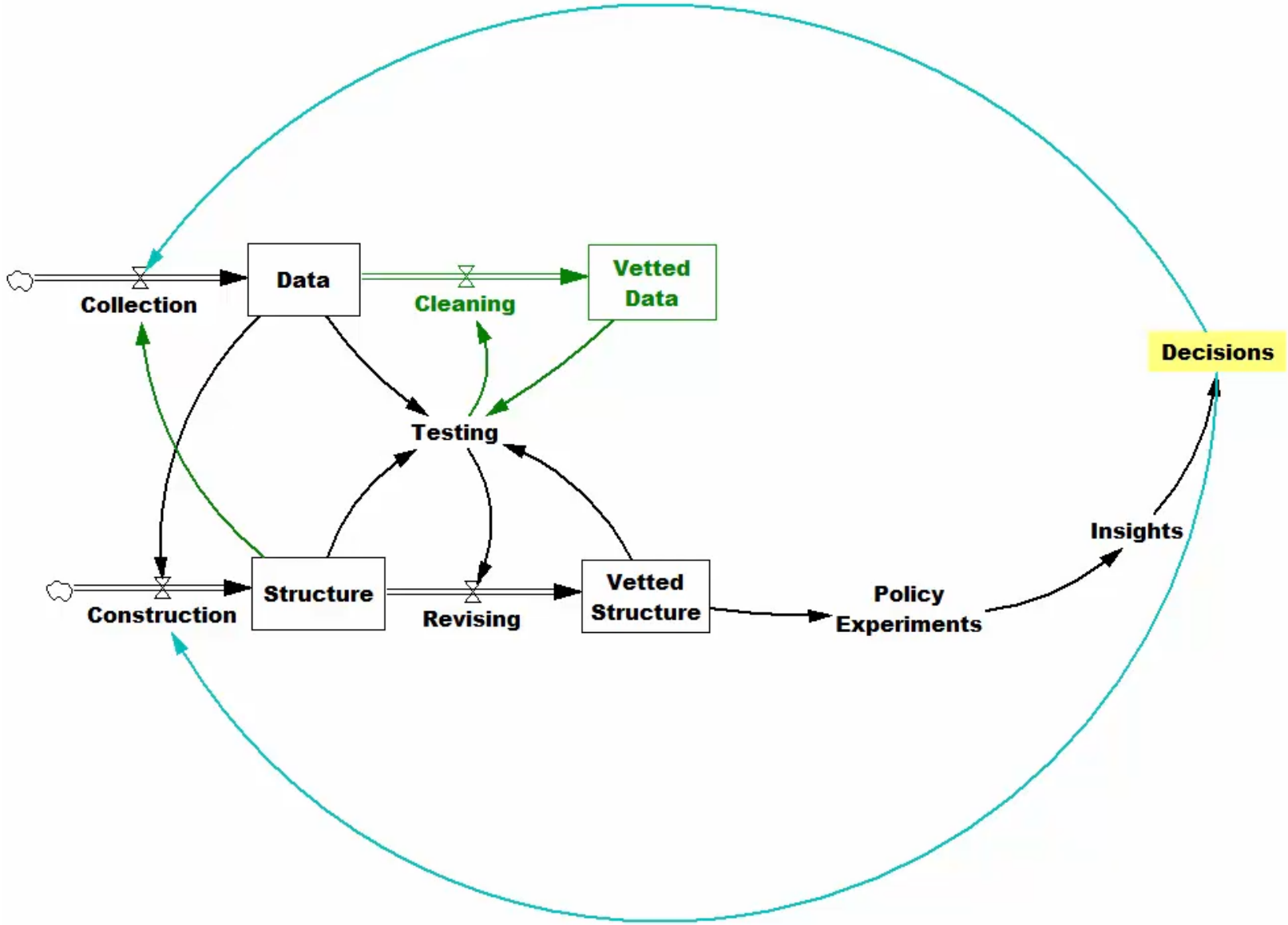
Data Science Process: System Dynamics view



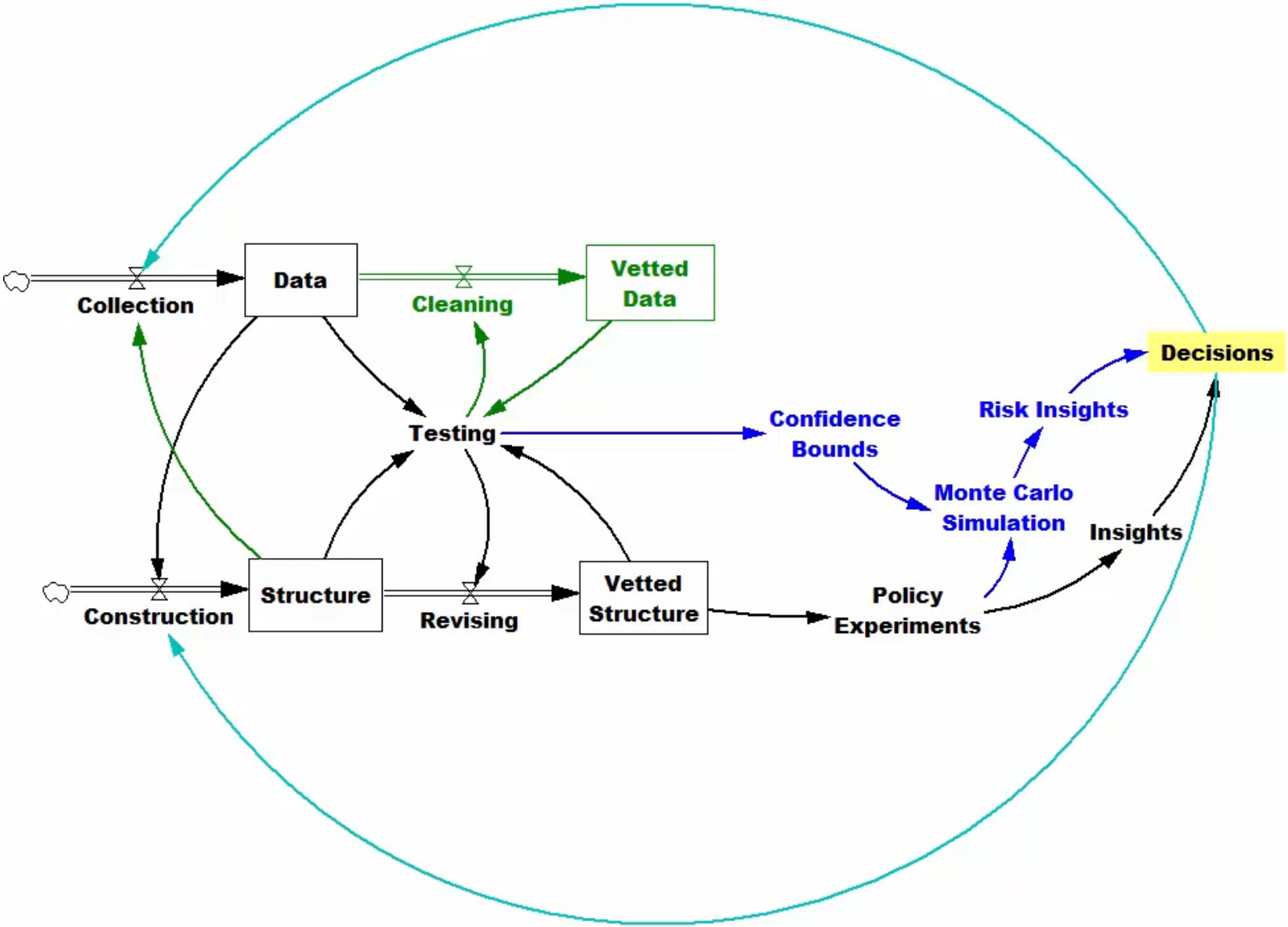
Data Science Process: System Dynamics view



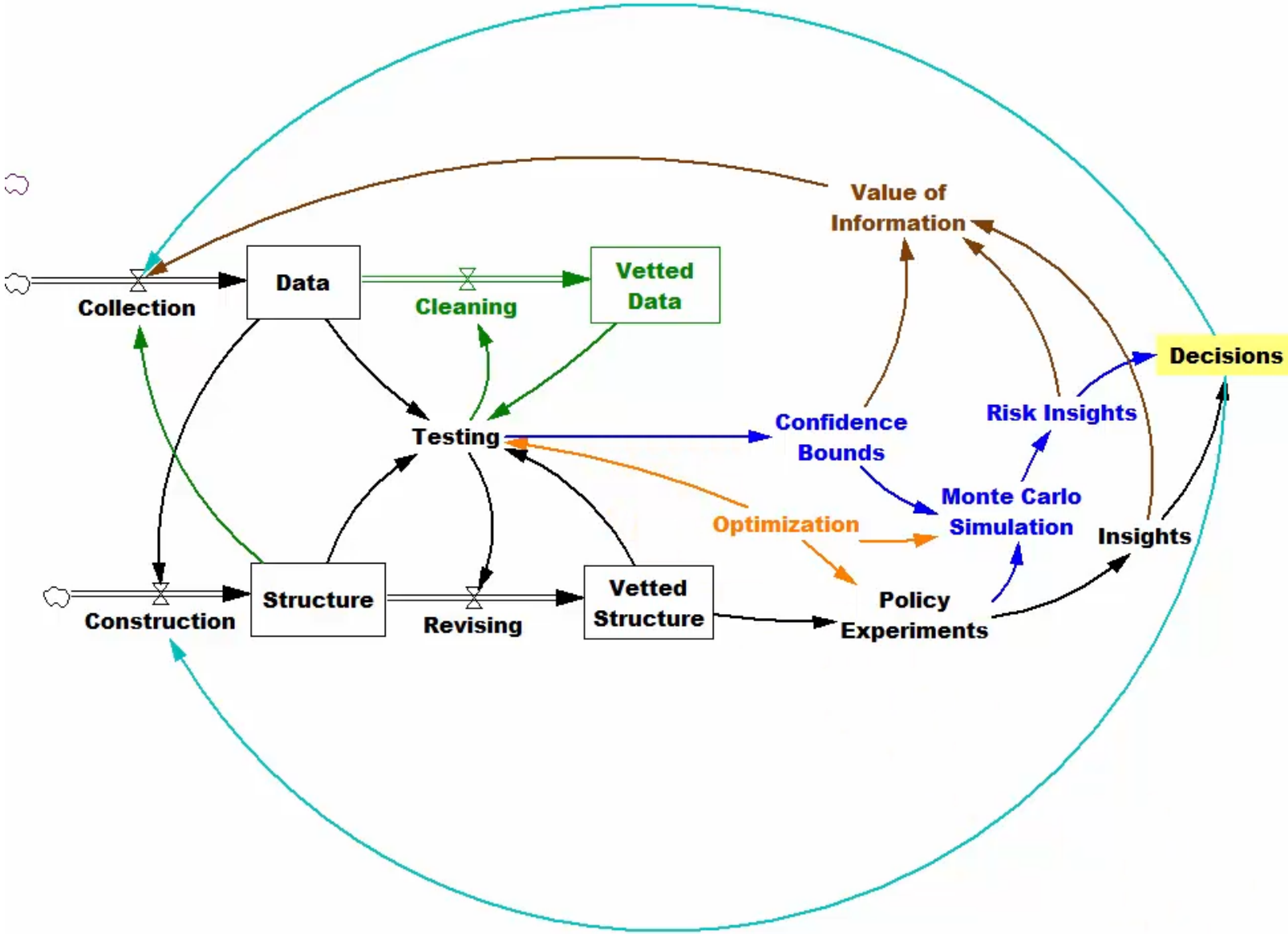
Data Science Process: System Dynamics view



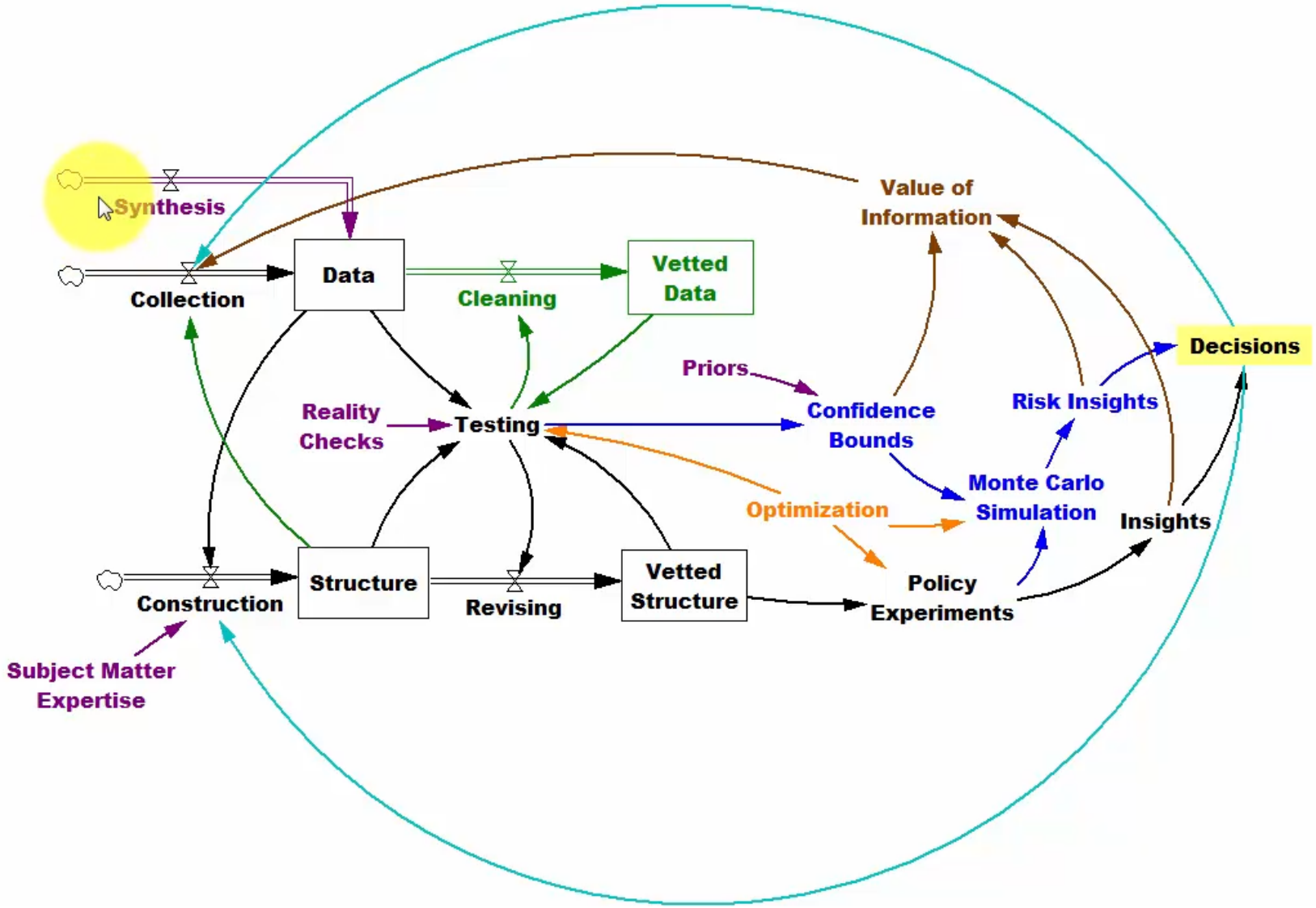
Data Science Process: System Dynamics view



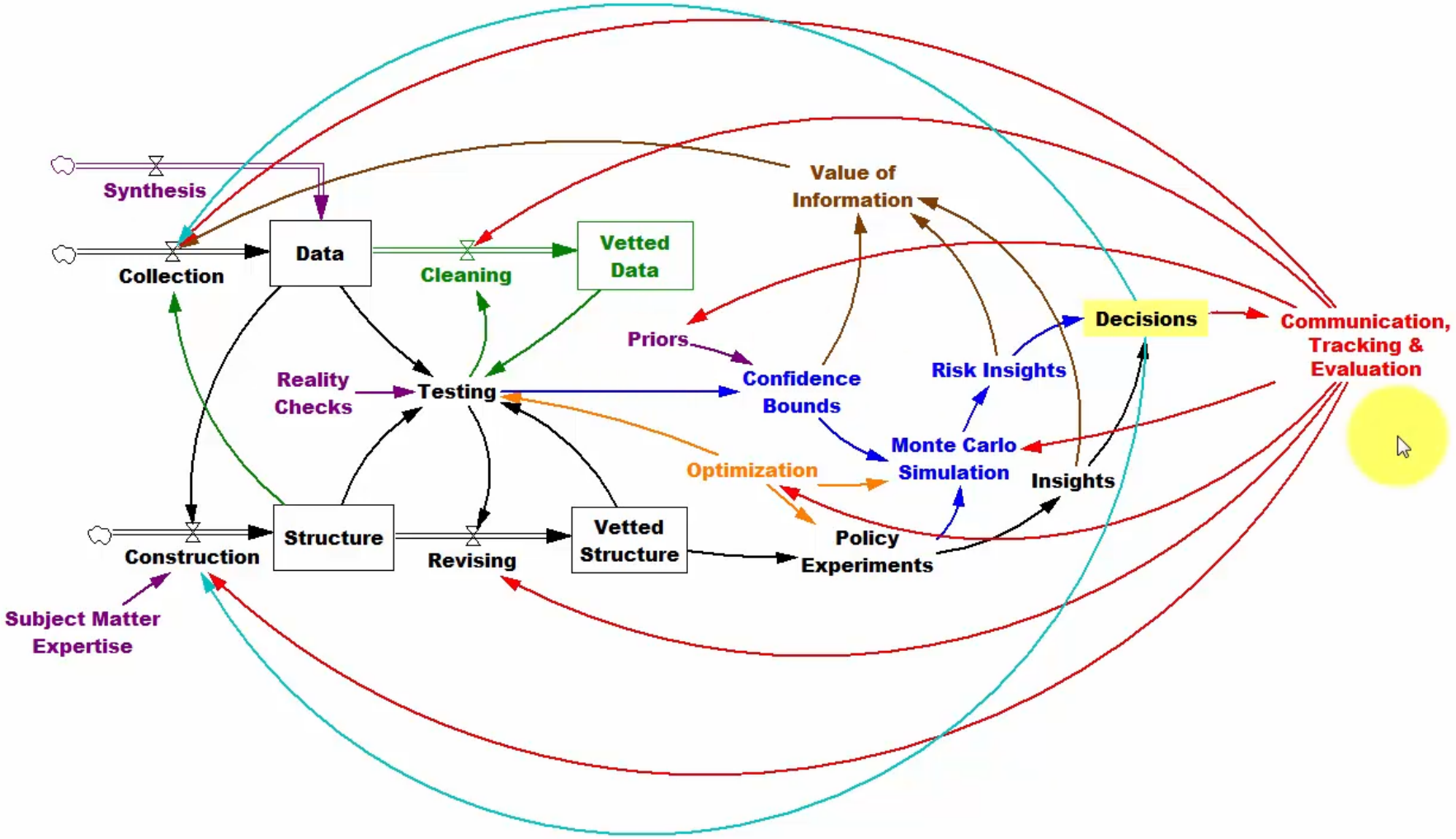
Data Science Process: System Dynamics view



Data Science Process: System Dynamics view



Data Science Process: System Dynamics view



Data Science Process: System Dynamics view

Conclusion of the data scientist:

You do not have to make perfect decisions

You only have to improve on decisions that are already made

There is a feedback loop in the process

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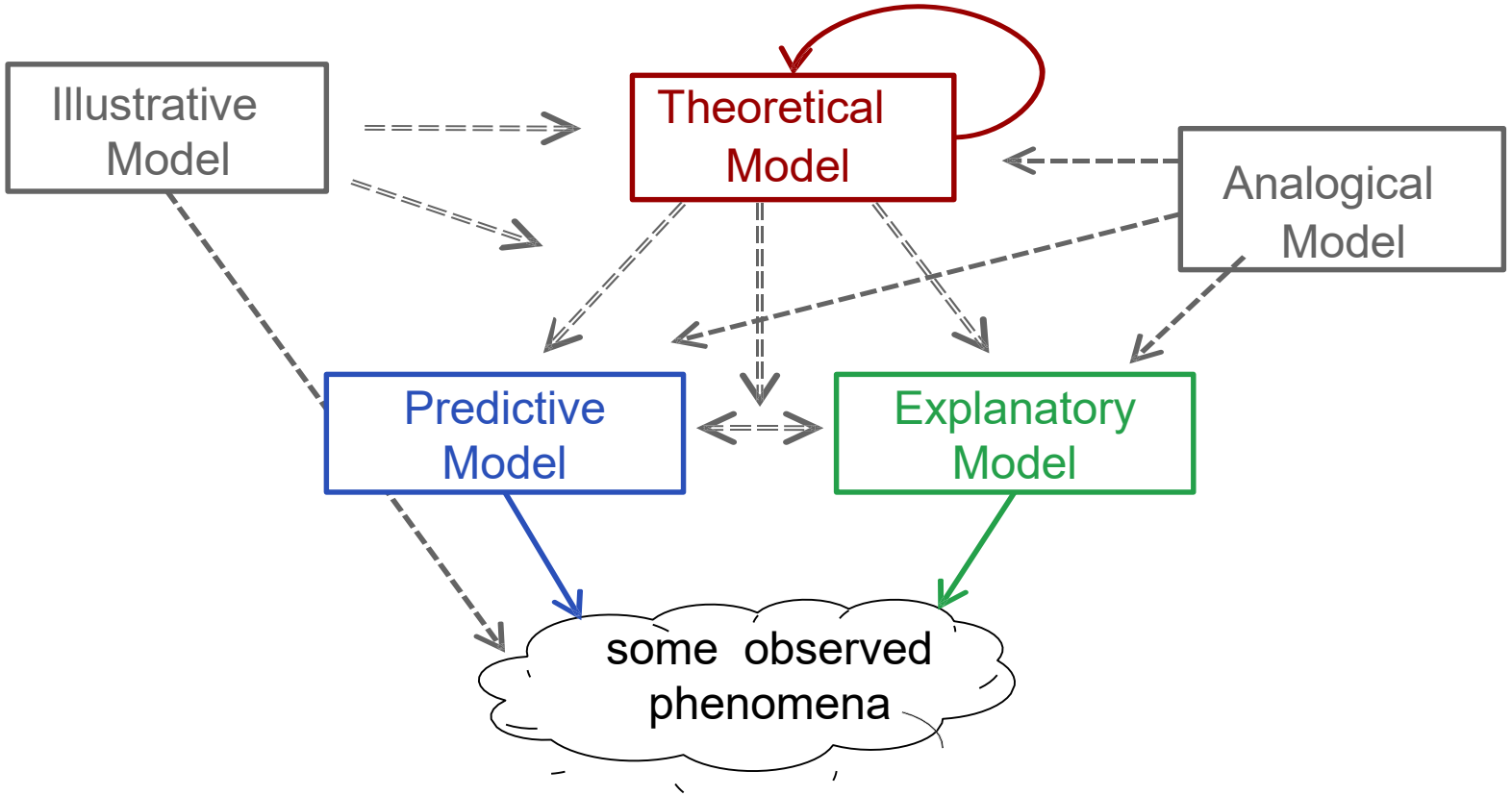
You are never finished!

You fail if you do not manage to improve upon existing practice

Does the same hold for social simulations?

Remember the different purposes for simulation models!



When does your project fail?

When is it a success?

Is there anything in between?