Action Science for Engineers
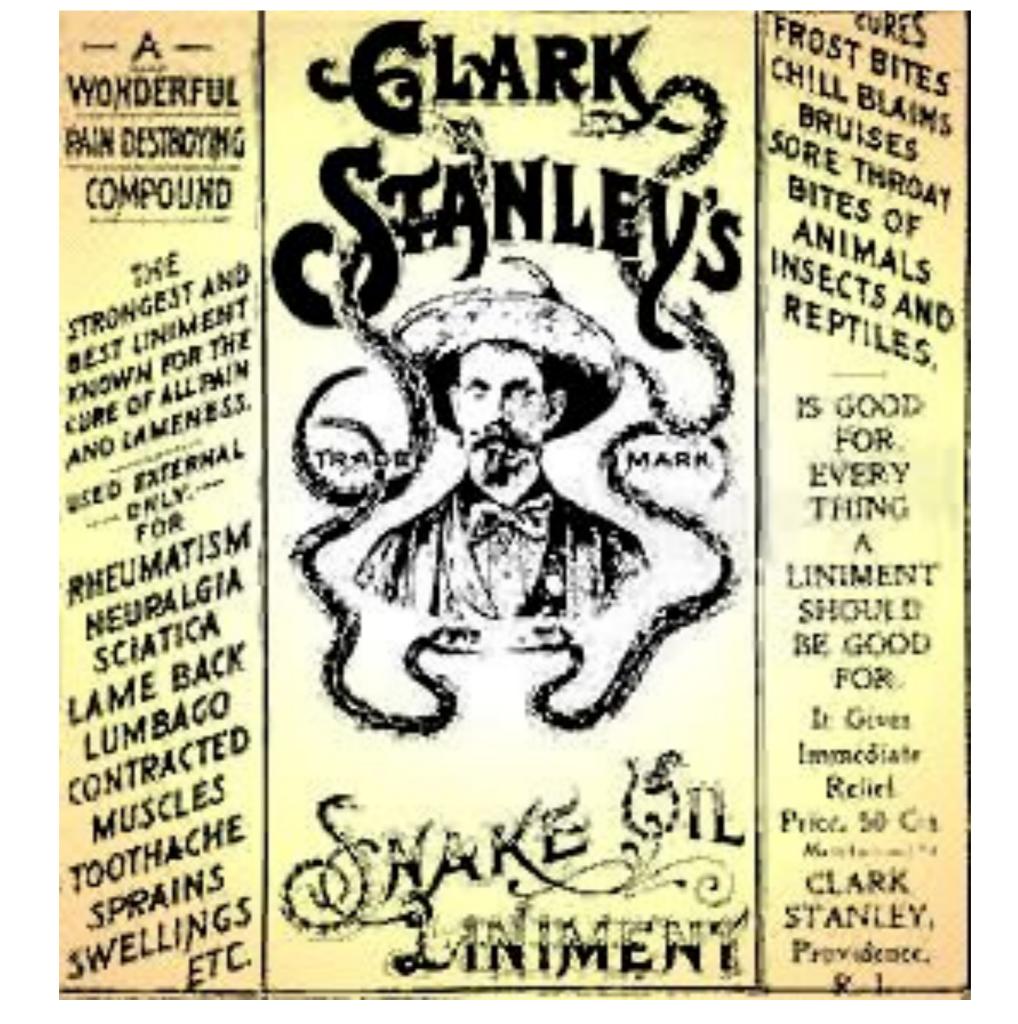
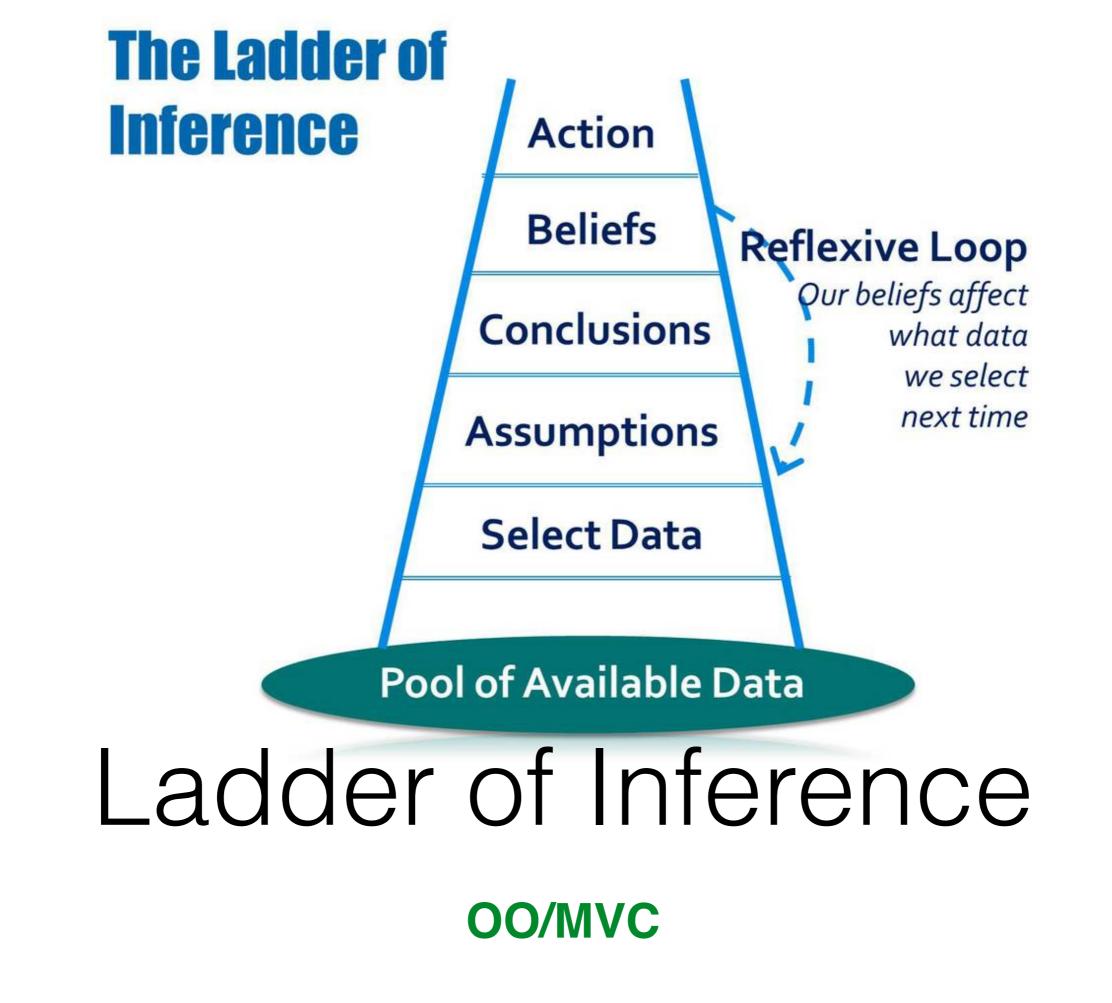How did we get here?

Chris Argyris 1923-2013

Governing Values

Model I

- Achieve the purpose as the actor defines it

- Win, do not lose

- Suppress negative feelings

- Emphasise rationality

code & fix

Model II

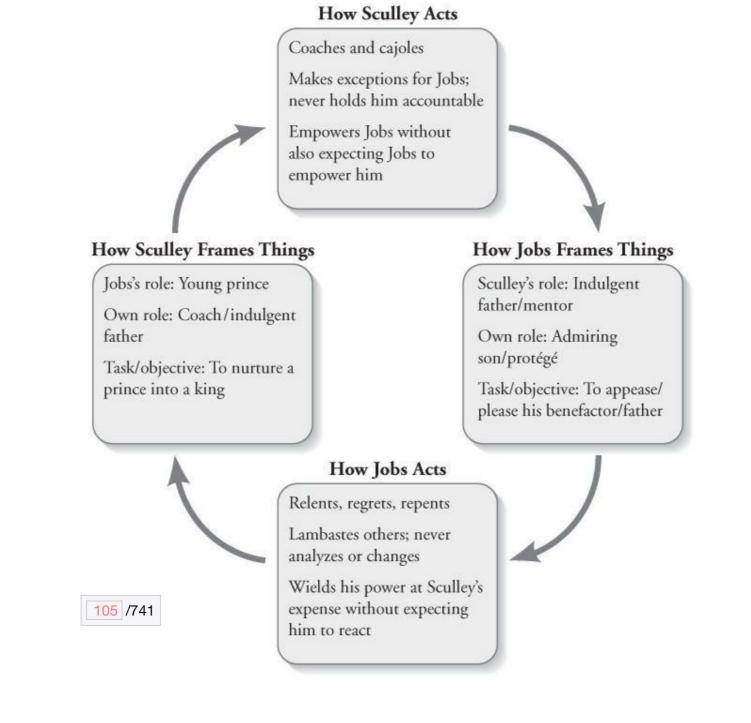- Valid information

- Free and informed choice

- Internal commitment

TDD

Ladder of Inference

OO/MVC

Exhibit   Case of the custom-service advocate

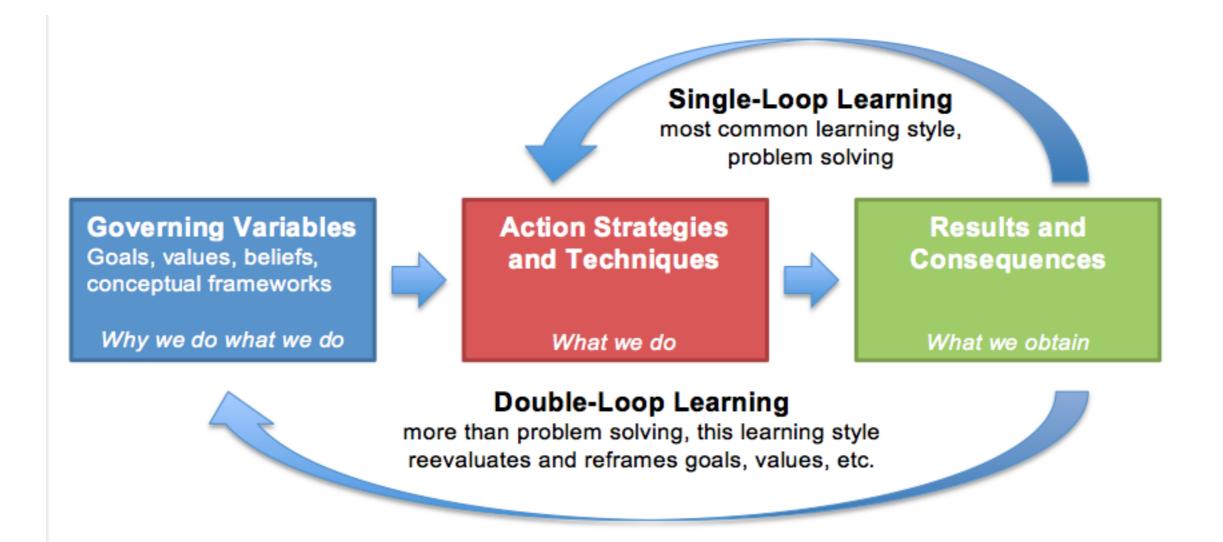| Thoughts and feelings	Actual conversation
He's not going to like this topic, but we have to discuss it. I doubt that he will take a company perspective, but I should be positive.	**I:** Hi Bill. I appreciate having the opportunity to talk with you about this custom service versus product problem. I'm sure that both of us want to resolve it in the best interests of the company. **Bill:** I'm always glad to talk about it, as you well know.
I better go slow. Let me ease in.	**I:** There are a rising number of situations where our clients are asking for custom service and rejecting the off-the-shelf products. I worry that your salespeople will play an increasingly peripheral role in the future. **Bill:** I don't understand. Tell me more.
Like hell you don't understand. I wish there was a way I could be more gentle.	**I:** Bill, I'm sure you are aware of the changes [I explain].

Two-column case study

debugging

How Sculley Acts

Coaches and cajoles

Makes exceptions for Jobs; never holds him accountable

Empowers Jobs without also expecting Jobs to empower him

How Jobs Frames Things

Sculley's role: Indulgent father/mentor

Own role: Admiring son/protégé

Task/objective: To appease/please his benefactor/father

How Jobs Acts

Relents, regrets, repents

Lambastes others; never analyzes or changes

Wields his power at Sculley's expense without expecting him to react

How Sculley Frames Things

Jobs's role: Young prince

Own role: Coach/indulgent father

Task/objective: To nurture a prince into a king

Act-React Diagram

debugging

Double-Loop Learning

Lean Startups, retrospectives

Eight Behaviours

- State views and ask genuine questions

- Share all relevant information

- Use specific examples and agree on what important words mean

- Explain reasoning and intent

- Focus on interests, not positions

- Test assumptions and inferences

- Jointly design next steps

- Discuss undiscussable issues