



Strategic Venture Planning

PLANNING • MANAGEMENT DEVELOPMENT • EXECUTION

Enterprise Change and Transformation
Enterprise barriers to MBSE adoption



Context and Disclaimers

- Engineer 2X
 - BS Industrial, PhD Systems
- Crossed over to the dark side
 - Teach business at liberal arts university
 - Spend most of my time in Leadership, OB, Philosophy, Social Sciences
- Last time I was personally involved with programming, it was in COBOL and Fortran, in a TSO environment, using punch cards!

Every organization is ALREADY Model based



The image of the world around us, which we carry in our head, is just a model. Nobody in his head imagines all the world, government or country (**author addition – enterprise**). He has only selected concepts, and relationships between them, and uses those to represent the real system.

(Forrester, 1971)



Enterprise Transformation and
Enterprise MBSE

DESIGN

Art

Engineering

Unstructured
Emotional
Evocative

Structured
Scientific
Dispassionate

Systems Thinking

Systems Analysis

Systems Engineering

Systemic

Systematic



“Picture this....”

MBSE adoption and enterprise transformation using it is like the Steeple Chase

- Distance race
- With obstacles
- Often wanders off the track



NBC



**CAUTION
OBSTACLE AHEAD**

MODELS



All models are wrong, but some are useful.

George E.P. Boxx

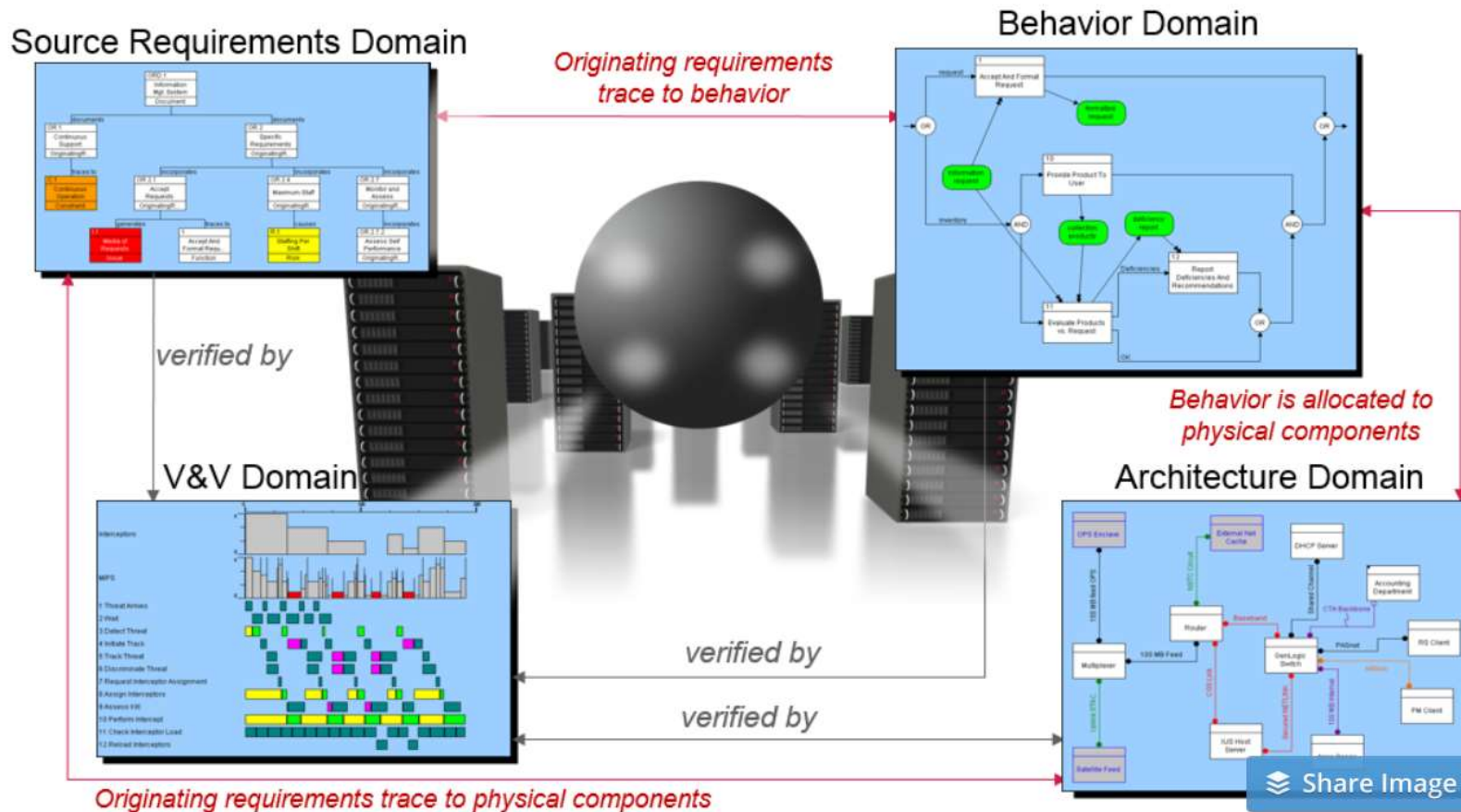
Inputs →

System

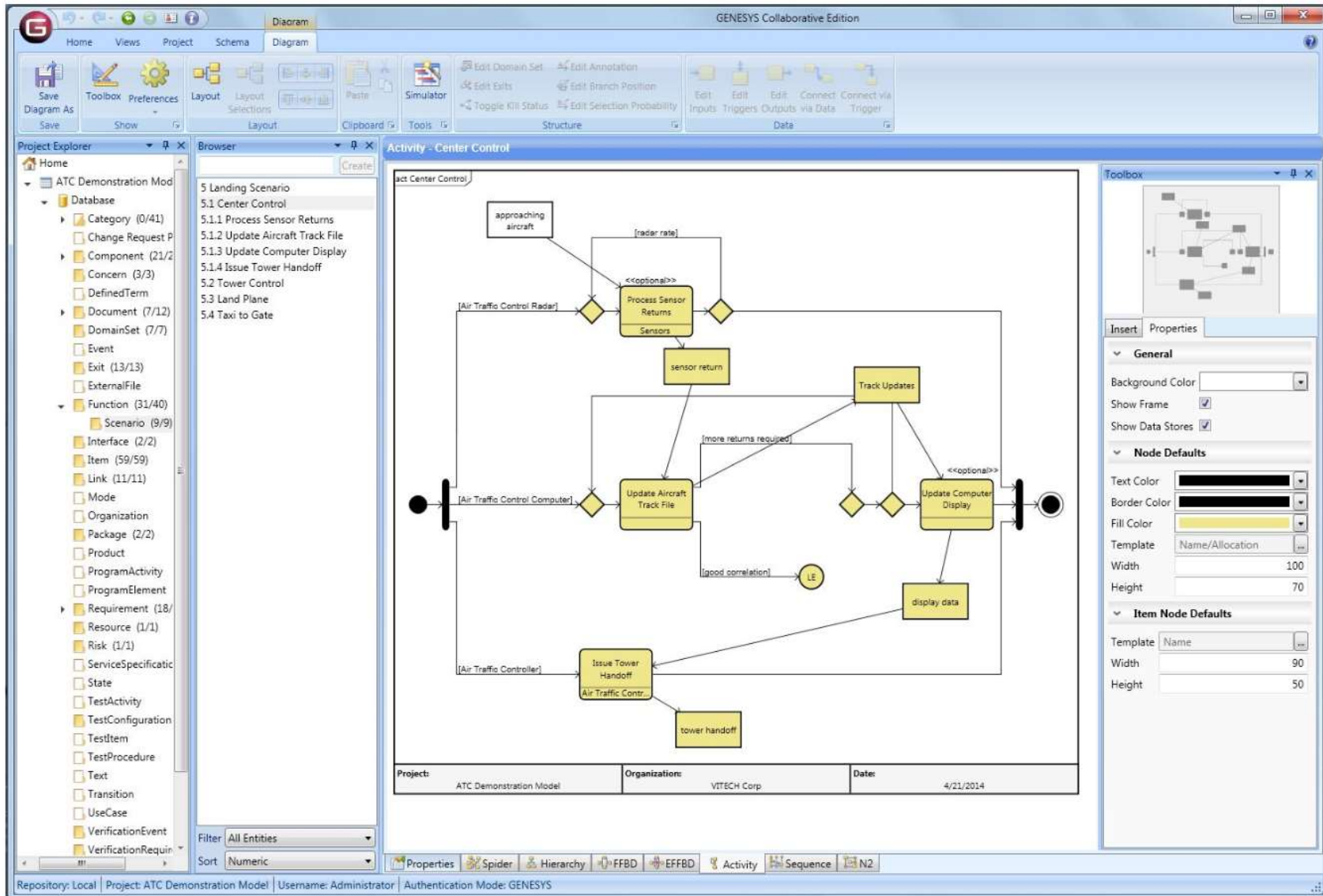
→ **Outputs**

Time
People
Money

Goods
And
Services



Source: VITECH web site





**CAUTION
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CHANGE



Everything changes and nothing stands still. The only constant is change.

Heraclitus

To lead others is to help them change their thoughts, beliefs, and actions for the better.

Jim Rohn

Change is hard because people overestimate the value of what they have and underestimate the value of what they may gain by giving that up.

James Belasco and Ralph Stayer

People don't resist change. They resist being changed.

Peter Senge



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Hand-to-hand combat changing minds/beliefs/assumptions

NOT about technology



Management Agreement Model

Yes X insert large # here = Adoption

No X 1 = Delay or doom

Default setting of most large enterprises is NO!

Hand-to-hand combat changing minds/beliefs/assumptions

NOT about technology



RHO Model – Rho (ρ) symbol of resistivity or density

R - Ridiculous

H – Heretical

O - Obvious

Hand-to-hand combat changing minds/beliefs/assumptions

NOT about technology



1. Even experienced people will feel awkward – a novice in new order
2. People will focus first on what they must give up and strive to maintain status quo
3. People will grieve – some a lot some a little
4. All organizations have a limit to the amount of change they can tolerate – limit can be expanded through training and culture
5. People will take it personally and feel alone or un-appreciated
6. Most will want more time and/or resources
7. There will be a strong tendency to revert back if the need to change is not constantly evident

Source: The Bradley Group



Six Steps to Change

1. Mobilize commitment through joint diagnosis of problems
2. Develop a shared vision of how to move forward – new mental models, new roles, new rewards
3. Foster consensus for the new vision, build commitment, cohesion and new competencies
4. Replace non-compliers
5. Institutionalize the new way through policies, systems, structures, reports, etc.
6. Monitor compliance and make corrections as needed

Source: Beer, Eisenstat and Spector



Change as learning

The Fifth Discipline

Source: Peter Senge



Common Mental Models

Personal Mastery



Shared Vision



Team Learning



Shared Systems



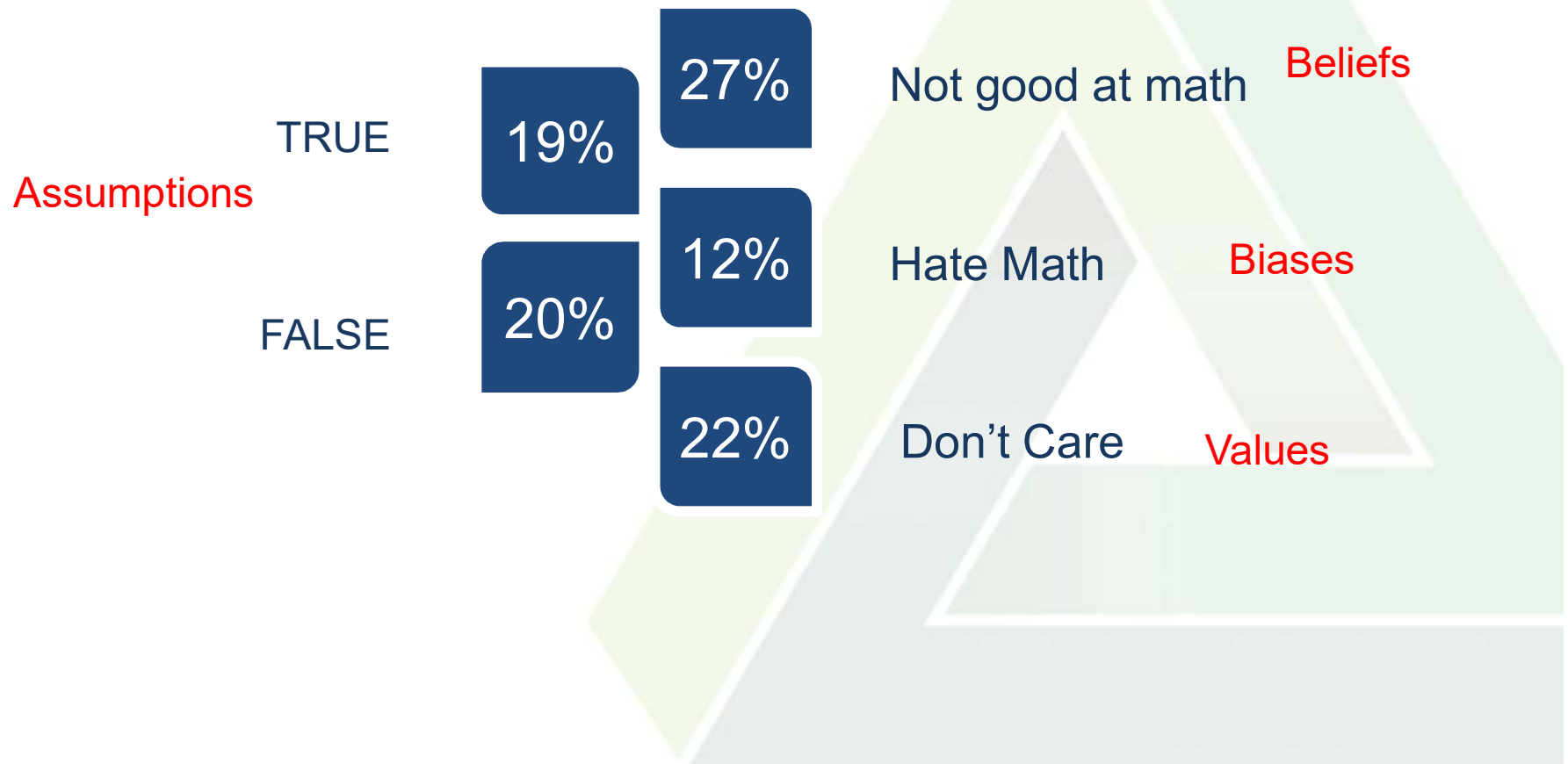


**CAUTION
OBSTACLE AHEAD**

**PERSONAL
MASTERY**



If x is a real number satisfying $\frac{1}{x} < 10$, then it must be true that $x > \frac{1}{10}$.





- Charles Sanders Peirce – The Fixation of Beliefs (1877)
 - Stubbornly revert to our beliefs, even if they are formed in error
 - Only time we will change is when we are uncomfortable with them
 - **But**, discomfort causes us to revert back to avoid discomfort
- Edward DeBono – Various (60s on)
 - We think at all in order not to have to think further - For the sake of the mind's economy
 - Only when forced do we really think about our underlying beliefs, biases and assumptions
- Daniel Kahneman - Thinking Fast and Slow (70s on)
 - System 1 (Fast) – Little or no effort and no sense of voluntary control – Snap decisions
 - System 2 (Slow)– Effortful mental activities that shape System 1 snap decision engine, but most not well trained
- James Reason – Human Error (90s)
 - Mind reduces thinking to If/Then engine for efficiency
 - Compares against existing beliefs, patterns/schema and triages
 - We think only when we have to and as briefly as possible
- Malcolm Gladwell– Blink (2005)
 - Experts have reduced complex thought to patterns of response to avoid thinking and improve performance, but these heuristics, while beneficial, can be traps



Alfred Schütz and many others argued that our beliefs are not adequately...

- Coherent, or
- Consistent, or
- Clear, or
- Conscious

“We are incredibly heedless in the formation of our beliefs, but find ourselves filled with an illicit passion for them when anyone proposes to rob us of their companionship”

James Harvey Robinson
American Historian

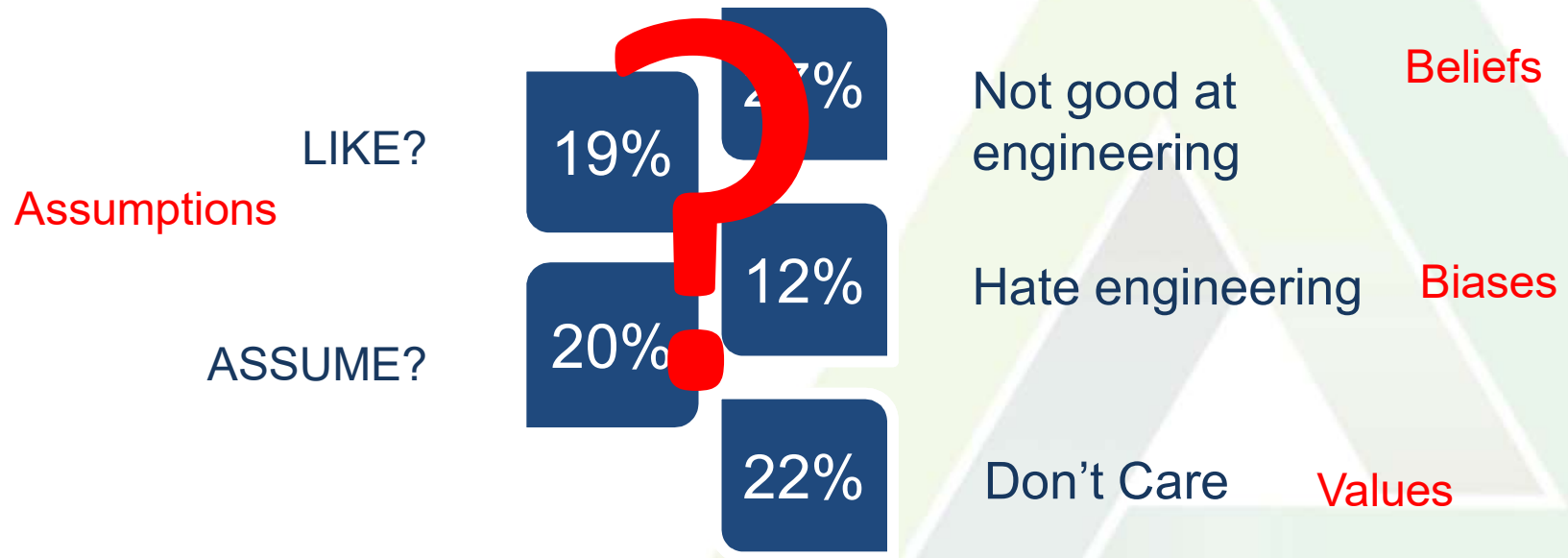
Hand-to-hand combat changing minds/beliefs/assumptions

NOT about technology



ENGINEERING?

Add SYSTEMS?



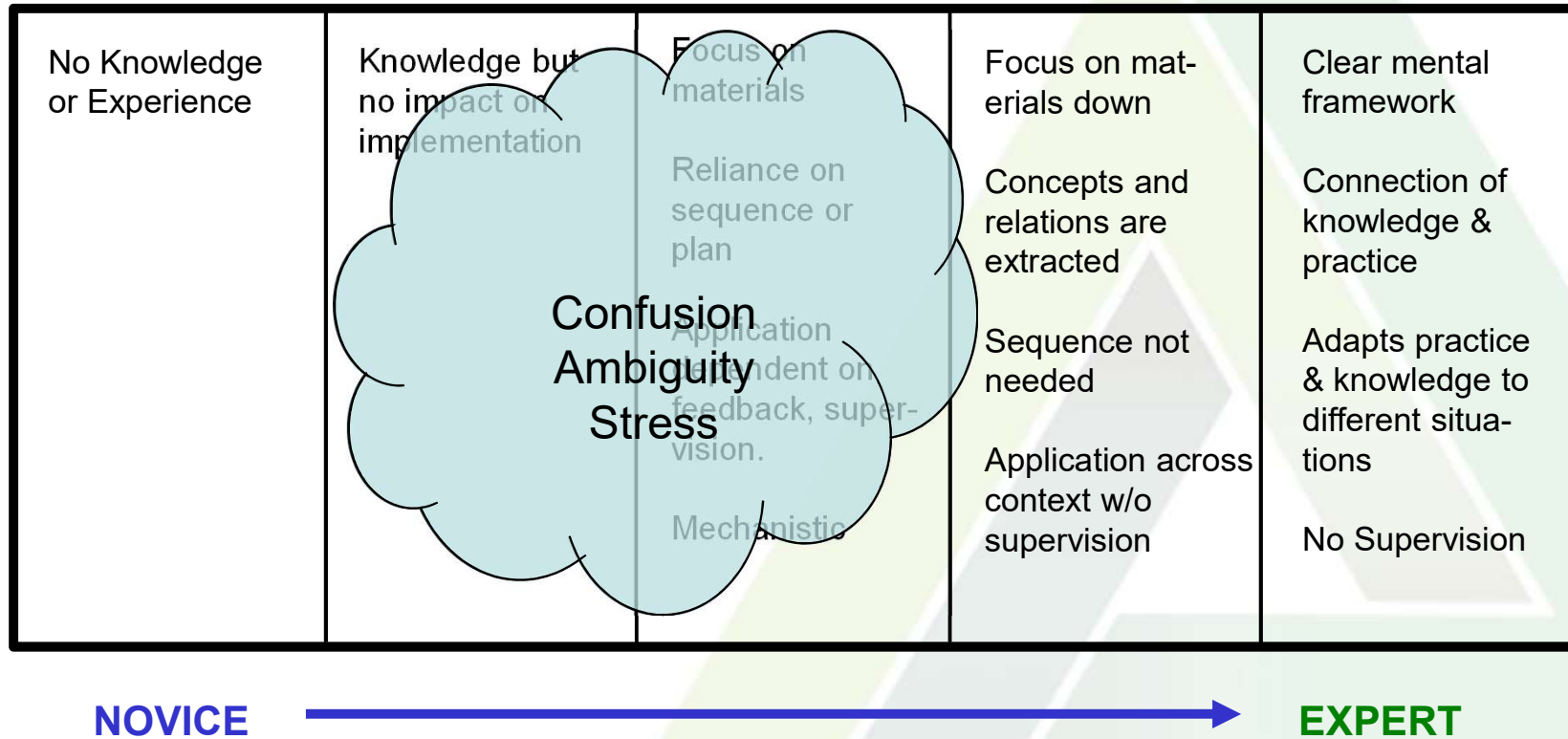


**CAUTION
OBSTACLE AHEAD**

**PERSONAL MASTERY -
CHANGE AND
KNOWLEDGE**



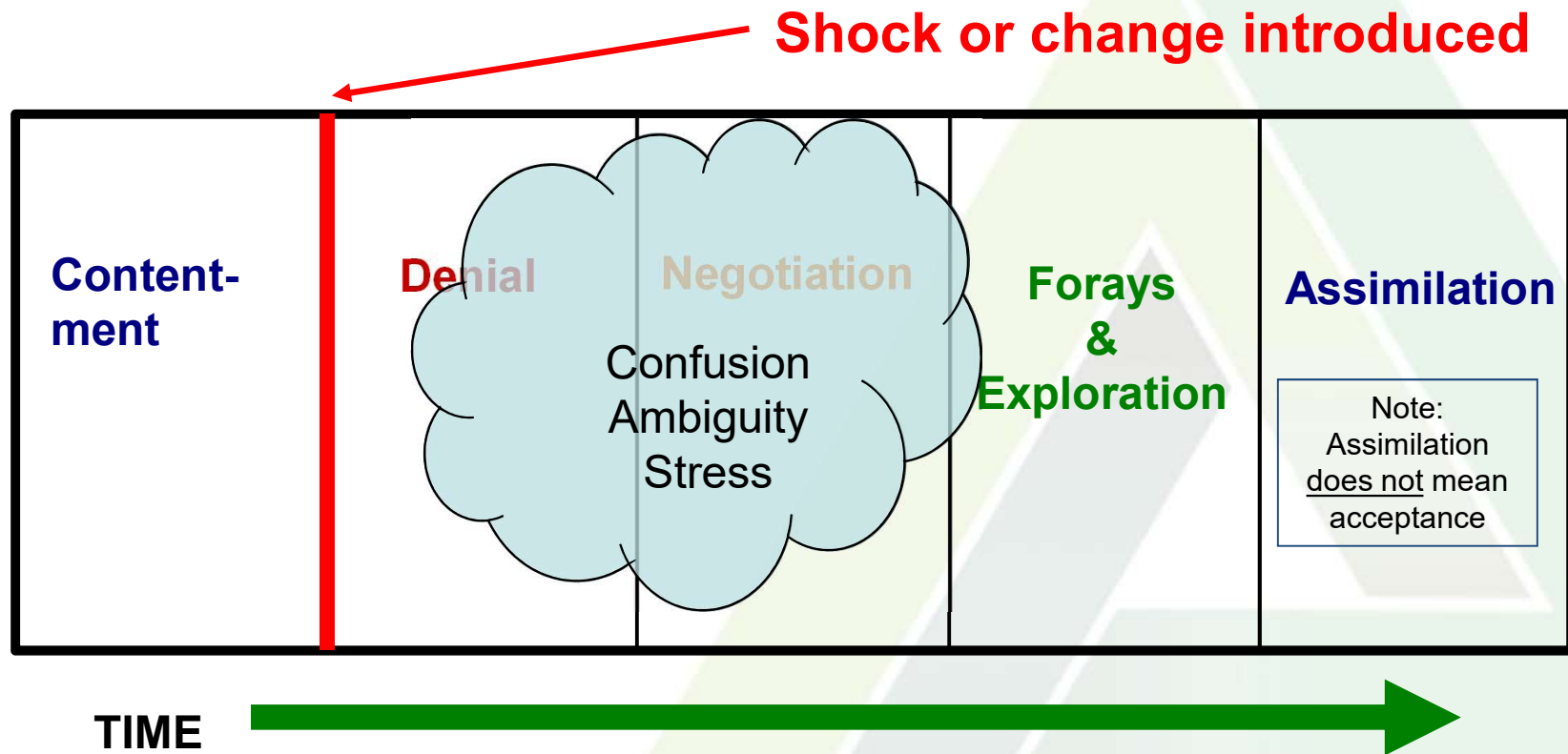
The Knowledge Continuum



Source: *Educational Leadership*, Sept. 1993



The Change Continuum



Source: *Educational Leadership*, 1993



NOVICE

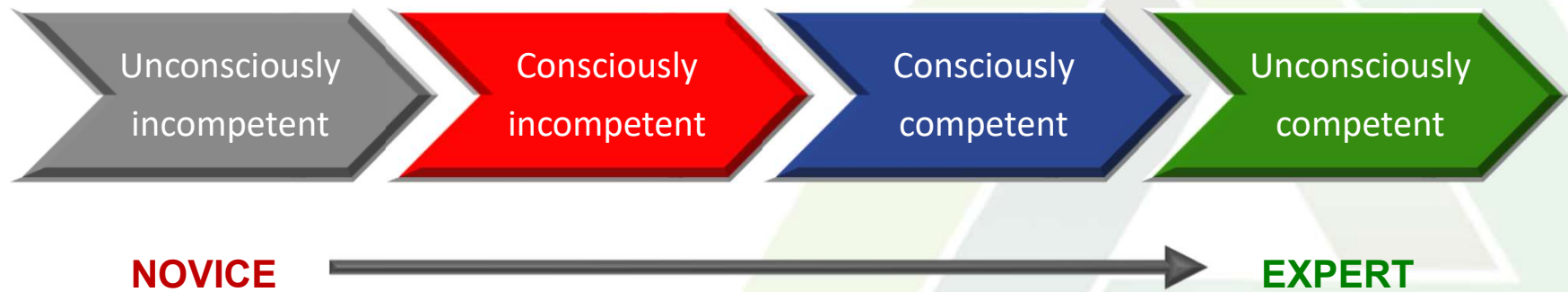


EXPERT

No Knowledge or Experience	Knowledge but no impact on implementation	Focus on materials Reliance on sequence or plan Application dependent on feedback, supervision. Mechanistic	Focus on materials down Concepts and relations are extracted Sequence not needed Application across context w/o supervision	Clear mental framework Connection of knowledge & practice Adapts practice & knowledge to different situations No Supervision
Contentment	Denial	Negotiation	Forays & Exploration	Assimilation <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Note: Assimilation <u>does not</u> mean acceptance</div>



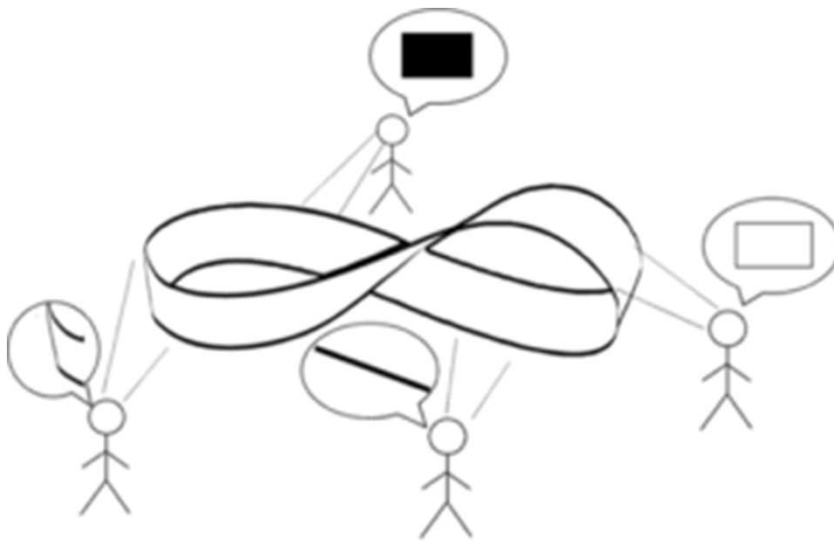
The Knowledge Continuum



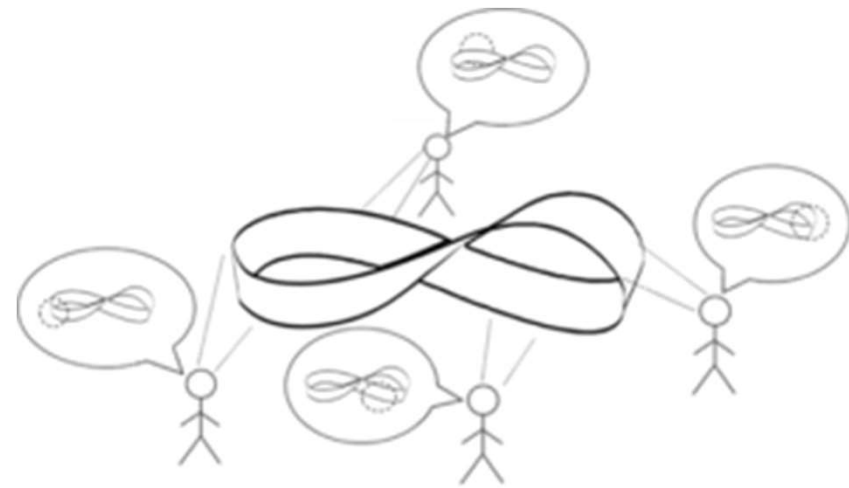
Source: *Educational Leadership*, Sept. 1993



Personal Mastery



Siloed Views - Bounded Rationality

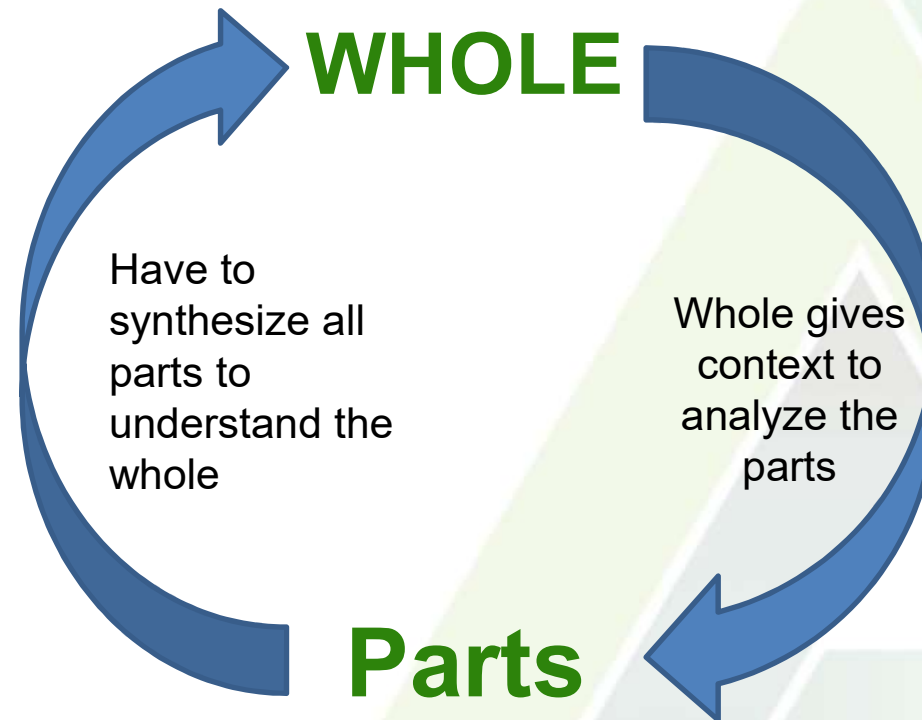


Shared System View - Common Mental Model



Hermeneutic Circle

Note: Comes from Philosophy!!!!

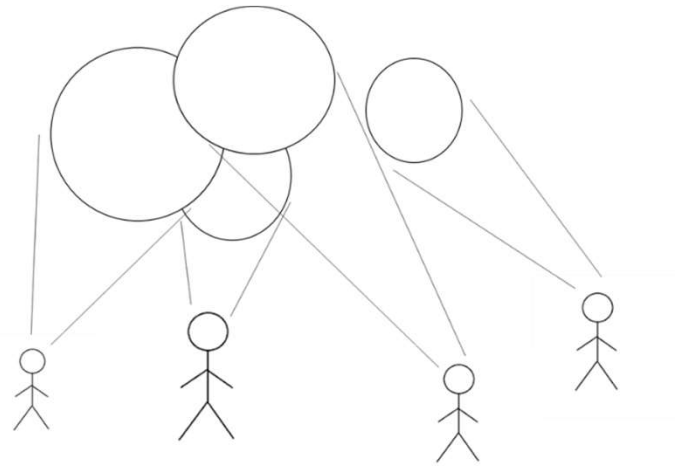


Can't know the whole until you know the parts, but can't know the parts unless you know the whole



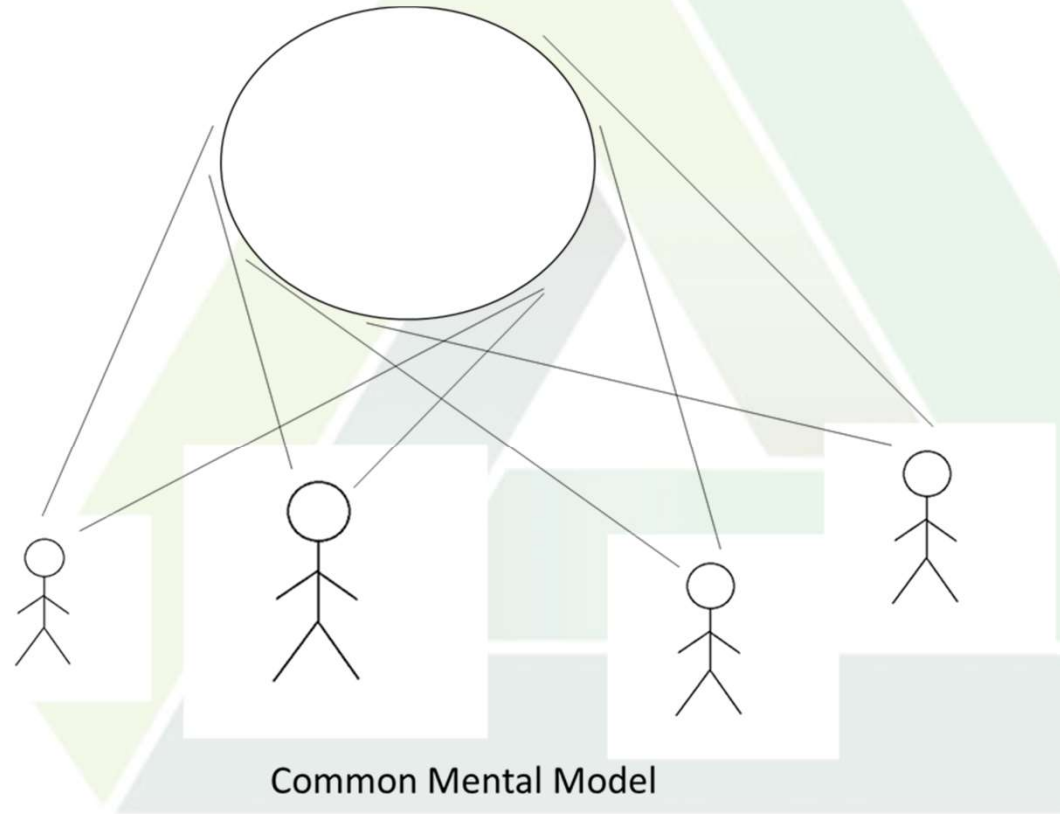
**CAUTION
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**COMMON MENTAL
MODELS**



Conflicting Mental Models

Common Mental Models



Common Mental Model



Is your company/division/department a system?

- **99% answer yes**

Have you ever studied systems theory, systems science, systems dynamics, systems thinking, systems engineering?

- **99% answer No**



Most large enterprises are remarkably siloed
Bounded rationality the norm

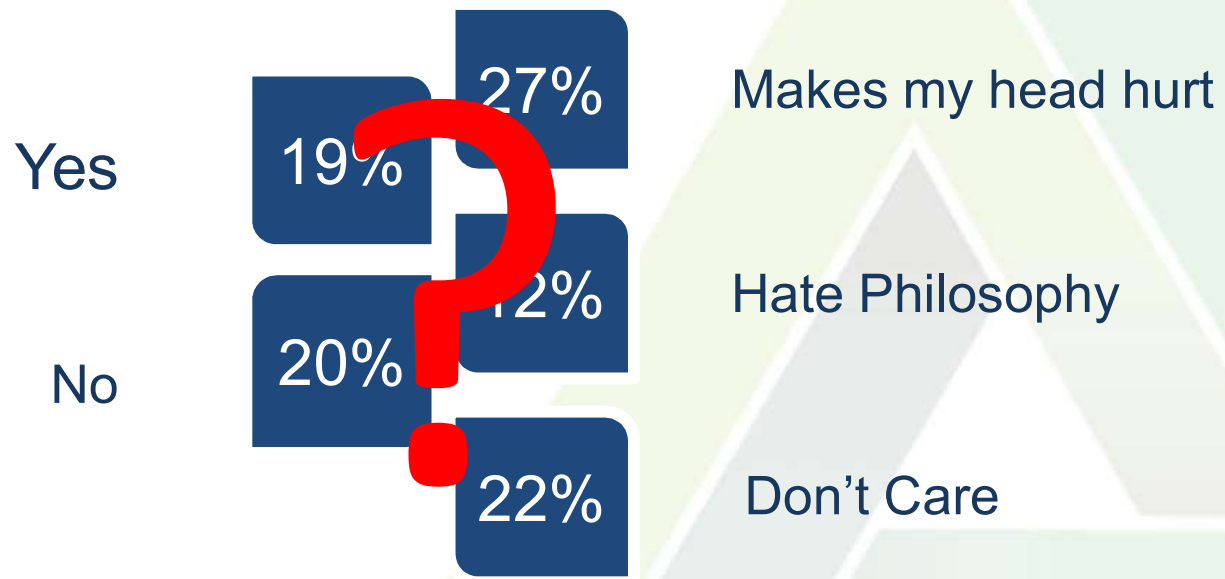


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TEAM LEARNING

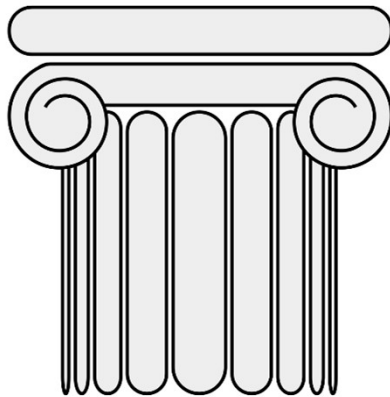


PHILOSOPHY?

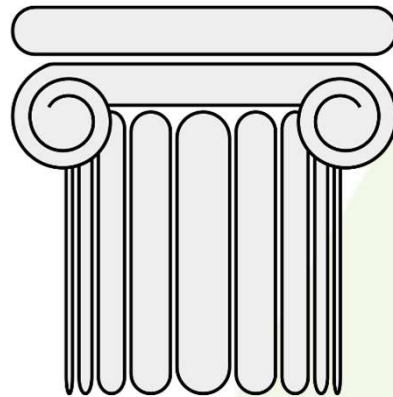




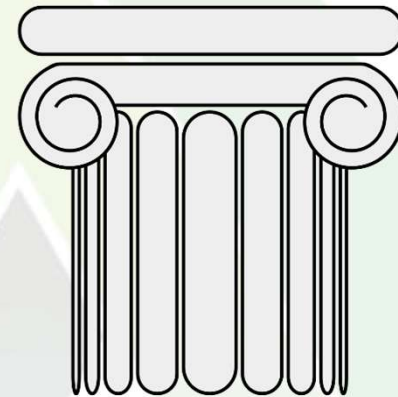
Science



Technology



Philosophy



Ludwig von Bertalanffy in conjunction with Ervin Laszlo and proposed the term “Systems Philosophy” as one of three pillars of his General Systems Theory in the 1973 revision of his classic text



The “Ologies”

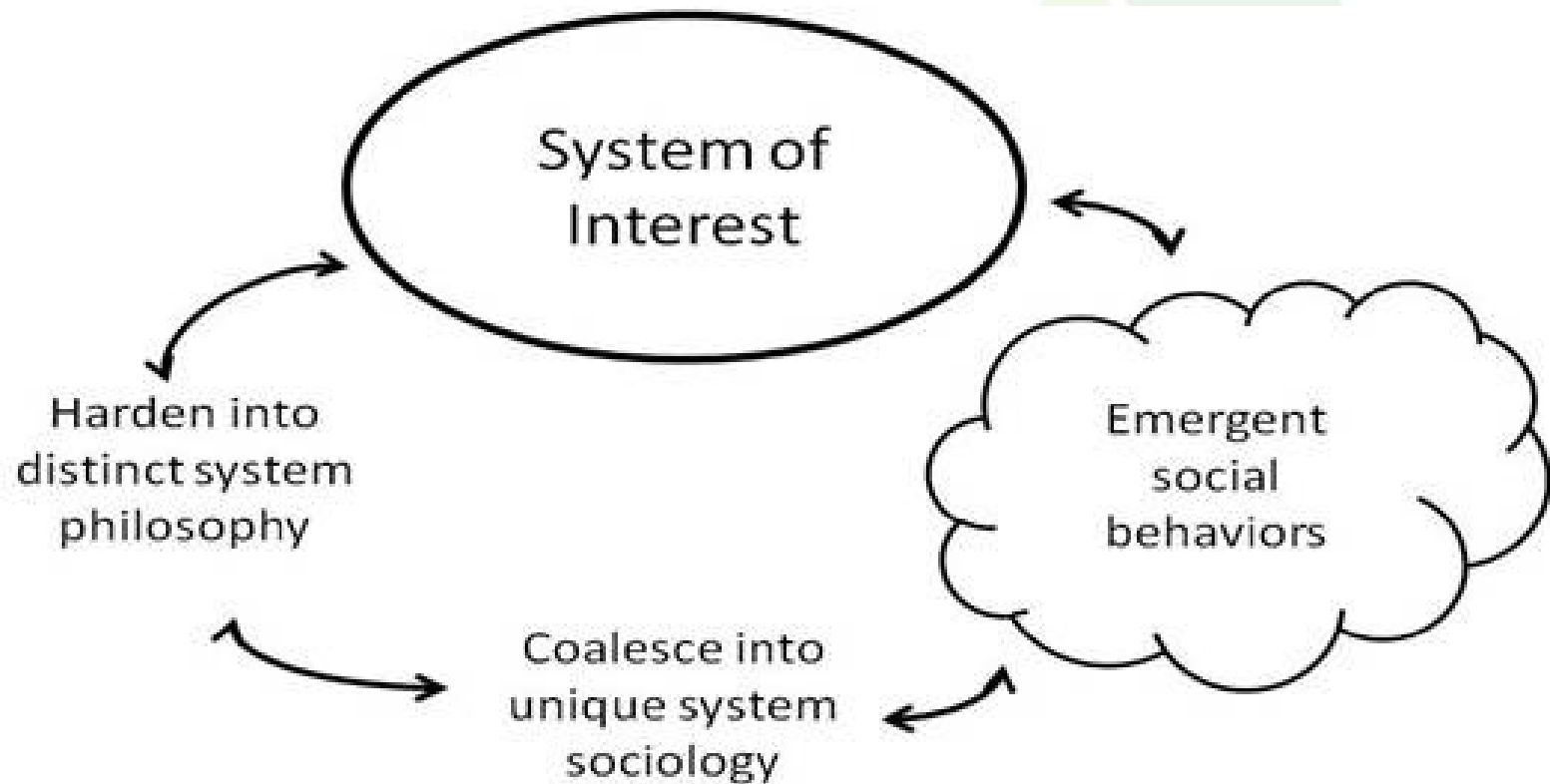
- Sociology: The study of the development, structure, and functioning of human society. The sociological aspects of a subject or discipline; a particular sociological system (OED)
- Philosophy: Knowledge, learning, scholarship: a body of knowledge (OED)

Inescapable conclusions

1. The enterprise is a micro-sociologic construct
2. The enterprise forms a system philosophy



Emergence of a System Philosophy



“The way we do things around here”



A fundamental concept in German philosophy and epistemology.

Welt => World

Anschauung => View or Outlook

Refers to the framework of ideas and beliefs forming a holistic description through which an individual or group watches, interprets and interacts with the world (or other shared environment)

News flash: An enterprise -- your company -- is a shared, sociological environment!!



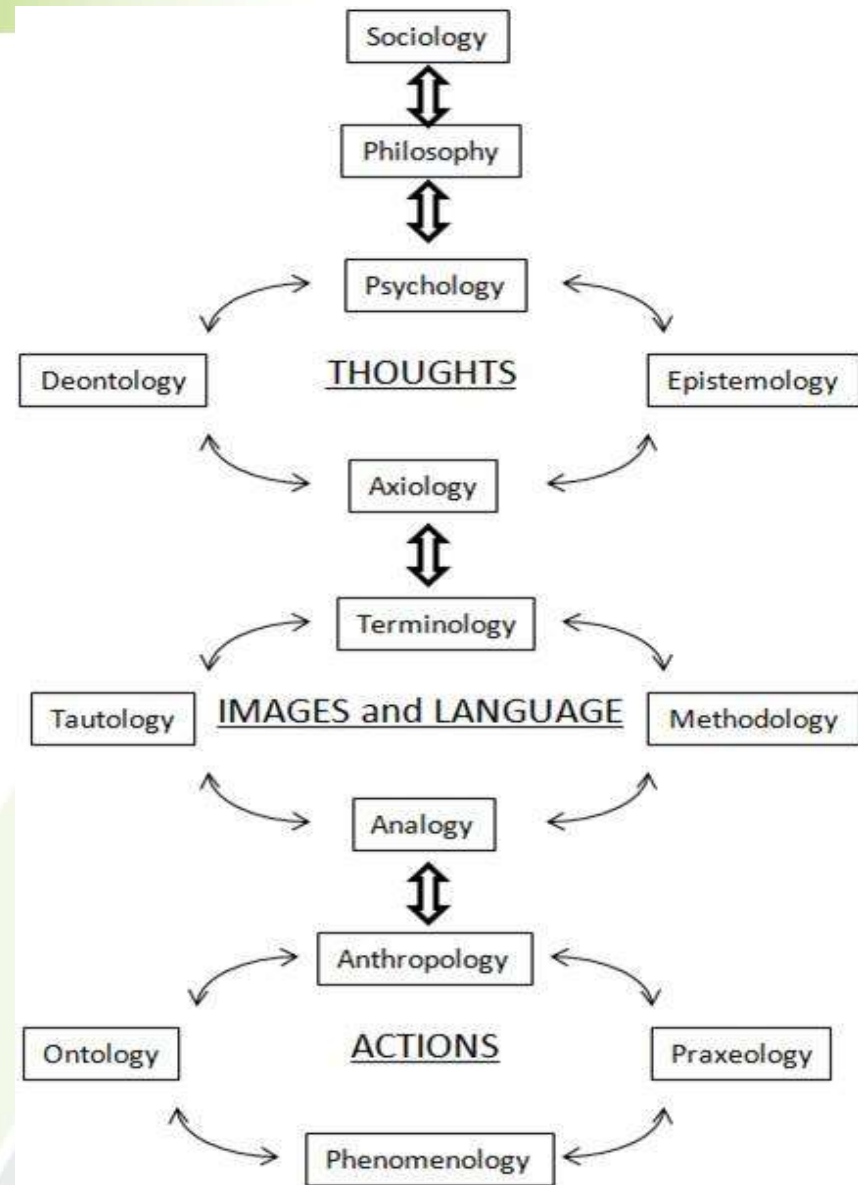
“Weltanschauung becomes a real issue when it is very difficult to find consensus around the definition of the process”

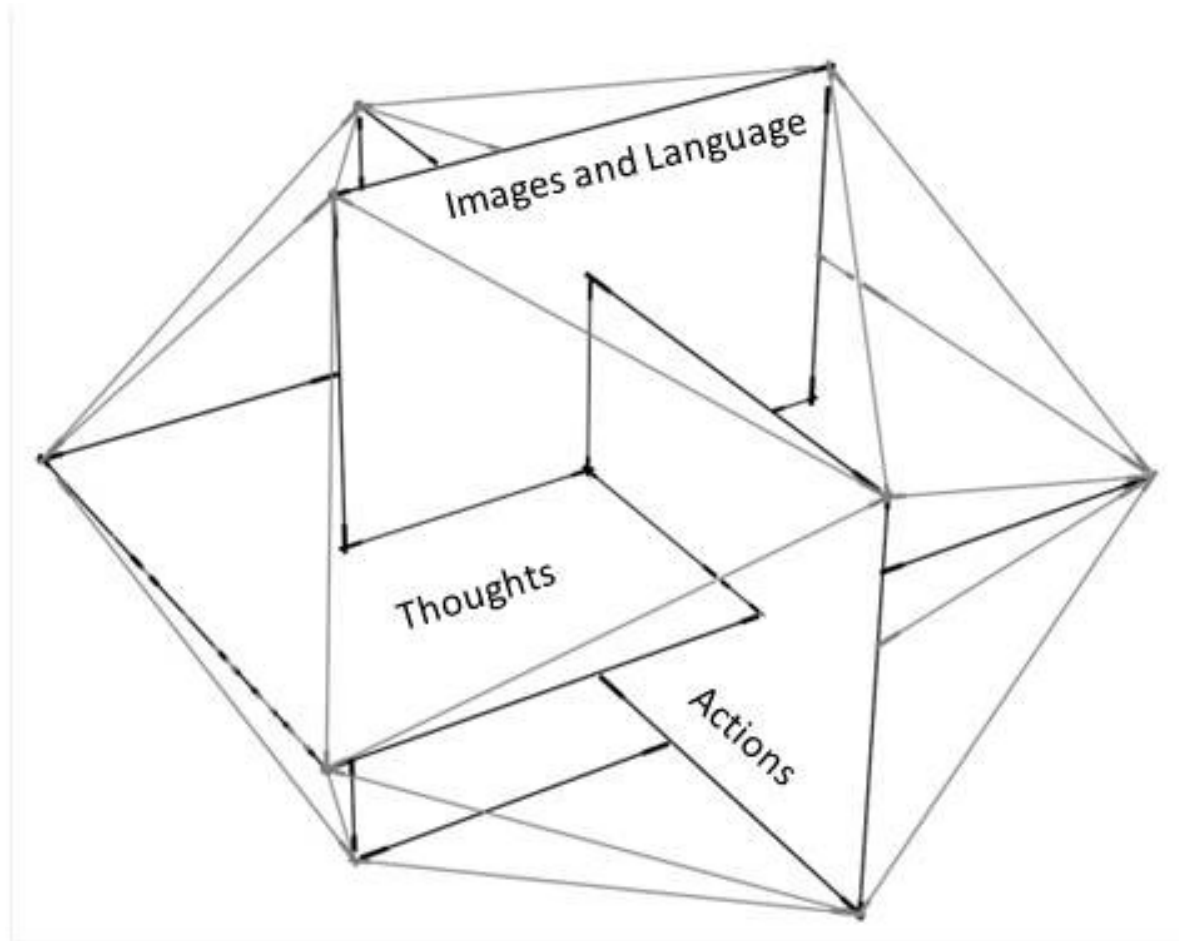
Luc Hoebeke



The “Ologies”

- Enterprise is a micro-sociologic construct
- Forms a system philosophy
- Dense web of thoughts, beliefs, images, and language that shape actions
- Emergent character of the system of record
- Cannot be controlled directly or modelled with precision
- Leaders, managers, and systems engineers must learn to sense them





Hand-to-hand combat changing minds/beliefs/assumptions



CONCEPTUAL ENGINEERING!!!

...the most basic beliefs, concepts, and attitudes of an individual or group.



Taking a sytems approach is a philosophy!!!!

Taking a sytems approach is not common!!!!



**CAUTION
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SHARED VISION



Value Proposition

A promise of value to be delivered, communicated, and acknowledged

- Increased market share
- Demonstrable differentiation
- Increased revenues
- Increased margins
- Reduced expenses
- Some combination of above
- Customer dictate



Value Proposition

A promise of value to be delivered, communicated and captured. Knowledge

- Increased market share
- Differentiated revenue
- Increased market share
- Reduced expenses
- Some combination of above
- Customer dictate

Does your C-Suite or customer share this vision of MBSE's value?

Weltanschauung



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SHARED SYSTEMS



It isn't uncommon for managers at senior levels of large organizations to be so out of touch with customer or production reality that they don't know just how broken some of their business processes are.

Michael Hammer & James Champy



SLOW AHEAD

SUMMARY



So, the odds that you are.....

going to be welcomed with open arms...
and your model is going to be embraced without
question..
thanked for your efforts and....
hailed as a savior..

Are...

NIL!!!

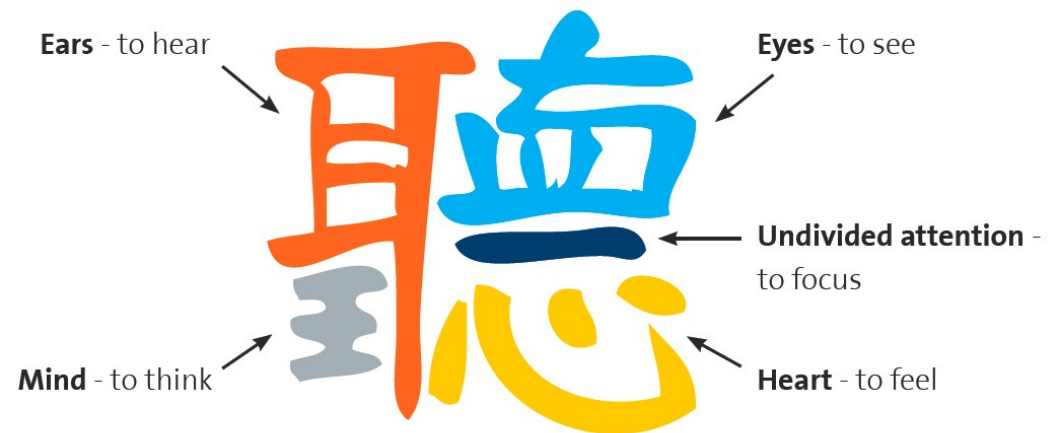
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What should you do?

- Have to have a compelling value proposition to engage C-Suite
- Have to have a champion in the C-Suite
- Jujitsu
- Listen



- Be humble/empathic
- Learn to **love** the social sciences!



Available



simplecomplexitybook.com

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Questions?

