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# 2020 VISION

*Quality > Looking forward*

38TH ANNUAL  
PACIFIC NW SOFTWARE  
QUALITY  
CONFERENCE  
OCT.12-14,2020

# PNSQC – The Organization

- The oldest software quality conference in North America now in its 38<sup>th</sup> year.
- Annual conference held in Portland, Oregon.
- PNSQC is a non-profit organization -- all volunteers run conference.
- Focuses on the quality practitioners.
- A range of topics and speakers - everything from automation and distributed teams to measuring quality and AI / ML.
- Speakers describing their own experiences, not by consultants or vendors.

# STILL TIME TO REGISTER

- By attending this webinar, you'll get a special discount code by email which will give you access to all 3 days of PNSQC 2020 for \$75.

# House Rules for Today

- Participants other than the speakers are muted
- Questions via the control panel on the right side of your screen or through **Twitter @PNSQC**
- Questions may be asked throughout the webinar - we'll try to answer them at the end
- **You will receive info on recording and slides after the webinar**

# Presenting Today



**Ying Ki Kwong**

**PNSQC speaker (2008, 2016, 2018, and 2019)**



- Statewide QA Program Manager  
Enterprise Information Services, State of Oregon
- Specialties and passions
  - Quality & risk management
  - Enterprise IT project management
  - Complex systems and complexity
  - Volunteering for local nonprofits and travel



# Presenting Today



## Jack McDowell PNSQC speaker (2019 and 2020)



- Statewide QA Program Analyst  
Enterprise Information Services, State of Oregon
- Specialties and passions
  - Quality and Risk Management
  - Connected Government
  - Accessibility and Usability
  - Diversity in Quality Assurance



# Transformative Change Initiatives Require a Culture of Quality

Ying Ki Kwong & Jack McDowell  
Statewide Quality Assurance Program  
Enterprise Information Services  
State of Oregon

Philip Lew  
PNSQC / XBOSoft

*\* Based on a paper presented in PNSQC 2019.*

# Outline

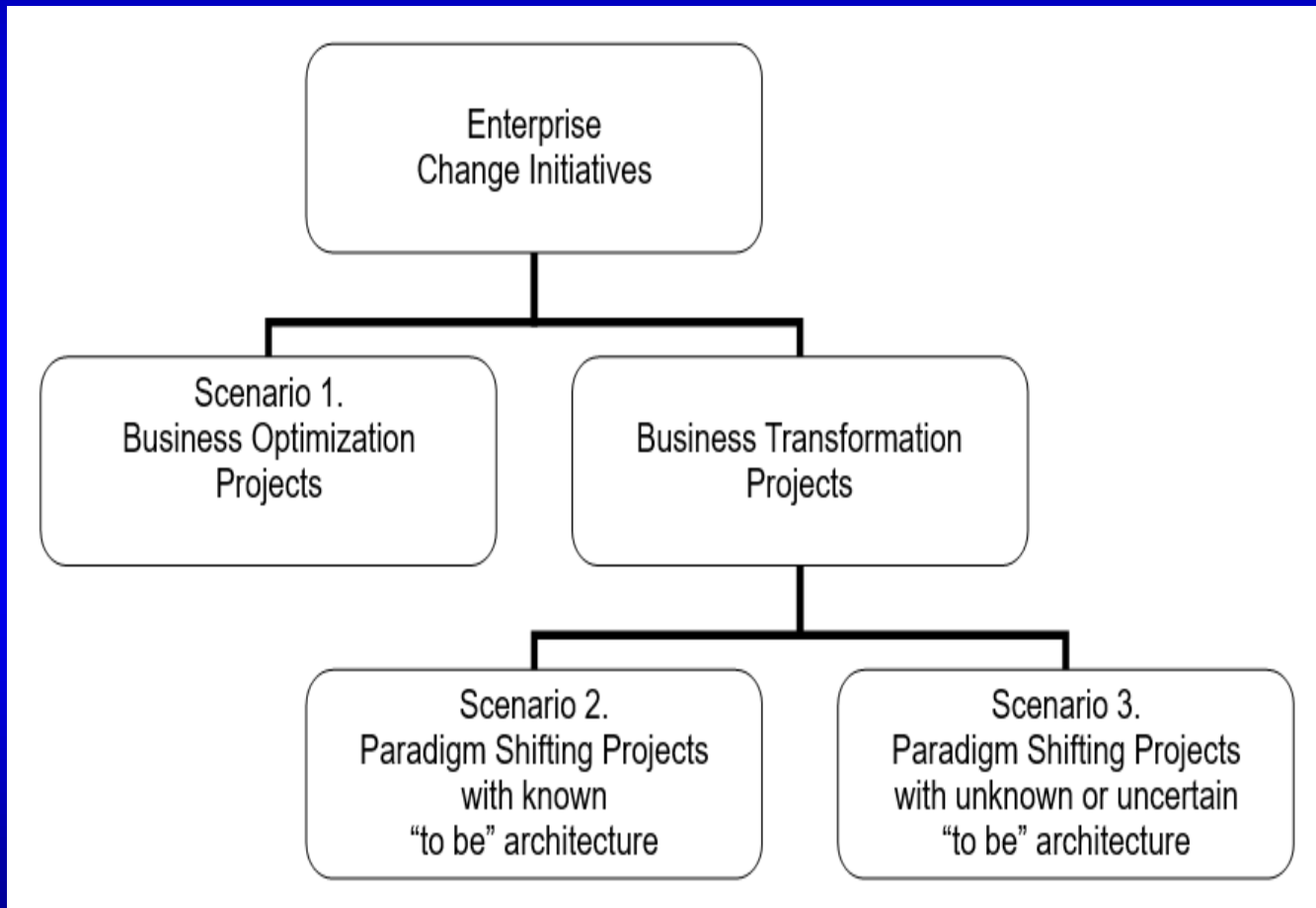
- **Introduction**
- **Enterprise Change as Complex System Dynamics**
- **Communities of Meaning & Enterprise Language**
- **Navigating Transformative Change**
- **Agile “Risk Trap” in Transformative Change**
- **Conclusion – Toward a Culture of Quality for Change**



# Definitions

- **Paradigm** refers to basic operating models and associated mindsets in an enterprise .
- **Paradigm Shift** refers to major changes to an enterprise's operating paradigms.
- **Enterprise Change Initiatives** are enterprise projects enabled by major IT systems. They are often paradigm shifting and high risk.

# Three Scenarios of Enterprise Change Initiatives



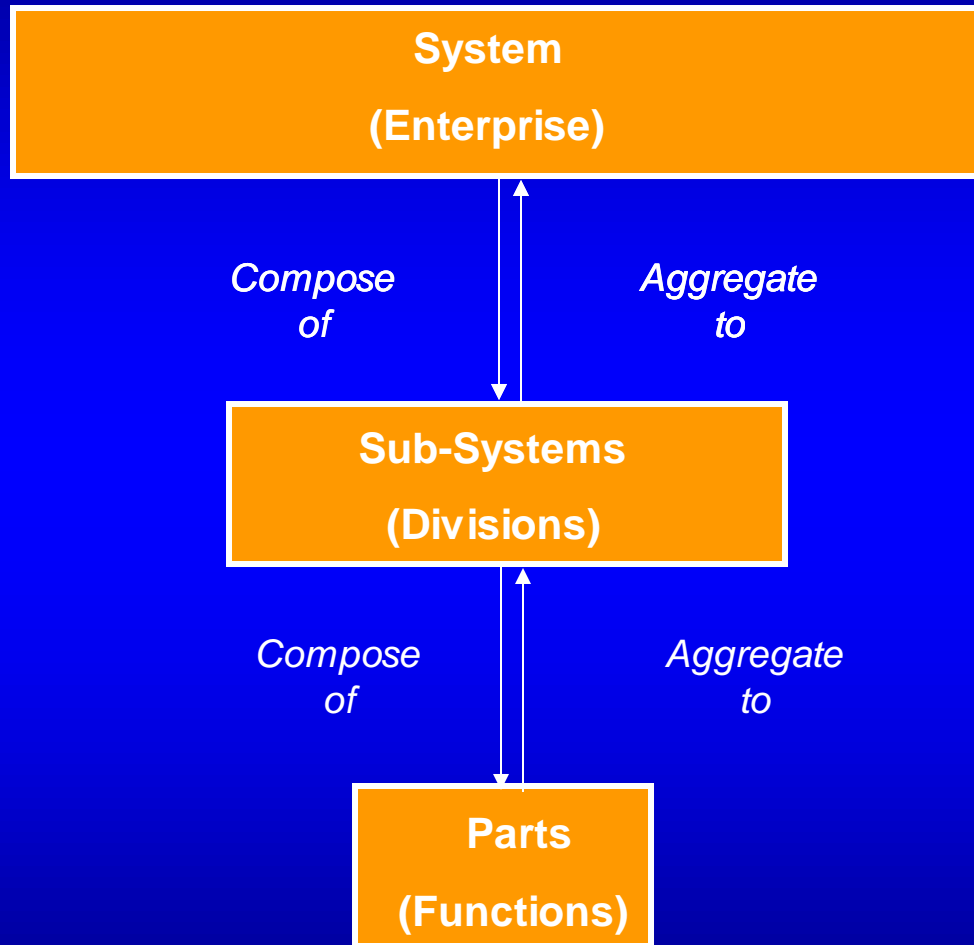
# Definitions (continued)

- **Transformative Changes** typically include large mergers or acquisitions, rapid adoption of new business models, or the shift from one overarching operating model to another.
- **Enterprise Architecture** is a well-defined practice for conducting enterprise analysis, design, planning, and implementation, using a holistic approach at all times, for the successful development and execution of strategy.

*Reference: “A Common Perspective on Enterprise Architecture,” Federation of Enterprise Architecture Professional Organizations (2013).*

# **Enterprise Change as Complex System Dynamics**

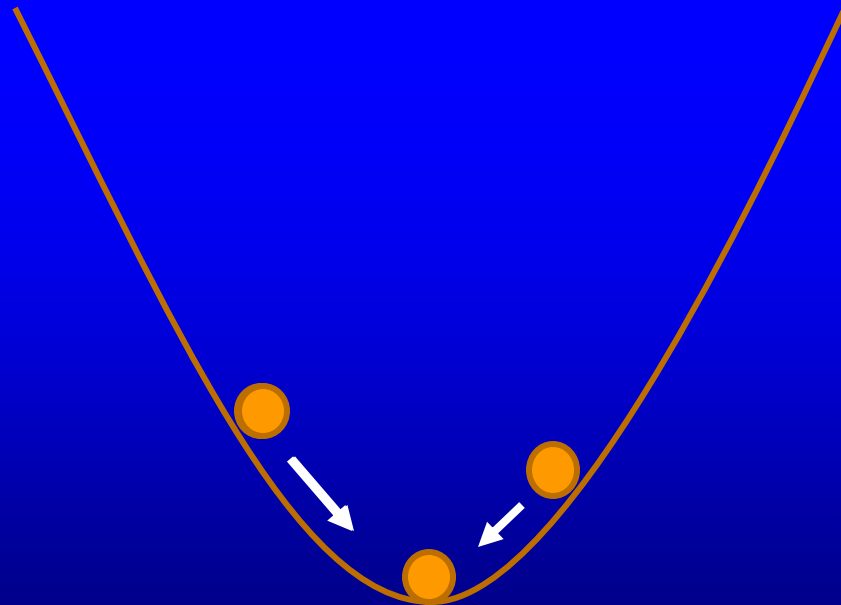
# The Modern Enterprise as a Complex System



- **The whole is greater than the sum of its parts.**
  - Many interacting parts lead to complexity.
  - Emergent properties may not easily trace to parts.
- **Enterprise change is complex system dynamics.**

# Scenario 1 system consists of effectively non-interacting parts, stable equilibrium, and changes are minor

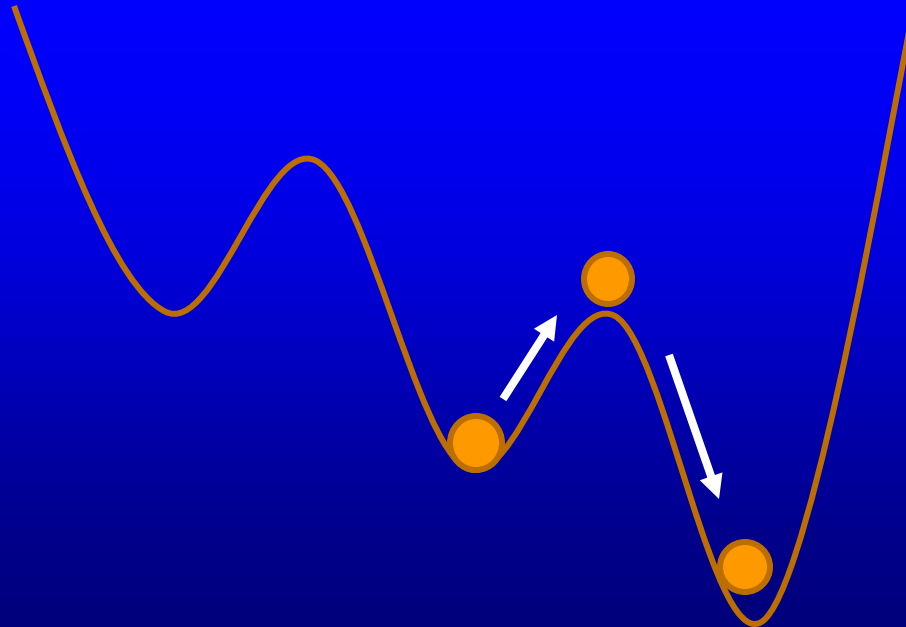
- Effectively 1-body interacting with its “environment”
- Equilibrium exists
- Analogous to single-person games in game theory
  - Well defined strategies for optimization exist





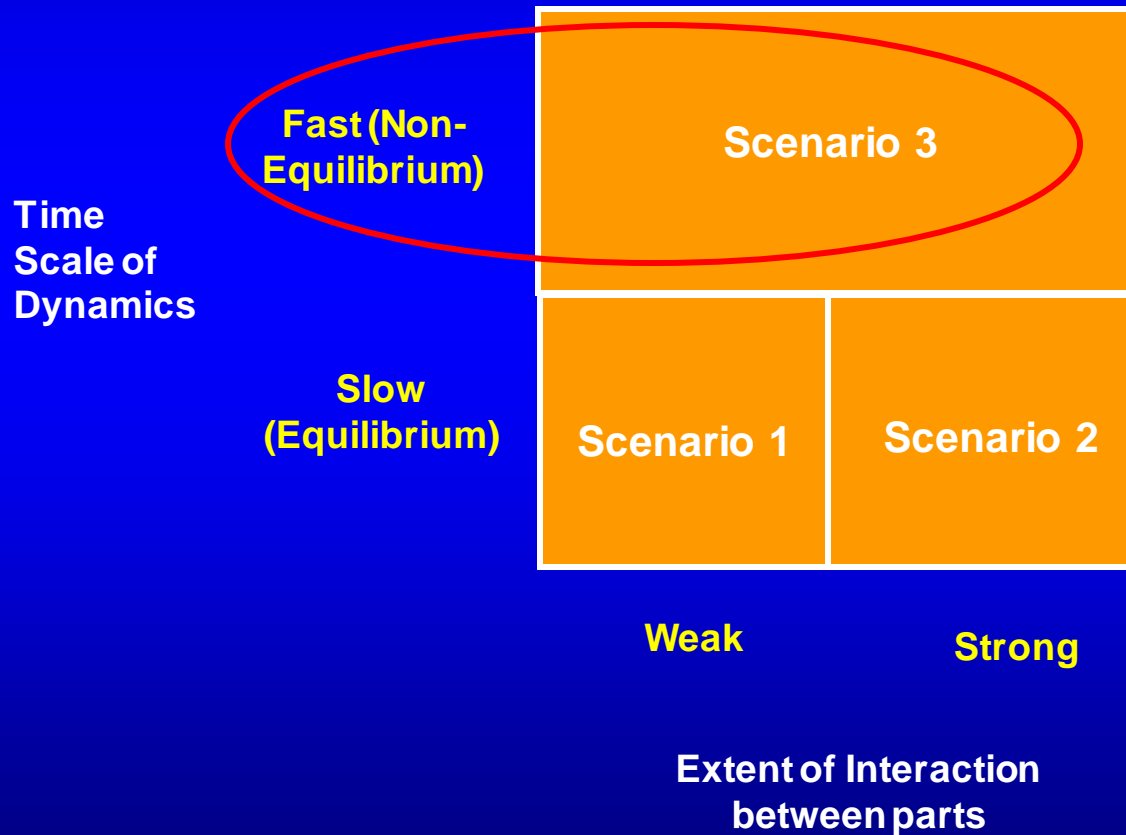
## Scenario 2 system consists of interacting parts, stable equilibrium points, but changes may not be minor

- May have different stable equilibrium points
  - Local optimum vs. global optimum
- Analogous to multi-person games in game theory
  - Well defined strategies exist for transformative change
  - “to be” state may be more (or less) optimal



# Scenario 3 system is in a state of non-equilibrium

- “to be” state uncertain
- “rules of the game” changes rapidly
- Strategies for change become obsolete quickly.



# Application to Enterprise Change Initiatives

- Enterprise Change Initiatives in terms of the three scenarios of complex system dynamics.
- Nature of Change in terms of “to be” state (enterprise architecture).
- Strategies as stable dominant design / maturity model (Scenario 2) vs. lack of stable strategy (Scenario 3).

Change Initiative	Nature of Change	Magnitude of Enterprise Change	Gap between “as is” and “to be” states	Strategies and plans age or become obsolete quickly?
Scenario 1	Business Optimization Projects	Small	Small	No
Scenario 2	Paradigm Shifting Projects, with known “to be” architecture	Large	Large and with guidance of applicable dominant design or maturity model	No
Scenario 3	Paradigm Shifting Projects, with unknown or uncertain “to be” architecture	Large	Large and without guidance of applicable dominant design or maturity model	Yes

# Normal vs. Paradigm Shifting Projects



- **Normal Projects:** incremental change
- **Paradigm Shifting Projects:** transformative changes to operating models and mindsets

**Communities of Meaning  
&  
Enterprise Language for Change**

CHAIR



QUALITY

?????



# What is a Chair?



# Complex Chain of Meanings



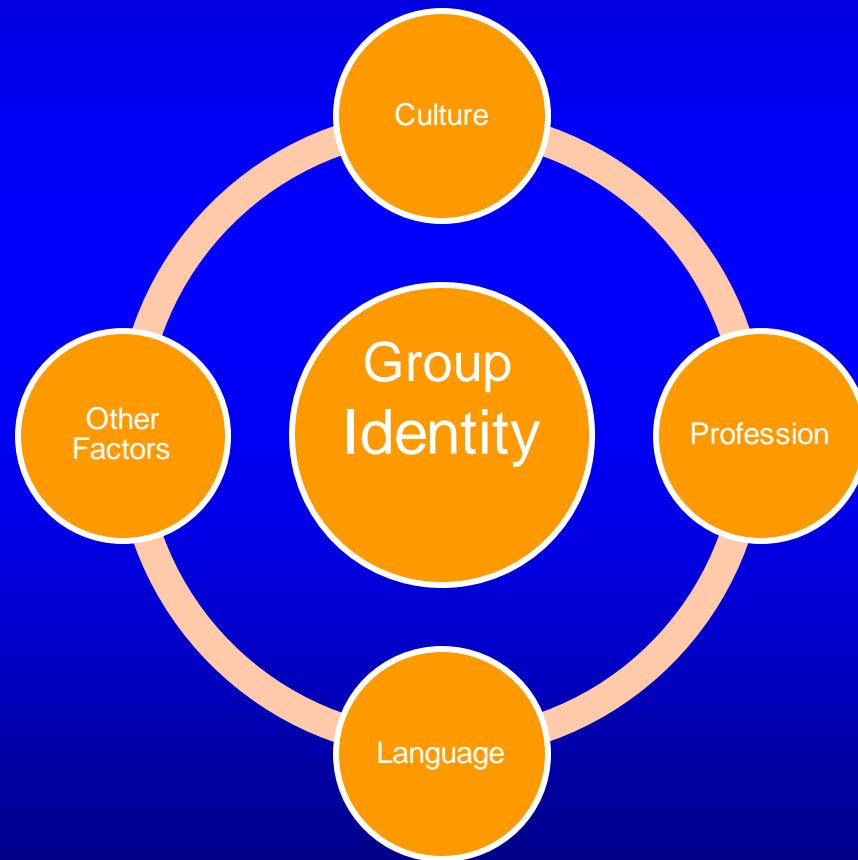
# We share understanding through language

- We interpret the world through language, by reading, writing, gesturing and speaking.
- Our observations are inseparable from our culture, professional groups and communities.
- Communities of meaning arise along these cross cultural cleavages.
- Our understanding in turn is based on these “communities of meaning.”

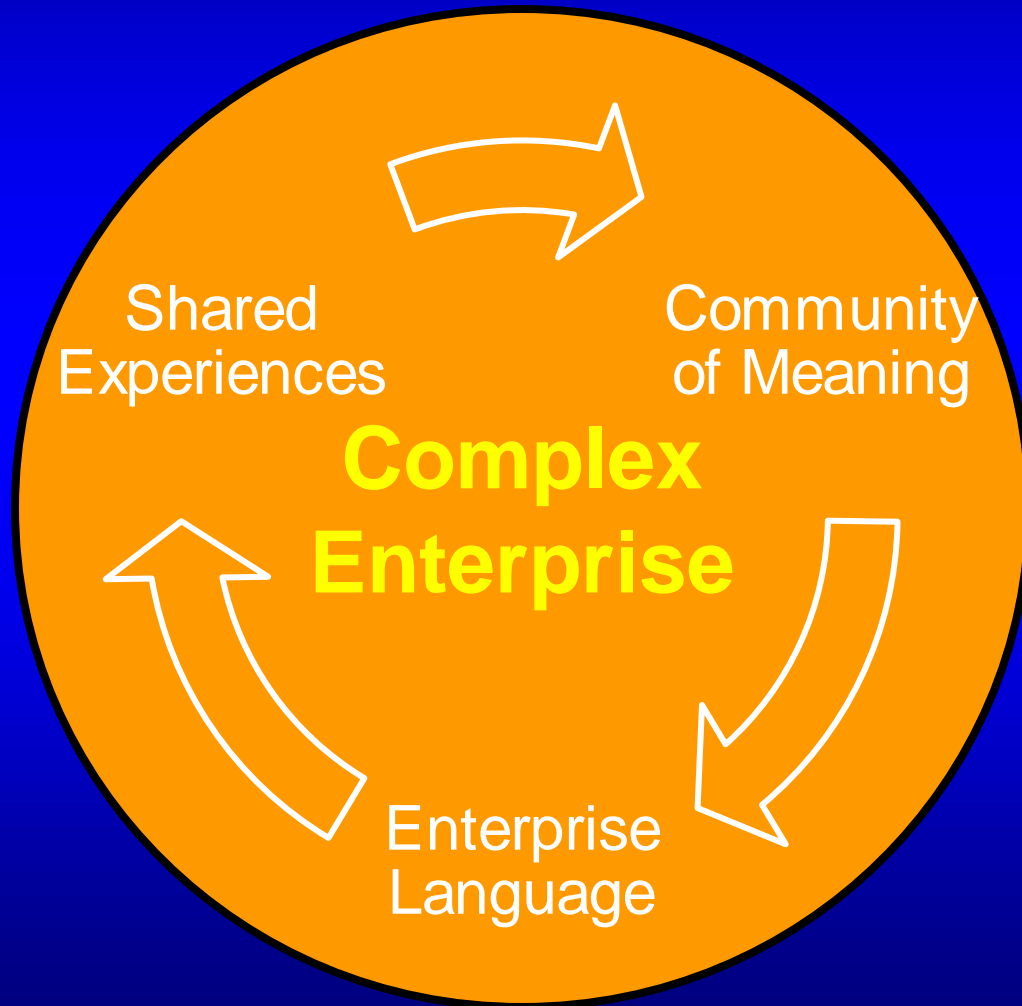
# Professional Groups as Communities



# Interaction of multiple factors forms Group Identity



# Enterprise language, Communities of Meaning, and Shared Experiences in a Complex Enterprise



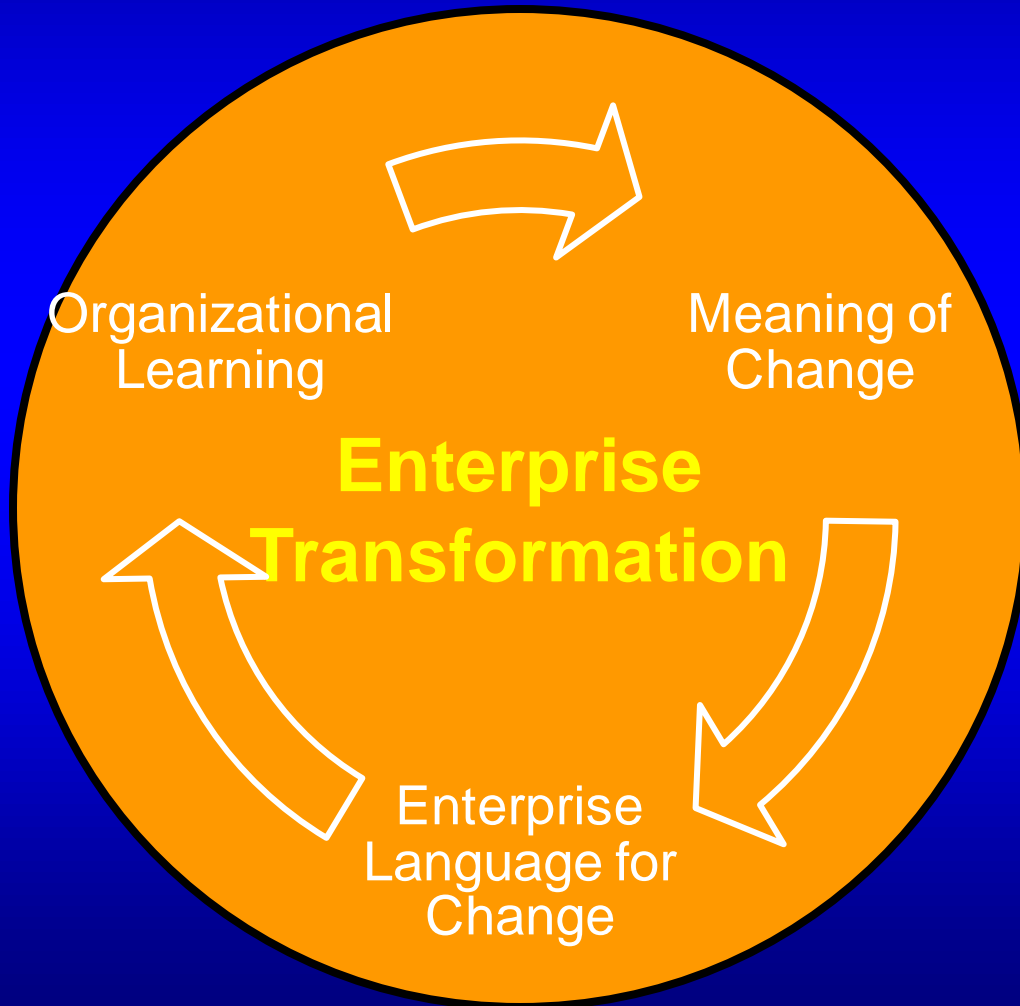


# Common Enterprise Language for Change

Characteristics of Natural Languages		Characteristics of <b>Enterprise</b> Languages
Spatial & cultural separations result in different languages that require translation to support effective communications.	→	<b>Functional specializations / separations</b> result in different languages that require translation to support effective communications.
Languages must evolve / expand to address new things or concepts.	→	same
Languages that fail to evolve risk decay or extinction.	→	same
Languages are subject to forces of competition and foreign invasion.	→	<b>Languages of different specializations can beneficially invade each other to support change.</b>
Possible emergence of shared “world language” to support commerce.	→	<b>Emergence of shared “enterprise language” to support change.</b>

**Shared language emerges out of shared experiences**  
**→ Importance of Enterprise Learning**

# Enterprise Language for Change



# **Navigating Transformative Change**

# Organizational Learning to Enable Change

- **Transformative Change → paradigm shift**
  - Needs changes in mindsets
  - Adoption of a new worldview
  - Must consider resistance to change
- **Organizational learning**
  - Cross-functional communication is key
  - Shared experiences: collaboration, training, social events

# Organizational Learning to Enable Change

- **Architecture thinking**
  - **Common language**
  - **Scenario 2 Change: Enterprise Architecture, dominant design & maturity models**
  - **Scenario 3 Change: “Create the right emergent behaviors”**
- **Role of Agile & other SDLC methods to support all of the above.**

# Managing Complexity During Change

- **Complexity may not lend itself to obvious simplification**
  - Collective behaviors are not just “sum of its parts”
  - Complex systems have emergent characteristics that may not trace to parts in obvious ways
- **Diversity**
  - Participants have different background, training, and values
- **Connection**
  - Participants affect each others’ perspectives
- **Interdependence**
  - Participants affect each others’ actions
- **Adaptation**
  - Participants can change / adopt perspectives & actions

# Managing Complexity During Change (Continued)

- Review goals & objectives of business case often
- Review plans often for alignment with business case
- Include slacks in schedule & budget
  - flexible response to the unknown-unknowns
  - “local optimal” vs. “global robustness”
- Two divergent views on Change Management
  - PMBOK view
  - Organization Change Management view

# Managing Complexity During Change (Continued)

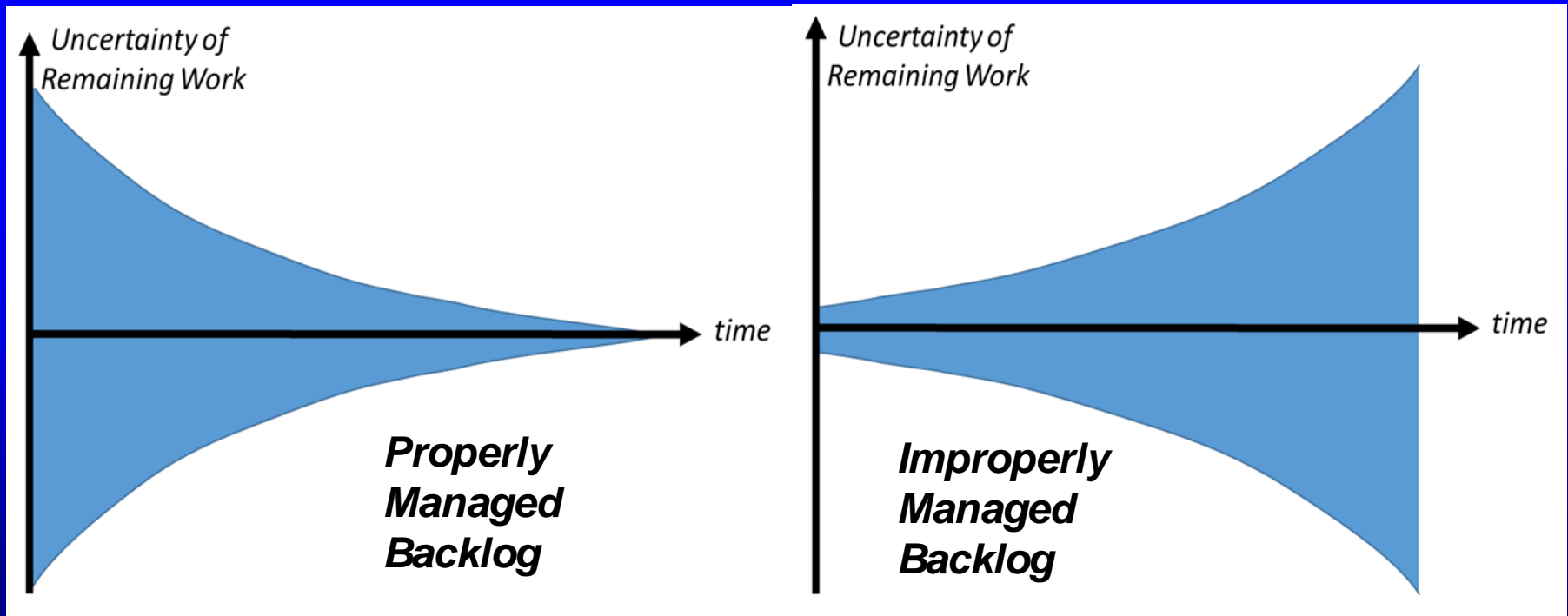
- **Encourage diverse perspectives among participants**
  - Fight “group think” and “resistance to change”
  - Must be balanced with timely decisions and actions
  - Weight of perspective by expertise
- **Exploit synergistic links between participants**
  - Leverage diversity, co-dependence, and adaptation
- **Self organized criticality on the dark side**
  - Conflicts that run away
  - Loss of mutual trust & confidence
  - Conflicts Avoidance that run away



# Agile “Risk Trap” in Transformative Change

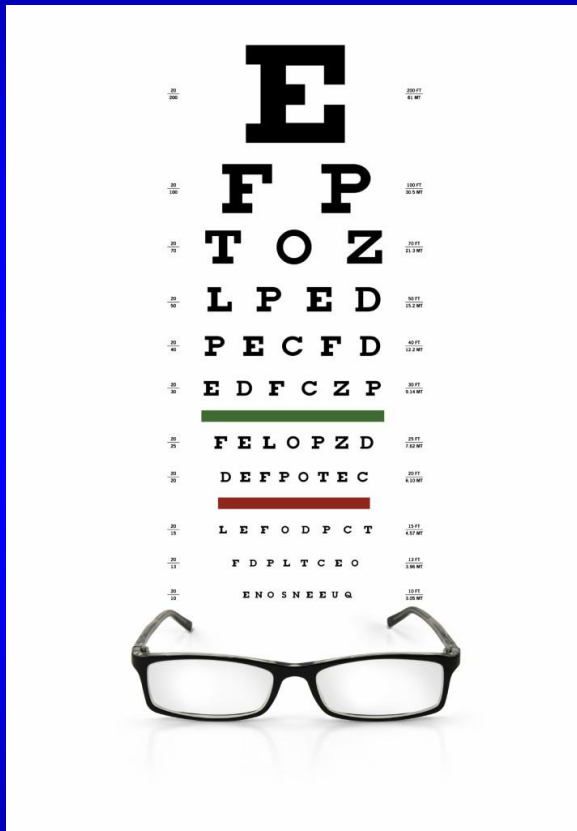
# Beware of the Unmanaged Backlog

- Agile allows conflicts to be “avoided” and “postponed” by deferring uncertain scope.
- Risk trap of the uncertain backlog:
  - Completed sprints have good statistics, but...
  - Backlog contains user stories that are poorly understood, with actual velocity un-quantified.



**Conclusion**

# Distorted Vision



Vision problems of large IT projects are caused by mindset blind spots and implicit biases in the enterprise.

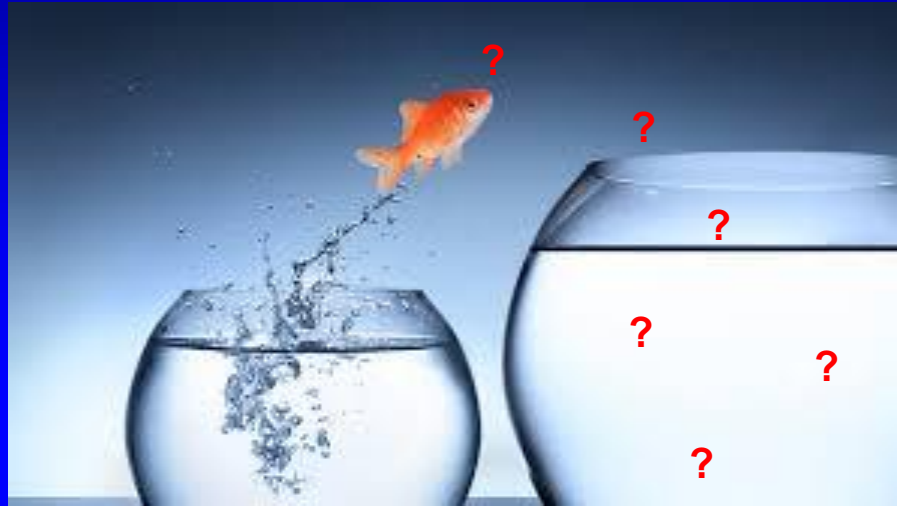
# Metrics Trap



- Detailed requirements / user stories – complete
- Deliverables / sprints – on schedule, on budget
- Backlog – remaining features / story points decreasing
- Scope creep – under control and minimized

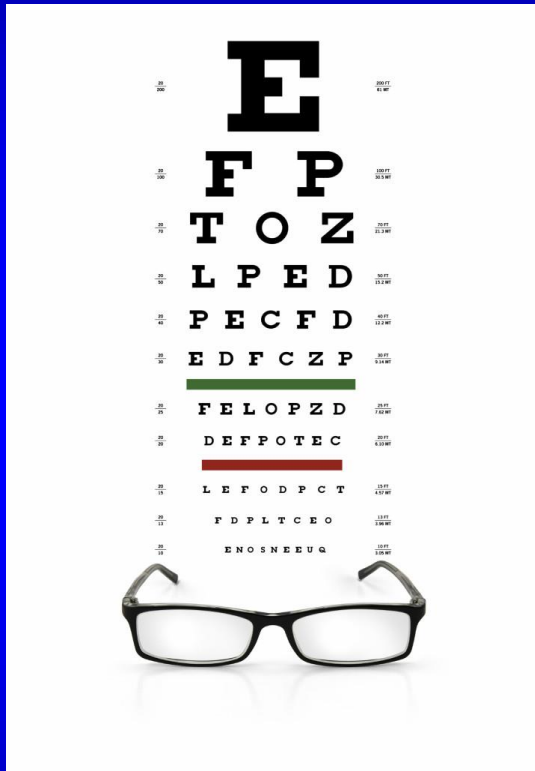
**“Normal” project metrics may be misleading in Transformative Change Initiatives**

# Transformative Change Initiatives



- Not incremental change
- Different strategies with different risks
- Outcome may be less optimal than expected

# Toward “2020 Vision” in Enterprise Projects



- Paradigm change is mindset change
- Organizational learning is key
  - Common language of change
  - Shared experiences during change
- Culture cannot be ignored
  - Across functions
  - Across divisions / departments



# Thank you!

**Jack McDowell will present the paper  
“Towards A Culturally Inclusive Software Quality”  
at PNSQC 2020 on Wednesday October 14 at 1 pm.**