# Agile Teams in Bureaucratic Organizations: Observations from Complexity Leadership Theory

NDIA Agile in Government Summit
June 2018

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# Outline

❑ **A Bit of Background…**

❑ **Agile Teams, Bureaucratic Organizations, and Complexity Leadership Theory (CLT)**

❑ **So What? How Can CLT Help?**

❑ **Now What? Where Do We Go from Here?**

*Note: These slides were prepared to support a live presentation and are not complete without the accompanying commentary. For more information, please contact the presenter.*

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# A Bit of Background…

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# Why This Topic?
*Agile Teams Working in Bureaucratic Environments*



**BUREAUCRACY**

**AGILITY**

Stability   Control   Authority   Convention

Adaptability   Emergence   Agency   Innovation

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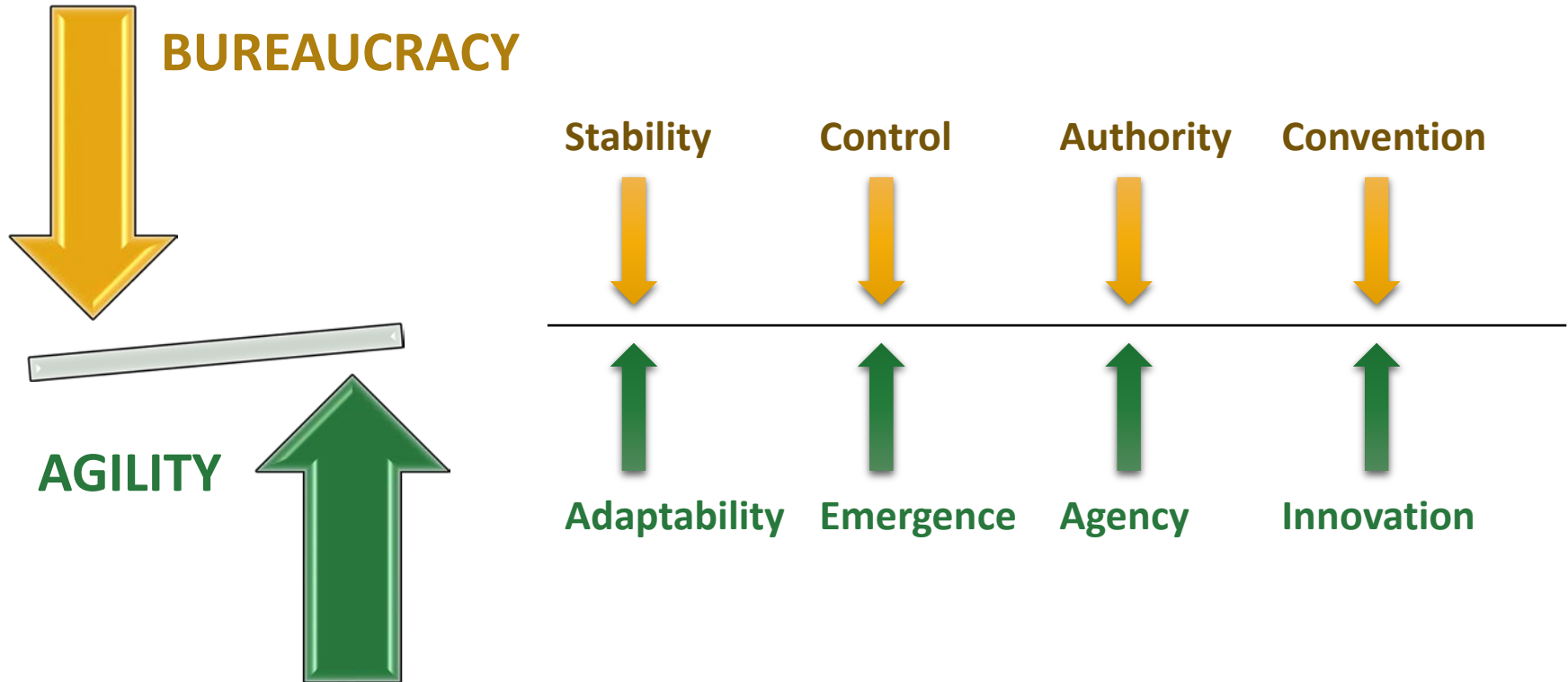
# Why this topic?

*Complexity Leadership, in a Nutshell*

**BUREAUCRACY**

*Complex Adaptive System*

**AGILITY**
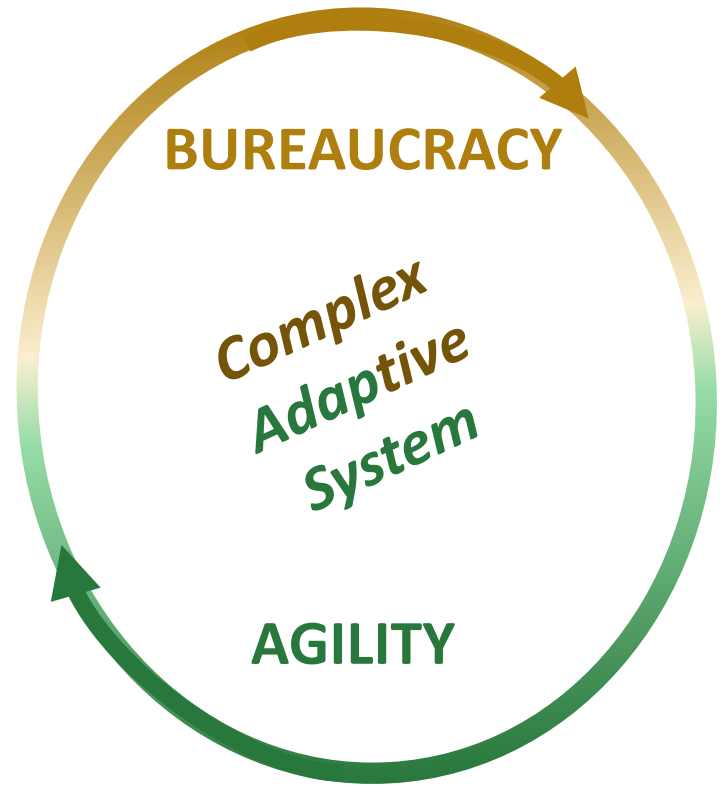
**"…leadership *in* and *of* complex adaptive systems"**
(Uhl-Bien & Marion, 2009, p. 631)

**A Lens for Agile Team-Bureaucracy Interactions**
- Clarifies key conflicts and synergies
- Illuminates the path toward productive outcomes

**Grounded in Work that Spans Disciplines**
- Organizational leadership
- Systems engineering
- Complexity science
- Agile software development

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# Why Apply Complexity Leadership to Agile?

Leadership for the Industrial Era
- Static, hierarchical frameworks designed to manage and control predictable processes and outcomes
- Suitable for simple and complicated problems

Leadership for the Knowledge Era
- Dynamic, network-oriented frameworks designed to navigate evolving requirements, technologies, and trade-offs
- Suitable for complex problems

Agile engineering teams live in the knowledge era; they function within, and build, complex adaptive systems

*Kinni, 2017; Uhl-Bien, Marion, & McKelvey, 2007

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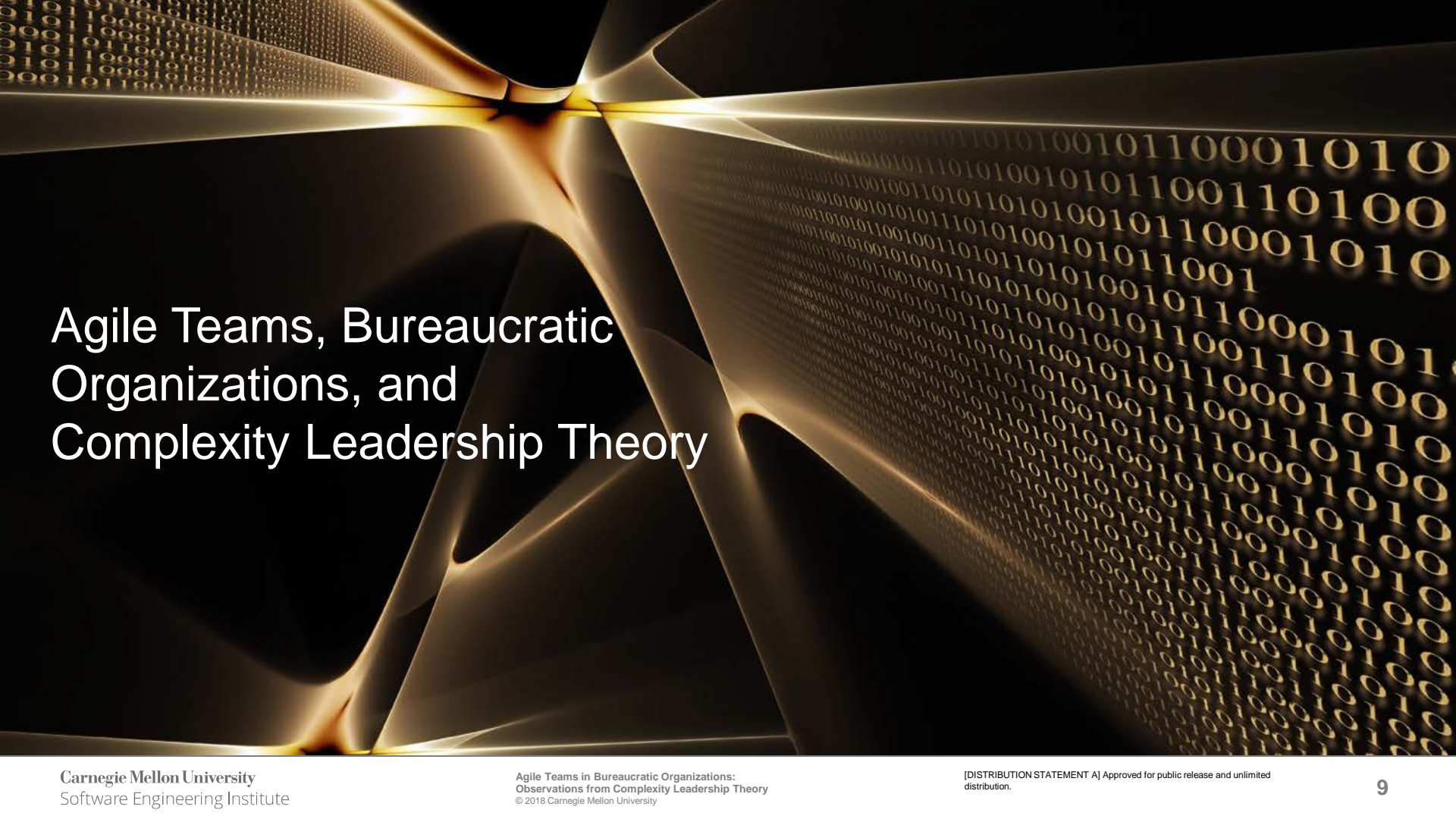
# Is This Something New for Us? No… and Yes

**No:** Some earlier references to complexity, agility, and systems and software engineering:

- Principles of complex systems for systems engineering (Sheard & Mostashari, 2009)
- Complex adaptive systems engineering (White, 2008)
- Leadership behaviors of management for complex adaptive systems (Johnson, 2010)
- Agile project management (Highsmith, 2009), Adaptive leadership (Highsmith, 2014)
- Agile systems engineering (Vargas, Baron, Esteban,& Estrada, 2017)
- RFP patterns and successful techniques for agile coaching (NDIA Agile WG, 2016)

**Yes:** Today's discussion extends and supplements earlier work, adding

- An overview of Complexity Leadership Functions (Uhl-Bien & Marion, 2009; Uhl-Bien & Arena, 2017) and how they may manifest in the subject environment
- Thoughts about how we can use Complexity Leadership to interpret and learn from successes, failures, and the tension between agility and bureaucracy
- An invitation to participate

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# Agile Teams, Bureaucratic Organizations, and Complexity Leadership Theory

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# Complexity Leadership Theory (CLT)[*]

What is Complexity Leadership Theory (CLT)?

- Multi-level, context-dependent, interactive process
- Uses three ***complexity leadership functions: administrative, adaptive, and enabling*** to reveal important dynamics in the interaction of bureaucratic structures with agile teams

CLT has cousins, i.e., other approaches to leading in a CAS context, for example

- Adaptive Leadership (Highsmith, 2014; Heifetz, Grashow, & Linsky, 2009)
- Complex Adaptive Leadership (Obolensky, 2010)
- Generative leadership (Goldstein, Hazy, & Lichtenstein, 2010)

CLT selected because CLT functions

- Provide a suitable analysis framework for data on applying agile within bureaucracies
- Can reveal both challenges and effective courses of action

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*Uhl-Bien & Arena, 2017; Uhl-Bien & Marion, 2008

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# Complexity Leadership Functions: Administrative*

**Administrative Leadership**

**Bureaucratic Systems**

**Focus**
- Control & Alignment

**Contributions & Linkages**
- Helpful constraints and supportive infrastructure
- Clarifying vision and stretch goals
- Global trade-off decisions (hmmm… sometimes)
- … add your own

**Challenges & Conflicts**
- Heavy and/or unnecessarily restrictive processes
- Communication and decision delays
- Miscommunication or no communication
- Global trade-off decisions with undesirable effects
- … add your own

*Uhl-Bien, Marion, & McKelvey, 2007;
 Uhl-Bien & Arena, 2017

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# Complexity Leadership Functions: Adaptive*

Administrative
Leadership

Bureaucratic
Systems

Adaptive Leadership

Agile
Teams

*Uhl-Bien, Marion, & McKelvey, 2007;
Uhl-Bien & Arena, 2017

**Focus**
- Timely delivery of value with needed quality

**Contributions**
- Results orientation
- Responsiveness to change
- Ground truth
- Local trade-off decisions
- Innovation
- … add your own

**Challenges & Conflicts**
- Skirting established procedures
- Communication failures → insufficient global awareness for some local decisions
- … add your own

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# Complexity Leadership Functions: Enabling*



Administrative Leadership

Bureaucratic Systems

Enabling Leadership

Adaptive Leadership

*Uhl-Bien, Marion, & McKelvey, 2007;
 Uhl-Bien & Arena, 2017

**Focus**

- Effective Entanglement
  (Uhl-Bien, Marion, & McKelvey, 2007)

**Contributions**

- Coordinates administrative & adaptive functions
- Obtains & sustains sponsorship of agile team
- Facilitates disciplined agility
  (Boehm & Turner, 2004)
- Surfaces conflict & drives productive resolution
- Catalyzes adaptive leadership

**Challenges & Conflicts**

- Pulled in multiple directions
- May not be recognized or valued
- … add your own

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# Interplay Between Complexity Leadership Functions
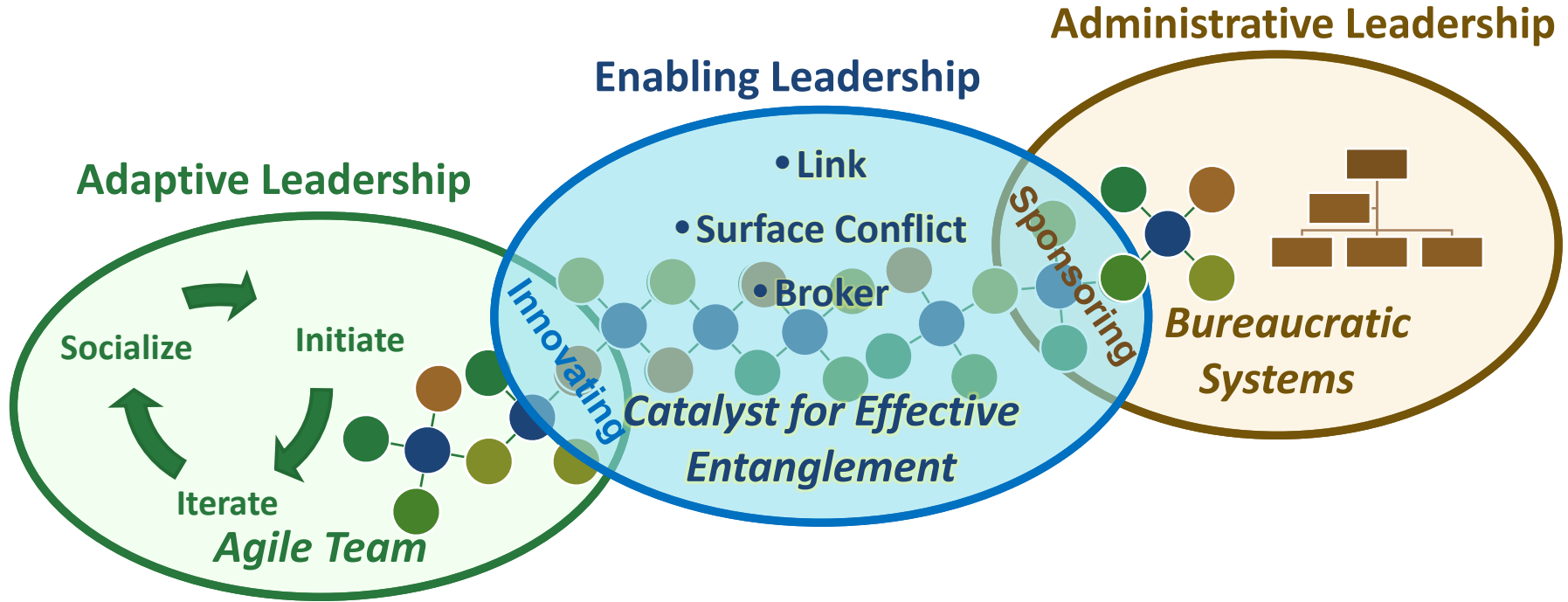


Adapted from Uhl-Bien & Arena, 2017; and Uhl-Bien & Marion, 2009

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# How Enabling Leadership Shows Up (or Doesn't)

**Depends on how adaptive the organization is… and how effectively the agile team communicates with the organization!**

**Enabling Leadership *will be invisible if* *administrative and adaptive functions are well integrated:*** Enabling is just part of administrative & adaptive leadership

**Enabling Leadership *(or the need for it)* will be evident if, e.g.,**
- Bureaucracy interferes with agility: Enabling leadership actively advocates for the agile team to have agency and appropriate level of autonomy
- Agile team lacks sufficient information, systems engineering, or infrastructure services: Enabling leadership articulates and obtains information and resources
- Agile team circumvents or discounts administrative requests: Enabling leadership determines rationale and defines and implements resolution
- Agile team accomplishments are not leveraged by the organization: Enabling leadership coordinates and follows up on organizational learning sessions

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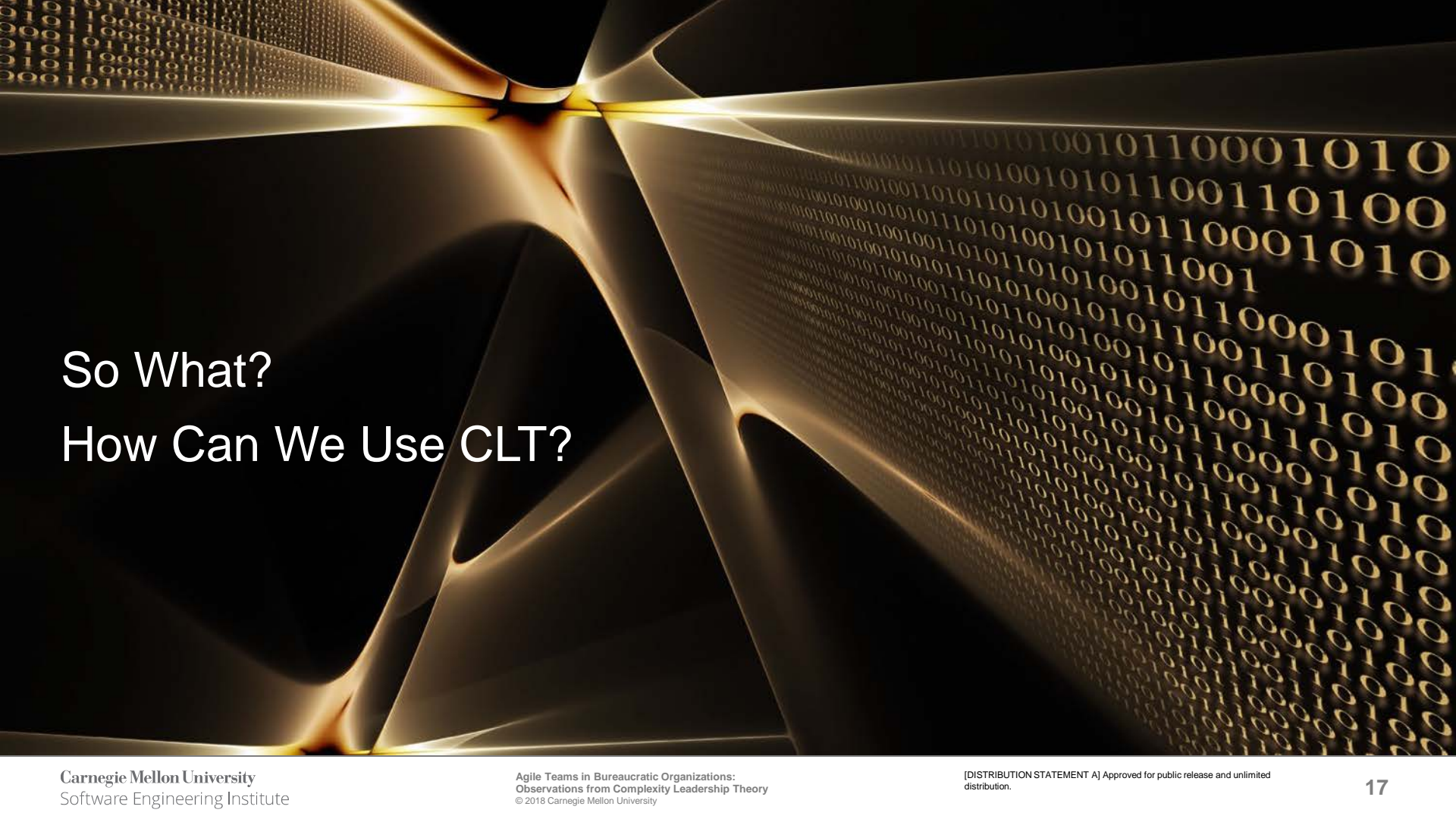# Key Points About Complexity Leadership Functions

They are FUNCTIONS, not static positions

Although we've mapped certain functions to certain levels (administrative to bureaucracy & adaptive to agile team), any complexity leadership function can exist at any level:

- Adaptive function at administrative level (e.g., organizational change agents)
- Administrative function at adaptive level (e.g., project managers for agile teams)
- Enabling function where needed for effective adaptive/administrative entanglement – also often emergent (e.g., due to unexpected events, personnel changes, vacations)

Enabling Leadership is quite common… but often unrecognized  (Uhl-Bien & Arena, 2017).

- No common language to describe it
- Doesn't fit conventional stereotype of what "leaders" do… hard work, greasing the wheels
- Look for it and you'll find it! (You'll also find holes where it's needed but missing.)
- "…understanding, developing, and rewarding enabling leadership practice is critical for organizational success and survival in today's complex world" (p. 16)

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# So What?

# How Can We Use CLT?

# Complexity Leadership *Theory* (CLT) Is a Theory…

Over a dozen theoretical propositions (Uhl-Bien & Marion, 2009)

Some questions derived from these propositions, tailored for our context:

1. How does the (bureaucratic) administrative leadership function interact with the agile team and what are the effects on each party and on project/organizational outcomes?

2. How does the agile team manifest an adaptive leadership function and what effects does this have on the parties involved?

3. What evidence exists to indicate the presence or absence of effective entanglement between the adaptive (agile) and administrative (bureaucratic) functions?

4. What evidence exists to indicate the presence or absence of an enabling leadership function that productively manages entanglement?

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- 
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Currently defining data elements, key words, and methods for answering these questions

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# Using CLT to Improve Experiences and Outcomes for Agile Teams in Bureaucratic Organizations

Patterns related to the leadership functions and organization/team outcomes may suggest

- characteristics that enhance agile team experiences, technical outcomes, customer satisfaction, organizational adaptability and innovation
- how the enabling function manifests in various circumstances
- how an organization or an agile team can recognize (or generate) and use an enabling leadership function

Patterns related to technical characteristics, particularly architecture and architecturally significant qualities,* may help

- clarify the impact of the leadership functions on technical quality
- tailor findings to different types of organizations and agile team projects

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*e.g., performance or specialty engineering/quality attributes such as reliability, maintainability, availability, integrity, confidentiality, safety, resiliency

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# Example Applications of Interest

Cybersecurity

- Compliance checklists work for some *complicated* systems… but checklists typically don't work for *complex* systems (Kinni, 2017)

- Need to integrate information assurance and security engineering into systems & software engineering
  - Streamline compliance (administrative)
  - Increase continuous risk management (adaptive; cyber risk modeling and analysis throughout the life cycle)

Other specialty engineering/quality attributes*…

- Not a "capability" or feature in the usual sense; about how the capability or feature performs and behaves

- Adaptive function needs to care but doesn't own and can't solve the whole problem

- Enabling leadership needed

*e.g., reliability, maintainability, availability, integrity, confidentiality, safety, resiliency

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# Now What?

# Where Do We Go From Here?

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# Next Steps

My Homework (hard!)

- Refine questions and data collection and analysis methods
  - Review extensive set of technical reports, journal papers, articles, presentations, books
  - Generate findings related to leadership functions, team/organization experiences, and outcomes, tied to project context
  - Incorporate additional data (from surveys, focus groups, individual interviews)
- Goal: Data-informed recommendations for leadership in complex engineering contexts

Your Homework (easy!)

- Find complexity leadership functions in action on your team, in your organization, on your projects and contracts: What do they tell you? Is this information potentially useful?
- If you'd like to discuss your thoughts or are interested in what comes next, feel free to contact me.

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# Closing Quotes from W. E. Deming …

W. Edwards Deming: ***"People are doing their best; the problems are with the system. Only management can change the system."***

- Today, it's not just *the* system: It's complex adaptive systems & systems of systems!
- Management
  - can change the systems they control or influence.
  - doesn't control and can't always influence the customer, the policy, the contract, the supplier... which can have significant effects on their teams and outcomes.

Deming (2000) also said, ***"An important job of management is to recognize and manage the interdependencies between components. Resolution of conflicts, and removal of barriers to cooperation, are responsibilities of management."***

- The purpose of this work is to see how we can apply complexity leadership— *particularly enabling leadership*–in bureaucratic organizations, to rapidly identify key interdependencies and barriers and improve agile team experiences and outcomes

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