FLOW SYSTEM

PARTICIPANT WORKBOOK

Complexity Thinking

Workbook: Complex Adaptive Systems

getflowtrained.com/playbook/CAS/

Complex Adaptive Systems

CAS Definitions

The following table (Table 1) provides the definitions for each of the eight characteristics of CAS. After each of these definitions, there is a space for you to provide an example from your own experience for each characteristic.

Complex Adaptive Systems	
Path dependent	Systems tend to be sensitive to their initial conditions. The same force might affect systems differently (Lindberg & Schneider, 2013).
Provide an example:	
Systems have a history	The future behavior of a system depends on its initial starting point and subsequent history (Boal & Schultz, 2007).
Provide an example:	
Nonlinearity	React disproportionately to environment perturbations. Outcomes differ from those of simple systems (Lindberg & Schneider, 2013; Luoma, 2006).
Provide an example:	
Emergence	Each system's internal dynamics affects its ability to change in a manner that might be quite different from other systems (Lindberg & Schneider, 2013).

Complex Adaptive Systems (cont.)	
Provide an example:	
Irreducible	Irreversible process transformations (e.g., lower level state to a higher level state) cannot be reduced back to its original state (Borzillo & Kaminska-Labbe, 2011).
Provide an example:	
Adaptive	Systems that are simultaneously ordered and disordered are more adaptable and resilient (Lindberg & Schneider, 2013).
Provide an example:	
Operates between order and chaos	Adaptive tension emerges from the energy differential between the system and its environment.... Sandwiched between the edge of order and the edge of chaos (Borzillo & Kaminska-Labbe, 2011).
Provide an example:	
Self-organizing	Systems are composed of interdependency, interactions of its parts, and diversity in the system (Lindberg & Schneider, 2013).
Provide an example:	

CAS Characteristics, Definitions, and Common Components (Turner & Baker, 2020)

Self-Coaching Reflection

Reflecting on your self-coaching responses in the Cynefin framework workbook and contrasting it with the above insights regarding Complex Adaptive Systems (CAS), please answer the following questions:

Complex Adaptive Systems	
What evidence may indicate that your organization is a complex adaptive system?	
Identify the simple rules of your complex adaptive system?	
Identify a specific issue or problem that you are experiencing in your organization to answer the following reflection questions. Describe this issue/problem here.	
Describe in your own words what path dependent is.	
Path dependent: Identify a decision that was planned to result in a big change but only produced a small change. Identify a small change that resulted in a big change.	
Describe in your own words nonlinearity and explain how the issue mentioned above is nonlinear (planned input results in unexpected outcomes).	

Complex Adaptive Systems (cont.)	
Describe emergence in your own words.	
Emergence: Provide an example of how the issue resulted in the system or part of the system within your organization (system can be individuals, teams, groups) emerging into a new and different entity.	
Describe irreducible in your own words.	
Irreducible: Identify a transformation that cannot be reverted to its original state due to the circumstances around this issue.	
Describe adaptive using your own words.	
Adaptive: Identify a system that has shown to be adaptive and explain how it meets this characteristic.	
Describe the characteristic of “operates between order and chaos” in your own words.	

Complex Adaptive Systems (cont.)	
Operates between order and chaos: Provide an example in which the issue causes systems to operate between order and in a chaotic state.	
Describe self-organizing in your own words.	
Self-organizing: Identify a system that functioned using self-organizing capabilities to combat the threats from the issue/ problem.	

Connect the Three Helixes:

Flow can only be achieved when the three helixes are interconnected. To identify how this could occur, the next exercise requires the reader to identify examples of different methods from each of the other two helixes (distributed leadership, team science) that might work well when addressing complex adaptive systems. Knowledge of all three helixes will be required to make these connections.

Connect the Helixes	
Select a scenario or problem that would include a complex adaptive system.	
Identify three methods from distributed leadership that could work with a complex adaptive system and give a brief description about how they complement one another.	
DL Method 1:	
DL Method 2:	
DL Method 3:	
Identify three methods from the team science helix that could work with a complex adaptive system and give a brief description about how they complement one another.	
TS Method 1:	
TS Method 2:	
TS Method 3:	
Provide a description explaining which methods from each of the three helixes (with complex adaptive systems being the CT method) work best for the scenario/problem identified earlier.	