

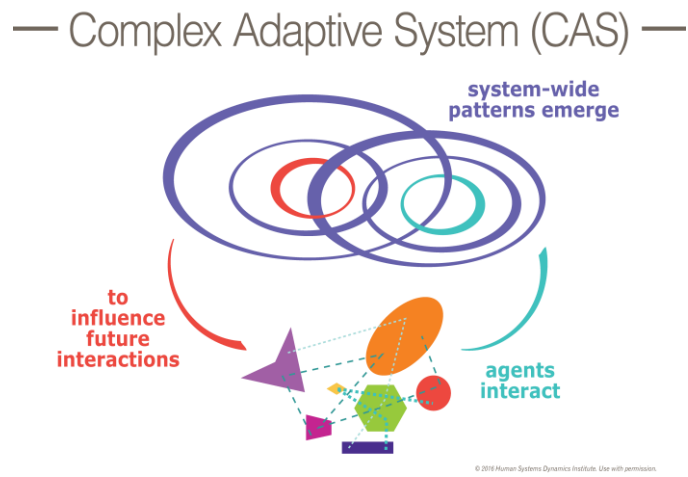


HUMAN SYSTEMS
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Complex Adaptive System

Description of Complex Adaptive System

This representation of a Complex Adaptive System (CAS) offers you a way to think about how patterns emerge from the complex interdependencies around you. Use it to inform understanding and action as you work to influence dominant patterns in your system.



What?

As early as 1997, Kevin Dooley, defined Complex Adaptive System (CAS) as “a group of semi-autonomous agents who interact in interdependent ways to produce system-wide patterns, such that those patterns then influence behavior of the agents.” In human systems at all scales, you see patterns that emerge from the interactions of agents in that system. Thoughts, experiences, perceptions interact to create patterns of thought. Shared attitudes toward diet, exercise, and physical awareness interact to shape patterns of health in team or community. In an organization or business, individuals play out their roles, relationships, and expectations to generate patterns of competition or innovation. In organizations and communities, history, traditions, and expectations all influence behavior to shape dominant patterns we see as the culture of that group.

So What?

Using this image of a Complex Adaptive System, you can explore your system on multiple scales, considering how agents’ interactions generate patterns. It can inform

Nothing is intractable.

your understandings of how some of those patterns emerge as dominant over others and how other patterns may be diminished and/or eradicated.

That level of access to underlying dynamics informs your sense making about what you see, experience, and know as reality in your team or community. You can understand why the competition is so fierce across departments in your organization. You can name the interactions that influence those patterns, and you can see how those particular patterns are a benefit or liability in the greater marketplace.

That level of access also has the potential to inform future action toward greater fitness for the whole system. If you recognize that internal competition is hindering your innovation cycle and creating slow response time in the market, you have a path to explore those patterns. You can consider conditions that shape those patterns and make better informed choices about your next wise action.*

Now What?

Use Complex Adaptive System in your next sticky issue to:

- ▶ Visualize the interdependent agents that make up your system.
- ▶ Consider the dominant patterns that shape the culture or perspectives in your community.
- ▶ Explore current impact and potential influence in the conditions between and among the agents in your system.

* For more information, visit www.hsdinstitute.org.



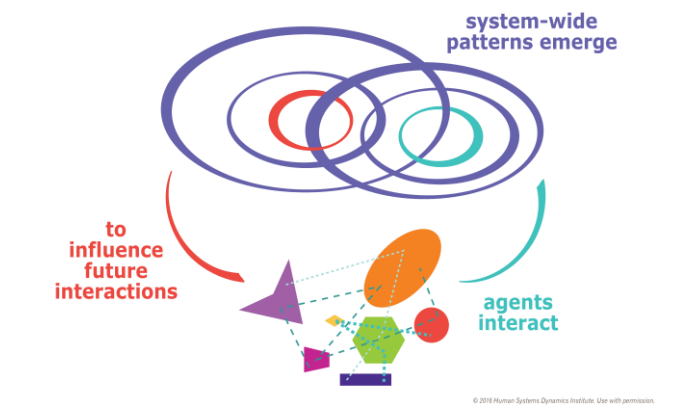
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What is the Purpose of the Complex Adaptive System (CAS) model?

A complex adaptive system (CAS) is defined by Kevin Dooley in 1997 as “a group of semi-autonomous agents who interact in interdependent ways to produce system-wide patterns, such that those patterns then influence behavior of the agents.” This definition helps you visualize the dominant patterns of your team or organization and the ways the agents in that system—employees, departments, market factors, ideas—interact at all scales to create those patterns. It also enables you to consider how those patterns align with the landscape of the greater environment—the customer base, broader market, community values and interests. It allows both the short view and the longer view for taking action toward the best fit for your team.

— Complex Adaptive System (CAS) —



In human systems, each agent (person, groups, and/or clusters of groups) has freedom to make their own choices about when and how they interact. That degree of freedom is influenced by a number of factors. Most specifically in a team, organization, or community, it is defined by dominant patterns in the greater complex adaptive system.

In organizations and communities, these dominant patterns are called “culture.” In a small group or individual, they might be referred to as “personality.” Ultimately behavior is influenced by those patterns, as people try to “fit in” with existing patterns. Tension is energy created when individuals work together to find the best fit with those dominant patterns. Sometimes it is the creative energy of innovation that moves a community to new levels of thought and performance. Sometimes it is the destructive energy of overblown competition and self-aggrandizement.

Nothing is intractable.

So What Can CAS Offer You?

The Complex Adaptive System model helps you identify and reflect on patterns, their fitness with the greater environment, and their triggers or origins in your own team. Patterns emerge as individuals and groups respond to tension in their environment, seeking coherence by adapting their own behaviors in response. Consider turbulence caused when two organizations merge. Employees find ways to clarify new expectations and take action to align themselves with the new emerging culture. In your social community, new members experience tension in the “different-ness” between their own experience and the dominant patterns they step into. Over time, they relieve that tension as they learn to fit with or ignore expectations of the greater group.

Some patterns are more productive than others, when considering sustainability and fitness. What helps someone reduce tension (find fitness) with their nearest neighbors in the system might increase tension (decrease fitness) with their greater community. For example, the behavior in a street gang is highly regimented, with clear expectations, hierarchies, and roles. To sustain participation (reduce or resolve tension) in such a culture often requires behaviors that put the street gang members at odds with the larger community, as manifested in turf wars, violence, and legal issues. Individuals and groups have to negotiate and navigate these differences in ways that seem most accessible to them at any given moment.

Because patterns in an organization are self-reinforcing, to change the “culture” requires individuals to change their behaviors on such a scale that they can influence existing patterns—amplifying those patterns they find productive, and damping patterns they find nonproductive. This is an ongoing and difficult challenge as individuals seek to shift shared expectations and agreements and generate new patterns. When you use CAS to visualize agents and their patterns, you are better able to identify conditions* they set in their interactions. Naming and exploring those conditions is a next step toward generating multiple options for your next wise action to change those patterns.

Now What Can You Do to Use CAS to Your Best Benefit?

Use CAS to help you visualize interdependence and emergence in your system. Use guides like Magic 21* protocol to help you identify the conditions being set by the agents in your system. Then you can explore ways to shift those conditions to influence the patterns toward greater fit.

- ▶ Name the patterns and identify the tension in those patterns—both the impact and the likely sources.

* For more information, visit www.hsdinstitute.org

- ▶ Consider how interactions in the system do or can contribute to the tension.
- ▶ Engage with others to shift the tension and influence new patterns.
- ▶ See what happens and start the cycle again.

Nothing is intractable.