

Human Systems Dynamics: Complexity-Based Approach to a Complex Evaluation

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Published in:

Williams, B. & I. Imam. (2005) Systems Approaches to Evaluation: An Expert Anthology. American Evaluation Association.

Introduction

Our challenge was to evaluate an organizational change process in a 3,000-person county social services department (Cope County¹) and to recommend ways to move the change forward more effectively and efficiently. Several features of this project pointed us toward a systems-based approach:

- The business purpose for the organizational change was integration of human services, which involves collaboration and co-evolution among many programs that had traditionally worked independently.
- The organizational shift that was required to support integration of services merged six departments that were isolated from each other into a single mega-department.
- Multiple change initiatives were in process at the same time within the Department, and the organization needed a consistent way to evaluate each of the smaller projects and the context of the whole.

This kind of massive and increasing entanglement and the need to evaluate both small and large contexts in consistent ways signal to us the need for some systems-based approach for evaluation. Then the question emerges, “Which systems-based approach will be most effective?”

The diversity of systems approaches that are available to the evaluation professional today is well demonstrated by the variety of methods and methodologies represented in this volume. Distinguishing among their strengths and weaknesses is a daunting task because definitions within each domain vary widely, and the explanations of the similarities and differences among them are even more numerous and confusing. When we select a method, we focus on distinctions that we have found most useful *as practitioners* looking to make sense of the wide range of systemic approaches available to us.

¹ Cope County Social Services Department is a fictional name for a real department in a real county. All other aspects of the case described here are true. Only the name has been changed in an effort to limit the effect that publication of this study might have on the internal and continually emerging dynamics in the real world of Cope County.

Conceptual Foundations

The assessment design for Cope County was based on systemic and conceptual assumptions drawn from complex adaptive systems (CAS) and human systems dynamics (HSD).

CAS is an interdisciplinary field in the physical and information sciences that explores emergent patterns of behavior. HSD applies principles from disciplines related to nonlinear dynamics (CAS is one) to see and influence the complex behavior of people as they work and play together in teams, organizations, and communities.

Complex Adaptive Systems (CAS)

Though it shares many characteristics with other systemic approaches, complex adaptive system views are different in some fundamental ways. A complex adaptive system is a *collection of semi-independent agents that have the freedom to act in unpredictable ways, and whose actions are interconnected such that they generate system-wide patterns.*

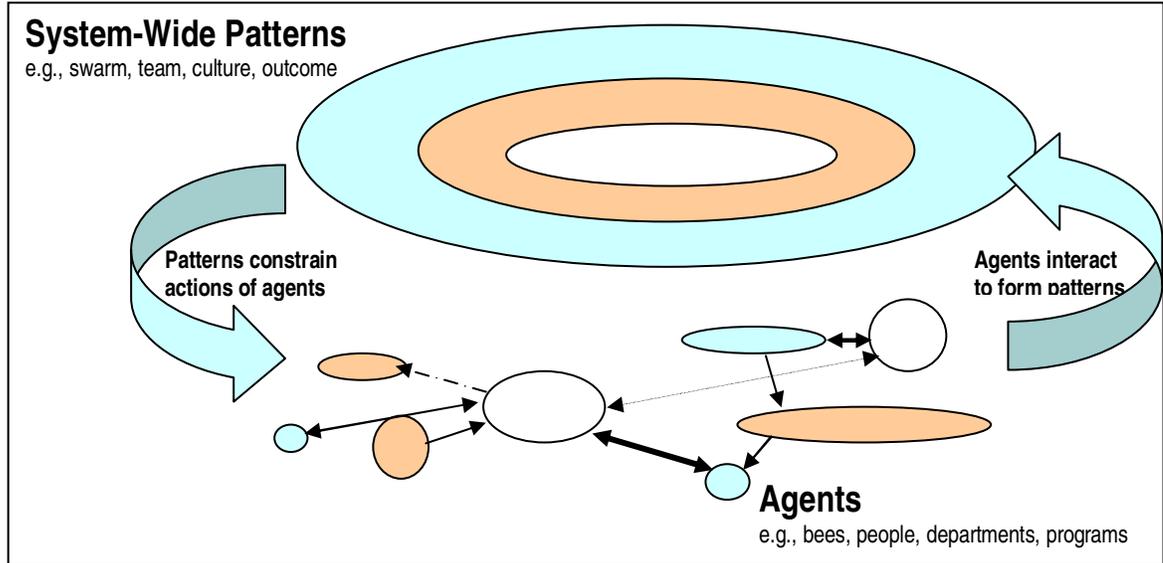
Emergent, system-wide patterns are said to “self-organize” in the system over time because changes in structure result from internal dynamics and interactions rather than external influences.

In the physical sciences, examples of agents in complex adaptive systems (CAS) include bees that self-organize to generate a swarm, molecules of various chemicals that interact to generate a Belousov-Zhabotinsky reaction, genes that self-organize to generate a phenotype, and species that co-evolve to form a living ecosystem. In each of these cases, identifiable system-wide patterns result from the interactions between and among multiple agents and their clusters that form subsystems.

In human systems, analogous phenomena appear in the informal formation of teams, gangs, crowds, and cliques. The formation of emergent patterns also influences more formal systems, such as the cultures and structures of organizations, businesses, or governments. In each case, individuals or small groups interact in unpredictable ways, and system-wide patterns emerge over time.

Figure 1. Complex Adaptive System graphically presents the emergent nature of systemic patterns in a CAS. The random oval shapes at the bottom represent agents of various sizes, dispositions, and characteristics. Over time they interact, and interactions among agents generate emergent patterns, shown as the set of nested ovals at the top of the diagram. When the patterns are established, they constrain the future behavior of agents. You see this in human systems when a culture emerges, then peer pressure causes people to conform to it. The arrow at the left indicates the constraint. Over time, because of the system constraint, the emergent pattern is reinforced and strengthened.

Figure 1. Complex Adaptive System



Human Systems Dynamics (HSD)

CAS and other nonlinear approaches have been used to understand the dynamics of a variety of physical and mathematical systems. Patterned behavior in those contexts is analogous but not identical to emergent behavior in human systems. People are conscious of the behavior of themselves and others, they learn from past experience, and they have hopes and desires for the future that affect their behavior and their expectations of others. Finally, and probably most important, people take intentional action to influence patterns as they emerge. All of these characteristics complicate the complex adaptive nature for humans and the systems they create. For this reason, a literal translation of CAS to human systems is insufficient to help us see and influence patterns that emerge from social interactions.

The emerging field of human systems dynamics (HSD) integrates perspectives of CAS and other nonlinear sciences with traditional social sciences to articulate the complex dynamics that shape self-organizing patterns in social systems at all levels— intrapersonal, interpersonal, within small groups, organizations, and communities. The HSD perspective can inform understanding and action in complex situations, such as the transformation of an organization to integrate services. HSD is based on the definition of social structures as complex adaptive systems (CAS), but it also incorporates the unique features that humans contribute to the systemic dynamics. HSD shares assumptions with and uses metaphors, tools, techniques, and methods that derive from the new nonlinear sciences, including the study of complex adaptive systems.

Why use an HSD approach to evaluate the Cope County reorganization?

The Cope County project involved characteristics that indicated the need for a human systems dynamics (HSD) approach. An HSD approach to evaluation makes sense when:

- Participants in the system possess a moderate degree of freedom of action.
- Systems of interest are defined more by functions than by structures.
- Change over time is seen as dynamical, rather than dynamic or static.
- Expectations and outcomes are emergent, rather than predetermined.
- System boundaries are open rather than closed.
- Change is acknowledged at multiple units of analysis (individual, process, organization, client, etc.) simultaneously.

Let's look at each of these in turn.

Moderate Degrees of Freedom

Agents (e.g., staff, teams, organizations, funders, clients) participating in human systems may have more or less freedom to act in unpredictable ways, and evaluation methods can be selected to reflect the complex and variable levels of constraint that shape emergent patterns and make them more or less effective.

The situation is analogous to the plight of water molecules at various temperatures. Below freezing point, the molecules are tightly constrained. Above boiling point, the molecules are free to move about unimpeded in three-dimensional space. Between melting and boiling points, the molecules have more freedom to move in space, though they usually stay connected to each other. Human systems dynamics demonstrate similar patterns of constraint and resulting systemic behavior.

Functions Rather than Structures

Human systems dynamics (HSD) approaches focus on functions and their interdependencies. Rather than defining specific structures and relationships among those structures (e.g., formal organization charts), HSD methods include network, ecological, and genomic models in which systemic and functional system features—like patterns—emerge and are subject to fundamental changes in identity over time.

Dynamical Change Rather Than Dynamic or Static

People who work with systems are often as interested in how change takes place as they are in whether or not change occurs. Physical scientists distinguish among three ways to describe change over time—static, dynamic, and dynamical. Each kind of change requires different systemic evaluation approaches. A *static* description presents a system at rest. Change, when it comes, is the result of specific interventions that shift the system from one stable point to another. A *dynamic* description acknowledges change over time,

but it assumes a smooth trajectory. Physical examples include the parabolic path of a moving projectile— direction and speed change continually in response to the momentum of the object and the pull of gravity. *Dynamical* change is influenced continually by variables that are interdependent (rather than independent or dependent). When change in a system is dynamical, the system may shift from rest to rhythmic oscillation to random thrashing. These changes seem to be spontaneous, but they are driven by the internal dynamics of the system itself as the constraining conditions interact with each other to influence the behaviors of agents in the system.

Emergent Rather Than Predetermined

HSD perspectives assume self-organizing forces within the system emerge from the past into the present to shape future results over time. Results in the future emerge from interactions in the moment. The future is unpredictable because the dynamical interaction of the forces at each point cannot be known in advance.

Clearly, goals have influence over organizational performance and change. This is one of the key ways in which the dynamics of natural, physical complex adaptive systems (CASs) are distinct from human systems dynamics (HSD). Because human beings are conscious and intentional, we can individually envision a future different from the present. Because we have language and social connections, we can collectively align our individual actions to support the goals of the whole. Because of our self-consciousness and connections, we have the means to introduce a shared goal for the future as one of the complex forces that affect our actions in the present. Nevertheless, as participants in complex, highly interdependent and emergent systems, even the most competent individuals cope with unknowable and uncontrollable futures.

Open Rather than Closed

In his *General Systems Theory*, Von Bertalanffy recognized the differences between systems that are open and closed. Most of his work focused on closed systems, because the questions related to them were more tractable, given the mathematical tools and techniques available to him. Although “closed system” approaches are useful, many systems approaches these days describe systemic behavior in terms of open rather than closed systems.

Complex adaptive systems, and their HSD correlates, are assumed to be open systems. Effective boundaries appear and disappear over time, and are not “given”; an observer is free to define boundaries for the purposes of description or analysis. In addition to impermanent system boundaries, complex systems are unbounded in two additional ways. They are scaled, so that dynamics at smaller scales (such as individuals) affect patterns that emerge at larger scales (group dynamics). Complex relationships between and among levels of analysis keep complex systems open to unseen influences. Also,

containers in human systems are massively entangled². One individual participates in multiple natural systems. One person belongs to many containers, a work group, a family, and a faith community. Emergent patterns within each of those containers shapes the individual who, in turn, shapes patterns as they emerge in the other containers. All of these factors ensure that human systems function as open systems and, though evaluators can define a system as if it were closed (and there will be times when this is useful), the reality tells a different story.

Multiple Levels of Analysis

Human systems involve massively entangled relationships and multiple systems levels that interact over time. Changes at one level influence emergent patterns at levels above and below. To capture the dynamic emergence of organizational change, an HSD assessment tracks changes at individual, group, departmental, and organizational levels of scale.

In the following sections, we will tell the story of the complex client environment, provide conceptual background from CAS and HSD that informed the evaluation design, and describe the method and outcomes of the evaluation.

The Story: Cope County Integrates Human Services

Since the mid-1980s, “integration” has been the “holy grail” for the delivery of public human and social services in the US. The traditional service delivery model was based on bureaucratic isolation of programs from each other. Clients who needed food stamps, child support, job training, and medical benefits had to make multiple connections, endure repetitious registration processes, and pass inconsistent eligibility criteria. Many policy makers believed that integrating these services would not only reduce client frustration but also lower costs and improve outcomes because clients could receive a package of services that responded to their unique needs and challenges.

In spite of a clear belief in and commitment to integrated services and extensive efforts by states and counties, non-profits and business interests during the 1980s and 1990s, few integration programs have been successful. Programs that have succeeded in limited scope or timeframe have proven not to be scalable or sustainable. The experience in Cope County mirrored this national pattern.

In the previous decade Cope County had engaged in a variety of efforts to integrate services, including establishing a pilot of community-delivered services, cross-functional teams, co-locating services, providing information technology to support shared services, and establishing budgets and project teams that crossed program lines to support specific

² A “container” is the feature of a complex adaptive system that defines the collective identity of a group of agents. The concept is explained in more detail later in this chapter.

groups of clients. These individual efforts had produced a wide range of success, and none had established long-term or broad-based integration of services. In 2004, the county was ready to make a major organizational transformation to support the integrated delivery of human services.

Cope County is a large, urban county in the Midwestern US. In January of 2004, six human and social service departments of the county merged into a single Social Services Department (SSD). The purpose of the redesign was to integrate services to improve client outcomes. The newly formed Department included 3,000 employees and took responsibility for a comprehensive list of human service functions, including children, adult, and family services; community health; economic assistance; training and employment assistance; and veterans services. Management and governance structures were redefined and a consolidated budget was developed. Almost a year later, in the fall of 2004 senior management decided to assess the progress of the redesign effort. The assessment was to focus on three questions:

- How is the organizational change progressing?
- What recommendations can be made for improving the progress?
- How can we assure that the change supports employees in meeting the needs of clients and communities?

In early conversations with Department leadership, other objectives were defined for the evaluation products and process.

- Develop internal capacity for change evaluation and management
- Engage an existing cross-functional Redesign Team as partners in the design, implementation, and analysis of the evaluation to form an Assessment Team of internal staff and external evaluators
- Acknowledge the negative shared discourse about the changes (negative comments were rampant), but focus on behavior and performance issues related to the redesign

In collaboration with the departmental leaders and a cross-functional Redesign Team, the Assessment Team considered the business goal (integration of services) and the current organizational status. Other evaluation processes were working in parallel with this project to assess client outcomes and service delivery processes. The focus of this project was solely and completely on the organizational redesign. Given the complex and systemic nature of the environment and the redesign process, we decided that a systemic approach based on HSD principles would be most effective in answering the questions posed for this evaluation.

The next section outlines the tools and frameworks we used to evaluate the reorganization based on HSD principles

CDE Model for Conditions of Self-Organization

Considering human systems as complex adaptive systems can help us understand in retrospect the patterns that emerged and the developmental path that might have shaped current structures. Such a perspective is not sufficient, however, to shape intentional action that affects human systems dynamics. In order to influence emergent patterns, we need to know and adjust the conditions that determine the speed, path, and outcomes of self-organizing systems. HSD defines three conditions for self-organizing in human systems: C, D, and E.

First, a container (C), bounds the system and determines the sub-set of agents that will interact to form collective patterns of systemic interest. In the Cope County case, we can consider a variety of factors that function as containers. Each management level is a boundary of sorts and generates patterns of systemic behavior over time. Individuals at all levels of the organization hold their own histories and identities, making each of them a relatively contained, self-organizing structure. Each change initiative executed during the preceding year functioned as a relatively independent, emergent system. And ultimately, the newly formed SSD functioned as a powerful organizational container, in which the desired pattern was greater integration of services for clients.

Any human system includes an unknowable number of containers. In Cope County, for example, other containers might include professional groups, cultural or racial identity groups, groups with shared history, those with seniority, pay grades or scales, and so on. Luckily, dealing with all possible containers is neither possible nor necessary. An HSD approach focuses on the most relevant emergent patterns and the containers within which those patterns emerge.

Second, differences (D) within the container establish the tendency toward motion and define the features of the pattern that emerges across the system. Difference is the engine that drives self-organizing behavior. Without difference within a container, nothing will happen—entropy rules. Distinctions among schedules and eligibility requirements drove the need to integrate services, and the variety of internal policies and procedures set the conditions for the redesign of Cope County. At the same time, differences serve the function of articulating the patterns that result from self-organizing processes. If the organizational transformation is successful, Cope County will not be a homogeneous whole. Rather, it will incorporate systemic patterns of differentiation that fit the environment, including the needs of various client groups, demographic trends, fiscal constraints, and political and public expectations for services. Each of the Cope County containers (management levels, individuals, work groups, change initiatives, and the Department as a whole) includes its own set of significant differences. For example, within the management level container, one would expect funding to be a significant difference, but this would be less significant in the self-organizing perceptions of an individual worker.

The third, and last condition for self-organizing describes the interactions or exchanges (E) among the agents. Exchanges provide the interactive options that allow system-wide patterns to emerge. Traditional systems dynamics approaches deal primarily with exchanges, as they model flows and feedback loops³. Forms of exchange, like differences, vary from one container to another. For example, we considered decision making as the most relevant exchange between and among management levels for Cope County, while statements of personal perception and values were most relevant for individuals' emerging patterns.

We think about this triad of determinants as the conditions for self-organizing in human systems—the CDE Model. This model is useful both in seeing patterns and influencing them as they emerge because the three conditions are interdependent. A change in one condition results in a change in the other two conditions. As the conditions change, future patterns are transformed. For example, increasing the size of an organizational container (as Cope County did by creating the mega-department) weakens the exchanges and increases the number of differences in the pattern. As a result, individual and systemic behavior are less constrained over time, and emergent patterns are slower to form and less coherent.

Though the CDE Model can provide insight into relationships, emergent patterns, and options for action, it cannot be used to predict or control systemic outcomes. The reason is simple. The system is much more complex than any specific CDE description can capture. A systemic description focuses on a small number of containers, differences, and exchanges that appear most relevant to the patterns of interest. In reality, however, conditions considered irrelevant to a particular description can (and frequently do) disrupt anticipated systemic behavior. Toward the end of the Cope County project, for example, the County Board and County Administrator became interested in the assessment project. They were disappointed that we had not included community input in the evaluation process, though the community was not a container that we considered in our project specifications or ensuing design. This shift in interest affected how our findings were implemented and subsequent projects in ways we could not have predicted or controlled.

HSD Assessment of Organizational Change

The Cope County redesign process was complex and emergent, matching the assumptions and conceptual criteria of CAS and HSD. Though a variety of design approaches were available to us, from structured program evaluation through traditional systems dynamics, we chose to base our assessment design on the CDE Model and to explore the self-organizing conditions and patterns in the multiple complex systems embedded in SSD. This section describes the design, findings, recommendations and actions related to the Cope County redesign assessment.

³ See the contributions from Ken Meter, Richard Hummelbrunner, Jay Forrest and Dan Burke

Assessment Design

Because the C, D, and E are causally connected to each other, assessment questions about one of them can reveal information about the state of others. Our assessment of the organizational change of Cope County considered five primary containers and explored either the exchanges or the differences in each one to gather information about the other conditions and to see the emergent patterns in each level clearly. Seeing the patterns in terms of the CDE allowed us to identify ways in which the patterns of organizational change could be more effective and efficient.

Table 1: CDE Model and Assessment Design provides an overview of the assessment activities included in the project, including the container each addressed in each activity, the question used to explore one of the CDE conditions, and the other condition that would be revealed in the course of the activity. A more detailed description of each of the assessment components follows the table.

Table 1: CDE Model and Assessment Design

Containers	Differences	Exchanges
Management levels		Vertical Alignment How well are people aligned in the factors they consider in decision making?
Individuals	Networks of Meaning What are all employees saying about the shift to one department?	
Work groups		Horizontal Alignment How do the different parts of the Department connect with each other to provide services?
Change initiatives	Common Language of Change How do change leaders implement change initiatives?	
Department		Internal Documents What do documents reveal about the process and depth of change?

The design included five data collection and analysis activities to answer five distinct questions—one about each of the key containers involved in the organizational change. The sequencing of the activities is somewhat arbitrary. They could have been completed in any sequence. The activities had no natural sequence because the patterns of interest were emerging continually, and it would be impossible to predict how any one of the activities might influence subsequent activities or the patterns that might be revealed.

Vertical Alignment: How well are people aligned in the factors they consider in decision-making? This activity focused on exchanges within the container of levels of management. The purpose of this activity was to provide insights into the similarities and differences among managers at each level in the organization and between

management levels. These connections—between and among levels of power within an organization—provide the capacity to support individuals and processes as an organization undergoes change. Seventy-nine persons from four management levels participated in five focus groups to consider the factors that affected the decisions they made.

Networks of Meaning: What are all employees saying about the shift to one department? This activity articulated the differences among individuals and revealed insights into their methods and modes of exchange. In this activity, each employee of SSD was invited to voice insights and concerns by submitting open-ended response to two questions: “What’s working in the shift to one department?” and, “What’s not working in the shift to one department?” These questions focused attention on two critical differences—working/not and before/after. The essays invited any staff member in the organization to share their own language about what was working for them, the organization, and their clients, as well as what was not working. Of 3,000 employees, 736 submitted responses; most of those were received by anonymous email. Patterns of response were identified by manual content analysis. In addition, essays were analyzed with CRAWDAD, an automated tool that uses centering resonance analysis to define networks of meaning in text.⁴

Horizontal Alignment: How do the different parts of the Department connect with each other to provide service? This activity explored exchanges between and among work groups as containers to identify the different levels of integration and how integration activities had changed over the previous year. This component elicited information about how different work groups across the Department are interacting with each other on a daily basis. Such interactions are the core of integration of services, and the data collected provided a portrait of integration that can be used to identify options for action and to evaluate integration as it progresses. Ten SSD staff were trained in the data-collection protocol and worked as paired facilitators. One hundred, sixty-two staff members participated in a total of ten focus groups. Data was collected in graphic form as each participant indicated input and output connections for their own work processes, identified interactions that had changed in 2004, and whether the effect of those changes had been positive, negative, or as yet undetermined. The graphic data was converted to a spreadsheet that indicated all of the interactions, changes, and effects of the changes across the Department, the county, and outside of the county government.

Common Language of Change: How do change leaders implement change initiatives? This component focused on the differences between and among change projects across SSD and stimulated new exchanges between and among individuals and projects across the Department. This activity brought together change agents from across SSD to share their insights, provide an understanding of the types and amounts of change activity currently underway, learn a shared model for the process of emergent change,

⁴ CRAWDAD was developed by Drs. Steven Corman and Kevin Dooley of Arizona State University. Information about the tool is available at <http://www.crawdadtch.com/software.htm>.

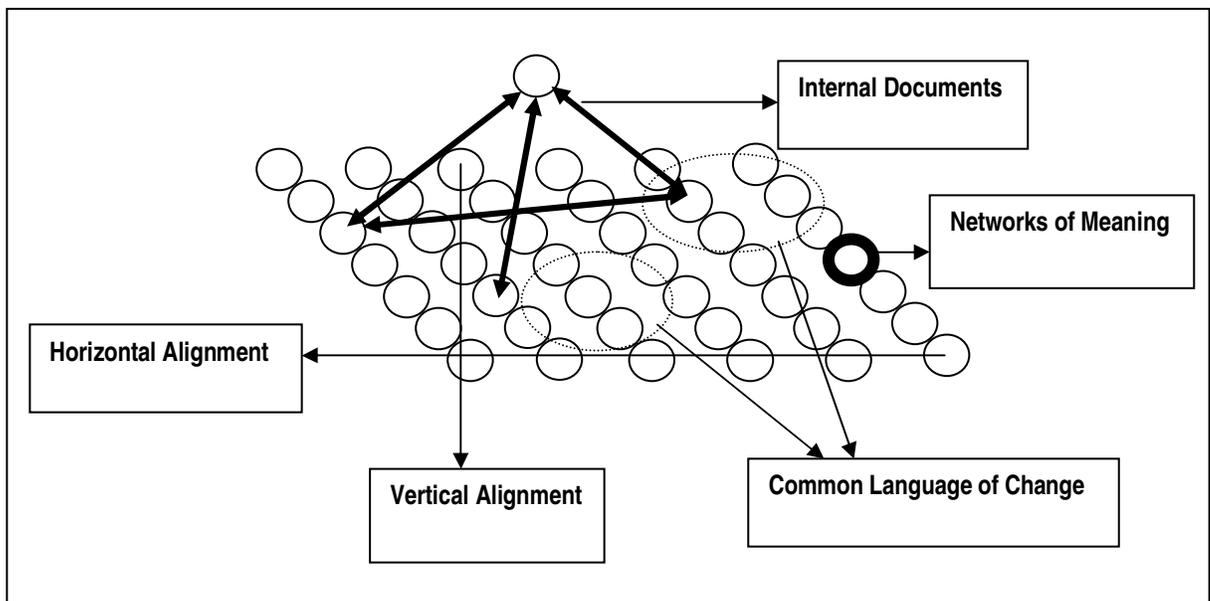
and celebrate their accomplishments. Rather than arbitrarily defining “change leaders” or centrally selecting persons to be included in the activity, we asked managers and supervisors to recommend persons who had been involved in or led a change-related project over the previous year. Everyone who was recommended was invited to the event. One hundred individuals attended the one-day session. Data collected included a list of over 150 change-related projects, challenges faced by change agents, and opportunities to improve change processes in the future.

Internal Documents: What do documents reveal about the process and depth of the change? This activity explored the exchanges across the Department over the previous year to identify key differences and recommend future communications strategies. This activity examined the ways in which SSD leadership and staff had communicated with each other in writing about the redesign efforts, the integration of services, and the improvement of outcomes for clients. One hundred, seven clusters of related documents were reviewed, including official management communications, meeting minutes, newsletter articles, and change initiative reports. The source and audience of each communiqué, in addition to its timing and core messages, were analyzed.

Each of these five activities was designed to focus on a different level of analysis in the system and to assess the differences and connections that are significant in dynamics within and between levels. *Figure 2: Assessment Activities* graphically represents how each activity explored the complex interrelationships among the individuals and groups that functioned as agents in SSD.

The objective of all of these activities was to articulate the current conditions and emerging system-wide patterns within the Department. Further, the assessment explored tensions and discontinuities that might generate new and more productive patterns of interaction as the Department continued the process of integrating six departments into one. The ultimate goal of the project was to improve organizational effectiveness and to integrate multiple services and programs to improve client outcomes and decrease the cost of services.

Figure 2: Assessment Activities



Assessment Findings

Each component of the assessment generated a rich source of qualitative data about the patterns emerging from the redesign efforts and about the conditions that were or were not facilitating coherent change across the system. At the conclusion of each activity the evaluators completed a preliminary analysis. Summaries of data were then presented to the Redesign Team, who further refined the analyses and provided interpretations from their perspectives of the context and history of the organization. A detailed report of each component was prepared to reflect the data and analysis. The detailed reports were presented to the Executive Committee at the conclusion of each activity, and interim actions were defined and recommended for immediate implementation based on the findings from each component. Finally, the detailed reports were posted electronically so that all staff had access to the findings from each of the assessment activities.

After all assessment activities were complete, a summary report highlighted critical findings and outlined department-wide recommendations. As with the activity reports, the Redesign Team and the Executive Committee reviewed this final report in sequence. In addition, the Executive Committee held two strategy meetings with the Assessment Team to discuss implications and ramifications of the findings. The summary report was also presented to middle managers across the Department. All reports were posted on the organization's intranet and were available to all staff for review.

Table 2: CDE Model and Assessment Findings provides a high-level summary of the findings from each component of the assessment.

Table 2: CDE Model and Assessment Findings

	Container	Differences	Exchanges
Vertical Alignment			
Design	Management levels	Concerns and processes	Decision making
Findings		Focus on tactical, rather than strategic decisions Massive concern for involving others Unclear accountability and autonomy	
Networks of Meaning			
Design	Individuals	Key concerns and stories	Essay responses to questions
Findings			25% response rate shows desire to connect Confidentiality concerns Similarities among stories indicate shared discourse Negative essays twice as long as positive essays
Horizontal Alignment			
Design	Work Groups	Input and output to processes	Individual mapping
Findings		Matrix map of integrating connections Assessment of new and productive connections Distinctions among more and less integrated functions Dependence on external and internal partners	
Common Language of Change			
Design	Change initiatives	Barriers and successes	Large group training session
Findings			Learning about others' projects Recognizing similar challenges across SSD Celebrating accomplishments Recognizing progress Defining a common change process and language about change
Internal Documents			
Design	Department	Audience and message	Formal written discourse
Findings		Intranet as primary medium has limited success Face-to-face contact with supervisors is missing Focus on redesign process rather than outcomes	

The specific findings from each of the activities were only the first phase of analysis for the assessment. More important, system-wide emergent patterns needed to be identified to represent the overall progress of the change process and to support future action.

Direct and logical connections between the specific findings and the systemic recommendations are difficult to describe because the relationships between the parts of the complex adaptive system and the holistic, systemic patterns are self-organizing and emergent. The method that connected the findings and recommendations is easier to describe. Each group that reviewed the findings were asked a series of questions:

- What similarities do you see among the findings?
- What surprises you?
- What patterns do you see in the findings?
- How do these patterns reflect your experience in the Department?

Patterns were recognized and proposed for consideration by the external Assessment Team, Redesign Team, Executive Committee, and participants who engaged in the various assessment activities. Each recognized pattern was then proposed to each of the other groups to gauge their reactions and to clarify the descriptions, so they reflected the perceived reality of the organization. The system-wide emergent patterns were incorporated into the final one-page report summary (Table 3: Framework for Action) as observations.

All of these patterns appeared to some extent in each one of the assessment activities, which raises the question whether all five of the assessment activities were necessary. Though the systemic patterns could be discerned after the fact in data collected from each activity, we believe that the five-part design is preferable for a variety of reasons. First, multiple activities allowed the team to triangulate the patterns as they emerged, so the shorter list of more significant patterns could be articulated clearly. Second, each activity involved more and different staff members as integral parts of the assessment effort. This increased sense of engagement was a key outcome of the assessment process. Third, not all of the identified patterns appeared equally strongly in all of the activities. Depending on the subset of activities included, one of the major patterns might not have appeared to be significant. Finally, the redesign effort was viewed from a variety of quite distinct perspectives. Data collected and analyzed from any one of these would have been suspect. This diverse and broad-based design helped establish credibility for the findings and commitment to the recommendations.

Assessment Recommendations and Action

Not only does an understanding of complex adaptive systems in a human context reveal systemic patterns of interaction, it also affects options for action to improve those patterns. One of the challenges of a complex system is the wide array of possible interventions. Individuals or groups can influence change. Managers and staff can make a difference. Each work group can take (sometimes opposing) action to move toward new goals and objectives. The multiplicity of possible actions can be overwhelming and

confusing, and when individuals are overwhelmed and confused it is difficult for them to take aligned and coherent action.

CAS, and its application to people in HSD, provides a simple way to influence coherent action across complex and diverse human systems. The idea derives from computer simulation models in which a large number of agents generate coherent system-wide patterns when all agents follow the same short list of simple rules. The classic example is the cellular automaton called BOIDS. Simulated birds move around on a computer screen according to three simple rules.

1. Fly toward the center.
2. Match the speed of the flock.
3. Don't bump into others.

When all of the system's agents follow these rules, the emergent systemic pattern of behavior looks like a flock of birds moving in coherent and recognizable patterns. Applied to human systems, this concept of a short list of simple rules (Shorts and Simples) can help a very diverse group respond to unique concerns and issues and still work together to generate coherent system-wide behaviors.

We used the concept of simple rules to transform the findings of observed patterns into recommendations for Cope County. *Table 3: Framework for Action* is the format in which we presented our summary findings and recommendations to Cope County personnel. It shows how the findings of observed patterns suggested a simple rule, and how each simple rule suggested specific actions for the Executive Committee.

**Table 3: Framework for Action
SSD April 2005**

Observations	Simple Rules	Recommendations for Executive Committee
<p>Communicate Many exciting changes in service process, delivery, and outcomes are already being realized from the redesign.</p>	<p align="center">1. Build success for yourself and others.</p>	<ul style="list-style-type: none"> a. Talk about strengths and accomplishments to encourage effective action toward integrated services and improved outcomes. b. Provide clear boundaries for staff decision-making and action, then accept solutions they develop. c. Take action and communicate regarding recommendations from existing groups (e.g., Governance Grid, Data Sharing, Front Door, Performance Management, Recognition). d. Be gentle with yourself and others. Remember we all have feelings.
<p>Plan for the whole Staff members understand and support the vision of integrated service delivery and improved outcomes for clients, but they are anxious and confused because they do not have a clear picture of the path that will lead the Department into this different future.</p>	<p align="center">2. Develop people and processes that improve outcomes.</p>	<ul style="list-style-type: none"> a. Adopt and implement a comprehensive, strategic communication plan to build shared story about the strategic direction. b. Provide a road map for the phases and stages of the redesign transformation process. c. Improve what you do and how you do it by establishing and documenting effective processes and infrastructure.
<p>Overcome isolation and fear Individuals across the organization are feeling the natural discomfort related to large-scale organizational change. Structural and staffing changes have left individuals feeling disconnected from each other and from the organization.</p>	<p align="center">3. Stay connected.</p>	<ul style="list-style-type: none"> a. Hold all who manage others accountable for meeting with their direct reports regularly to share strategic direction, answer questions, and to listen and respond to concerns. b. Publish a current directory of contacts within SSD and an org chart through supervisor level. Keep it up to date. c. Be clear about and accountable for performance expectations. d. Share what you know, including your questions. Don't wait for perfection. News will never be perfect until it is shared.
<p>Build competencies to support integration This new organizational form—beyond silos—presents a new landscape of opportunities and accountabilities. Managers and staff at all levels are unclear about how to develop skills they need to be successful in this new way of working.</p>	<p align="center">4. Learn your way into a shared future.</p>	<ul style="list-style-type: none"> a. Provide personal coaching, training, and support to help directors, managers, supervisors, and staff work most effectively in the SSD of tomorrow. b. Hold all who manage others accountable to establish the conditions for creative engagement at every level across the Department. c. Define, implement, and enforce Service Level Agreements between Internal Support groups and their clients. d. Implement the Balanced Score Card and other dashboard measures across the whole department. e. Regularly and frequently review progress of the redesign effort and take steps to adapt.
<p>Improve decision making An agile organization requires efficient decision-making processes that use knowledge from all levels of the organization. Today in SSD, decision-making is slow, concentrated at the top, and not transparent. No process exists to resolve conflicts so we can move ahead together. As a result, the tremendous adaptive potential of SSD staff has not yet been realized.</p>	<p align="center">5. Decide and trust others to decide.</p>	<ul style="list-style-type: none"> a. Establish and implement clear policies to shape decision-making. b. Recognize and address differences and conflicts in ways that inform individuals and the organization. c. Work together to open doors and overcome barriers.

In addition to system-wide recommendations for the Executive Committee, every individual and subgroup within the Department was encouraged to consider the same short list of simple rules and identify actions that he or she could take to work in consonance with others and with the Department as a whole.

The first assessment activity in the project began the first week of January 2005, and the project concluded in mid-April 2005. In the four months since completion of the project, it is too early to tell whether the assessment will influence significant changes in how Cope County deals with change or, more importantly, how it integrates services for its clients. Some changes have been made to implement the recommendations from the assessment and to put other lessons from the assessment to work in various parts of SSD.

Most significantly:

- An employee satisfaction survey is structured to measure performance on each of the five simple rules.
- The Executive Committee has implemented boundaries for staff decision-making and clearer definitions of roles and responsibilities across the Department and between management levels.
- A strategic communication plan has been developed and execution has begun.
- A road map for change is being defined for distribution.
- A directory of contacts for various service areas is available on the intranet.
- Service Level Agreements and a process for acceptance and monitoring have been designed and implemented.
- Balanced Score Card and other feedback procedures are being implemented across the Department.
- Many employees at multiple levels have considered the Shorts and Simples and identified ways in which these simple rules might shape their own action.

Plans are in place to repeat some portions of the HSD assessment design on an annual basis to continue to track the emergence of system-wide patterns.

Conclusion

Integration of public social and human services is a worthy cause and promises to improve client outcomes while controlling costs and improving worker satisfaction. The path toward service integration, however, requires individuals and organizations to enter into a realm in which boundaries are unclear, criteria for success are transformed, and relationships are as critical to success as they are strained by changing expectations.

Under such conditions, human systems enter into a regime of highly emergent and systemic pattern formation. When an organization is in such an active state of complex adaptation, traditional evaluation techniques may be insufficient to capture the critical factors that shape the current and future performance of the system. To answer the evaluation questions of Cope County, we chose a human systems dynamics approach to evaluate this systemic, organizational change.

We engaged in an assessment process that applied principles of HSD to evaluate an organizational change process in a 3,000-person county social services department and to recommend ways to move the change process forward more effectively and efficiently. Because the assessment environment matched the characteristics of a complex adaptive system, we found principles of human systems dynamics most effective in the design, data collection, analysis, and recommendation stages of the project.

This chapter has described the evaluation context; presented the conceptual background from CAS and HSD that informed the assessment design; described the method, findings, and recommendations that resulted from the project.

In today's fast-paced and highly interdependent organizations, innovative evaluation strategies are required. Cope County and its HSD-based assessment project demonstrate how knowledge of complexity and human systems dynamics and of their implications for individual and organizational performance can inform innovative evaluation theory and practice.