HUMAN SYSTEMS
DYNAMICS INSTITUTE

Self-Organizing in Human Systems

Glenda H. Eoyang

**Extracted from Conditions for Self-Organizing in Human Systems
unpublished doctoral Dissertation (The Union Institute and University, 2001)**

Self-organization is the process by which a system generates new system-wide patterns over time based on the system's internal dynamics. This section describes the process of self-organizing and establishes the foundation for the CDE Model of the conditions for self-organizing in human systems.

Internal Dynamics

As a structuration process, self-organizing differs from others because the new patterns are not designed outside and imposed on the system, but they are generated by the interactions of the system's agents with each other over time. Because system boundaries in a CAS are multiple, fluid, and massively entangled, the "internal interactions" happen at various scales and interlocking patterns emerge at various places across the system and throughout the time period of the self-organizing process. Clusters of agents form micropatterns continually. These micro-patterns interact to form larger, more comprehensive patterns or disrupt each other during the on-going evolution of the system. At the same time, emergent patterns in a super-system influence the emerging patterns in sub-systems and in individual agents by either reinforcing or disrupting their local self-organizing processes.

Continuous Development

Though it may be helpful to think of self-organization in terms of iterated cycles of activity, the process of self-organizing is continuous. New patterns appear at different scales simultaneously--between two agents, among small groups of agents located in different parts of the system, or between multiple sub-system patterns as they emerge. New patterns appear in different local contexts of the system at the same time. During the self-organizing process, a variety of patterns emerge. Some of them are amplified and strengthened by subsequent actions in the local or adjacent contexts, some are damped or interrupted by subsequent action among the same agents or with other system agents. A snapshot of the system's patterns at any moment reveals patterns that have emerged previously, but it does not pre-determine patterns that will be

present in the future of the system. Thinking about the system in terms of periodic iterations simplifies the conceptualization of the process, so that the system can be seen as moving from one semi-stable state to another. In reality, however, the self-organizing process across the system as a whole is continuous.

Characteristics of a Self-Organizing Process

Three characteristics can be used to describe the self-organizing process within a given system boundary: Path, speed, and product. The path of the self-organizing process describes the interim patterns that are established during the course of self-organizing. A sequence of intermediate patterns appears prior to the emergence of a pattern that is recognized as a stable, self-organized system state. This sequence constitutes the history of the system and can be observed as the path of the self-organizing process.

The speed of self-organizing is determined by the time elapsed between the initial status of the system as individual agents and its achievement of a coherent system-wide pattern. Because the self-organizing process is continuous and dependent on initial conditions, the "start" and "end" times that are used to determine the speed of the self-organizing are somewhat arbitrary. "Initial" and "final" states, however, provide a functional way to distinguish a particular self-organizing process from those that occurred before or after in the same system space or simultaneously in another part of the macro-system.

The product of the self-organizing process is the system-wide pattern that characterizes the system at a particular stage of its evolution. The pattern produced by the selforganizing process may be characterized as stable or unstable and as coherent or incoherent.

Stability

Some of the patterns that emerge in the system as it self-organizes are more stable than others. Stability depends on the balance between the energy or effort required to sustain the pattern and that required to disrupt the existing pattern. If more effort would be required to disrupt the existing pattern than to maintain it, then the emergent pattern is stable. If more energy would be required to maintain the emergent pattern than to disrupt it, then the emergent pattern is unstable, and it will dissipate over time to be replaced by a more resilient pattern. Over time, the myriad, emerging local patterns "compete," and those that are most stable maintain structure over time and constrain the probability of new, stable patterns forming. When stable patterns are maintained over a period of time and across the system as a whole, the system can be recognized to have "self-organized."

In some systems, the internal dynamics hold the system in a stable state by working against change or emergence of new patterns. This, too, is a process of self-organization. The internal interactions in the system generate a system-wide pattern

that is stable and unchanging. The conditions are the same for self-organizing processes whether they generate innovative or traditional system-wide patterns, though the specific incarnations or values of those conditions may be quite different.

Coherence

Coherence is the state of the system in which the parts fit together to establish systemwide patterns. Some of the emergent patterns in a self-organizing system are coherent, and others are not. Coherence is a state of the system in which:

- Meaning is shared among agents.
- Internal tension is reduced.
- Actions of agents and sub-systems are aligned with system-wide intentionality.
- Patterns are repeated across scales and in different parts of the system.
- A minimum amount of energy of the system is dissipated through internal interactions.
- Parts of the system function in complementary ways.

System-wide patterns in which the parts are aligned and mutually reinforcing (coherent) are more stable than other self-organized patterns. Because of the mutually reinforcing dynamics of a coherent pattern, the effort required to change the pattern is greater than the effort to maintain it, so coherent patterns are more stable than incoherent ones. When the system reaches a state of coherence, it has dissipated the entropic noise of its earlier stages, tensions within the system are reduced, and the available energy of the system is aligned and focused on system-wide behaviors, rather than diverse and disruptive behavior of individual agents or sub-system clusters.

Not all self-organizing processes, however, lead to coherent behavior at a particular level or scale. Self-organizing processes that are acting at lower levels within the focus scale or higher levels surrounding or intersecting with the focus scale, can take precedence over self-organizing processes of current focus. In such situations, coherence within one set of system boundaries is sacrificed by the system in preference to more stable and resilient self-organizing patterns within another set of system boundaries. For example, one individual's coherent belief structures may persist and disrupt his or her ability to participate in patterns of behavior that are coherent within the boundary of a team. Or, institution-wide patterns may maintain their coherence and dissipate the potential for a team to establish new ways to work together. In this way, self-organizing at different levels or within different sets of system boundaries may disrupt the self-organizing processes within a given domain, boundary, or container.

Any approach to self-organizing in human systems introduces complex issues about the nature of the system and the nature of interventions to affect the system's dynamics. Though many of these questions are beyond the scope of this study, a brief discussion will provide context for the theoretical and practical issues that the study does address.

The process of self-organizing can be considered as a cognitive construct to explain observations and patterns perceived in systems. In this epistemological view, emergence is a conceptual construct representing the characteristics of the observer more than the observed. Alternatively, self-organizing can be proposed as a natural phenomenon, with ontological reality, existing apart from any observer. This distinction, though interesting, is beyond the scope of this study. The model articulated and investigated in this study has practical application, whether the phenomenon it describes has cognitive or physical existence in reality.

This study assumes that self-organizing processes in human systems are analogous to those in physical systems. Human agents are conscious, exercise free will, and express intentionality, while agents in physical systems do not. In both cases, however, interactions of agents within the system generate observable system-wide patterns. Perhaps, at some level of system structuration, the same conditions shape self-organizing in both human and physical systems, but this study focuses solely on the self-organizing processes as they appear in human systems at the level of conceptual, team, institutional, and community development.

Organization development practitioners intervene in system dynamics to influence the emerging patterns of behavior and meaning. It would be difficult to consider the emergent processes in a human system as self-organization if the practitioner functioned as an objective, external agent. The assumption in this study is that the consultant takes the role of an active agent in the system and becomes a part of the self-organizing whole. He or she participates in the emerging dynamics and equally influences and is influenced by the processes of self-organizing.

Self-organizing processes are essentially value neutral. There is no guarantee that the results of an emergent process will be better or worse than the previous state or any other alternative state. In human organizational situations, however, some states are judged to be better or worse than others. For the purposes of this study, three factors were used to indicate the organizational preference for one outcome over another: clients' expectations, stability, and coherence. As a guide to action and evaluation, these three criteria serve to distinguish successful interventions from unsuccessful ones, though the self-organizing processes themselves cannot be judged as more or less successful. In addition, the context of the interventions may determine that a client's expectations did not serve a system well in the long run. It may also be true in some circumstances that instability or decreased coherence is more conducive to system sustainability than stability or coherence. Ultimately, fit with the environment is the gauge of survival and success for selforganizing systems, but within the constraints of

this study, expectations, stability, and coherence will be used as measures of success.

Conditions for Self-Organizing in Human Systems

The research and on-going experiences described above led to the emergence of a model to describe the rate, path, and outcomes of self-organizing processes in human systems. The model establishes a set of three meta-variables whose coupled interactions, through time, shape the patterns that emerge from nonlinear dynamics in human systems. The meta-variables, defined as the conditions for self-organizing in human systems, constitute three dimensions: Container, significant difference, transforming exchange.

Container

Any self-organizing system is distinguished from its environment in some way. The physical boundary or the bounding process that embodies the distinction between the system and its surroundings functions as a container during the process of selforganizing. The container constrains the system's agents while new structures or relationships form between and among them. The purpose of the container is to hold the system together, so relationships between and among agents can be established. In essence, the container increases the probability that any two agents will engage constructively with each other and establish the foundation for self-organizing patterns to emerge. The container is a necessary condition for self-organizing processes. If there is no constraint on the agents, if there is nothing that defines the agents as a group, if there is no condition that increases the probability of contact among the agents, then the agents dissipate, and no new system-wide structures or patterns can form.

Three types of relationships or forces have been identified to perform the function of a container in human systems.

A system may be contained by an external boundary. These containers can be defined as fence-like because they delimit the outside boundaries for the system. Examples of such containers include a room, information system firewalls, and membership criteria. Each establishes the defining or outside bounds of the system of agents that will participate in self-organizing processes. They constrain the agents into a shared space in which they can build their self-organizing patterns. A system may be contained by some central attracting force. These containers can be described as magnet-like because they draw system agents into proximity to each other. Examples of magnet-like containers include a charismatic leader, a clear and shared vision, and a desirable resource. Each of these forces will draw system agents together and increase the probability that they will interact in ways that will lead to self-organizing patterns.

A system may be contained by one-to-one attractive forces between agents. These forces can be defined as affinity-like containers. Examples of affinity-like containers include gender and ethnic identity, shared language, and trust. Each of these (container,

difference, and exchange) constitutes a condition that pulls individual agents together and increases the probability that they will self-organize into a coherent whole.

Multiple containers exist simultaneously in any human system. Not all of them may be actively engaged in the process of self-organizing at any given moment. For example, when a cross-departmental team meets in a room, their path of self-organizing may depend on their organizational loyalties (affinity), their disciplinary jargon (fence), or the purpose that brought them together (magnet). Any or all of these containers may be active at any moment in time.

Containers are massively entangled. Any agent may participate in numerous containers at the same time, and each container can affect the self-organizing processes within the agent. Sometimes, containers are nested simply one inside another (cubicle, floor, building, neighborhood, city). Sometimes, they are co-located (two people working together across departmental lines, while still participating actively in the containers that define their professional disciplines, departments, ethnic groups, and genders). All strands of research in complexity either address or assume a system container. A container, though necessary, is not a sufficient condition for the self-organizing process to emerge. If agents in the system are homogeneous and/or inert to transforming connections, then no new structures or patterns will organize within the container.

Significant Differences

Within a container, difference establishes a potentially generative tension, which represents the potential for change. In complex adaptive systems information, material, resources, and energy flow from source to sink--from high potential to low potential states. Difference is the meta-variable defined as any distinction within the system that constitutes a potential for movement. The purpose of the difference is to give the possibility for movement and engagement that results in self-organization to new structural states.

Difference is a necessary condition for self-organizing to occur, and the magnitude of the difference must lie between maximum and minimum thresholds. If all of the agents of the system are identical, the difference in the system is below the minimum threshold. No interaction will take place, and no new system-wide patterns will emerge. If the difference in the system is too great, above the maximum threshold, then the system will not be able to sustain connection among the agents, and it will split, or bifurcate.

Two types of differences are significant in complex adaptive systems. Difference along a single dimension can support self-organizing. If the difference is significant to the agents, and if the difference is not too great, a difference in a single dimension or parameter may shift the system's behavior. Consider difference along one dimension, such as liquid assets. In some circumstances, a difference in liquid assets among agents can generate new patterns of behavior. Minimal differences may result in little or no change, and extreme differences may result in cataclysmic change (bifurcation). A

variation in the single value, however, can provide the impetus for a system to self-organize.

Complex systems are usually characterized by many dimensions. It takes more than one parameter to capture the state of the system at any point in time. Though there are many and various dimensions or parameters that might influence the behavior of the system, not all have equal influence. Product development, for example, may depend on team expertise, experience, funding, personal relationships, problem-solving styles, languages, and so on. Any one of these differences may be significant at one time and not at another. The most influential dimension(s) at any given time, in any given container, determines the significant difference that will shape the path and product of the self-organizing process.

Agent attention or focus determines which dimension is significant at any moment and how difference along that dimension will affect the system. Many differences can exist in the system at one time and not be active in shaping the self-organizing process. Not all configurations of difference in a system generate coherent self-organizing processes. If the difference is too great along one dimension, then the system may bifurcate--split into two--because the container is not sufficiently resilient to hold the system together across it. If difference is apparent across too many dimensions, then the system dissipates energy trying to actualize too many potentials simultaneously. All strands of research in complexity either address or assume significant differences as central to the selforganizing process. Significant differences alone, however, are not sufficient for coherent self-organizing processes to progress. If the container is too constraining or not constraining enough, the differences in the system can dissipate. If the agents are inert, and are not able to connect with each other across the differences, then the potential energy represented by the difference will not be actualized.

Transforming Exchange

The agents in a complex adaptive system are semi-autonomous. Their interdependence, which is critical to their ability to self-organize into system-wide patterns, is called transforming exchange. Any transfer of information, energy, or material between two agents can function as an exchange and bind the parts of the system together into the whole. The exchange becomes transforming, however, when it affects the self-organizing processes within the agent, crossing containers from the system of agents to the agent as a system. This transforming exchange appears in many complexity-related texts, including as "double interact" in the language of Weick (1979), "complex responsive process" in the language of Stacey (2001), or "strange loops" in the language of Cohen and Stewart (1994). In all cases, some transfer establishes the framework for a new system-wide pattern to self-organize. The transforming exchange is a necessary condition for selforganizing processes to occur. If the agents are not connected in a meaningful and transforming way, then the potential of the differences is not actualized, and the container gives way to other competing containers for self-organizing processes.

Language is the most obvious manner of transforming exchange between individuals, but many other transfers can serve the purpose, as well. Flow of funds, non-verbal signals, electrical or thermal connections are other examples of exchanges that can be transforming. In human systems, many different exchanges are taking place simultaneously, and each may contribute toward one or another pattern that emerges as the self-organizing process moves through time. Exchanges in a system vary in strength and in number. For the purposes of self-organization, many relatively weak exchanges can be more productive than a few very strong ones. In some cases, too many exchanges generate confusion, which can be viewed as noise in the system. The rates, paths, and products of self-organizing processes depend on both the number and the strength of the transforming exchanges. All strands of research in complexity either address or assume significant transforming exchange as central to the self-organizing process. Transforming exchanges, alone, however, are not sufficient for coherent self-organizing processes to progress. If the container is too constraining or not constraining enough, the exchanges are random and patterns do not persist. If the differences are below or above the optimal thresholds (determined by the system state at a given time), then the transforming exchanges become redundant, and no new options for transformation present themselves.

Interaction of the Three Conditions

The three conditions are meta-variables for system definition. Each specific environment will include a set of variables that serve the functional role of each of the conditions. The containers, differences, and exchanges will be different in a supply chain, a firm, a team, a community, an industry, and individual psyche, and so on. For example, a team might work within the containers of membership, purpose, and temporal constraints of a schedule. The team's significant differences might include departmental association, levels of expertise, or professional vocabularies. The transforming exchanges for the team might include meeting agendas, minutes, and a final report. On the other hand, an organizational department might be contained by organizational boundaries, differences might include physical location and levels of responsibility, and exchanges might include memos, informal chat, or formal periodic reporting. The conditions will also be different from one time to another in any one of these domains, but every self-organizing system must have locally-determined characteristics that hold it together (container), establish a potential for change (significant differences), and transfer resources from one part of the system to another (transforming exchanges).

In addition to affecting the dynamics of the whole, each of the conditions affects the other two in unpredictable ways. Changes in the size of the system container, for example, influence the effectiveness of exchange relationships and the differences that make a difference within the system. Likewise, a shift in significant differences as a system selforganizes can change the efficacy of the exchanges and put pressure on or renegotiate the system container. Finally, changes in the exchanges between or among agents creates the potential to discover new significant differences or to expand or

contract the system's container.

The interdependencies among the three conditions are unpredictable because the metavariables have nonlinear relationships to each other, but some patterns of dependence can be anticipated. Further research will be required to describe these complex interactions in detail, but the following relationships have been noted and appear in the instances involved in this study.

While each of the conditions shapes the self-organizing process, each is also shaped by the process as it progresses. As patterns emerge, they exaggerate or weaken the container, differences, or exchanges that are possible. These new conditions then affect the future iterations of the self-organizing process. In this way, the self-organizing process changes over time in a dynamical way.

A difference at one scale, within a system of focus, may function as a container at a lower level of organization. For example, differences among teams can influence the dynamics of a department. At the same time, each team functions as a container in which the individual team members' interactions shape the emerging patterns within the team. Conversely, a container at one level may function as a difference at a higher scale. A container is a particular difference that distinguishes one self-organizing system from another. Viewed from a larger scale, the same distinction functions as a difference within, rather than a boundary around, a system of focus. For example, a statement of purpose of a team functions as a container for the dynamical interactions within the group. When considering multiple teams, however, their various purposes may function as differences that make a difference as the teams engage in coordinated or competitive activity with each other.

Transforming exchanges form the mechanism in some circumstances for magnet-like or affinity-like containers. The function of the container is to hold the system agents together as they interact to form system-wide patterns. In some cases, exchanges among the agents perform this function and serve to contain the system as a whole. For example, a network of email communications within a team supports transforming exchange, and it can also provide the mechanism by which the team members are held together as a whole system. Being "on the list" or "off the list" may describe the functional container for the team as it emerges.

In a single dimension, a transforming exchange will affect the system differently than exchanges between different dimensions. Difference in magnitude along a single dimension usually responds to simple and consistent exchanges between agents. For example, a difference in salary is negotiated through transactions related to compensation only. On the other hand, differences across dimensions usually require more complex and multiple exchange mechanisms. Within a team, for example, differences in professional standing, departmental association, gender, culture, and communication style all affect the team's dynamics. Multiple and complex exchanges are required to negotiate these diverse dimensions of difference effectively.

Because the conditions all affect the self-organizing process of the whole and also affect each other, each of the conditions can compensate in the process of self-organizing for the others. For example, a large container with low agent density may still be able to selforganize relatively quickly if the transforming exchanges are strong enough and/or if the significant differences are small. On the other hand, a large number of differences and weak exchanges may delay self-organizing processes, regardless of the size of the container. Generally, the size of the container and the differences threshold are inversely proportional to the strength and number of exchanges.

In the same way that physical systems move from potential to kinetic energy, complex adaptive systems move from disorder to order. Within a given container, differences of many dimensions among agents establish a tension. This tension is the potential for action and change. In a way, this tension stores potential energy of the system to organize. Exchange is the transformation of this potential energy into kinetic energy of the self-organizing process. The container limits the degrees of freedom of the system, providing the necessity of the system to reflect and amplify a small sub-set of possible behaviors. Without the container, there would be nothing to break the symmetry of random action of the agents.

Though the CDE Model is consistent with existing theory, it provides a novel and unique contribution to the field. First, it provides a description of what happens in selforganizing processes between initial and final states. Other approaches to self-organizing focus on the system states "before" and "after" but not about what happens in between to establish the path (sequence of events), speed, or outcome patterns of the process.

Second, the CDE Model provides a description that is sufficiently abstract to be generalizable. The meta-variables do not relate to the characteristics of a specific situation and its self-organizing process, but to the underlying relationships that shape the process, regardless of context. Third, existing theories focus on one or another of the conditions (container, difference, exchange) to the exclusion of others. For example, Stacey's "complex responsive processes" (2001) focus on exchange, attractor reconstruction (Guastello, 1995) focuses differences, patches (Kauffman, 1995) focuses on containers. The CDE Model, however brings all of these conditions into a single explanatory model.

The path of the self-organizing process depends on the massively entangled containers that exist between and among the system agents. Each of the intermediate patterns included in the path has self-organized, according to the same conditions that shape the whole. In the same ways that the container, differences, and exchanges shape the final pattern, they shape the intermediate ones as well. The sequence that moves from one selforganized pattern to another depends on the interactions of emergent patterns with each other. At each stage of development, the container is expanded to include a larger proportion of the system, relevant differences are those between emergent patterns rather than between individual agents, and critical exchanges are between agent

clusters rather than between individual agents.

The speed of the self-organizing process is shaped by the three conditions as well. A larger or more ambiguous container reduces the probability that individual agents or emerging local patterns will engage with each other, so it takes more time to accumulate the threshold number of interactions that might lead to new patterns. Larger magnitude or greater number of differences reduces the speed of self-organizing, as well. Large differences require a higher level of interaction to be resolved into system-wide patterns. A large number of relevant differences increase the variety of intermediate patterns that are established and complicate the interactions between and among the emerging, local patterns. Finally, weak exchange relationships among agents have limited effectiveness, so more exchanges are required to establish the new pattern. Because each exchange takes place in time, the total time of the self-organizing process is extended. On the other hand, small and clear containers, minimal magnitude and number of differences, and tight exchange relationships speed up the self-organizing processes.

The product of the self-organizing process is a stable, system-wide pattern. The nature of the pattern depends on its scope (container), its internal structure (difference), and the final state of the relationships among the agents (exchange).

Self-Organizing and the CDE Model

Container, difference, and exchange are the conditions that shape the path of the selforganizing processes. Self-organizing is the process that moves from one state of coherence to another. It begins with one situation of the system-wide patterns and ends with another. Other models, described above, discuss the initial and final states of the self-organizing system. By considering the interactions (exchanges), other models confirm that "something" is happening, but the exchanges themselves are not sufficient to generate a system-wide pattern in the course of the process. There must be something at the system level that influences the exchange among individual agents, otherwise the exchanges are merely isolated incidents. The path, speed, and resulting patterns of the self-organizing process depend on the context of the system as a whole. Containers, differences, and exchanges are the meta-variables in the context that influence individual exchanges to form system-wide patterns over time. The path, speed, and outcomes of the self-organizing process are shaped by the system containers, differences, and exchanges, so they constitute the "conditions" for self-organizing.

The three conditions are necessary to self-organizing because any system that exists in reality has all three, though the patterns that emerge may not be efficient or considered effective. What would happen if you had a collection of agents that did not exchange any information, material, or energy? Regardless of the boundary around them or their individual characteristics, they would not generate system-wide patterns. What would happen if you had a collection of agents that exchanged information, material or energy

inside a boundary, but all the agents were identical? No new system-wide patterns would emerge. What if you had agents with different characteristics that exchanged information, but there was no condition that held them together over time? No system-wide patterns would develop. In the absence of any one of the conditions, the self-organizing process would not generate new system-wide patterns, so all three of the conditions must be necessary to the self-organizing process.

A practical example will illustrate the necessity of the three conditions for selforganizing. Imagine a team of ten people. If they don't talk to each other or engage each other in any way, would they come to common action? No. If they don't focus on the same thing (magnet), have anything in common (affinity), or operate in the same vicinity (fence), would they come to common action? No. If they are identical to each other, no significant differences, would they generate new common action? No. Without all three of the conditions for self-organizing, the team of ten would be unable to establish a foundation for shared understanding or action.

The CDE Model is also sufficient to shape the path, speed, and outcomes of the selforganizing process. All of the critical factors that are present and shape the behavior in the self-organizing process of human systems function as one or another of the

conditions. All factors either establish a system boundary (container), support transfer of information, material, or energy (exchange), or articulate tensions in the system (difference).

A traditional T-Group is one living example of both the necessity and sufficiency of the three conditions. The T-Group is an individual change mechanism and an organization development intervention that is used extensively by NTL practitioners. In a T-Group, a group of individuals is brought together without agenda, leader, or explicit common purpose. In the course of the group interactions, all members learn how to give and receive feedback and to observe their effect on a group and the group's effect on them as individuals. The T-Group establishes a container by having clear membership and by enclosing all members in a seated circle, and setting time limits for the interactions. Within this container, differences and exchanges generate patterns of group behavior. Sometimes the behavior is stable and coherent; sometimes patterns are neither stable nor coherent. By practice, T-Group practitioners have developed procedures for establishing the conditions for productive group interaction. Though they have not articulated hypotheses about the conditions for self-organizing, the practice consistently includes characteristics of container, difference, and exchange.

The CDE Model describes the three meta-variables that shape the speed, path, and outcomes of the self-organizing process in human systems. Each of the conditions can be observed separately, though the nonlinear interactions among the conditions and the dynamical evolution of the system as a whole requires that all three influence and are influenced by the other meta-variables and by the emergent patterns in the self-organizing system.

Summary

In this chapter the research in the applications of complexity theory to self-organizing human systems has been presented and the need for a coherent model that will integrate the many strands of related research has been outlined. Critical incidents in both theory and practice that led to an integrated model for the conditions of self-organizing were described, and the CDE Model for the conditions of self-organizing in human systems has been suggested and articulated. The study, described in the following pages, investigates the CDE Model as it was used to assess, intervene in, and evaluate the interventions in nineteen instances of organization development activity.