

# Facilitating emergent change in a healthcare setting

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**Abstract**—During my doctoral research, I identified new ways of thinking about complexity in organizations. This involved embracing the capacity of complex systems to find their own form of order and coherence, often referred to as self-organization, and then asking the question, “What can organizational leaders do to create the systems and structures that would facilitate emergent change?” Emergent change comes from within and through the active members of a system and not according to some external prompting or design. This results in the sort of change capacity that enables an organization to be agile and resilient through a high level of employee engagement. The question was answered by identifying and validating organizational-specific factors that facilitate emergent change.

As organizational life becomes more and more complex, today's dominant management paradigms no longer seem to suffice. The problem is that although many leaders readily acknowledge the challenges and limitations of traditional approaches, they have a limited range of options for dealing with a highly complex world. This study intended to identify new ways of thinking about and responding to complexity: not by trying to simplify it, but by embracing the inherent capacity of complex systems to find their own form of order and coherence.

The level of complexity and unpredictable change faced by organizations today is unprecedented. Globalization, rapidly changing technologies, unpredictable geopolitical environments, and increasingly informed consumers bring tremendous challenges for organizations trying to stay afloat in such “permanent white water.”<sup>1</sup> In that context, many traditional management theories are based on metaphors that may no longer serve. Morgan<sup>2</sup> suggested the underlying metaphor that has defined management thinking for the last century is that of the machine. Many of us live and work in organizations designed from 300-year-old images of the world developed by Sir Isaac Newton and others. We often see and describe the organization as a vast machine we manage by separating things into parts, analyzing those parts, and then trying to put them back together without significant loss.<sup>3</sup> Based on this metaphor, we make the assumption that by comprehending the workings of each piece, the whole can be understood. This traditional view of the world focuses on the standardization of work processes and limited horizontal decentralization.<sup>4</sup> Scientific management, a term coined by

Taylor in 1911, does not seem capable of supporting the complexities of the 21st century environment.

The origins of the complexity theory lie in the study of deterministic systems such as biological units, numbers, and subatomic particles—in other words, systems that lack free will and choice; however, the reality for leaders is that theirs are human-based systems and, as such, are subject to the inherent complexity of both the human body and, perhaps more challenging, the human mind and will.

## BROAD DEFINITIONS OF COMPLEX ADAPTIVE SYSTEMS (CAS)

There are multiple definitions of CAS. According to Plowman et al.,

Some of the characteristics of complex adaptive systems include: (1) they are made up of many agents who act and interact with each other in unpredictable ways; (2) they are sensitive to initial conditions; (3) they adjust their behaviour in the aggregate in unpredictable ways; (4) they oscillate between stability and instability; and (5) they produce emergent actions when approaching disequilibrium.<sup>5</sup>

These descriptors of various attributes of CAS are central to the factors that this study identified as key to enabling emergent change. What this study does is take this discussion of attributes further by trying to assess the presence or absence of such factors so as to provide leaders with suggested strategies to enhance their organizational capacity for change.

In a complex, adaptive system, no individual agent, or designated group of agents, determines the local interaction principles of others and there is no centralized direction of the patterns of behaviour of the system as a whole or of the evolution of those patterns. This evolution is, in fact, referred to as self-organization. It is important to recognize that conceptually, emergent change is neither positive nor negative: it simply is. A riot is as much an example of self-organization and emergent change as was the gathering that heard Martin Luther King's famous

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"I have a dream" speech. It is my belief that we can distinguish positive emergent change in a social system because positive emergent change contributes to the mutual purposes of both leaders and followers who intend real change.<sup>6</sup>

Many researchers have suggested that self-organization is the key concept to be drawn from the complexity theory.<sup>7</sup>

Self-organization is a characteristic of all social systems that operates whether we recognize it or not. By recognizing it, however, can begin to influence it to facilitate better outcomes. Self-organization is the process by which people mutually adjust their behaviours in ways needed to cope with changing internal and external environmental demands.<sup>8</sup>

Self-organization is a process whereby the organization or coherence of a system spontaneously increases, without this increase being controlled by the environment, formal directive, or an external system. This spontaneous increase in order is a construct that would stand in marked contrast to the concept of entropy described in classic Newtonian physics. Some would argue that there is enormous benefit to organizations that can develop the capacity for self-organization. "The more self-organized the change (in an organization) the higher the whole systems performance will be."<sup>9</sup> That being said, it does not provide a guarantee. In the same way that certain parenting approaches increase the likelihood of a well-adapted child, there are a great many other intervening variables that may prevent that outcome from happening.

## RESEARCH METHODS

The research was based on a review of the literature, interviews with CEOs in 15 large, complex healthcare organizations, and my own organization development practice experience. I developed the Organizational Resilience Assessment Instrument (ORAI). A total of 162 senior leaders, managers, and staff at a hospital in Toronto, Canada completed the survey. I then completed a principal component analysis of the constructs to validate the survey. From this analysis, seven valid factors emerged. I assessed the link between the factors and organizational performance by conducting two focus groups at the study site. The focus groups confirmed the correlation between the factors and key organizational performance indicators. The factors include purposeful orientation; a high level of executive engagement; a safe-fail culture; collaborative decision-making processes; collaborative quality processes; intentional learning process; and culture of experimentation.

## INITIAL INTERVIEWS

Before the development of the ORAI survey, I interviewed senior leaders in the Ontario healthcare sector. This included 13 hospital CEOs, an Assistant Deputy Minister in the

Ministry of Health and Long-Term Care, and a senior researcher. There was broad consensus that the system is extremely complex and that the complexity is increased by the lack of clarity regarding the role of the Local Health Integration Networks, Ontario's initial foray into some form of regional delivery model. Broadly speaking, all the interviewees pointed to the importance of several of the elements of the seven validated factors that emerged from the exploratory factor analysis, particularly the importance of leadership engagement and organization-wide leadership development to provide the skills to engage in the sorts of collaborative behaviours indicated by the survey results. The feedback from the interviews aligned with the information drawn from the literature review and, thus formed the basics of the initial constructs of interest for the survey.

## DEVELOPMENT AND EVALUATION OF THE ORAI SURVEY

The survey was developed following a careful analysis of the literature and the interviews, looking for common patterns and themes. From this analysis, seven initial constructs of interest were developed. A panel of individuals with some experience with emergent change was then asked to identify specific factors that they felt had facilitated the change. From this feedback input, two new constructs emerged as well as language that began to frame items within each construct. A draft of the survey was then circulated to the panel for further refinement. Once the draft had gone through two more iterations, an ethics review was completed at a hospital in Toronto, which had agreed to be the study site. The hospital was selected because it consistently achieved strong financial, patient care, and staff satisfaction results.

The survey was conducted using SurveyMonkey. The survey allowed for both quantitative and qualitative responses. A total of 174 leaders and staff at the hospital responded to the survey, but 10 did not complete it, leaving  $n = 164$ . The survey group was intentionally limited to past participants in a formal leadership development program at the hospital, in the expectation that it would increase the response rate. It did do so (response rate was 40%), but it also appears to have skewed the results, which were consistently above the mean. As this was the first use of the survey, there was no pool of data against which the results could be assessed, but as the intent was the validation of the survey rather than a formal assessment of the hospital, the process served its purpose. Quantitative data, in the form of individual comments on each of the factors, were significantly more balanced, but the overall tone of responses indicated affirmation of all seven factors.

The results were then loaded into Statistical Package for the Social Sciences (SPSS), a software package that facilitates an exploratory factor analysis. After careful analysis, five factors with four to six items in each factor indicated

Cronbach  $\alpha$  more than 0.700, which indicates their internal validity. Two more emerged with  $\alpha$  between 0.550 and 0.700, which indicated some level of validity but also indicated the need for further refinement. A second version of the survey, was then prepared.

## **THE SEVEN FACTORS THAT FACILITATE EMERGENT CHANGE**

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This study undertook the task of understanding and validating organizational or strategic factors that might facilitate positive emergent change. The most important factors that emerged from the results of the study were as follows:

### **Executive engagement**

*The degree to which senior management demonstrates support for, and commitment to non-hierarchical approaches.* This had a very strong internal validity and aligned with the input of the interviews. It was later validated by the focus groups. The importance of commitment and support from senior leadership is almost counterintuitive when thinking in terms of CASs, where the emphasis tends to focus on a more distributed model of leadership<sup>10</sup>; however, my previous research at the study site hospital indicated the significance of senior-level support.<sup>11</sup> As one interviewee in that study said, “I know it sounds a bit silly, but it was almost as if we needed, or wanted, mom and dad’s permission to experiment.”

This factor includes the level of visibility and approachability of the CEO and members of the senior executive team, and the degree to which they enable staff to fully engage in, and take ownership for, creative problem solving.

### **Safe-fail culture**

*The degree to which the organization is perceived to be one that is innovative and is comfortable to make mistakes, learn, and move on without fear of recrimination.* The idea that organizations need to create safe spaces to foster innovation has been present since organizations began to talk about innovative cultures.<sup>12</sup> However, historically, these safe spaces have been segregated and given terms like skunk works. Today, it would appear the pace of change facing every function of an organization does not often allow for the luxury of such separateness. Instead, organizations need to create and support safe holding spaces for experimentation.<sup>13</sup> Although the survey validated the importance of this, written feedback and the focus groups indicated that, although vital, it was not universal at the study site. It appears to be contingent on the level of trust between staff and management.

### **Collaborative decision processes**

*The degree to which people throughout the organization have timely input into the decisions that affect the work that*

*they do.* Holman et al.<sup>14</sup> suggested that “what keeps (a) system whole over time is a commitment to collaborative meaning making.” The opportunities for such collaboration can be left to chance, but the strategic organization takes the lead in creating collaborative works structures. Tekell et al. described collaborative work systems arising from “a holistic design process that creates the framework for successfully changing the organization to support collaboration and improve business results.” The movement to interprofessional education and collaborative care models in healthcare is evidence of this shift. The study site has committed significant time to developing collaborative care models, so there was intentionality about this factor that was indicated by the high variance from the mean exhibited in the survey results.

### **Collaborative quality**

*The degree to which decisions about quality measures and strategies are defined by the people doing the work, supported with the data they need to make decisions.* The primary rationale for the inclusion of this factor comes from Wergin’s study<sup>15</sup> in which he reported on the findings of an extensive Pew Charitable Trust study on quality intended to identify the necessary conditions for quality in a postsecondary education environment. What they found was that it was important that quality occurred at the departmental level and through academic chairpersons, rather than at the most senior levels.

Although Wergin found that there were six necessary conditions, they were not sufficient. One other factor differentiated the really high-quality departments: evaluation policies were flexible and decentralized. Each department defined what quality meant in their context and then was held accountable for meeting that standard. “The only institution-wide requirement was that departments include in their study an analysis of how they contribute to the mission of the institution.”<sup>16</sup> Wergin found that six necessary conditions have to exist before there is sufficient trust to embrace decentralized evaluation. Based on this, a localized quality framework was deemed a distinct factor in this study. During the focus group meetings, several people pointed out that this approach to quality was central to the Lean quality improvement approaches that are a systemic part of the hospital, so the importance of this factor was not a surprise to the participants.

### **Intentional learning processes**

*The degree to which there is both formal and informal support for both technical and relational skills and the willingness of the organization to learn as it goes.* Learning is a central element of a CAS’s capacity to adapt and change.<sup>17</sup>

Even the simplest adaptive system has some purpose, namely, to perform some task. It follows that, unlike

agents in deterministic systems, agents in all adaptive systems adjust their behaviour in light of its consequence for their purpose. In other words, adaptive systems learn, at the very least in a simple single-loop manner, whereas a deterministic system does not.

A great deal of attention is rightly placed on the capacity of the individual agents to learn and adapt<sup>18</sup> and for them to engage in opportunities for shared learning<sup>19</sup>; however, this study is focused on the organizational factors that contribute to emergence, so the focus here is on structures. From that perspective, the question becomes whether or not the agents of the system are intentionally aligned to teams and groups that will facilitate learning. Several of the individual comments in the survey spoke of the value that respondents attached to the degree of commitment the organization has made to their personal and professional development. However, there was also evident tension between availability and time: staff in particular indicated that it was difficult for them to get away from the floor to participate.

### **Culture of experimentation**

*The degree to which people are willing to try new ideas and approaches, to listen to people who think differently than they do, and to welcome innovation. Central to this type of experimentation is having real-time access to meaningful data to constantly adapt and change. Like learning, feedback is a central concept in CAS theory.* Complex systems are open systems with feedback loops that can both enhance and stimulate positive emergence when there is a steady flow of real-time information so that the agents within the system can adjust their innovative efforts to increase effectiveness. A system must not only receive, process, and retain information, but it must also respond and produce some form of output or new data to which other elements of the system can then respond. The difference between the sorts of feedback mechanisms needed in complex adaptive organizations is that the organization needs to be able to “hold multiple and sometimes conflicting representations of environmental variety, retaining in their behavioural repertoire a range of responses, each of which operates at a lower level of specificity.”<sup>20</sup> Change in a CAS is encouraged by increasing information flow to all parts of the organization and then pushing the authority to do something with that information as far out into the organization as possible.<sup>21</sup> The importance of access to real-time data so as to adapt and improve was strongly evident in both the literature and feedback from the focus group.

### **Purposeful orientation**

*The degree to which people feel they have a common purpose and focus and share a passion for that purpose.* Wheatley suggested that, “we need to trust that something as simple as a clear core of values and vision, kept in

motion by continuous dialogue, can lead to order.”<sup>22</sup> This begins to suggest a different way of thinking about an organization’s strategic framework or high-level organizational commitments. This framework creates the “bounded instability” that allows for innovation and self-organization.<sup>23</sup> Wheatley went on to suggest that “in human organizations, a clear sense of identity—of values, traditions, aspirations, competencies, and culture that guide the operation—is the real source of independence from the environment.”<sup>24</sup> The mission of the study site is central to all decisions made in the study site and several survey respondents commented on its visual prominence and intentionality in decision making.

### **FOCUS GROUPS**

Two focus groups were completed following the survey. Both groups affirmed the importance of all seven factors to organizational performance, as measured by patient and staff satisfaction, financial performance, and quality outcomes. However, the groups were not able to draw a specific correlation between any one factor and any specific performance metric. This is consistent with the combinatorial nature of the factors. One of the participants likened the cluster of factors to a seven-atom molecule, in that you could remove one of the atoms and you would still likely have a “something,” but it would not be the original structure. This was a useful metaphor for the group. The groups also affirmed the transitory nature of each of the factors, suggesting the importance of leadership vigilance if the desired agility and resilience were to be sustained.

### **CONCLUSIONS**

The interviews, literature review, and results of the initial survey are all congruent and, as one reviewer suggested, all seem to align with good leadership practices, which is certainly true. However, I would argue that what has been missing from the discussion about leadership practices in a complex environment has been a coherent, unifying theoretical framework, which I believe complexity theory provides. Further, the survey helps leaders and practitioners move complexity theory into something that is far more actionable.

It must be noted that this was an exploratory factor analysis, so caution needs to be shown when looking for effective ways to use the results of subsequent surveys. However, these seven factors have been validated statistically and their presence or absence can now be assessed through an on-line survey, available through the author. The results of such a survey may help to identify key points of leverage within an organization. Survey results can then be linked to organizational performance through a series of focus groups, so as to develop new strategies and patterns of engagement.

What emerges from any discussion of factors facilitating emergence is that, like the complex adaptive organizations they are intended to influence; no single factor stands alone, but rather it is the interdependence or combinatory nature<sup>25</sup> of all of the factors that seems significant.

With this research, practitioners and organizational leaders can take steps to move beyond understanding complexity as a metaphor and begin to see it as a strategic framework within which they can begin to reshape their organizations. However, a final word of caution: this approach shapes and facilitates emergent change, but it does not “guarantee” success. That is not in the nature of complexity.

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