From the SelectedWorks of Gregory L. Hutzell, DBA

Winter November 25, 2016


Gregory L Hutzell, Dr., Concordia University - Portland

Available at: https://works.bepress.com/gregory-hutzell/3/
Introduction

For those business owners who share Henry Ford’s complaint of “how come when I get two hands I also get a person,” and who grudgingly decry, “I love my business. I just wish I could do without employees,” they fail to understand and therefore appreciate the growing body of business centered science which asserts the view of business as a living organism versus an inanimate machine. As with a living system comprised of network of cells or components, and functional agents; whereas in an organization, its people. Like it or not, for the disgruntled business owner, people who comprise the business, when compared to its real estate, machines, or inventory, they the business’s primary and essential asset.

In the past ten years a new perspective on the essence of business has slowly been finding its way into the board rooms and lunch rooms of small and large organizations. This new view is countering the long held mechanistic view of how work should be performed by machines called human beings. Add this view to those in management who also see workers as distrustful and self-centered, and you have what is become antiquated and ineffective management thinking. This despite the thousands of business books published on the subject of what constitutes the makeup of an effective organization.
**Complexity Science**

This new view of business comes from the application of the science of complexity. Complexity science simply puts forth the idea that the world is not defined by linear processes, but instead non-linear activity. The theory holds that the business organization is analogous to how the physical world works, which is as a system that is adaptive and comprised of interactive parts versus a mechanistic process. Think ecological system like a pond, or better yet the human body, where one part alone is not actualized without the input and interactions of other parts. The traditional way of thinking is to apply the reductionist approach to how we analyze functionality, which assumes we can form an understanding of an outcome by studying its component parts; or in the same vein, to apply linear Newtonian mechanics to explain cause and effect. Alternatively, complexity theory asserts that process functionality is a system, and is not just its parts but is more importantly the interaction between the parts. Moreover, while operating as a system, it is the interactions of the component parts or agents, which comprise a network that produces valued outputs representing a value greater than the sum of its whole. Most importantly, we is our understanding of how the agents of a system operate when disequilibrium occurs – when stability is replaced by chaos. In fact, it is out of a phase of chaotic activity that a uniqueness emerges which wasn’t there before. This uniqueness or emergent outcomes equates to or results in, innovation.

**Chaos and Emergence**

Distinctly unique to our growing understanding of complexity are the inter-related concepts of chaos and emergence. Chaos is not upheaval but rather a state of temporary
instability which provokes agents of the system to change their mode of interactions or sequence of behavior, and these new behaviors leads to new order. Emergence, then, is what defines this new order.

Systems operate in two states, either equilibrium or chaos. Complexity theory holds that when systems are in a state of equilibrium they are static and poised to cease to exist because they are not adapting to the continual influences exerted by the reality of omnipresent external and internal activity. On the contrary, chaos while conjuring up the images of a disordered environment which lacks structure or controls, exists in all natural systems and it is out of which comes adaption and ultimately survival. The Hollywood Video and Blockbuster Video companies found bliss with the status quo, and ceased to exist because of it. Nothing changes unless it has to, and hubris can result in death. When applied to the operation of a business, chaos occurs when routine processes or expectations are challenged by internal or external forces. In the case of accessing video media, the forces were Redbox and most significantly Netflix.

Emergence is what comes from the chaotic state all systems experience and out of which change or an altered state of being can occur. Where it occurs and the form it takes are a direct reflection of the company’s culture. Organizations with a focus on learning are more likely to produce beneficial outcomes from chaos, versus those firms that are insular, dogmatic, and resist change. For firms that embrace a culture of learning, brief episodes of chaos are essential to generating beneficial transformation of their system. Think of emergence as the outcome derived from a self-managed team’s brainstorming session. In this example, a group of individuals is empowered to act in the name of learning, so without fear of associated with failure, to come together to address and
interact about a subject or action which formerly did not exist, such as arriving as tactical counter to a competitor that is offering an improved product that competes in the same price point and market segment.

The team becomes a system composed of the individual team members, who are systems themselves. Each team member brings with them their own experiences and dimensions, such as their beliefs, values, and knowledge. Together they become a network through which inputs and outputs are exchanged. As the individuals begin their exchange they have no idea what the results will be. There course and final destination are literally unknown.

This functional system, which exists to achieve a certain end, follows a few simple rules, not unlike all natural systems. For instance, any idea presented by any team member is given full consideration. Each will act as a unique individual with their distinct set of personal characteristics. The use of an imagination is encouraged. They embrace the clique, that no idea is a bad idea.

As information flows through the network of individuals, some will receive the flow of inputs which will alter their output. Others will accept some inputs while ignoring others, while still providing output to the group. The process while on the surface seems chaotic as individuals come together and exchange their disparate ideas, yet at a functional system, even at a psychological level, the chaos is seeking order. This order eventually surfaces as emergence - emergence of a new idea, or innovation. However, something else happened with this group even before the outcome of their networked activity, and that is self-organization.
Control versus Self-Organization

Self-organization is a core principle readily observed in diverse systems, including physical, biological, and chemical activities, and is a phenomena comprised in complexity science. In the example of the brainstorming group, the group formed without leadership or controls, but operated with a few simple rules. Then, from its formation came the storming or chaotic period out of which organization then emerged. The members of the group self-organized without externally applied controls. Order emerged naturally thus allowing the individuals to adapt and become aligned towards a common end.

This lack of external controls is an example of distributed control as opposed to central control which is our standard corporate form of governance. The essential conditions for self-organization to occur include the absence of strict controls. The application of controls blocks the natural process of self-organization by applying demands to the parts of the system to behave in a certain way. These demands act to block and stifle self-individuality from existing within the system. However, self-organization cannot occur when individuals lose the capacity to be themselves.

The team in our example converted the chaos which erupted from their individuality into an efficient system where individuals could convert inputs into meaningful outputs. The capacity of the team member’s to self-organize because of the availability of distributed control made this possible. Complexity theory views self-organization as a natural state all systems will seek when certain conditions exist.

Organizational controls, such as central command centers, detailed policy manuals, limit communication between individuals, silo mentality, and demoralizing
management practices serve to restrict self-organization. Mechanistic management advocates argue that order is essential and so controls are paramount to successful organizations. However, there is sufficient evidence to assert that controls may in fact be counter productive for the very reason they limit the benefits that come from allowing the individual to seek a natural state of existence, which inherently requires interaction with others through self-expression.

Organizational leaders who embrace complexity theory understand where to draw the line between control and freedom. They see the value of less is more in terms of hierarchical control by disbursing authority throughout the organization. Also, to not only embraces interaction and facilitate networks, but to be patient and not fear chaotic episodes as well. Just as the walls of a fish tank serve to contain the aquatic system, those same walls do not limit the activities of the inhabitants. The fish, plants, other animal life, including all microscopic organisms, are free to interact and adapt within the aquatic system.

The aquarium walls are equivalent to an organizational leader who provides a set of boundaries, which may be represented figuratively by the vision and mission statements, and literally by the confines of the workspace and the reliability of a paycheck. These forms of controls or containment serve to enhance and protect the employees while at the same time allowing for an environment that promotes individuality, networking, and the activities from which beneficial outcomes are derived.

Conclusion
Complexity science is about the elements and characteristics of the developing sum in a dynamic process. It is a holistic view of how those organized into the function of business exist as a system, that when managed properly will thrive because of rules defined by the natural organization of physical world.

Complexity science is composed of four critical concepts. The first is how we view how systems work, which is where we view activity as non-linear versus linear. Where business processes do not occur in a simple cause and effect fashion, but instead are a consequence of interactions occurring within the layers of complex feedback loops embedded within the networks that connect all individuals which inhabit the business organizational system. Second, that a system needs and thrives in various states of chaos, and chaos needs to occur in order to have adaptive and sustainable innovations emerge. The third concept is emergence, which is the resolution and by-product of the temporary chaotic state. It comes from the interaction of the individual component parts of the system and ultimately serves to help the organization adapt and survive. And the fourth concept is that components of systems seek self-organization and will naturally do so when certain conditions exist, such as minimum control.

If the component parts of every organization are the people, then complexity science at its core is humanistic, because it recognizes the essential value of each individual person as an essential component of the system. The task then for business owners is to appreciate the idea that their core asset is their people, something they cannot do without. That it is the people of their organization who ultimately contain the collective wisdom and knowledge of how to adapt and sustain their business in an intensely competitive world.