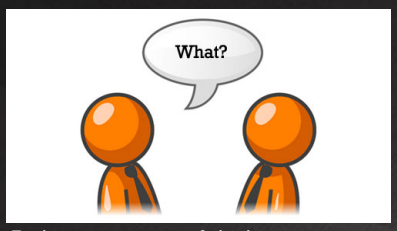


Evoking a new way of thinking.

Key Vocabulary: Emergence

Emergence is the way novel and coherent structures, patterns and properties arise out of a multiplicity of relatively simple interactions. It is marked by radical novelty, coherence or correlation, some property of "wholeness", it evolves, and it can be perceived.

Emergence is a two directional property. When an assemblage of items is organized into a coherent entity with an identity of its own (note that such organization is different from being an ordered assemblage), new potentialities are created by virtue of this new identity and at the same time each component thereof gives up some of its prior potentialities which would be inconsistent with the new organized identity if that component were to individually express the same. In the opposite direction, when a component part of an organized entity removes itself (or is removed) from its membership in the identity of that entity it both gains the potentialities which are created by independence and it loses the potentialities which were only possible as a part of the organized entity.

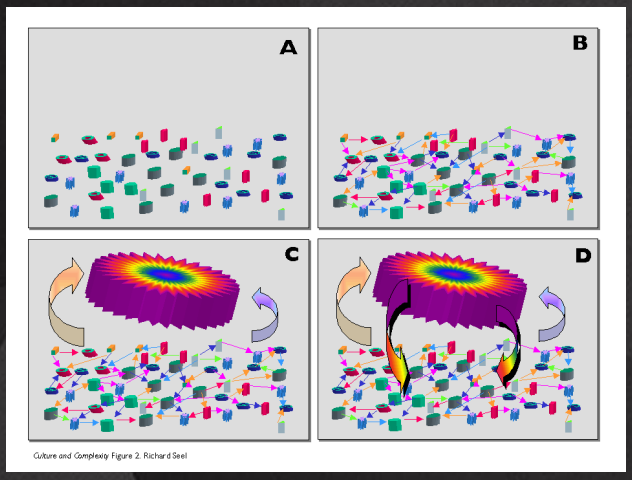
The easiest example of this is the process of two people meeting (two separate units), entering into a relationship (an assemblage of two independent parts), marrying to form a family (creating a new organized entity), acting as a family (expressing the potentialities of the new organized entity), having children, fighting over the inability of a family member to do as he/she pleases without regard to the impact on the family (experiencing the constraints and loss of [potentialities available when the partners were single), separating (experimenting with going to an assemblage and no longer an organized entity), divorcing, and then each former partner resuming life as a single person (though now with the added organized constraints and possibilities which accompany the role of "parent").

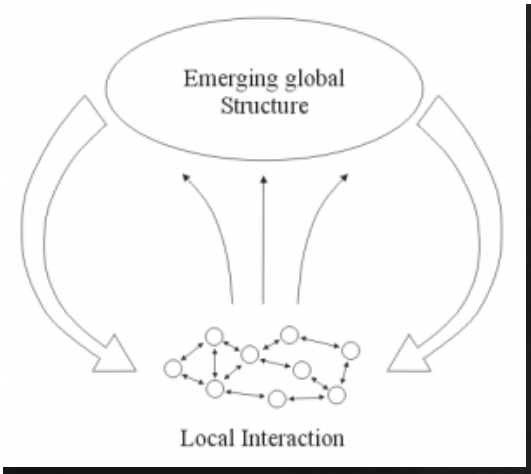
Adapting to and dealing with emergence is perhaps the most important task facing managers and organizations. Indeed, it is one of the most important cognitive tasks we all face.

"Every resultant is either a sum or a difference of the co-operant forces; their sum, when their directions are the same -- their difference, when their directions are contrary. Further, every resultant is clearly traceable in its components, because these are homogeneous and commensurable. It is otherwise with emergents, when, instead of adding measurable motion to measurable motion, or things of one kind to other individuals of their kind, there is a co-operation of things of unlike kinds. The emergent is unlike its components insofar as these are incommensurable, and it cannot be reduced to their sum or their difference." (Lewes 1875)

"Common characteristics are: (1) radical novelty (features not previously observed in systems); (2) coherence or correlation (meaning integrated wholes that maintain themselves over some period of time); (3) A global or macro "level" (i.e. there is some property of "wholeness"); (4) it is the product of a dynamical process (it evolves); and (5) it is "ostensive" (it can be perceived)." (Goldstein, 1999).

We all struggle to understand, adapt, respond and manipulate changing conditions in our internal and external environments. Approaches based on the causal, linear logic of mechanistic sciences and engineering continue to play an important role, given people's ability to create order. But such approaches are valid only within carefully circumscribed boundaries. They become counterproductive when the same organizations display the highly reflexive, context-dependent, dynamic nature of systems in which agents learn and adapt and new patterns emerge. As the family example above illustrates, adapting to emergence is a critical skill which is not part of "common sense."





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See: (1) Goldstein, Jeffrey (1999), "Emergence as a Construct: History and Issues", Emergence: Complexity and Organization 1 (1): 49-72
(2) Lewes, G. H. (1875), Problems of Life and Mind (First Series), 2, London: Trübner, ISBN 1-4255-5578-0
