

PARADIGM OF COMPLEXITY: THE LAW OF EMERGENCE

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The Paradigm of Complexity is centred in the rich conceptual basis of the non-linear science – the science of turbulence and chaos, emergence and fractals, self-organisation and criticality: the science of complexity.

The word “complexity” originates from the Latin word “complexus” which means “totality”; the science of complexity explores totality (the wholeness) of dynamics - forces, energies, substances and forms, permeating the whole universe and connecting everything that exists in a whirling web of dynamic interrelationships and interactions. Different are the scales of manifestation of this web – micro and macro, organic and inorganic, animate and inanimate, natural and simulated, individual and social, plant-like, animal and human. However different the scales of the web, the dynamics at each scale exhibit similar characteristics and regularities. The study of these characteristics and regularities forms the conceptual basis of the paradigm of complexity.

The most significant characteristic of the complexly interwoven dynamics is their capacity to give birth to emergent phenomena. This characteristic is vital for any form of life; *whatever resists emergence is condemned to death.*

Every emergent phenomenon implies changes in the dynamics, where it occurs. *When the changes in the dynamics characterise with directedness, dynamic stability and continuity, the dynamics become self-organising.* Self-organisation can be of evolutionary or transformative character.

Vortex is the icon of complexity; it provides an image for emergence of a dynamically stable pattern in turbulent conditions. The vortex is characterised by a centre and a particular kind of balance between centrifugal (outwardly directed, ‘explosive’) forces and centripetal (inwardly directed, ‘implosive’) forces. Examples of vortices in nature are eddies, whirlpools, whirlwinds, tornadoes, maelstroms, hurricanes.

The vortex is a metaphor of oneness (wholeness) which is centred, and which creates and preserves emergent forces. It is a metaphor of spontaneously formed unity-in-motion, devoid of artificially built foundation or imposed structures. There is no rigidity in the vortical dynamics, no pre-designed boundaries, no extremes and polar points, no division.

Vorticity is capacity of interactive fluid dynamics to form vortices and, therefore, to give birth to emergent forces. In this sense, vorticity can be considered as ability to produce emergence.

Vorticity is an expression of energy, and energy obeys a simple and unbreakable law: *only energy can create energy*, no matter under what forms. From a state of potentiality, energy becomes motion, explosion, growth, transformation, and then again ‘implodes’ into potentiality. Vorticity behaves in the same way; once ‘imploded’ in the fluid dynamics it may turn into whirlpools and tornadoes, and then again to ‘calm’ down in a dormant state.

The Law of Vorticity (Dimitrov, 2001) says: *Only vorticity can create vorticity.* Taking into account that vorticity closely relates to the ability of fluid dynamics to produce emergent phenomena (forces of implosive and explosive nature), we can formulate the Law of Emergence as follows:

Only emergence in potentiality (in a ‘state of implosion’) can transform into emergence in actuality (in a ‘state of explosion’).

It follows from the Law of Emergence that:

- (1) the impetus for emergence is the urge for realisation of the potential inherent in the interactive dynamics;

- (2) emergence is not arbitrary or accidental but depends on a law, according to which each thing or state of existence can only change into something already inherent in its own nature.

As energy is ubiquitous, human dynamics also obey its law. Heisenberg captured this by saying: "The same regulating forces, that have created nature in all its forms, are responsible for the structure of our psyche and also for our capacity to think" (Heisenberg, 1971: 101). The universe does not select a special kind of dynamics to manifest through humans and another - through the rest of the existential forms. Human dynamics unfold at their specific scale imbedded in the all-embracing spiral-like (vortical) structure of the galaxy.

The vortices of human dynamics are responsible for the charge of our 'life batteries', for our ability to 'implode' inwards in order to understand ourselves and look for the inner essence, for the *centre*, for the umbilical cord, which connects us with the never-exhausted treasure of creative energy in the universe.

The vortices of human dynamics are responsible for our outward activity.

Without consciously developed ability to create vortices out of the 'swarming' dynamics of our thoughts, and beliefs, feelings and emotions, aspirations and dreams, all the energies that we produce go astray into the 'human experiential space' (Dimitrov and Ebsary, 1998) while bringing forth more confusion than understanding, more pain than joy, more illness than health, more suffering than happiness, more thoughts of sorrow than of inspiration.

As the emergence plays a primary role in the processes of self-organisation, evolution and transformation, let us emphasise on some of its main characteristics from the point of view of human dynamics.

1. Emergence is a manifestation of the wholeness of our being, therefore the more developed our ability to see the whole picture, the totality and completeness of our relationships with the world and with our inner selves, the deeper our understanding of the emergent phenomena. Unfortunately, we tend to be blinded by tiny fragments of our experience to which we cling under the influence of all kinds of desires, most of which are animalistic or meaningless. When blinded to the wholeness of existence, we lose the great connections and inner relations which give meaning and harmony to the flux of life.

Emergence can be perceived only in the present. By being occupied constantly with the past or by anticipating the future, we are far away from understanding the emergence. The forces of habits, prejudices and routines make us slaves of necessity to move on the frequently trodden and therefore easier paths, and thus deprive us of developing capacity to see an emergent phenomenon as it forms and arises. When we are free from the burden of the past and future, then we can fully 'sense' and experience the emergence.

2. The linear world – the world of cause and effect, action and reaction – is stored in our brains as instincts, memory, conceptual and emotional associations; when living only in this world, we can never grasp spontaneity of the emergence. As long as linear thinking and strictly logical inference dominate in our lives, the emergence remains unnoticed. The dissecting knife of the analytical reasoning can operate only with what follows after the emergence occurs.

3. If we try to impose our reasoning or will upon the emergence imbedded in the unfolding of any natural process (either in us or in the environment) in attempt to fight with it or 'improve' it, without deep understanding of its laws and its far-reaching effects, we may violate the natural rhythm and cause irreparable damage to our self-healing ability or the self-restoring ability of nature.

4. Emergence exhibits rhythm and direction, which are at the core of any self-organising process (Dimitrov, 2000). To understand self-organisation means to reveal consistency of its rhythm, stability of its direction and continuity of its organic development.

Although the mind is a powerful coordinator of our senses and instrument of our remembrance, projections and awareness, it is not enough to grasp the emergence and self-organisation. Without

the participation of our hearts and souls, without constant efforts to expand our consciousness beyond the limitations of our ego-centred thoughts and desires and thus to grow in wisdom, the emergence and self-organisation will never reveal their secrets to us.

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