Abstract for Trento Italy.

Anticipation: As Managed Emergence.

The Background.

The activity of anticipation must be viewed in the context of the major phenomena, currently in process. These are best described by Dr.Laurence Smith, in his book. “The World in 2050”. 1.Demographic. 2. Resources. 3. Climate Change and 4.Globalization.

Additionally, a significant number of transitions are also in play as well. These are 1.Technologies that have transitioned from understanding the external world to technologies that are beginning to unravel the secrets of the “internals” of humans, specifically, the Human Genome. 2. A second major transition is what can be described as movement away from Faith and Belief Systems opposed by geometrically increasing knowledge via the Scientific Method. And finally, a transition away from collectivizing social, political, economic and cultural systems to systems that are increasingly focused on the individual.

The dynamics of the Background:

In almost every aspect of human life, for the last two millennia, human agency has been assigned the role of being the first and only determinant of outcomes as they relate to futures, Sanctioned by religious dogma, accelerated by the discovery of the Scientific Method, and cemented as incontrovertible truth with the elevation of Democracy and its attendant emphasis on Individualism.

However, as we examine the past, especially in light of the validation of Evolution in both the Genetic and Memetic spheres, it becomes clear that the future is an emergence, an outcome of a complex interplay of extraordinarily large number of variables, all operating simultaneously in human affairs.

A simple way to illustrate this idea is to visualize a three dimensional matrix. The first axis would contain, human beings as Individuals, functioning simultaneously, in multiple identities. As an individual, as a member of a family, as a member of a society, a region, a nation, and finally at the global level. The second axis would comprise the variables within which humans function such as the Bio-Sphere, the Zoo-Sphere, the Geo-Sphere, the Atmosphere and Space. The third axis would contain variables such as the plethora of religious orientations, scientific and technological systems, political ideologies, economic philosophies and cultural orientations within which human beings function.

It should be obvious that at any given instant, the outcome is a result of a simultaneous interaction of all of these variables. As such, it would be the extreme of naivete to assume that Human Agency while being significant among the inputs, into the complex system, it is not by any means the only one and certainly not the sole determinant of outcomes.

Understanding the Future as Emergence.

Two sets of principles are important to understand how anticipation is best accomplished, as it relates to human futures. The first: Human futures can be likened to Humans being “active walkers” in a process that is not exactly a random walk, but nearly so given the complexity of the interaction,, that plays out over longer periods of time than commonly accepted, and secondly human futures is an “emergence”. Rather than as a designed outcome based on directed effort. Some concepts that are involved in understanding these principles are: Chaos Theory, Fractals, Critical Mass, Tipping Points etc.

Anticipation and the management of emergence:

When the background, the dynamics of the background and the Future as Emergence is properly understood, it will become obvious that activities related to anticipation with the objective of obtaining desirable futures would require several requisites that support the idea of Future as Emergence. What can therefore be identified as these requirements is the emphasis on individuals acting in ways that promote enlightened self-interest, in a bottom up fashion, within a radically redefined operant paradigm. A redefined paradigm that as a starting point, resets ideas pertaining to humans not as autonomous, dominant drivers but as part of an interdependent system, described above.

Successful anticipation, assuring the survival of humans as a species will require nothing less. Business as usual within the current paradigm of humans as paramount is doomed to fail, if it has not already, and may very well foreshadow the extinction of our species.

This paper will be an exploration of the above. Scholars whose work will be abundantly referenced in the paper are: Per Bak: “How Nature Works”,

Illya Prigogine: “Order out of Chaos”, Edward O Wilson: “Consilience”, James Gleick: “Chaos”, Phillip Ball: “Critical Mass”, Malcolm Gladwell: “Tipping Points”, Eric Chaisson: “Epic of Evolution”, Laurence Smith. “The world in 2050”, “Connections” by Burke, “Co-Evolution” by Barbara Marx Hubbard and many other seminal scholarly works.

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Some excerpts from the works of the authors referenced above.

Philip Ball. Critical Mass: Arrow Books, UK 2005 pg.588

“A push and a pull; a tension between conflicting desires. This is all it takes to tip our social behavior into complex and often unpredictable patterns, dictated by influence beyond our immediate experience or our ability to control. Regardless of what we believe about the motivations for individual behavior, once we become part of group we cannot be sure what to expect.”

Ibid: page 586

“The performer who provides his own applause is either deluded or desperate, but where better than in conclusion to describe this manifestation of social physics? .. a grateful audience expresses its appreciation of a performance.. At one moment each person is clapping to their own rhythm, and the hundreds of overlapping pulses of sound create a continuous clattering roar like the sound of surf on shingle. But then, something remarkable happens; this wash of noise resolves itself into a regular beat, as each pair of hands claps in unison with the others. The synchronization lasts for a minute or so; then dissolves again into chaos. There is no one conducting this, no one to set the pace or to signal when synchrony should happen: It just happens.”

Ibid. pg.5

“At face value it is not obvious how the bulk properties of insensibie particles of matter should bear any relation to how humans behave en-masse. Yet physicists have discovered that systems whose component parts have a capacity to act collectively often show recurrent features, even though they may seem to have nothing at all in common with one another.”

Lui Lam: How nature self organizes: Volume 8, no. 3, 2000. Pgs. 72-74

“In the last 30 years or so, there have emerged four general paradigms, each of which has been found to be applicable to a large number of complex systems if not all of them. The first is Fractals, founded by Benoit Mandelbrot. many complex systems exhibit the self similar characteristics that a small part of itself when enlarged in scale, resembles the whole..

The second paradigm is Chaos. In the realm of science, chaos is a technical word characterizing the behavior of some deterministic non-linear systems that are sensitively dependent on initial conditions.

The third paradigm of complex systems is Self-Organized criticality first proposed by Per Bak. Using the model of a sand-pile, it asserts that large dynamical systems tend to drive themselves to a critical state with no characteristic spatial and temporal scales.

The fourth paradigm is Active Walks. Initiated by myself and my students. We proposed that the elements/agents in a complex system communicate indirectly with each other through their interaction with the deformable landscape they share. Each element is an active walker in the sense that it changes the landscape when it moves on the surface, and is changed by the landscape in choosing its next step.

The description of an active walker thus involves two interacting components: the location of the walker as a function of time and the deformable landscape as a function of time and space.

Each of us is an active walker. By changing the surrounding landscape with each action, every person has the potential to make history.”