by A. Pokrywka

CONNECTING WITH COMPLEXITY

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essay

WE LIVE IN AN EVER-CHANGING WORLD. EVERYTHING IS SHIFTING, CONNECTING AND DISCONNECTING AND INTERCONNECTING. THE WORLD IS BECOMING MORE AND MORE COMPLEX. THE MOST IMPORTANT CHANGE BEING FELT BY OUR SOCIETIES AND OUR ENVIRONMENT STEMS FROM A CASCADING NETWORKED COMPLEXITY – DEEP, DENSE, NONLINEAR AND UNPREDICTABLE. THE ACCELERATION OF INTERCONNECTION AND COMMUNICATION HELPED DRIVE A VAST INCREASE IN PRODUCTIVITY, WHICH COMBINED WITH THE MORE RECENT SHIFT FROM INDUSTRY TO INFORMATION AND SERVICE, MEANS THAT ECONOMIES GROW EXPONENTIALLY.[1]

Mutated viruses (i.e bird flu) the revolutions (i.e Arab Spring), the financial crisis, terrorists networks, the manias, the fashion, the latest loves and hates, the spreading of cyber-crime are all manifestations of our ever more connected world. The current pace of technological change, particularly in ICT (Information and Communications Technology, eds.), is getting a "hockey stick" curve – it starts slowly and then very quickly

1 Exponential growth is easy to understand in theory but almost impossible to comprehend in practice – this is a fundamentally different type of progression: the larger something is, the faster it grows even larger. (Scott-Morgan 2012: 12-14)

speeds up. Sometimes we might feel as if we're stuck in the middle of chaos, that high technology is outstripping our capacity to manage it. The interconnectedness of global phenomena, and in particular the interactions (and communication linkages) between individuals, groups and institutions, give a new perspective on events and structures. Unfortunately, we also live in a state of misjudgments or big misconceptions. Most of us think that global order can be understood in simple and linear terms, "that all international crises had beginnings, and if managed well, ends (…) [that] the spread of capitalism is good and inevitable, in which democracy and technology produce an increase in general stability,"[1] but now everything has changed, and it is not going to change back.[2]

We are living in a kind of live labyrinthine system – interactive and instantaneous transmissions of information through social, economic and political networks. This is a world, which is data rich, but with much important information highly dispersed so that it can only be gathered by a smart process of sifting and aggregating. Intelligence (individual and collective) increasingly needs to rely (like amoebas) on diffuse "sensing" of moods and opinions, on tracking patterns. This knack for pattern detection allows meta-information to circulate through networks. It is self-organizing when distributing intelligence via the process of emergence or – in other terms – "simply" complex system. If it is so, we can explain social phenomena employing useful concepts developed in Complexity Theory. It explains how some immensely complicated behavior – such as evolution, human consciousness, AI (Artificial Intelligence), market crashes, epidemics, human conflicts, environmental change and traffic jams – can in fact arise from very simple rules.

This kind of self organization is a marked feature of life in an "information age," when e-mails, telephone calls and text messages, Skype, Twitter, Facebook, YouTube and so on, have diminished the effect of geography, put people in closer direct contact, and, in the process, removed the need for much central command and control. This unplanned mix is fed by explosive components of High Tech trends, Capitalism, Population growth and Industrialization. But the dynamics of the system have shifted: users stop being consumers and become participants. This pushes opportunities for innovation to the edges of the network, where users reside.

Now stop here! This kind of thinking is obviously absurd (so say traditional economists and political scientists). Diverse groups are often

2 Ramo 2009: 9.

3 I hope you remember the second law of thermodynamics.

tossed together, without any selection pressures, so how can they be efficient at all? And social systems and human beings are the most complex systems we know, so it is a "no go" area. Well, certain shapes and patterns hover over different moments in life; baffling, haunting and inspiring – they are cognitive building blocks, tools for thought.[3] For me it is a "moving" glider in John Conway's "Game of Life."[4] In this game, the world moves in lockstep and is arrayed on a two-dimensional grid, of which each cell can either be dead or alive. To be short, in this system a positive feedback (intermediate amount of life) begets life, while too much or too little life leads to death. Ultimately, this results in a remarkable set of global patterns that can emerge from this simple set of microlevel rules.[5]

> HOW DEMOCRATIC IS THEIR ATTEMPT AT RE-CREATING DEMOCRACY OUT OF THEIR OWN ACTION?

For complex social and/or political systems this consideration carries an important message for governance. It does not imply that political interventions are doomed to fail, but just that they must sometimes take other forms from those often advanced today: networked, self-organized, bottom up. Spread power instead of hoarding it and maybe you'll discover benefits you couldn't imagine before (and sometimes go against what is expected) such as the bewildering efficiency of swarm behavior. Probably the sophistication of collective actions is set to grow. The distributed intelligence is set to grow. This is not primarily a social phenomenon; it is also (or mostly) a high technology phenomenon. And that means it is set to get power exponentially. The concept of emergence can be sometimes seen as naive or, more "dangerously," as belonging to liberal camp. Certainly emphasis on decentralized networked structures seemingly lacks the potential to identify a "true command center," and disregard "real relations of power." But this is displaced criticism; there is no reason why progressive movements shouldn't embrace decentralized, swarming strategies. In fact, those doing exactly that are uniquely suited to adaptive self-organizing systems. And there is a growing number of such global, fluid and open movements, bringing new ways of visualizing democracy in the realm of possibility that "no one rules" and pushing forth the question: "How do we rule?" In the discussions and practices of the alterglobalization movement "the process occupies a central place as a goal in itself and is about creating an alternative world in which the how is fixed, but the who is fluid."[6]

4 Johnson 2001: 22.

5 Game of Life.

6 Miller, Page 2007: 52.

7 Maeckelbergh 2009: 227.

It could be that differentiated, fluid and networked systems are more robust, more resilient, more efficient and more innovative. But that notwithstanding, there is a caveat: too much diversity and complexity may produce failure cascades. Everything depends on various attributes of the system – connectedness, interdependencies, and the rates of adaptation – and these may change over time.[7] What we can "simply" do is to try to understand, predict and maybe control the complexity of our world.

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8 Page 2011: 255.