# A digression on complexity and networksâ?¦

## Description

Tweet

â?¦a side argument from the Rick on the Road post: Cynefin Framework versus Stacey Matrix versus network perspectives

In that post I said

> PS1:Michael Quinn Pattonâ??s book on Developmental Evaluation has a whole chapter on â??Distinguishing Simple, Complicated, and Complexâ?•. However, I was surprised to find that despite the bookâ??s focus on complexity, there was not a single reference in the Index to â??networksâ?•. There was one example of a network model (Exhibit 5.3) , contrasted with a Linear Program Logic Modelâ?¦â?• (Exhibit 5.2), in the chapter on Systems Thinking and Complexity Concepts. [I will elaborate further]

One interpretation: Complexity arises through the interaction of many agents having *some degree* of autonomy. With no autonomy there is simple order (complete predictability), with complete autonomy there is chaos (no predictablity). How do we define autonomy? One view: Autonomy = The number of possible relationships an actor can have with others. When realised, this can be measured in terms of network density (a Social Network Analysis (SNA) measure). Two cariacature examples of the extremes: 1. An army, with a hierarchical chain of command, is highly ordered. Here the network structure is sparse (i.e. a tree structure) and low in density. 2. â??Economic manâ?• , who is free to interact with anyone, in order to maximise his/her utility. Here all possible relationships can be realised, as everyone interacts with everyone. Complexity is the territory in between where actors have *some degree of choice* of who they interact with. And where there is some degree of predictability. When realised, those choices can also be described in terms of *different kinds* of network structures. *So if we want to explore complex systems we need to look at the structure of networks of actors*, both as â??initial conditionsâ?• affecting what happens next and as â??final statesâ?•, reflecting what has happened over a given period of time. I.e. an empirical approach, not mysticism :-)

PS: The concept of autonomy could probably be further differentiated, in terms of relationship choices, as follows : (a) the range of relationships available to an actor, already discussed above (b) the freedom to choose amongst those that are available, (c) the range of behaviors available within a given relationship. But how do you measure freedom (b) ? One measure might be the degree to which any choices made are *uncorrellated* with other events. The diversity of choices made could also be important. Diversity suggests freedom from constraint (more on this theme here).

### Category

1. Uncategorized

### Tags

1. complexity
2. exclude

3. Networks

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