Abstract

Consequence Appreciative Choice: A Framework for Assessing the Propagation of "Effects" on Human Complex Systems

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Some would argue that complex systems comprise "many" components that interact one with another in order to produce extremely complicated and difficult to assess outcomes upon, or within, the environment in which humans reside. However, the nature of these systems, particularly when humans constitute some of the components, are sometimes difficult to understand prior to when we have a chance to observe their operations. Moreover, the impact of such systems, let us call them human complex systems, upon their environment not only changes through varying spatio-temporal dimensions, but the environment has the ability to change the system in some reciprocal fashion as well.

The ability to assess the "trajectories" of human complex systems as they change over time, or anticipate the system's response to changes in the contours (exogenous factors) of its environment, rises to the level of a major conceptual and methodological challenge for strategist, planners, analyst and choice-makers. The challenge arises for an inability to consistently understand how the components, i.e. actors and human-created artifacts, of a system convert individual and collective actions into outcomes that can bring about changes on the environment or other human complex systems. This inability is not only the result of the complex behavior emerging from the operations of these types of systems, but the difficulty associated with effectively forecasting which – and how -- exogenous events may impact the system's operations. Moreover, and equally important, the system under observation has the ability to become an exogenous event to other human complex systems or the environment at large.

These aforementioned endogenous emergent behaviors, environmentally generated exogenous factors, and the human complex systems ability to impact external elements can be viewed as effects. These effects propagate through space and time, and have the ability to impact not only our understanding of a human complex system, but – more importantly -- can reduce our certainty with respect to anticipating the results of intentional changes – policies, strategies or actions -- within or upon a system or environment.

This presentation posits a framework for assessing the consequences that arise from intentional changes – or rather choices – within or upon human complex systems. Based on past efforts that take advantage of advances in advanced computational environments and the extensive corpus that has arisen from the social sciences, the

author would like to forward a framework for better assessing, understanding and anticipating "effects" as they relate to highly complex systems that explicit account for the role of humans and their artifacts. In addition to this framework, the author would also make use of past exemplars that illustrate how such a framework could be efficaciously used.