THE USES OF THE SYSTEMICCYBERNETIC APPROACH IN HUMAN AFFAIRS: A CALL FOR PRACTICE

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ABSTRACT

It is surprising to see - after more than 50 years of theoretical developments and quite a number of papers dedicated by systemists to practical complex situations- that the systemic-cybernetic approach to global messes (as typified by R. Ackoff) is still widely ignored by most leaders in business, economics, syndical unions, administration and politics (at any level), and even non-governmental organizations. This is a discouraging story of missed opportunities for a better management of human affairs in general, avoiding disasters or creating new possibilities through a keener understanding of the past and a wider appreciation of future possibilities, whether negative or positive.
The paper is an attempt to define a methodology for the practical use of the systemic-cybernetic global array of tools and models
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THE GLOBAL MESSES WE ARE UNWITTINGLY CREATING

At this begining of a new millenium it seems that we are growingly mired - worldwide - within an unending chain of more or less global problems of the most varied types, already in full swing, or as growing menaces:

Wars between nations and civil wars
Racial pogroms and discrimination
Growing masses of destitute and very poor people worldwide (even if more and more other people are also becoming prosperous… within the global of a planetary demographic expansion)
Man made ecological degradation
- extinction of numerous terrestrial and marine vegetal and animal species
- growing contamination of the seas and oceans
- salinization of wide areas due to ill-managed irrigation

Financial unstabilities
- Wide unsolvencies crises due to imprudent uses of credit
- Currencies crises and their worldwide effects

Climate growing uncertainties
- Possible results of theplanet´s global warming as a result mainly of the massive use of non-renewable fossil fuels. This includes:
- North and south polar ice accelerating disappearance
- Increase of the level of oceans, starting worldly
- Expanding desertisation (in Africa, both Americas, Asia and Australia)
- Shifting of climatic zones that begins to perturbate agricultural uses

Demographic explosion in the 20th C., which, if combined with expanding birth control technique, leads to a wide desequilibrium of the pyramid of age classes, with possible dramatic results, mainly in Asia and Africa during the later 21st Century

Ever more difficult management and control of the multiplying megalopolis in all continents (London, Shanghai, México, Cairo, Sao Paulo, New York, etc…) (closely related with technical progress in agriculture that leads to massive migration of peasants toward the great urban areas)

Even positive developments that entail in some cases negative - and generally unpredicted - consequences….

- Growing biological resistance of pests to chemical control
- Increasing demographic and socio-economic load on active population of non directly productive people: students, jobless people, retired persons (as an optimum result of better life conditions and medicare!)

It should be noted that, even enunciated in categories, ALL these problems are more or less interconnected and synergizing.

Proposals for a general program of good behavioral practices

All of these unsettling situations and perspectives are man-made.
And in many of them, each of us is an active contributor, even at a small scale…. The author of this note and his readers included … for example using our fossil fueled cars.
Accordingly, it seems extremely urgent - if we don´t want to totally lose control of our conditions of existence on this unique planet we have - that we should instaure a global code of good conduct in order to avoid the dangers resulting of our present general mismanagement.
The following steps in an orderly way seem to be necessary.

Elaborate adequate models of complex situations

A very general feature of human action is short term pinpointed intervention without much consideration for environmental conditions and possible side-effects. This becomes in many cases a recipe for trouble and even great disasters. Such an attitude is a result of our generally simple and linear way of thinking, by linking only one cause with one effect at one specific moment..

In fact, in most real situations, many more or less interacting and more or less repetititive or permanent effects do result from many more or less interconnected causes within a complex background. Most people will aknowledge this as an obvious reality… but will also forget to take it effectively into account in practice.

It is interesting to go back in time and read what Descartes - that father of modern rationalism - did say in his "Discours de la Méthode". His purposes and proposals were as follows:

"…to divide each of the difficulties under examination into as many parts as possible, and as might be necessary for its adequate solution.

"… to conduct my thoughts in such order that by beginning with objects the simplests and the easiests to know, I might ascend by little and little and, as it were, step by step, to the knowledge of the more complex, assigning in thought a certain order even to these objects which in their own nature do not stand in relation of antecedents and sequence

"… In every case to make enumerations so complete, and reviews so general, that I might be assured that nothing was omitted"

Unfortunately, Descartes proposed at the same time the step by step reasoning mode of geometry as the suitable model for reasoning in general. Such a precept contains in fact the seeds of the whole reductionist research method, of extraordinary efficiency when applied to phenomena really reducible to a simple sequence of elemental facts and/or separable parts, but which inconveniently eliminates the complex and frequently simultaneous interactions between elements and processes.

As a result we end up with a kind of anatomy of situations where in fact we should need a physiology of coherent action. Metaphorically, we kill the patient and dissect him in order to diagnose his illness.

What we really need is a methodology and guiding lines to establish correct models of evolving complex situations. This includes not only all the elements and every process, but moreover also a description as complete as possible of all their simultaneous and sequential interactions. This is obviously a very tall order.
Moreover, the modeller will always remain confined by her/his own conceptual and material limitations
Accordingly, in practice such models can never be perfect, but only, as much perfectible as possible within the limits of the available means .

Looking for the natural feedbacks and man introduced controls

Any complex situation is characterized by a set of specifically restricted conditions, reflected in natural feedbacks, which canalize and maintain processes within limits in accordance to environmental settings and internal need for non-contradiction and harmonization.

As a result, more or less regular oscillations of multiple parameters are generally observable…. and should be observed and monitored, in order to understand what is going on and, eventually, how and when the situation may escape out of its normal channel, becoming thus unstable and possibly dangerous. Of course, only a well conceived model can help us in such an endeavour, including precise observable processes, warning signals and checkpoints.

Selecting and establishing these may be in itself an arduous guessing task because it must be undertaken by trial and error correction, precisely when the situation is still quite ill-understood.

On the other hand, what is observed must be interpreted within our personal frames of references. This introduces a real possibility of misunderstandings due to faulty reasoning or prejudices. (Theory of sets, Peirce´s semiotics, Venn diagrams, Maruyama´s mindscapes, Korzybski´s general semantics and a number of other related concepts can be quite helpful in such a matter).

When finally a supposedly satisfactory evaluation of the factual state of affairs has been reached, it is still quite probable that changes should be needed, i.e. that man-made controls should be installed. This is again a tricky business that should be carefully managed because it also implies psychological and conceptual evaluations as well as factual and technical limitations. Without getting to the extreme position "If it works, don´t touch it", any would be reformer should ask himself: "What could go wrong if I start tinkering with this structure or that natural feedback". Such carefulness is unfortunately infrequent, as most people are merely interested in inmediate and short-term benefits without consideration for future eventual mishaps, particularly when other people would have to pay for them, and in a more or less far away place or future.

Evaluate the workings and effects of these feedback and controls

The foregoing comments also introduce the need for a methodology of monitoring complex situations and the effects of our own management of the same.

Even the best conceived interventions in a given situation may produce unforeseen consequences for the project itself and, or for the environment, by and large.

This subject has been widely explored by Michael Jackson, under the general concept of "creative holism", as a systemic approach to management.

Among other aspects of monitoring complex situations, one is of foremost importance, i. e. the detection of early signals of any erratic or anormal behavior of the system under observation. As said by a french popular dictum, "there is no smoke without a fire" (but of course a "fire" may be smouldering for some time before any "smoke" can be observed).

We should thus face twosuccesive conundrums. The first one is: what kind of signals, or forewarnings should be monitored for any specific evolving situation, and thus observed as early as possible. Guidelines could be useful, but their accuracy depends largely on historical experience and on observers attentive acumen.

And the second one is: how best can we understand and interpret eventually such observed signals. This also remains true when observing the results of our eventual management interventions, as any of these, if not suitable, can easily derail any process.

It is also well known that an early correction of any deviation is much lest costly than a belated one. However, in any dubious circumstances, the "just in case" and the "just in time" interventions should be thoughtfully considered, while all possible options should remain open as long as possible.

If not suitable modify them and, or introduce new ones

Of course, in many cases we have to face unsatisfactory situations and accept the need to introduce changes into some system which seems (to us!) to be ill-working. This is in many cases a tricky business because specific or local changes generally produce effects - not necessarily always positive - in other parts or processes in the system. Moreover, such effects are frequently delayed in time and thus impossible to observe early. This limits us merely to the recourse to hopefully educated guesses.

Moreover let us remember that many self appointed reformers ended up in dead ends or becoming mere sorcerer´s aprentices… and some even condemned to be burnt at some real or symbolic stake.

Accordingly, it would be advisable to design general criteria related to the dynamics of possible and proposed change in complex situations and systems. Tentative guidelines could be for example:

- which would be the best technical way to introduce the proposed change
- which qualitative gains can we expect
- which quantitative gains can we expect
- which negative effects could appear…
  and when
- could there be negative psychological or social reactions to the proposed change
- … and even, what could be a significant, but ignored problem!

…. To put it shortly, let us beware of intellectual insolence or self-sufficiency

Monitoring the results

In order to achieve a reasonable measure of security and responsalibilty, it would be advisable to frequently check the practical results of our interventions.

This can be done using a re-worded version of our former guidelines, as for instance:

- Does the used technique of change work satisfactorily?. Is it cost effective?
- What are the prognoses of the modified process and situation ?
- Could some unexpected effect be surfacing ? Which ones, specifically?
- Should something be amended, or replaced?
- How does the benefits and costs balance evolve?
- Which are the psychological and social reactions of the stakeholders (i.e. all those people in some way affected by the changes)?

And, most significantly, this sequence of activities and evaluations should be frequently rerun: Monitoring should be more or less permanent or, at least periodic.

Problems with the management of the "problems"

Of course, there is a very important and difficult psycho-sociological problem occult in this sequence. Valorating terms have been used in this short note: "adequate", "natural", "suitable"… and even "evaluate" and "monitor", and "frequently".

The catch is that anyone has her/his own understanding of what should be considered "adequate", etc… and her/his own way to "evaluate" and decide what should be "monitored"… and why, and how, and when, and by whom.

We thus have to discuss our criteria widely and universally… which is for sure a very demanding task, as can be observed in the deep and wide controversies about nearly every situation or project discussed in the numerous international organizations that sprang up during the second half of the 20th Century (even if the very emergence of such organizations is per se a quite useful and positive first step)

All this is again a very intricated conundrum. The progress and the results of any significant project affecting many people should ideally be submitted to public opinion. But the citizenry is generally not well informed. And, if duly informed, common people generally
lack the basic knowledge needed for sound appraisal and, in many cases show no interest whatsoever.

However this should not be used as an excuse for non-consultative autocratic management. Much progress toward better public information and understanding has taken place worldwide during the 20sth Century and this should remain an ongoing progressive endeavour.

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