

# Comments on “Systems Thinking” in the context of the CORMA project

Johann Ortner, Vienna 2003

1. Well done! What is said in this paper about Systems Thinking is challenging my knowledge for which I needed 60 years to collect. I will not give up so easily and defend my knowledge. I assume you too will not let me destroy your >knowledge<. I think that I am right and you are wrong, but how can I prove it and convince you to accept my knowledge? I am using words (language) and you are using the same words, but we understand and mean different things. So lets talk about >words<. Unfortunately we do not have enough words; therefore we are using the same words for different things in different contexts. This problem can not be solved by creating a universal (precise) scientific terminology as Mach, Carnap, Wittgenstein, Popper hundred years ago were dreaming about. The only way to avoid misunderstanding and misinterpretation is to study the usage of >words< in communities, schools and domains (disciplines)
2. If I want to understand what Forrester means when he uses the words “System Dynamics” or “Industrial Dynamics” I should read his books, learn about the practical, ideological and theoretical background of his statements, etc. In the very heart of his theoretical concept I probably will find some basic assumptions (>mental models<) about the nature of phenomena he is talking about. The same I should do with Glasersfeld / Foerster or Bertalanffy / Luhmann or Maturana / Varela and by comparing their usage of the word “System” I would than see, that the basic assumptions, the approach, the conclusions are quite different. So “Systems Thinking” is not equal “Systems Thinking”. The definition: “Systems Thinking is an ability to see the world as a complex system” is not helpful at all, because “Complexity” is a metaphor with un-definable meaning. Why should we study all these different >outcomes of million man-month theoretical thinking<, compare the elements and the construction of theories?
3. You are quoting >arguments<, that are pointing to the (>right< ?) answer:

“If people have a holistic world-view..... they would then act in consonance with the long-term best interests of the system as a whole.....”

Let me say it in other words: People act in a certain way, because they have a certain world-view, what means, they act rational in two aspects: Action and outcome / result of action are in a rational relation regarding achievement of individual goals / interests and they are rational regarding the interdependency of individual interests and “system interests”. There is a “consonance” between the interests of individuals acting within >systems< and the interests of the >system<. System interests can not be defined as the >sum< of interests of all individuals. System interests and individual interests are forced together by a “world-view” that is >imposed< on the individuals by the system.

>System< therefore must be a kind of entity that is characterized by >having interests<. This means:

- We are talking about enterprises, companies, organizations as objectively existing entities, which we can investigate scientifically.

- Investigating enterprises as legal bodies and >acting< entities implies that one can be a member of an organization and act accordingly as an element of that >body< but this element cannot simultaneously be (and act as) a member of another organization / system.
  - We are not talking about >Social Systems< in general, because in Social Systems Theory the borderline between being / acting inside and acting outside a >system< (as a private person for ex.) is a matter of the point of view of the observer (who in fact is always a part of the system).
4. What could >System< mean on this background? In your paper the word >system< (not term!) and the word >organization< are obviously equivocal and the concept behind the arguments is just traditional Organization Theory, -  
- a mixture of structuralistic / deterministic / rationalistic / mechanistic and subjectivistic/ interactionistic / voluntaristic concepts on how to describe and understand organizational processes and structures. Why not? If it works!

The Structuralists and the Interactionists as well as the Constructivists are talking about "Systems"; however the implications of their concepts are diverse. Almost all of the working KM approaches are based mainly on structuralistic concepts which say, that an organization is an objectively existing structured entity and peoples actions are determined by the structure. The organization can be managed rationally through intervention, leadership and manipulation. The management is advocating the interests of the whole by using its power and knowledge to make people behave and act according to the "long term best interests of the system as a whole". Because this concept sometimes does not work effectively and efficiently (because we are living in the so called >globalized information society<) recently it became a fashion to add a little bit of the subjectivistic, voluntaristic concept which says that individual, self determined / regulated actions create and form the organization as a whole. In this context the metaphor of an organization as a living >Organism< is used to hide the mechanistic view on management of an organization. The management must learn "about the structure and dynamics of the increasingly complex systems", "improve mental models" and "design new policies" in order to break the resistance of the >ruled / guided< individuals. (Commitment of Top Management!)

5. If you call this "Systems Thinking" it's o.k. and I have no objections against this concept, however it does not have much to do with >System Theory< as I understand it. May be we do not need >System Theory< at all to achieve the goals of the CORMA project. What is interesting about all this concepts and theories is the fact that we can not seriously say that they are wrong (proposed they are consistent, more or less logic and evident), because they represent a set, a combination of "mental models" we can use (and apply) for describing and understanding phenomena.
6. Mental models!? What is this all about?

What are mental models? Does it mean "internalised action patterns", compressed live experience, a set of combined imaginations/ideas/perceptions or are they rational, constructed configurations of paradigm's as we are using it to build a scientific theory?

Are there >tacit< and implicit and explicit >models<? Is >cause-effect-relation< a mental model or >inside-outside<, or >organism<? Is >Systems-Thinking< a mental model or does it consist of various mental models? To be precise in usage of words seems to be very important, because if we say a >mental model< is a basic element of our thoughts, than the question is

- How can we configure and reconfigure a set of models to create a >viable< , practicable picture of >the world< (f.ex.: individual + knowledge + property = individual-intellectual-property + owner/creator + right = copyright /// or: inter+national does not really fit / work anymore because we are facing >global< activities / players which do not care about national laws / interests)
- How can we correct / control / avoid the (misleading) usage of models as metaphors resp. paradigms what causes serious problems and makes us believe and act as if (for ex.) the CIA or KGB = institution = organization = living organism = has a live cycle = wants to survive etc.)

In this case we can not “expand the boundaries of our mental models” intentionally, because their roots lie in what Polanyi called “Tacit Knowledge”, the form of human beings existence in (comprehension of) this world what has little to do with “implicit knowledge”. If >gravity< or >mother< is a mental model, than we are able to change this models only through >live experience<. Not so easy to achieve with >gravity<!

If we say >Systems Thinking< or >structuralistic Organization-Theory< is a >mental model<, than we can follow Lyotard’s post-modernistic attitude towards theoretical concepts and try all of these concepts. Let’s see, what >benefit< we can get from one or the other, what new insights we can produce by applying this or that >concept<.

7. “Systems Theory” neither “provides us with Systems Archetypes” nor with ways how to deal with our >mental models<. What else than is “Systems Theory”? Well, that’s a good question. I am not a >prayer< of Systems Theory, however I find it extremely helpful for understanding and solving particular >scientific problems<.

What can be said about any scientific theory must be applicable on to “Systems Theory” too.

- Either it is a theory like other theories such as Organisation/Information/Cognition/Learning Theory, Physics, Biology, etc. than the basic assumptions (axiom) and the >findings / conclusion< of one theory should not be in (a principal) contradiction to another theory (f.ex.: speaking of knowledge as of having an orderly picture of the world in ones mind can be taken only as a metaphoric illustration but not as a scientific description, because from biology / physiology we know, that this is in fact >nonsense< talking)
- Or it is a super >Meta Theory<, which can explain all the differences and incompatibilities of (to) all other theories. (This is what some of the key figures of Systems Theory say.)

For several reasons I prefer not to follow the latter version.

8. Let me point out just one proposition (argument) of the >Social System< thinkers: Organizations (organization processes) resp. >Systems-building<

can be understood as a permanent(ly) critical translation / transformation of FUNCTION into STRUCTURE (and to some extent also vice versa).

This is an interesting >idea<, because a so called real existing organization could be seen as a function, as a structure of relations or as an object (=element of another system), depending on the point of view. If we look at a supply chain, then the different suppliers are components of the supply chain system and by observing these elements and their interactions we take them as objects. If we look at a specific company, then the divisions (or the individuals) are the elements. The objects and their attributes are not the matter of investigation but the relations and the attributes of those relations. (Thing-hood versus System-hood) The environment forces a system to >select< an æssembly of (possible) relations and the structure is the >program< (code) of that selection. The point is, that the selection is a >function< of the system-environment relation and the selection is more or less >contingent<. Decision making is on the one hand guided by (based on) sense (what makes sense for the system, i.e. stabilizing the difference between inside and outside / i.e. autopoiesis) and on the other hand ruled/disciplinized by the structures.

Sorry, I do not want to give a lecture on Systems Theory and I do not want to go in to it deeper, because I am afraid it is only confusing.

These simplifying sentences do not help to make anybody understand, what scientific problems can be solved better with "Systems Thinking".

What I want to point out (and what I tried to explain in my comments on D05 to D09 – knowledge environment) is the fact, that with this type of >Systems Thinking< we are forced to look at "phenomena" in a completely different way.

For example: Information is what causes a system to partially modify its internal structure without interrupting the self-identification. Information in this context is not seen as a certain >input< but as irritation of autopoiesis resulting in redefinition of relations. Knowledge on the other hand has to be seen as a function of autopoiesis, drawing the borderline between true <> not true <> not relevant.

I disagree on some statements that "Systems Thinking" is useful / necessary to better / more rationally act as a member of an organization. I would say the opposite is true! We can see ourselves and our relation to the world with a broader view, a holistic or organic view, whatever that means, but this is not >Systems Thinking<. With Systems Thinking we are not able to make any decision, not any distinction between true and not true and we are not able to evaluate what is good and what not. Social Systems Theory is a scientific >Concept< and if somebody were to say, if it does not help me to be a better politician / manager / knowledge worker / consultant etc. it is of no use and we better should forget it, then I could argue that linguistics, literature-science etc. do not help me with writing a novel or better communicate with other people too.

What Forrester, Senge, Sterman et al. are saying about systems, organizations, knowledge etc. is literature, description of life experience, is combining and applying >mental models< (that make sense within a specific domain) on to phenomena in a metaphoric way. This sort of >thinking< can be very enlightening but also extremely misleading: No serious scientist will subscribe to the phrase "objectively rational behaviour in the real world"! This is just non-

sense talking if you do not see the world as a trivial machine. Not so for Forrester and Simon, the colleagues and the members of the community who awarded him with a price.

Isn't this a problem we are going to solve with the CORMA project?

With Systems Theory I could explain, why you are quoting Forrester and Senge etc. and also why Simon got the Nobel Price, but my understanding of how it works does not make me believe in "objectively rational behaviour" of humans, because I see objects, machines, organizations, living beings as of having different "rationality", nor does it abolish "defensive routines that insulate our mental models". So the problem remains unresolved.

What could be the way out of that trap?

We would need a >unified theory< that integrates what is taken as being true within neurobiology and epistemology, cognition theory and biochemistry, communication theory and information theory, organization theory and decision theory, technology and sociology, a.s.f.

Systems Theory is definitely not that sort of >unified theory<. How then can we get closer to: "CORMA whilst developing its specific inter-organizational and human centred KM methods identifies with most of these issues and proposes to deliver on all of them."

No, definitely not through "Knowledge Flow". Knowledge does not >flow< as you can see from this paper.

We have to find a common language! How difficult it might be and how long it might take, there is no other way out. So let's do >knowledge mapping<.

*Step 1:* Let's investigate the (3) main organization theories. What are their basic assumptions? What models, patterns, paradigm are they using? Where do these models originally come from? What logic does the argumentation follow? What are the intentions behind? What are these theories able to unveil / describe/explain? What effect does the application of these theories have on actions? Where are the incompatibilities/differences/ contradictions to other theories of phenomena in question?

This could be done with 10 >> 15 pages of text and graphics. I am sure that there are papers out somewhere. Let's find them or do it ourselves.

This paper should be discussed extensively during a workshop so everybody gets familiar with the usage of terminology and the implications.

The same has to be done with: Information Theory, Cognition Theory, Learning Psychology, Economical Theories, Symbolic Interaction Theory, Social Systems Theory and some more, depending on the links we find from one >concept< to other theoretical concepts.

*Because we can not ignore existing knowledge regardless in what discipline it resides.*

*Step 2:* Let's see what we have got, what could be useful und how it could be used to achieve our goal. Forrester's 3 sources of >System Dynamics Modelling< are useless in the context of the CORMA project! For the moment just believe me!