

CRITICAL SYSTEMS THINKING

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Summary

Within the systems movement, several strands and different sub-movements have developed in the last two or three decades. One of them is the “critical systems approach” which opposes certain assumptions and methodological and practical implications of the so-called hard and soft systems approaches. The most essential characteristics of the approach are its critical standpoint against exclusion or inclusion of factors constituting the problem settings dealt with, and the idea of a utilization of various systems methods depending on the characteristics of the problematic situations encountered.

The approach in the version developed in the years between 1980 and 1995 is built on several maxims (“commitments”) which define useful attitudes in dealing with complex problem frameworks, and on a so-called system of systems methodologies. In more recent years several applications of the approach in management science, design studies, and development studies can be found. During this time a differentiation also occurred which strengthens its methodological underpinnings and modes of applicability.

1. Introduction: The Role of Critical Systems Thinking within the Systems Movement

The approach which is introduced in this chapter was developed as a reaction to hard systems approaches (systems engineering, systems analysis) due to shortcomings and problems which have been identified with respect to their applications in given social and political contexts. It is not only objections to hard systems approaches which give this approach its identity, but also a certain critical distance from the soft systems approach (such as the Soft Systems Theory of Checkland) (see *Soft Systems*

Methodology). This distance was set up regardless of all the merits in the development of systems sciences that had been conceded to the soft systems approaches. Scholars such as Stafford Beer and C. W. Churchman, among several others, contributed important and valuable preparatory work during the last decades that allows follow-up researches to improve methods and to clarify some of the conditions of applicability of systems theory (see *Viable Systems Diagnosis*). Therefore, the soft systems approach was, without any doubt, an important milestone. With the beginning of the nineties, however, a new wave in systems thinking came into existence, called “critical systems thinking” which seems to have the potential to trigger changes in contemporary management and systems science.

Major developments resulting in the approach took place at the University of Hull in Great Britain. The main agents and proponents are Robert Flood, Michael C. Jackson, Gerald Midgley, Wendy Gregory, and John C. Oliga, to mention only a few. Related approaches are those of R. Fuenmayor and W. Ulrich. Although developed mainly in the 1980s, the approach was introduced to a broader public by several books issued in the 1990s and, according to one of the proponents of the approach, its major impact will be felt well beyond the 1990s. In this latter phase of development several writers are engaged in a revision of the ideas due to criticism in the literature from a methodological as well as an applications point of view.

In the present contribution none of the approaches in which critical systems thinking has its roots will be discussed explicitly. But it has to be kept in mind that there are such relationships, and that the approach is neither completely new nor isolated within the systems movement. On the contrary, the concept of a system of systems methodologies (introduced later) explicitly establishes connections to nearly the whole set of systems methodologies with practical relevance.

In one of the first publications in 1991, introducing the new approach in a comprehensive way, Flood and Jackson describe it as follows: “Critical systems thinking is an important and substantial development in the management and systems sciences. It shares the soft system thinker’s critique of the hard approaches, but is able to reflect more fully upon the circumstances in which such approaches can properly be employed. It recognizes the unique contribution of organizational cybernetics, in terms of both its strengths in organizational design but also its limitations in handling cultural and political phenomena, and is able to incorporate cybernetics back into a reformulated conception of the nature of systems work (which soft systems thinking singularly failed to do). Fundamentally, critical systems thinking locates major shortcomings in the soft systems paradigm, particularly its failure to question its own theoretical underpinnings and to be reflective about the social context in which it is employed. In seeking to establish itself as the new dominant paradigm, therefore, critical systems thinking demonstrates that earlier systems approaches are all special cases with limited domains of application. The valid and successful use of earlier approaches for systems intervention depends upon the broader understanding of them provided by critical systems thinking.

The critical systems endeavor possesses perhaps three interrelated intentions:

1. *Complementarism*: to reveal and critique the theoretical (ontological and epistemological) and methodological bases of systems approaches, and to reflect upon the problem situations in which approaches can properly be employed and to critique their actual use.
2. *Emancipation*: to develop systems thinking and practice beyond its present conservative limitations and, in particular, to formulate new methodologies to tackle problem situations where the operation of power prevents the proper use of the newer soft systems approaches,
3. *Critical reflection*: to reflect upon the relationships between different organizational and societal interests and the dominance of different systems theories and methodologies.”

In the following the essential properties of the approach are outlined and the distinctions with other approaches are briefly outlined also. The most important questions are: What are its theoretical underpinnings? What is it to be critical? And what is the social context of application?

2. Origins: Opposition to the Hard Systems Approach, Improvement of Soft Approach

The first important step in finding its own identity was the break with hard systems sciences especially when applied to social systems. Points of critique here are (according to Jackson):

- These methodologies take for granted the existence of systems in the real world.
- They search for regularities and causal relationships in the interactions between sub-systems.
- They take a deterministic view of human behavior.

Jackson characterizes the main objections against the hard systems approach as follows: ‘Hard systems methodologies assume that it is possible to arrive at a clear statement of the objectives of a system from outside the system concerned. But objectives originate from within social systems and different individuals and groups often vary considerably concerning the goals they wish to see pursued. However, in practice, hard systems methodologies do sometimes appear to “work”. Logically this success must depend either on there being widespread agreement over objectives among the human beings who make up the system...or on there being an autocratic decision-taker who can decide on the objectives of the system.’

In these premises the representatives of the critical approach see “dangerous authoritarian implications of hard systems thinking.”

However, also a second step was taken, namely the break (at least in part) with the soft systems approach. Although soft systems approaches (in opposition to hard approaches) use interpretive rather than positivist theory, focus on qualitative rather than on quantitative analysis, and aim to manage messes adequately rather than to solve problems correctly, critical systems thinkers see crucial shortcomings in terms of both reducing power disparities and the real constitution of decision situations.

In order to better understand the intentions to oppose hard as well as soft system approaches some of the properties of the interpretive paradigm are described. It is characterized in social theory, in the words of Jackson, as follows:

‘One defining feature of the interpretive paradigm...is its subjectivist approach to social science. We hear nothing about objective “social facts” from interpretive theorists. Instead the social world is seen as being the creative construction of human beings.’

And he added, regarding the possibility of a social systems theory on the basis of such assumptions:

“Such a theory would have to probe the systemic nature of the interpretations individuals employ in constructing the social world.”

Therefore, there is a break with hard and soft systems approaches but, as noted above, also a continuation of some of their offerings and intentions. Considering the work of Ackoff, Churchman, and Checkland, Jackson tells us in an early contribution in 1982: “One has to argue that these writers have tended to misunderstand the nature of their work,” and in contrast to the time when they established their methodologies “certain tools now exist which allow us to take a broader view of social theory and enable us more precisely to identify the theoretical assumptions of systems writers.”

It seems to be indisputable that their contributions mark an important step forward for the development of systems science beyond the “functionalist orthodoxy” of the hard systems approaches (systems engineering, systems analysis). However, according to Jackson and others, soft systems thinkers do not develop their approach far enough and are not as “radical” as would be necessary to avoid shortcomings and ideological restrictions. He also pointed out in 1982: “We should recognize however that the degree to which soft systems thinking can bring about change in the real-world is determined by its essentially regulative character. It does not pose a real threat to the social structures which support the Weltanschauungen with which it works. Soft systems thinking is most suitable for the kind of social engineering that ensures the continued survival, by adaptation, of existing social elites. It is not authoritarian like systems analysis or systems engineering, but is conservative-reformist.”

And he adds in another publication three years later: “In those many social systems in which a reasonably full and open discussion can be achieved and in which there is a rough balance of power and resources between different stakeholders, these methodologies [of Churchman, Ackoff and Checkland] can be used successfully...If soft systems approaches are to be used wisely, however, then there must also be an understanding that there are many social systems for which they are inappropriate. For such social systems there is a need for more radical and critical approach to producing and verifying social systems theory and practice.”

Therefore, the critical approach seems to provide adequate tools in situations with great power disparities and with unequal distribution of resources and which, in the words of Jackson, seem to “escape the control and understanding of the individuals who create

and sustain them.”

And at this point there is often a recourse to traditions in social theory, such as Marxist conceptions, as shown in the following citation, again from Jackson:

‘Meanwhile, however, many of our institutions are “sick” in the sense that the people who constitute them no longer recognize themselves in their creations. If those people are to be brought to the true understanding of their situation, which will enable them to regain control over their destiny, the more radical therapy of a critical social systems theory and practice is required.’

According to Habermas, in facing the situation in social reality, the main tasks have to be:

- Formulation of explicit theories about the social world.
- Organization of enlightenment.
- Selection of appropriate strategies.

No doubt the list above amounts to an extremely ambitious program for those systems approaches which take their place in the line of critical social theory and which adopt its goals. But this ambition indicates that former systems approaches might have already provided one or other element, and these approaches have been oriented by the maxims of the approach introduced in this contribution; also, in most cases no “rein-form” (pure version) will be applied but rather a more pragmatic selection and combination of some of its elements is the standard case.

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Biographical Sketch

Karl-Heinz Simon is a member of the University of Kassel (Germany) and deputy director of the Center for Environmental Systems Research. He has coordinated several projects in energy planning, resources analysis, man-environmental interactions, and methodology of systems research. He has published several reports on these subjects.