Business Studies Vol. XXIV. Nos. 1 & 2 January and July, 2001

SOFT SYSTEMS METHODOLOGY AS A TOOL FOR BUSINESS ETHICS RESEARCH

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Abstract : The present paper establishes that business ethics is a discipline in its own right. It demonstrates the fuzzy and eclectic nature of this emerging discipline, which has descriptive (or fact) as well as normative (or value) components. Considering the vast array of "right-versus-right" ethical decision situations in the real world of human problems, it is posited that systems thinking, particularly the "soft" interpretative approach, is a far more appropriate mode of enquiry into ethical questions than the deep-rooted and almost sacrosanct scientific method of empiricism. The most popular form of soft systems thinking that has evolved over the last thirty years is referred to as Soft Systems Methodology [SSM], developed by Checkland and his associates at the University of Lancaster. The paper examines the appropriatenes of SSM for business ethics research by underscoring the context and distinctive characteristics of SSM, and how it is fundamentally different from the "hard" systems tradition. The learning/inquiring nature of the SSM process is articulated in terms of the original seven-step model, as well as the revised four activity model. To aid a clear understanding of the SSM process in action, the rich epistemology of the methodology is also analysed. A few instances of SSM experience in business and elsewhere are cited together with the outcomes of its application. Finally, the pre-conditions for SSM effectiveness are identified in order to arrive at a judgement of the potential of SSM as a research tool for developing and enriching the fledgling intellectual field of business ethics.

Key Words : Business ethics; Right-versus-right choices; Hard and soft systems approaches; Soft Systems Methodology; *Holon;* Human activity system; Rich pictures; Root definitions; *Weltanschauung;* Ontology; Epistemology; CATWOE; 5-Es.

The Fuzzy Field of Business Ethics

Ever since management has emerged as a professional activity in corporations, and business enterprises have grown in size and power to pervasively impact myriad aspects of modern society, attempts have been directed towards developing a moral philosophy for management and a set of ethical guideposts for managerial decision-making. These efforts reflect a constant concern about the ethical issues that impinge on business practices as part of human endeavour. This concern has, however, accelerated lately both in the corporate world as well as in schools of business and management, making one thing crystal clear : *While the subject matter of business ethics is by no means a present-day concern, the development of business ethics as an intellectual field, is.* Over the last two decades, a growing volume of literature has developed, and journals in business ethics have been published to promote discourse, writing and research in the area. This has prompted business ethics to come out of the yoke of its erstwhile status of a peripheral "add-on" subject supplementing existing courses, and to hold its ground as an independent discipline.

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The popular stance within the portals of the business world that there is no such thing as business ethics : business and ethics just do not mesh. To business executives, "business ethics" is an oxymoron, which implies either that business is *immoral* by its very nature and should be accepted as such, or that business is *amoral* and moral considerations are inappropriate here. However, media exposure about business scandals and unethical practices make it readily apparent that business organisations are by bo means amoral; indeed, they do have far-reaching ethical impacts and they ought to be treated as moral entities.

As a discipline, business ethics is a sub-set of the study of ethics, in general, which is concerned with actions and practices directed towards improving the welfare of society, in its broadest sense. It involves a philosophical inquiry into various theories of what is good and what is bad, what constitutes right or wrong behaviour, and what one ought to do or not to do, in order to promote social welfare and to attain a life worth living (Buchholz et al., 1998, p.2). By this token, business ethics raises questions about corporate social responsiveness, social responsibility and public policy. These are fundamental to business because it is a social institution. Society allows institutions to be developed and to continue to operate based on society's conceptions of human welfare and what makes a life worth living. Thus, business needs to change as society's notions of these ethical concepts change. In responding to social and political issues, moral and ethical dimensions of business must be explicitly recognised and debated in order to develop a vision of the future role of business and the appropriate roles it should play in society. As such, social institutions serve a fourfold purpose : they create opportunities for pursuing self-interest; they create opportunities for developing family relationships and friendships; they create opportunities for establishing formal groups and promoting their interests; and they create opportunities for pursuing fairness, justice and human rights. These four institutional purposes are represented by four categories of overlapping values and ethical rules (Kohlberg, 1981) : self-interest, personal relationships, group well being, and universal ethical principles. This explains why we need to understand the ambiguity of values and ethical rules (Dienhart, 2000, p. 95) in order to understand the complexities of the purpose and institutional settings of business.

Ethical questions in business arise in three different guises : problems, dilemmas and false dilemmas. We have an ethical problem when we do not want to do what we believe is right. We have an ethical dilemma when every course of action violates some important ethical concern, while simultaneously satisfying some other. A false dilemma is one that *prima facie* appears to be a dilemma, but disappears on further analysis, acquisition of new facts, or resolution of value conflicts. Irrespective of their nature, ethical questions are difficult to address; they have to do with a definition of human welfare, the meaning and purpose of life, the nature of the human community, the relationship between the human community and Nature, and similar questions that are very basic to human existence. These questions cannot be answered by resorting to the quantification afforded by an economic calculus such as profit / loss; nor can they be satisfactorily answered through a political process based on power and influence. Another difficulty with these questions is that they are often matters of right versus right, not right versus wrong (Badaracco, Jr., 1997,

pp. 1-5). Right-versus-right decisions involve hard choices between alternative ways of resolving a situation, each of which seems the right thing to do, but there is no way to do both. They are troubling, complicated, serious and far too important to ignore. They often become questions about life and not merely management because of their finality. They can have powerful and irrevocable consequences for the lives of decision-makers and for their organisations as well. Right-versus right choices defy standard solutions. They cannot be forced comfortably into familiar categories such as legal issues or economic issues or political issues or environmental issues, so that once we put the problem in the right compartment, we readily have the right concepts and tools for solving it. They are not purely intellectual issues, as they are fraught with the personal risk of a moral calamity of letting others down and failing to live up to their standards. Right-versus-right ethical decisions may therefore be rightly described by Sartre's metaphor of a "dirty hands problem" (Sartre, 1989, p. 218). Badaracco, Jr. (1997, p. 6) refers to them as "defining moments" because they have three basic characteristics : they *reveal* a decision-maker's and the organisation's basic values; they *test* the strength of the commitments that a person or an organisation has made; and above all, they *shape* the character of the person and organisation.

Owing to the complexity associated with choices between right-versus-right, business ethics is characterised as a fuzzy field of inquiry having five important characteristics (Hosmer, 1996). It involves an ethical analysis of decisions that have *extended consequences* beyond the first level, extending throughout society. These decisions mostly have *multiple alternatives* that go beyond a primarily dichotomous choice between yes and no. Also, they have *mixed outcomes* with directly opposed financial returns and social costs. Most of such decisions have *uncertain consequences* that are not deterministic at the time of making an ethical choice. Above all, they have *personal implications*, being inextricably entwined with the lives and careers of the decision-makers, and so, entail individual benefits/costs in addition to financial and social benefits and costs. The use of the term "fuzzy" indicates that in order to grapple with the hard choices that ethical questions raise, humans obtain knowledge about themselves, their expectations and behaviour, and their environment by way of perceptions, which is the link between the outer world commonly called "material" and the inner world often broadly referred to as "mind". We see, hear, taste, smell and feel form, size and texture. Finally, all these sensory perceptions merge into a complex background and can no longer be isolated, resulting in an inherent vagueness in the words of natural language we use to convey our mental images. An essential characteristic of a vague concept is that the boundaries of the domain of its applicability are not fixed, and therefore, we do not know precisely where this domain ends and some other begins. This vagueness is not thought of as inherent in the real world but in our use of words and the meanings we attribute to them (Negoita, 1981, p. 7).

The concept of a discipline or an intellectual field (Checkland and Holwell, 1998, pp. 31-34) implies a shared concern to accumulate knowledge in a particular area to resolve issues within it, to solve problems or puzzles, and to influence any action taken. There is also the implicit notion that the body of knowledge will grow, and that the field will spawn insitutional activity in the form of courses, conferences,

journals, and possibly professional bodies. As problems are handled and investigations are made, the field will create and/or import tools, techniques and approaches that will themselves develop in use. As research proceeds and findings accumulate, debate among members of the relevant community will lead to the enrichment of the body of knowledge, and to the definition of new issues and problems. The process has two aspects—*cognitive* and *social*. The cognitive aspect is concerned with the development of that which counts as knowledge in the field : findings, issues, topics and tools. The investigations and debates, which create this knowledge, constitute a social process that takes place within a particular community of interested people. They will have to share language and perceptions to a significant degree if investigation and debate are to be possible.

In a mature intellectual field, for example physics or chemistry, the general structure and content of the field and its processes are transparent. They are taken as given by workers in the field, who simply assume the existence of structures and processes, and get on with the substantive work. But, in the case of a discipline in its natal stage, such as business ethics, transparency of this kind is hard to come by. A field that is relatively recent in development and piecing itself together, is still quite far away from having a taken-as-given structure and content, within which the energy and attention of reserchers can be concentrated on substantive work. Practically, everything about it—its focus, methods, norms, language and standards—is problematical.

What is more, the method of conducting research in natural sciences is based on the three principles (the 3-Rs) of reductionism, repeatability and refutation of hypotheses, which has been immensely successful and has become the dominant model of almost all research activity. There is a complete separation of fact and value. Descriptive statements deal with matters of "fact" and attempt to clarify to people the way things are or the nature of reality. Such statements are the purview of natural science that attempts to objectively analyse real-world problems and establish relationships between variables to undersatnd the way the world works. On the other hand, prescriptive statements deal with questions of "value" and attempt to prescribe the way things should be in order to obtain the good life, or be consistent with the notions of human welfare and enrichment of human experience. They are believed to be inherently subjective, representing opinions about what ought to be done. Thus, when individuals differ on what is right or wrong, this difference is one of opinion or feeling. In this sense, moral statements, the substance of business ethics, are viewed as statements of opinion or feeling, having no objective basis where their truth-value can be determined. People can never really "disagree" about the morality of an action, nor can they be "mistaken" in their moral judgements, since statements of opinion or feeling are relative and cannot be invalidated or shown to be false. The fact-value distinction leads to the view that facts do not guide action in terms of what ought to be done. They are descriptions and causal explanations of natural and human phenomena. By contrast, value judgements have an action-guiding function. They commend or condemn particular courses of action even if the commendation or condemnation is held to merely express subjective feeling or state an absolute standard.

Today, in a world that is empirically oriented, research is often construed as "thinking scientifically" with the testing of hypotheses by collecting the brute facts that provide value-free descriptions and causal explanations of natural and human phenomena. It must be appreciated that the hypotheses tested by natural scientists are concerned with the natural regularities of the universe, and all the evidence points to their regularity. Irrespective of the difference in hypotheses that researchers offer, the actual structure and/or processes in nature remain entirely unaffected by our having theories of them. However, the methods of natural science that are so productive in enabling external observers to discover the regularities of the natural universe, are extremely difficult to apply to human problem situations. These situations constitute a social reality that embraces social acts requiring the concerted action of many different kinds of people. The human phenomenon involved can attribute meanings and make judgements that differ from person to person. Here, a disinterested observer cannot correctly collect brute, value-free facts of a so-called organic system (such as persons, groups or societies) having emergent qualities as if it were a deterministic-mechanistic system obeying universal laws. Value is an emergent quality in the interactive context of organisms within nature, and is as real as all other qualities within nature. Moreover, any experienced fact within the world can have a value dimension, which emerges as an aspect of the context wherein the fact functions as value relevant (Buchholz et al., 1998, P. 89). It is what we hold as valuable that enters into our perception of the facts. Facts do not come to us ready-made by announcing their "brute given-ness". Ultimately, human beings have to decide what they accept as a fact and what they believe to be the nature of reality. They have to decide the adequacy of evidence and the appropriateness of methodologies for answering questions about a particular part of reality. They have to interpret the facts and describe what these facts mean. All these acts will be influenced by what they hold as valuable.

Thus, social reality must be seen as being continually constructed and reconstructed in dialogue and discourse among human beings, and also in action that they take. Accordingly, researching social reality is interpretative. It is an organised discovery of how human agents make sense of their perceived worlds, and how these perceptions change over time, and differ form one person or group to another (Checkland and Holwell, 1998, p. 22). Most of the facts about our uncertain, probabilistic world with its myriad, organically integrated systems of interrelations are disputable and changing e.g., the efforts of medical science to establish the truth of claims about human health in relation to smoking, workplace hazards, or the toxicity of substances constituting manufactured products. Science or any other method cannot conclusively prove complex issues of this nature. Thus, an ethical reasoning process that states that making an ethical decision simply involves gathering of value-free facts about the situation fails to recognise its complexity. Consequently, business ethics cannot be taken as a "science" in which an observer collects the facts and determines the mechanistic laws governing them to the neglect of the "fuzzy" unscientific realm of values.

At a very fundamental level, any research activity in any mode entails three vital elements. A particular framework of ideas (F) are used in a methodology (M)

to investigate some area of interest (A). Undertaking the research might cause a vigilant researcher to learn things about all three elements, particularly if with the evolution of the research programme, F, M and A all change. The change to, or extension of F, M and A, is typical of action research, and must be expected when research is conducted in that mode. Initially, the researcher deals not in hypotheses but in research themes within which lessons can be sought. The researcher starts by finding a realworld situation (A) that seems relevant to research themes he regards as significant. Then, he negotiates the respective role(s) of researcher and people in the problem situation to reduce the ambiguity that exists in the complex dual role of the researcher as a *participant* involved in the action, and as an *external observer* consciously reflecting upon it to extract useful lessons. Next, it is essential to declare the framework of ideas (F) and the methodology (M) in which they are embodied. The substantive work can begin with the researcher becoming involved in the action of the situation (usually not with the same degree of involvement as those who would be tackling the problem even if no researcher were present). The aim is to help bring about changes felt to be improvements. In doing this, the researcher tries to make sense of the accumulating experience, which might cause a re-thinking of earlier stages.

The present paper explores the suitability of Soft Systems Methodology [SSM] as a way of implementing the process of action research in business ethics. Since business ethics is an integral part of the domain of human affairs, action research is indeed a relevant way of investigating many of the issues surrounding it. Business ethics is, *per se*, both a normative enquiry as well as a descriptive science. Hence, it has a dual objective--it evaluates human practices in the realm of business by referring to moral standards, and it may give prescriptive advice on how to act morally in a specific kind of situation. Ethical questions must, therefore, be dealt with explicitly by debating them on philosophical as well as on empirical grounds (Buchholz et al., 1998, p. 93). This makes the contention of the paper all the more germane. Furthermore, the following four attributes (Pratley, 1997, pp 7-8) of research in business ethics largely substantiates the relevance of the application of SSM to this discipline :

1 It studies existing corporate policies that have an *impact on human and ecological well being*. These actual policies and behaviours constitute business morality, which is expressed as a given set of convictions and activities, both inside and outside a company, in relation to business issues.

2 It involves a *comprehensive study* of corporate policies and not the study of an isolated act. Moreover, business activities have to be seen in a context of external and internal forces.

3 It demonstrates that seemingly scandalous behaviour at first sight may *subsequenlly figure as minor excesses* amongst a multitude of numerous careless, unjustified and even criminal deals.

4 A careful and *broad-based study of phenomena* is necessary to place things in proper proportion, because a balanced understanding of the factual context is a desideratum of any ethical evaluation.

Developments in Business Ethics Research : Issues and Methodologies

Being an electic discipline in its infancy, business ethics accords a significant role to academic research to promote its rapid development through systematic inquiry that is for the most part interdisciplinary. The nature, heritage and the primal stage of development of this field of study, prompt aspirant researchers to experiment with a melting-pot of ideas drawn from diverse fields of study—philosophy, economics, business, political science and other social sciences, mathematics, physical sciences, engineering, history, literature, and the liberal arts. An understanding of the world arrived at by such a verdant confluence of ideas helps understanding, learning and/or solving multi-faceted real-world dilemmas that emerge in the open book of the classroom of life.

Research in business ethics is wide-ranging both in terms of the issues dealt with as well as the methodologies that can be applied thereto. Fleming (1990, p. 6) corroborates this by providing a typology of research topics in this field as gleaned from a survey that he conducted on Business Ethics research in 1986. The survey revealed that eight distinct areas had come up for scrutiny by researchers, with varying degrees of popularity. These areas are :

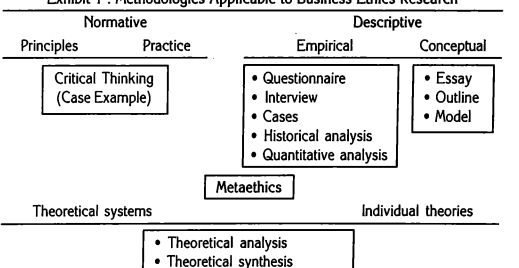
1. **Capitalism and the Economy** : Ethics of business; Ethics and profits; Government law and business; Self-regulation; Technology and business.
2. **Industries** : Automobiles; Biotechnology; Chemicals; Consulting; Defence; Financial services; Information and telecommunications.
3. **Corporations** : Corporate culture, belief and values; Codes of ethics; Corporate governance and stakeholders.
4. **Multinational Corporation [MNCs]** : MNCs in Third World countries; MNCs self-regulation; Cross-cultural study of ethics.
5. **Functional areas** : Accounting; Human resources; Management information systems; Manufacturing; Marketing; Product development; Public affairs.
6. **Managers** : Decision-making; Ethics of management; Managerial values and value systems; Moral reasoning development.
7. **Employees** : Duties; Rights; Unions.
8. **Metaethics** : Theory of ethics; Relationship of religion to business ethics; Ethics and economics: Applied ethics.

The methodologies applicable in business ethics research may be divided after Goodpaster (1948) into three parts. The classification is based on the approaches usually adopted for the study of ethics—*normative ethics, descriptive ethics* and *metaethics*. This is shown below in Exhibit 1.

Each method in these three basic types may be seen as lying on a continuum with the ends as opposing extremes. Normative ethics is concerned with the formulation of basic moral norms governing moral life, and with the presentation of a particular set of principles and standards that would be best for people to follow in all dimensions of their lives. Thus, research on normative ethics is not morally neutral, and includes studies that deal with the concepts of right and wrong, good and bad.

At one end of the continuum are the principles from philosophy and theology, and at the other end is business practice as found by investigation. Descriptive ethics denotes a neutral approach, because it does not advocate one set of values and beliefs over another. It consists of scientific studies or factual descriptions and explanations of moral behaviour and beliefs in various societies or institutions. It primarily describes and explains phenomena and behaviour in the real world without passing value judgements as to whether they are right or wrong, superior or inferior. The end-points of the continuum for research on descriptive ethics are empirical and conceptual. The former has to do with observing and collecting data from the environment. Conceptual inquiry deals with the development of ideas and relationships in the mind and their presentation in a way that reduces the complexity and increases the understanding of the real world. Metathics consists of an analysis of the central terms in ethics in order to understand the foundations of ethical systems and the functions of ethics in a social system. It is concerned with the development of ethical theories and the relationships of different theoretical systems and disciplines.

Exhibit 1 : Methodologies Applicable to Business Ethics Research



Business ethics research is largely associated with attempts to understand and explain human behaviour and action by applying moral standards to the conduct of individuals involved in activities within business enterprises that produce and distribute goods and services for the well being of modern society. The following are a few samplers (Frederick and Preston, 1990, p.xi-xii) exemplifying the fascinating range of ethical questions that can come up for analysis and inquiry :

- Does managerial ideology foreordain the ethical outcomes of managerial decisions?
- Why do organisations and their managers sometimes break the law ?
- Do the personal values of managers influence the policies and practices of their companies?
- Do men and women managers handle work-related moral conflicts differently?

- Do written codes of ethics deter corporate crime?
- Is greenmail unethical?
- Can social justice and efficient hiring practices be simultaneously achieved through employee testing?
- Is animal testing of products an ethical R & D act?

In the field of business ethics research, an analysis of moral principles and norms is applied to the behaviour of people in business institutions. Accordingly, business ethics qualifies as a type of applied ethics that is concerned with clarifying the obligations and moral responsibilities of managers and other employees engaged in making business decisions that impact them, their co-workers and innumerable primary and secondary stakeholders. It is very much a normative endeavour of the researcher who is concerned with how managers and other employees ought to act in certain situations that arise in business contexts (Buchholz et al., 1998, p.3).

A significant characteristic that is observable in many business ethics research methodologies is that they are often used in combination. For instance, cases are used in conjunction with critical thinking and with empirical research using values-based questionnaires. Again, historical analysis may very well be a part of the case collection methodology. As a necessary corollary, an important second characteristic is the use of models from other cognate disciplines suitably adapted to this discipline. This clears the ground for a third characteristic of business ethics research, which is the increasing use of an interdisciplinary approach manifested in joint research endeavours by academics from seemingly unrelated disciplines. Some instances of interdisciplinary dyads in research (Fleming, 1990, p. 17) are philosophy-management, philosophy-law, management-theology, and religion-accounting.

Systems Thinking for Greater Clarity of Ethical Questions : Hard vs. Soft Systems

A distinctive trait of human beings is the quest for perfection. As *Homo sapiens*, we are a race of meaning endowing animals, at once autonomous and gregarious. We are able to look at the world, in which we live and visualise a different world where things are organised differently and better. We can then strive to change the world in order to usher in the desired improvements. Irrespective of the scale of the desired changes—individual, local or global—a process of inquiry must exist. Within this process is included a set of internally consistent mental constructs leading the observer to perceive the world in a particular way and to discern a problem or opportunity, and also providing guidance towards some end. The best known method of inquiry is probably the scientific method that began to be codified in 16th century Europe, and symbolises the *arc de triomphé* of the Western (scientific) civilisation. Its methodology of formulating hypotheses and testing them via controlled and repeatable experiments has become the epitome of rational investigation, and it has come to represent the plethora of scientific and technological advances that shape our everyday life. Popper (1959; 1972) and Kuhn (1962) have substantially contributed in the modification of our understanding of the scientific process. Today, we

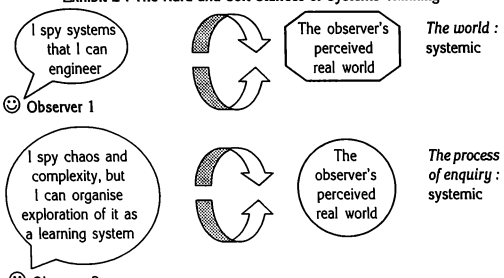
understand the end result of the process not as the discovery of absolute truths about the world but convincing and tested explanations of it.

Undoubtedly, the scientific method of inquiry is extremely effective as a means of understanding the physical world through well-controlled conditions within a laboratory setting. Nonetheless, the last one hundred years have revealed its unsuitability as a method of inquiry for every branch of knowledge especially because of the complexity, unpredictable impacts, and social nature of many problem situations. Any problem, for example, destruction of forests by acid rain, is a complex web of interrelated problems, which Ackoff (1974) describes as "messes". "Messiness" is typical of the problems that concern most of us in the modern world. The need to deal with such problems led to the emergence of an alternative method of enquiry referred to as systems thinking.

The problem identified and explored by the first generation of systems thinkers was that scientific method deals with complexity by reductionism, i.e., by breaking down a large, complex domain of investigation into smaller less complex sub-domains and an investigation of each of these, in turn. When this logic is applied to "real world" problem solving, it implies that a large and complex problem is nothing more than the sum of a number of smaller less complex problems and that solving all of those smaller component problems will equate to a solution for the larger problem. Furthermore, it is assumed that an identification of the individual elements of a situation, studying them in isolation, and searching for causes and effects will uncover both the nature of the problem and an identification of its solutions. A study of problem elements in isolation causes reductionism to overlook important interactions between the elements themselves and the possibility that complex entities might have *emergent properties* that do not belong to any of the constituent parts.

The possibility of *emergent properties* captured succinctly in Aristotle's dictum "the whole is more than the sum of the parts" prompts the need for developing new methods of inquiry to fully understand complex entities. Accordingly, the systems theorists proposed the concept of a system as the foundation for deriving sense about some part of the real world. They argued that the system concept could provide a holistic approach to analysis and inquiry that could be applied in diverse intellectual fields (Bertalanffy, 1950; Boulding, 1956) such as biology, physiology, zoology, anthropology mathematics and economics. What is more, it has come to establish an entirely new discipline that we know as ecology. However, the greatest potential of application of systems ideas with the most impact is the wide uncharted terrain of management and organisational behaviour.

Exhibit 2 : The Hard and Soft Stances of Systems Thinking



Attempts to relate systems thinking to systems practice have revealed a distinct 'hard'-'soft' dichotomy (Laszlo et al. 1997, p. 13), made explicit for the first time by Checkland (1983a, pp. 661-675). The hard and soft strands of systems thinking stem from the method of inquiry undertaken and how the word "system" is used, that is from the attribution of systemicity. Exhibit 2 succinctly presents the hard and soft stances of systems thinking.

In the literature, the hard or functional approach to systems thinking is appropriate in well-defined technical problems such as construction of buildings and engineering artefacts, whereas the soft or interpretative approach is more appropriate in fuzzy, ill-defined situations involving purposeful human beings and cultural considerations. Since the 1960s, hard systems thinking has been dominant as *the* systems approach, Since then, it has had a major influence on information systems thinking in terms of systems engineering, systems analysis and operational research [OR]. As a matter of fact, the use of the word system in common parlance as a label-word for a part of the world—educational system, transport system, healthcare system, legal system—unconsciously, yet steadily reinforces the assumptions of the hard systems paradigm. In systems engineering, RAND Corporation systems analysis, and classical OR the word system is used as a label for something taken to exist in the world outside ourselves. The taken-as-given assumption is that the world can be seen as a set of interacting systems, some of which do not work very well and can be engineered to work better. Below we present some of the important characteristics of hard systems thinking (Lewis, 1994, 28-33), together with a critique of its inappropriateness to socio-cultural milieus :

- **Single level of analysis :** When an analyst enquires critically of a situation with the intent of causing change, an intervention process is set in operation. Immediately, the nature of the situation changes and the behaviour of those in the situation may be altered, whether for good or for bad. The intervention may be construed in itself as evidence for a willingness to change leading to

positive "Hawthorne" effects. Alternatively, it may be interpreted as interference leading to a lack of co-operation, or the arrival of the analyst may be viewed as threatening and arousing concerns regarding privacy and future job security. Thus, in any intervention process, the analyst is consciously or unconsciously working at two levels of analysis—the level of problem content, and the level of the intervention itself. The first level of inquiry is directed at that part of the world, which is seen as problematical and has caused the analyst to be there. The second level is concerned with the intervention itself, how to interact with those in the situation, how to organise the intervention, and the role of the analyst in the intervention. Hard systems methodologies—systems engineering, systems analysis and classical OR—address only the first level of analysis by prescribing the activities that should be done so that the analyst may solve the problem. They do not consider the intervention process to be problematical *per se*.

- **Problem-solving focus :** Hard systems thinking accepts as given that the role of the analyst will be to solve particular problems on behalf of an identified client, that problem-solving is concerned with the making of rational choices amongst alternatives, and that choices may be made by focusing upon 'objectives, alternatives and ranking' (Dewey, 1910). In social problem situations application of this approach to problem-solving presents a number of difficulties because they are characterised by a wide range of values and beliefs, which affect perceptions of the situation and what will constitute desirable change.
- **Adoption of power-holder views :** An obvious consequence of not questioning the nature of the intervention process is a tendency to support the status quo and the views of power-holders. Values play a key role in determining the choice of the problem to be solved, formulating the nature of the problem, and in the definition of evaluative criteria for choosing between alternative solutions. A hard systems study is rarely participative and stakeholder-inclusive, so that the views sought to resolve the problem and the sources of data gathered are almost always people with power in the situation—the managers, administrators, or those who are paying for the research project. Ready acceptance of power-holder views as the basis for analysis may not be practical in social situations where there are multiple interest groups with little congruence of values, but whose views must be accommodated, where there are ethical requirements for participation, and where power must be shared.
- **Emphasis upon objectivity :** The hard systems approaches underscore objectivity in analysis resulting in the tendency to ignore those aspects of a problem situation that cannot be easily quantified or modelled and to emphasise quantifiable data. The penchant for objectivity is what drives hard systems analysts to readily adopt the client's perspective upon the situation and their vision of what constitutes a problem.
- **Quantification and modelling :** Model building, involving the construction and manipulation of quantitative models as a substitute for experimentation with the real-life system, is at the heart of all hard systems approaches. The primary

reason is that analysis of a real-life system would usually be far too complicated, expensive and sometimes, may even be dangerous or hazardous to test all possible changes under all possible operating conditions likely to occur. Notwithstanding, in certain situations, especially where it is required to assign a value to life (human and / or non-human) and to decide whether all lives are equally valuable, it may be well nigh impossible to quantify all aspects of the situation when determining or predicting the impact of alternative solutions. Moreover, the quantification may be totally unacceptable to those involved in the situation so as to render the results of the study as meaningless.

- **Applicability within social situations** : The initial success of hard systems approaches as an aid to problem clarity and solution, in the 1960s, led to their application in many different fields and to many types of problems. Proponents claimed the ubiquity of these approaches, and saw no difference in designing a more effective automobile engine or telephone network from designing social systems where human beings exist as participants, and where ethical, social and political factors predominated. Experience suggests that this presumption is not workable because human behaviour cannot be understood and predicted in the same way as physical phenomena.

Based on the characteristics stated above, the major shortcomings (Dror, 1971) of hard systems thinking may be summarised as :

i. A neglect of the institutional contexts of the problems and policy making process.

ii. An inability to handle political needs.

iii. An inability to deal with irrational phenomena such as ideologies, charisma or self-sacrifice.

iv. An inability to deal with basic value issues.

v. An inability to invent new alternatives.

vi. An inability to deal with situations where predictability with regard to alternatives, is absent.

vii. A reliance on quantification leading to an inability to deal with complex social issues.

viii. An inability to improve the policy-making system.

On account of these deficiencies, by the 1970s hard systems thinking as an omnipotent method of inquiry seemed to lose its hold when the systems approach began to be applied to subtle and complex problems of organisations. Purposeful human beings were a major component of the problem; there was a lack of consensus in the values, beliefs and aspirations of those involved; goals were fuzzy and poorly articulated; and the problems were ill-structured, "wicked" and "messy" to render the extant systems approach ineffectual. Since the 1970s new strands of systems thinking have emerged to cope better with these fuzzy situations. The most developed of these is the 'soft' systems methodology [SSM] that adopts a radically different idea of systems ideas (Checkland, 1981; Checkland and Scholes, 1990). Exhibit 3

presents the major points of distinction between the two complementary schools of systems thinking. Soft systems thinking embodies a very different set of taken-as-given assumptions. The world is assumed to be very complex, problematical and mysterious. However, it is assumed, that our efforts at coping with it through the process of inquiry into it can itself be organised as a learning system. Thus, the use of the word system is no longer applied to the world but to the process of our dealing with the world. The critical intellectual distinction between the two fundamental forms of systems thinking is this shift of systemicity from the *world* to the *process of inquiry in to the world.* Hard systems thinking assumes that the perceived world contains *"holons"* (Koestler, 1967, 1978). A *"holon"* is an abstract notion of an entity, which is simultaneously both an autonomous whole with emergent properties, and in principle, a part of larger wholes (Checkland, 1988, pp. 235-38). Soft systems thinking assumes that the methodology or the process of inquiry can itself be created as a *"holon"* perceived. Soft systems thinking abandons the goal-seeking model of human behaviour and rejects the aim of engineering systems that will meet objectives. It is based on the fact that all real-world 'management' problem situations have at least one thing in common : they contain people interested in trying to take purposeful action (Checkland, 1972). It came with a new kind of system concept or *"holon"* called 'a human activity system', which denotes the idea of a set of activities linked together so that the whole set as an entity could pursue a purpose. For example, a human activity system, such as a professional football league is a *"holon"*. It consists of a linked set of activities that include providing entertainment, providing opportunities for displays of tribal loyalty, providing vicarious conflict, enabling refinement of sporting skills, enabling police to test crowd control skills, and providing data for the betting industry. This *"holon"* could possibly be connected to another *"holon"*, namely newspaper publishing that consists of interrelated activities including informing, entertaining, misinforming, providing an advertising medium, providing packaging material, and enabling the society to voice itself.

Exhibit 3 : Hard vs. Soft Systems Thinking

ATTRIBUTE	HARD SYSTEMS THINKING	SOFT SYSTEMS THINKING
• Concept of organisation	Social entities that set up and seek to achieve goals	Social entities that seek to manage relationships
• Concept of information system	An aid to decision-making in support of goals	A part of interpreting the world, sense making with respect to it, in relation to managing relationships
• Underlying systems thinking	The world is assumed to be systemic	The process of inquiry into the world is assumed to be capable of being organised as a system
• Nature of systemicity	Perceived world is systemic or holonic; the methodology or process of enquiry is a holon	The methodology or process of enquiry is systemic or holonic; human activity systems are holons

ATTRIBUTE	HARD SYSTEMS THINKING	SOFT SYSTEMS THINKING
• Process of research and inquiry	Predicated upon hypothesis testing; quantitative if possible	Predicated upon gaining insight and understanding; qualitative
• Social theory	Functionalism (stemming from Durkheim)	Interpretative (stemming from Weber)
• Philosophy	Positivism	Phenomenology

Soft Systems Methodology [SSM] : Context and Characteristics

SSM was developed over a number of years through action research and practical experience distilled from a wide range of consultancy projects that were undertaken jointly by the postgraduate Department of Systems Engineering of the University of Lancaster, and ICI, the largest company in the U. K (Checkland, 1981; Checkland and Scholes, 1990). It encapsulates the tradition of systems thinking that emerged in the 1970s and the 1980s. The two major aspects of the context of SSM's development are :

- The assumptions about the nature of the social process that underpin SSM as a whole, referred to as "appreciative systems" and
- The action research mode, requiring the involvement of the analyst in a problem situation and a readiness to use the experience itself as a research object about which lessons can be learned by conscious reflection.

The roots of the SSM concept lie in the work of Sir Geoffrey Vickers (Vickers, 1968; 1983; 1984) on the concept of "appreciation" and "appreciative systems". Vickers concluded from a lifetime of experience at the highest levels of management and policy making that "governance" is primarily concerned not with the organisation of *things* but with the maintenance of *relationships* over time, both within the organisation and with the outside world. To maintain relationships the organisation is constantly required to adapt in response to changing circumstances. Central to this adaptation is the appreciative system of the organisation, which at any moment of time has an appreciative setting, that is, the 'readiness to see and value things in one way rather than another' (Vickers, 1984, p. 160). An appreciative system exists as a number of recursive loops where the organisation exists within a constantly changing and interacting flux of events and ideas. The process of appreciation is an on-going process through which the organisation perceives some part of this flux at a point in time, making reality judgements about what is perceived and, where necessary, attempts to maintain relationships by actions (Checkland and Casar, 1986).

As such, the notion of system is only a mental construct through which we may choose to make sense of an external world. In this regard, hard systems thinking uses the concept of a system ontologically, i.e., a label for things in the real world, and analysis proceeds on the basis that the world is composed of systems and sub-systems. On the other hand, SSM emphasises that the concept of system is an epistemological device that enables *thinking about some part of the world* instead

of providing an ontological *description of a part of the world.* This difference is vital in that SSM 'transfers systemicity from the world to the process of inquiry into the world' (Checkland, 1983b, p. 672). In effect, the two strands of thinking can produce quite different kinds of interventions, which is made clear by the following example about the basic role of a university.

	BELIEF ACCORDING TO SYSTEMS THINKING	NATURE OF INTERVENTION
Hard Systems Approach	'A university is a system to produce a better-qualified work force for the future.'	The belief is *definitive.* It results in activities of the institution being focused upon producing individuals equipped with managerial skills. Hence, any expenditure of resources upon activities not directly concerned with the grooming of students with such skills is seen as irrational and inefficient.
Soft Systems Approach	'A university *might be regarded* as a system to produce a better-qualified work force for the future.'	The belief is *exploratory.* It causes the investigator to examine what activities are implied, by choosing to see the university in this way. However, other possible concerns are not ruled out so that it is possible to learn and understand about real-life universities instead of passing judgements upon them in any absolute sense.

The example cited above brings to the fore some of the distinguishing characteristics (Lewis, 1994, pp. 35–40) of SSM that may be juxtaposed with hard systems thinking.

- **Possibility of multiple perspectives :** SSM can explain why different interpretations of a problem exist and can cope well with multiple, conflicting objectives. The de-coupling of the idea of a system from the real world enables some part of reality to be considered simultaneously as many different systems, and makes it possible to utilise discussion and debate as a means of sharing insights and achieving learning rather than mere confrontation.
- **Inclusion of values and beliefs within analysis :** SSM allows a situation to be regarded differently by observers with different sets of values and beliefs. The meaning of any situation is dependent upon the values, beliefs and past history of the observer. It takes differences in observers' perceptions to be an important component of the problem situation. It explicitly considers values and beliefs both through social and political analyses as well as through the *weltanschauungen* or 'declared world-views' that make any particular concept of a system meaningful. *Weltanschauungen* may be large-scale ideologies such as capitalism or they may be small-scale personally held views of good

or bad, right or wrong, desirable or otherwise, which provide a context within which behaviour can be seen to be consistent and actions can be deemed meaningful.

- **No 'right' definition of a system** : By using the concept of a system as an epistemological device together with the notion of *weltanschauungen*, SSM avoids fruitless searches for the one 'right' definition of a system or 'the solution' to a problematic situation. It accords importance to differences in motivation, norms and values—everything that makes an individual essentially human—not as possible sources of error or obstacles to achieving the correct objective knowledge of the situation. Rather, it posits that radically different views could be defended in terms of the data collected about the real world, and all could be correct in terms of a particular set of beliefs and values held by an observer. For instance, a prison may be viewed as a limited-access facility for punishing wrongdoers and criminals, so that they are transformed into useful and non-criminal members of society. Or, it may be seen as a support facility within a secure environment, secluded from the rest of society for rehabilitating socially irresponsible individuals, so as to contain criminals who would otherwise be free.
- **The nature of organisations** : SSM considers organisations to be complex and constantly changing social entities whose nature is continually redefined by those within it, by a continuous interaction of roles, norms, values and expectations. It does not see human organisations as goal-seeking mechanisms in which human beings merely carry out some necessary tasks, and which can be engineered using the same methods and techniques as used in the engineering of physical artefacts.
- **Nature of intervention** : SSM views the arrival of the analyst as changing the problem solution, and hence, considers the nature of the intervention itself as something that must be carefully considered and managed. Moreover, politics is not regarded as an aspect of the situation, which interferes with rational analysis as confusing "noise", but as a very vital part ot the situation. This makes negotiation and debate necessary for the analyst and those in the situation to reach an agreement or at least an accommodation regarding the nature of the present situation, what is problematical, what might constitute a solution, and what role the analyst might play. Thus, SSM requires the analyst to address the second level of analysis that takes place in any intervention, namely, the nature of the intervention process itself. Assumptions concerning who is the "client", who "owns" the problem, and what role must the analyst "act" in a particular problem situation are subjects for examination and debate.
- **Human activity systems** : In SSM, the special ability of human beings to attribute meaning to observations of the world and to demonstrate purposeful behaviour, is recognised by the idea of human activity systems as a special class of systems that are distinct from other classes of designed physical systems. It must be noted, however, that this concept is an epistemological device of SSM, i.e., its use is intended to lead to insights if we choose to regard

some part of the real world in which human beings play a major role, as a human activity system.

- **An approach to learning rather than problem solving :** SSM uses systems ideas as a means of inquiry, and is based on a paradigm of learning rather than of optimisation. Organisational learning is seen as a valid end result for an intervention with tangible changes to the situation. Thus, even though SSM results in changes to the situation, the end result may sometimes be, not a problem now solved, but, a change in perceptions about the situation. A study may end "successfully" with those initially seeing a situation as problematical no longer viewing it as such.
- **Underlying philosophy :** SSM causes the underlying philosophy of systems theory to shift from positivism towards phenomenology. It argues that a fundamentally different approach is necessary in studying human organisations from that which we might use to study the natural world (scientific method) or designed physical systems (hard systems thinking). This is because of the special nature of human beings. They have consciousness and free will; they do not simply react to the world, in which they live but are able to interpret and attribute meanings upon their sensations of the world. So, to understand the actions of human beings, it is necessary to investigate those meanings and the values and perceptions that give rise to them.

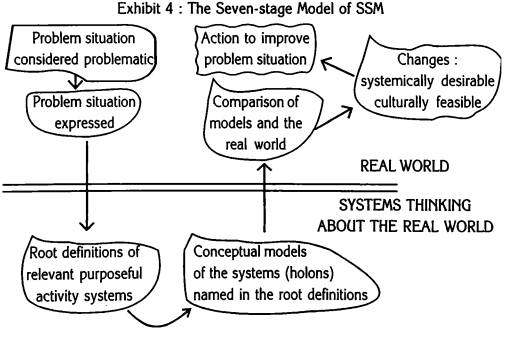
SSM as an Inquiring / Learning Process

The short excursion into systems thinking in the previous sections lead us to conclude that the practice of systems thinking causes one to set some constructed abstract wholes (often called "systems models") against the perceived real world in order to learn about it. The purpose of doing it may range from engineering some part of the world perceived as a system to seeking insight or illumination. Within systems thinking, there are two complementary traditions. The "hard" tradition takes the world to be systematic, whilst the "soft" tradition creates the process of inquiry as a system.

As such, SSM is a systemic process of inquiry, which also happens to make use of systems models. It thus subsumes the "hard" approach, which is a special case of it arising when there is local agreement on some system to be engineered. As an enquiring process it has two streams of inquiry : logic-based and cultural. The original formulation of SSM (Checkland, 1975) is presented as a seven-stage model (Exhibit 4). Steps 1 and 2 are usually combined to create a **"rich picture"** of what is happening and how people see it. This is produced preferably in a pictorial form, which enhances the idea of what we see is going on. Once the basic picture is there, further levels of "richness" can be added to the picture. From the rich picture (the richer the better) it is possible in Step 3 to define a **"root definition"** based on the participant's perceptions of what the system does and why it does it, and what is wanted from it. The root definition must cover six elements : the clients of the system; the actors or doers; desired transformation; a holistic "world" view; the owners of the system; and the environment in which the system operates. Step 4 is concerned

with converting the root definitions into a series of "conceptual models" that define how the system functions and how it achieves its aims. These models are usually prepared using active words to describe what is happening within the system. Here again, it is useful to create the models in a pictorial/flowchart form so that inter-linked activities can be shown. Step 5 calls for comparison of conceptual models with the real world. This will reveal where problems/deficiencies exist between the actual (the rich picture) and the desirable (the root definition) in the models. This obviously leads to Step 6 where feasible/desirable changes are defined. These are based partly on correcting the deficiencies and partly on resolving problems. The changes should cover all aspects of the system being analysed and the viewpoints of all the participants. A schedule of desired changes can then be produced and priorities attached to them. Preparing a simple grid may conveniently compare the priorities of each group of participants, which are usually different but often reveal some degree of overlap. Finally, Step 7 deals with taking action to improve. This should be a simple process of following the schedule of changes according to the agreed priority, and then implementing them. However, we might encounter the well-known phenomenon of resistance to change. This is where people who have agreed to what needs to be done start to prevaricate when they have to come around to doing it. It must be noted that SSM does not provide any magic formula for implementing change. As in the hard systems approach, the secret of effective implementation of change does not lie in the methodology but within the human relationships and the willingness of the involved people to change. It should be made clear that change management is not a prescribed part of SSM; rather, change management is a complete subject in its own right involving many aspects of human development. Nevertheless, SSM can aid the change management efforts by requiring the involvement of all the people concerned with the system from the very beginning of the review process.

Exhibit 4 : The Seven-stage Model of SSM



A significant feature of this early formulation of the SSM model is the dividing line, which separates the "systems thinking world" below the line from the everday "real world" of the problem situation above the line. It highlights the methodology's dual research strategy. It combines ontological and epistemological positions : its postulation of a below-the-line "systems thinking world", is apparently unitary and the same for all observers, and thus seems to assume an objectivist ontology. However, Checkland (1981) has all along distinguished his stance from that of the natural sciences by stressing that 'human beings can always attach different meanings to the same social world'. According to him, 'human beings are not simply ready to attribute meanings, they cannot abide meaningless'. They abide an interpreted, not merely an experienced world (Checkland and Scholes, 1990). The "real world" is associated with the unfolding flux of events and ideas, while the central position in SSM of *"Weltanschauung"* or large-scale world-views governing a set of beliefs that validates the transformation of a holon, seeks to predicate an interpreted or socially constructed view of reality. The methodological device of developing "relevant systems" to enable different 'analyst' interpretations of, or conjectures about aspects of the problem situation, is also consistent with an interpretative stance (Rose, 1997, p. 251). Thus, Checkland's notion of the "real world" must be taken to be a socially constructed world in which 'participants continually negotiate and renegotiate with others, their perceptions and interpretations of the world outside themselves' (Checkland, 1986). Since the SSM analyst is also a participant in that process of perception and interpretation of the world, we should take the "real world" of the seven-stage model to mean a prior, or non-conceptualised perception of the problem domain. Checkland refers to the "real world" as the 'unreflecting involvement in the everyday world' and the "systems thinking" as the epistemological set of principles, which allow us to arrive at a richer understanding, and therefore altered (richer and more insightful) perceptions of that domain (Checkland and Scholes, 1990). Furthermore, Checkland has acknowledged that the meaning of the dividing line between the "real world" and the "systems thinking world" of the seven-stage model is 'heuristic rather than theory-based' (Tsouvalis and Checkland, 1996). The line of separation was intended to draw attention to the conscious use of systems language in developing the intellectual devices that are consciously used to structure debate (Checkland, 1989, p. 12). It was subsequently eliminated from the 1990 version of the SSM model.

The seven-stage model of SSM has proved to be resilient because it is easy to understand and teach as a sequence that unfolds logically. Secondly, the SSM model happily incorporates seven stages, which is very appropriate and attuned to the channel capacity of our brains. Miller (1956), by virtue of a series of laboratory experiments on perception suggests that we can comfortably cope with about seven concepts at a time. Thus, the comfortable size of the SSM process model means that we can easily retain it in our mind, which can prove to be very useful when using it flexibly in practice. Moreover, it has an intangible aesthetic point that is very important. Its fried-egg shapes and curved arrows undermine the apparent certainty conveyed by straight arrows and rectangular boxes typical of work in science and engineering. The organic style and the hand drawn "rich pictures" conveys the status of these artefacts as working models, currently relevant now in this study, and not

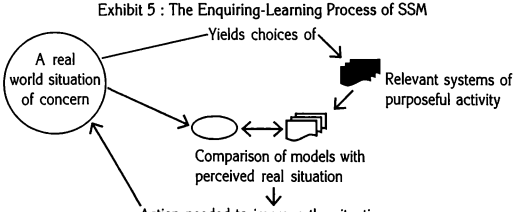
claiming permanent ontological status. They are also meant to look more human, more natural than the lines and right angles of hard systems approaches.

SSM has, over the last two decades, emerged as a learning system since it 'aims to bring about improvements in areas of social concern by activating in the people involved in the situation a learning cycle which ideally is never ending' (von Bulow, 1989). In principle, the learning may go on and on, and to end a systems study is really having to take an arbitrary step because problematical situations (including all human situations) will continue to evolve, and will never be free from differences of interest, opinion and values. Practice of SSM by those who had internalised it revealed that the seven-stage model was rather bald and unable to capture the more flexible use of SSM. The model was revised and presented as a four-activities model (Checkland and Scholes, 1990, pp 6-7). It is iconic rather than descriptive in terms of the four activities that are implied rather than declared.

Furthermore, it subsumes two streams of analysis within the four activities. The activation of the learning cycle in SSM in its recent version is achieved through a combination of two streams of analysis. One is a *logic-based stream* via activity models (as formulated in the seven stage model); the other is a *cultural/political stream* enabling judgements to be made about the accommodations between conflicting interests that might be reachable by the people concerned, and which would enable action. The dual stream of analysis recognises the crucial role of history in human affairs. It is their history that determines, for a given group of people, what will be noticed as significant, and how what is noticed will be judged. The iconic model of SSM delineates the following four activities (Exhibit 5) :

1) Finding out about a problem situation, logically as well as culturally/politically.
2) Formulating some relevant purposeful activity models.
3) Debating the situation using the models, and seeking from the debate both
   i. changes which would improve the situation and are regarded as both desirable and culturally feasible, and
   ii. the accommodation between conflicting interests, which will enable action-to-improve to be taken.
4) Taking action in the situation to bring about the improvement.

Exhibit 5 : The Enquiring-Learning Process of SSM



SSM Epistemology : The Language through which the Process Works

In SSM, inquiry into a real-world situation in which people are trying to take purposeful action is structured by setting the perceived situation against a number of purposeful *"holons"* or 'human activity systems' (Checkland, 1988), as pointed out earlier. These purposeful *"holons"* are defined and modelled in a way that they can provide a source of questions to be asked of the problem situation. Answering these questions helps understand the situation and leads to the emergence of a structured and coherent debate about intended change (Checkland and Tsouvalis, 1996, p. 153). The process of SSM can well be seen as a formalised and organic version of the process of purposeful thinking that is undertaken by human beings in everyday affairs. This process includes the following series of activities : *Perceive* problem situations → *select* a subject → *predicate* the subject by asserting or thinking something about it → *compare* alternative predicates with one another or with perceived reality, or both → *formulate arguments* in relation to evidence which form the basis for our *decisions to act* in particular ways → *decide* action. SSM articulates this kind of serious and organised thinking familiar to us from our everyday affairs, in its methodology for enquiring into complex problem situations. The articulation makes use of some basic systems ideas that are enshrined in a language through which the SSM process makes sense. The SSM epistemology is summarised in Exhibit 6.

Exhibit 7 : SSM Epistemology

TERMINOLOGY	INTERPRETATION
I. Real world	The unfolding interacting flux of events and ideas experienced as everyday life.
II. Systems thinking world	The world in which conscious reflection on the 'real world' using systems ideas takes place.
III. Problem situation	A real-world situation in which there is a sense of unease, a feeling that things could be better than they are, or some perceived problem requiring attention.
IV. Analysis One	Examination of the intervention or interaction in terms of roles : 'client' (causes the study to take place), 'problem-solver' (undertakes the inquiry) and 'problem owner' (plausible roles from which the situation may be viewed as chosen by problem solver).
Two	Examination of the social and cultural characteristics of the problem situation via interacting roles (social positions), norms (expected behaviour in roles) and values (by which role-holders are judged).
Three	Examination of the power-related (political aspects) of the problem situation.
V. Rich pictures	Pictorial / diagrammatic representations of the situation's entities (structures), processes, relationships and issues.

TERMINOLOGY	INTERPRETATION
VI. Root definitions	Concise verbal definitions expressing the nature of purposeful activity systems regarded as relevant to exploring the problem situation, e.g., do X by Y to achieve Z.
VII. CATWOE	The 6 elements considered in formulating root definitions. 'C' (customers) implies victims or beneficiaries of 'T'. 'A' (actors) are those who carry out the activities in 'T'. 'T' (transformation) is the process of conversion of some entity (input) into a changed form of the entity (output), and is at the core of the methodology. 'W' *(Weltanschauung)* is a world-view, which makes 'T' meaningful in context. 'O' (owner) is the person or group who could stop 'T' and abolish the system. 'E' (environmental constraints) are factors the system takes as given.
VIII. The 5-Es	'T' would be judged by 5 criteria : • Efficacy : Does the means work ? • Efficiency : Are minimum resources used ? • Effectiveness : Does the 'T' help attainment of longer term goals related to 'O' expectations ? • Ethicality : Is T a moral thing to do ? • Elegance : Is T aesthetically pleasing ?
IX. Conceptual model	The structured set of activities necessary to realise the root definition and CATWOE, consisting of an operational sub-system and a monitoring and control subsystem based on the 5-Es.
X. Comparison	Setting the conceptual models against the perceived "real world" in order to generate debate about perceptions of it, and changes to it which would be regarded as beneficial.
XI. Desirable and feasible changes	Possible changes which are systemically desirable on the basis of the learned relevance of the relevant systems, and culturally feasible for the people in the situation at this time.
XII. Action	Real-world action as opposed to activity in conceptual models, to improve the problem situation as a result of operation of the learning cycle for which this epistemology provides a language.
XIII. The system to use SSM	The language and structure of SSM provides an epistemology, which makes sense of the process of using SSM.

Application of SSM in Real-world Contexts

Checkland and Scholes (1990) presented the findings of their attempts to apply SSM in ten different studies they believe 'are representative of a larger set of experiences using SSM, which the authors have accumulated in the last decade'. The studies include :

- Information and Library Services (ILSD) in ICI Organics : The study led to a new conceptualisation of ILSD, and helped persuade the company to devote new resources to it.
- Community Medicine Department in the National Health Service : The study provided a way of evaluating any health care project.
- Central Computer and Telecommunication Agency (CCTA) : The study contributed to the rethinking of the central role of this Government Agency.
- ICL, the largest supplier of computers in the U. K. : The study covered a wide range of different engagements with problem situations of various kinds. Obviously, the outcomes of the study were many and various, but they all contributed to the coherent enactment of the company's appreciative system. In the main, it led to structures for programmes of work, contributions to decisions about what ICL should do and how it should organise itself, and new ways of conceptualising parts of the company and its activities.
- Manufacturing function in Shell Group : The study resulted in a new structure for the manufacturing function with new processes for running it, and the establishment of a concept of core purposes, structure and processes relating to the function from which the required strategy for creating its appropriate information systems was defined and implemented.

Conclusion : Revisiting SSM as a Research Tool

The paper has tried to establish SSM as a necessary complement to the hard systems approaches of systems engineering, systems analysis and classical OR as a field of inquiry. SSM is an organised use of systems ideas in a methodology for learning one's way to purposeful action to improve a problem situation (Checkland and Scholes, 1990, p. 284). The most noteworthy feature about SSM is that it is methodology (the *logos* of method or the principles of method) rather than technique or method. Thus, it can never be independent of its user, as is technique. It is SSM's status of a methodology that has caused Naughton (1977) to raise an interesting substantive question about it : How can we know that what someone may claim to be a use of SSM is legitimately so described ? He suggested that there were some "Constitutive Rules" to be obeyed if one is to be carrying out an enquiry, and some "Strategic Rules" that are more personal and help the user to make choices from among the basic rules. The Constitutive Rules underlying SSM (Checkland and Scholes, 1990, p. 286-7) that have emerged from the varied experiences with the methodology are as follows :

1. SSM is a structured way of thinking, which focuses on some real-world situation perceived as problematical. The aim is always to bring about perceived

improvements in the situation, irrespective of whether the work is undertaken as part of normal day-to-day managerial work or as a special highlighted study.

2. SSM's structured thinking is based on systems ideas and its whole process yields an explicit epistemology. Any work that claims to being SSM-based must be capable of being expressed in terms of this epistemology.
3. The claim to the use of SSM should refer to instances in which the following guidelines were followed :
   - There is no automatic assumption that the real world is systemic.
   - Careful distinction is made between unreflecting involvement in the everyday world and conscious systems thinking about the real world. The SSM user is always conscious of moving from one world to the other, and will do so many times in using the approach.
   - *Holons* are constructed in the systems thinking phases. These take the form of purposeful "human activity systems" embodying the basic ideas of emergent properties, layered structure, processes of communication, and control.
   - The *holons* are used to inquire into, or interrogate the real world in order to articulate a dialogue or debate aimed at defining changes that are desirable and feasible.
4. SSM can be used in many different ways in different situations, and will be interpreted differently by each user. Therefore, any potential use of it ought to be characterised by conscious thought about how to adapt it to a particular situation.
5. Since SSM is methodology and not technique, every use of it will potentially yield methodological lessons in addition to those about the situation of concern. The methodological lessons may be about SSM's framework of ideas, or its processes, or the way it was used, or all of these.

To sum up, we may affirm that SSM is a favourable methodological device for adding clarity and transparency to the "fuzzy" realm of ethical issues. Hence, it may be seen as an imperative for the rapid development of business ethics as an intellectual field and as a vast, rich and unexplored terrain of social science research. SSM may be meaningfully integrated into any business ethics research programme alongside other methods of enquiry to serve as (Rose, 1997, p. 257) :

1. A problem-structuring tool for lending structure to soft and "messy" problems.
2. A good-fit research tool that is qualitative, activity-based, interpretative, participative, systems-based, and methodologically explicit.
3. A triangular tool through which findings obtained with other methods may be confirmed, refuted or amplified.
4. A theory-generation and testing tool with a defensible ontology, epistemology and reasoning strategy.
5. A coordinative or directive tool where the research processes may be conceptualised as purposeful "human activity systems".

However, one caveat about SSM research is that its success and acceptance is contingent on the attitudes of the major research stakeholders—researchers (those who do the research), research sponsors (those who are being researched), and research audience (those whose acceptance of the research make it meaningful. Where important stakeholders differ fundamentally in their ontological, epistemological and reasoning strategy stances from those of SSM, success and acceptance is unlikely (Rose, 1997, p. 256).

As a befitting last word about the efficacy and future applicability of SSM in the realm of business ethics research Laszlo's observation (1972, p. 120) appears very apt :

> "The supreme challenge of our age is to specify, and *learn to respect*, the objective norms of existence within the complex and delicately balanced hierarchic order that is both in us and around us. For there is no other way to make sure that we achieve a culture that is viable and humanistic.
>
> The natural philosophy of the new developments in the sciences is a systems philosophy. When properly articulated it can give us both factual and normative knowledge. Exploring such knowledge and applying it in determining our future is an opportunity we cannot afford afford to miss".

REFERENCES

Ackoff, R.L. (1974) *Redesigning the Future,* New York : Wiley.

Badaracco, Jr., J.L. (1997) *Defining Moments : When Managers Must Choose between Right and Right,* Boston (Massachusetts) : Harvard Business School Press.

Bertallanfy, L. von (1950) "The Theory of Open Systems in Physics and Biology" *Science,* vol. 111, 23-29.

Boulding, K. E. (1956) "General Systems Theory : The Skeleton of Science" *Management Seience,* 2(3), 197-208.

Buchholz, R. A. and Rosenthal, S.B. (1998) *Business Ethics : the Pragmatic Path beyond Principles to Process,* New Jersey : Prentice Hall International.

Bülow, I. Von (1989) "The bounding of a problem situation and the concept of a systems' boundary in soft systems methodology", *Journal of Applied Systems Analysis,* Vol. 16, 35-41.

Checkland, P. B. (1972) "Towards a systems-based methodology for real-world problem solving", *Journal of Systems Engineering* 3(2), 87-116.

_____ (1975) "the development of systems thinking by systems practice–a methodology from an action research programme" in *Progress in Cybernetics and Systems Research* Vol. 2 edited by Trappl, R. and Hanika, F., Washington : Hemisphere Publication, pp. 278-283.

_____ (1981) *Systems Thinking Systems Practice,* Chichester : John Wiley.

_____ (1983a) "OR and the systems movement", *Journal of the Operational Research Society,* Vol. 34, 661-675.

_____ (1983b) "Editorial introduction" to G. Vickers' *Human Systems are Different* London : Harper and Row.

_____ (1986) "The use of the term *'Weltanschauung'* in soft systems methodology" *Journal of Applied Systems Analysis* vol. 13, 109-115.

_____ (1988) The case for 'holon', *Systems Practice* vol. 1(3), 235-238.

_____ (1989) An Application of Soft Systems Methodology in Rational Analysis for a Problematical World edited by Rosenhead, J. Chichester : John Wiley, pp. 71-100.

Checkland, P. B. and Casar, A. (1986) "Vickers' concept of an appreciative system : a systemic account", *Journal of Applied Systems Analysis*, Vol. 13, 3-17.

Checkland, P. B. and Scholes, J. (1990) *Soft Systems Methodology in Action* Chichester : John Wiley.

Checkland, P. and Tsouvalis, C. (1996) "Reflecting on SSM : the Link between Root Definitions and Conceptual Models", *Systems Research and Behavioural Science*, Vol. 14(3), pp. 153-68.

Checkland, P. and Holwell, S. (1998) *Information, Systems and Information Systems—making sense of the field* Chichester : John Wiley.

Dienhart, J. W. (2000) *Business, Institutions and Ethics* New York : Oxford University Press.

Dror, Y. (1971) *Designing for Policy Sciences* New York : Elsevier.

Fleming, J. E. (1990) "A Survey and Critique of Business Ethics Research, 1986" in *Business Ethics : Research Issues and Empirical Studies* edited by Frederick, W. C. and Preston, L. E., Greenwich, Connecticut : Jai Press.

Frederick, W. C. and Preston, L.E. (1990) *Business Ethics : Research Issues and Empirical Studies*, Greenwich, Connecticut : Jai Press.

Goodpaster, K. E. (1984) *Ethics in Management* Boston, Massachusetts : Harvard Business School.

Hosmer, L. T. (1996) *The Ethics of Management* New Delhi : Universal Book Stall.

Koestler, A (1967) *The Ghost in the Machine* London : Hutchinson.

_____ (1978) *Janus : A Summing Up* London : Hutchinson.

Kohlberg, L. (1981) *Essays in Moral Development* Volume I New York : Harper and Row.

Kuhn, T. (1962) *The Structure of Scientific Revolutions* Chicago : University of Chicago Press.

Laszlo, E. (1972) *The Systems View of the World : The Natural Philosophy of the New Developments in the Sciences* Oxford : Basil Blackwell.

Laszlo, E. and Laszlo, A. (1997) "The Contribution of the Systems Sciences to the Humanities", *Systems Research and Behavioural Science*, Vol. 14(1), 5-19.

Lewis, P. J. (1994) *Information Systems Development* London : Pitman Publishing.

Miller, G. A. (1956) "The magical number seven plus or minus two : some limits on our capacity for processing information" *Psychological Review* vol. 63(2), 81-96.

Naughton, J. (1977) *The Checkland Methodology : a Reader's Guide* Milton Keynes : Open University Systems Group.

Negoita, C. V. (1981) *Fuzzy Systems* Kent : Abacus Press.

Popper, K. R. (1959) *The Logic of Scientific Discovery* London : Hutchinson.

_____ (1972) *Objective Knowledge : an evolutionary approach* Oxford : Clarendon Press.

Pratley, P. (1997), *The Essence Of Business Ethics* New Delhi : Prentice Hall of India.

Rose, J. (1997) "Soft Systems Methodology as a Social Science Research Tool", *Systems Research and Behavioural Science*, vol. 14(4) 249-258.

Sartre, J. P. (1989) "Dirty Hands" in *No Exit and Three Other Plays* New York : Vintage International.

Tsouvalis, C. and Checkland, P. (1996) "Reflecting on SSM : The dividing line between 'real world' and 'systems thinking world'" *Systems Research* vol. 13(1) 35-45.

Vickers, G. (1965) *The Art of Judgment London : Harper and Row.*

_____ (1968) *Value Systems and Social Process* London : Tavistock.

_____ (1983) *Human Systems are Different* London : Harper and Row.

_____ (1984) *The Vickers Papers* edited by Open Systems Group London : Harper and Row.