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Salet, W.G.M.

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PLANNING THEORY

THE QUEST FOR IDENTITY

WILLEM G. M. SALET†
Van Diemenstraat 205, 2518 VB The Hague, Netherlands

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Abstract—The article concerns a theoretical appraisal of the perspectives of two different paradigms for planning theory: System-cybernetics and the sociology of knowledge. The exploration starts for both paradigms at the meta-level (the level of scientifico-theoretical principles) and tracks from these the consequences for respectively the theoretical and applied levels. The discussion is focussed on central, interrelated issues of the object of planning theory:

—the treatment of the tension between "what is" and "what ought to be";
—the treatment of knowledge in different planning theories;
—the treatment of problems of control and control strategies.

The identification of assumptions and linkages astrives for possibilities of theoretical evaluation and intends to frame the specific limitations and possibilities of use for both paradigms in practice of planning.

1. INTRODUCTION: THE OBJECT OF PLANNING THEORY

Planning theory is a young discipline. It is only since the early sixties that it has ventured to appeal for the status of an independent discipline in the sphere of the social sciences. The need for profiling this new discipline links up closely with the social tendency towards increasing spheres of rationalization. In the social sciences as well it was gradually realized that problems relating to planning are covered from so many angles as to render it almost necessary to set up a separate *field of study* for the purpose. It was especially the pragmatic motives that gave rise to the need to delimit the sphere of this "discipline in spe." But as far as theory formation is concerned planning theory is still in its infancy. It is precisely on account of the composite character of this field of study that the theoretical contributions are still highly fragmentary and unorganized. An additional complication is that in the present stage of theory formation there prevails a serious confusion of terminology and of interpretations as regards the significance of main concepts relating to planning.

The introduction raises three themes, which in my view may be taken into account in further theory development, viz.:

(1) Theory development at three levels.

(2) Theory development approached from different angles (paradigms).

(3) The specific object of planning theory.

1.1 *Theory development at three levels*

Planning theory can acquire a certain identity in the track of the established social disciplines via the development of a science programme of its own, extending to three levels. These three levels, which are mutually stimulating, are:

(1) The *meta-level*, at which scientifico-theoretical principles are formulated.

(2) The *theoretical level*, at which concrete sets of statements are drawn up.

(3) The *applied level* of practical research and action: at this level concrete methods and instruments are developed.

Judging from the three levels, planning theory has so far gone through a relatively onesided development. The terrain of the first two levels has hardly been developed at all. Contributions at these levels are still fragmentary and unorganized.

The third level on the other hand is going through a particularly fast process of development. This applied level takes shape—usually quite separately from the first two levels—in a large number of handbooks and rules-of-thumb for the progress of planning processes, for planning methods, for setting up information systems on behalf of planning processes, etc.

Hence, there is question of a certain unbalance in the development of planning theory. This onesideness of theory formation is closely associated with the selective needs of the planning agencies in practice for *applied* theories, methods and instruments for immediate use. The selective attention of planners in practice for products of theory at the third level is a fact of experience. These planners are not engaged in science, they are faced with a specific policy task. In practice there is little enthusiasm for (scientifico-) theoretical discourses.

Theory on the other hand is faced precisely with the task of developing suggestions for practical use from a wider context and from an independent position. Theory cannot exclusively depend on the selective needs of the "market" in its further development. Nevertheless, precisely this reduction is characteristic of a good deal of present day theory formation. Two tendencies are noticeable in respect:

(1) One of the most frequent usages of dominant planning philosophy is the *identification* with the position of planning agencies in practice. The theorist takes the chair of the planner. The main concern of such theories is the improvement of the effectiveness (the "rational-

†*Notes on the author.* The author got his degrees in sociology and physical planning theory at the State University of Utrecht (The Netherlands, 1975). In writing the article Mr. Salet made use of his study for the National Physical Planning Agency "Planning theorie in Perspectief" (The Hague, 1980). Presently the author works as theoretical planner at the Netherlands Scientific Council for Government Policy, The Hague, The Netherlands.

ity", the "operationality", etc.) of planning. Careful and critical reflection on *the phenomenon of planning as such* does not enter into consideration in these planning theories; neither does the position of the other individuals and groups who *undergo* the effects of planning processes. These "plan-effected" are often regarded as *derived* categories in the most favourable case, connected with the planning agencies via "communicative" structures. In instrumental planning theories the world is divided in planners and planned people. Unfortunately, most of the theorists feel comfortable in the instrumental position.

(2) A second tendency concerns the widespread inclination to regard the third, *applied* level of theory as an independent and as such adequate activity (and indeed respected as such by the planning market). But this onesided orientation involves serious risks for the quality and the use made of the product of "science". A striking illustration of this problem can be found *in the manner* at which at present "scientifically founded" quantified information systems are introduced in practice of planning. It can be demonstrated—and I shall try to adduce arguments in support of this thesis in this contribution—that the type of knowledge institutionalized in quantified information systems of this kind, is by no means designed for the use the planners want to make of it in practice (see interalia Laudon 1974, Jamous and Grémion[1]). While, conversely, the limited function, which the formalized type of knowledge could indeed fulfill according to theoretical reconstructions, now remains for the greater part unused. Each model, each type of knowledge implies in itself theoretical assumptions (specific *limitations* and *possibilities*) in regard to its use. It is in my view precisely here that the significance of scientifico-theoretical and theoretical explanations lies:

—Firstly, scientifico-theoretical identifications present the possibility of systematically structuring and imparting content to theory formation.

—Secondly, the explanations at the first two levels can furnish suggestions for the development of applied theories at the third level. Moreover, they can provide the practical devices at this level with a theoretical indication of the specific limitations and possibilities of use.

The movement from meta-level to theoretical level and thence to the applied level also takes place, of course, in the opposite direction: Findings at the applied level indicate new problems for the meta-level. It will not always be possible to see statements at a specific level in perspective with the other two levels. The scheme does not actually make any pretentions to this effect. It is not a rigid frame within which all theoretical findings must be contained, but rather takes the shape of a working programme. This is also the way it functions in the established disciplines. Planning theory will already improve if the attention of theory is divided more evenly over the three levels.

1.2 *Theory developments from different paradigms*

In most disciplines, various scientifico-theoretical identifications (paradigms) have been established alongside and sometimes even opposite to each other. Such paradigms each lead at both the theoretical and the applied level to entirely new elaborations along the lines of the science programme described above. In sociology, for example, the functionalistic paradigm (with its own scientifico-theoretical principles, its own theoretical systems and its own style of applied research) is opposed to the phenomenological paradigm or the paradigm of the sociology of knowledge. In the sphere of planning theory as well a variety of perspectives will have to come to expression. In the initial—fairly scarce—attempts towards meta-theory formation in the field of planning theory some authors actually attempted to structure the entire field of study from a single (composite) paradigm: the system-cybernetic paradigm. The systems approach is adopted here to handle problems of complexity, while in cybernetics the enormous perspectives of control appeal to the imagination. This combination would then have to serve as the general framework for "the" planning theory. Meanwhile, it has nevertheless become evident that the system-cybernetic model is not equipped for such a comprehensive function. The specific presuppositions and principles are too selective to be able to serve as a basis for organizing a highly complex and fragmentary field of study such as that of planning theory. As a matter of fact the discussion is now taking a different course. Attempts to establish an integral framework for planning theory via an approach from a single angle are viewed with growing scepsis (this breakthrough was clearly apparent in, inter alia, the pluriform set-up of Friedmann and Hudson[27]. The insight now gaining ground is that also at the meta-level of planning theory different perspectives must be studied in order, from there, to stimulate the other levels (the theoretical and applied levels). In this pluriform structure the system-cybernetic paradigm is still only one of the perspectives, with indeed very "particular" elaborations throughout the three levels.

The perspectives of two different paradigms for planning theory are discussed in this article, viz. system-cybernetics and the sociology of knowledge. There are no doubt other perspectives besides the sociology of knowledge. The choice to discuss the sociology of knowledge, therefore, is mine and for two reasons:

—The possibilities of the sociology of knowledge have hitherto been rather neglected in planning theory, while this approach yet clearly imparts content to all the main concepts in relation to planning.

—The attractive point of discussing this approach is, moreover, that the paradigm "sociology of knowledge" stands in sharp contrast to the system-cybernetic paradigm in almost all its principles and concepts.

The boundaries between different paradigms cannot always be drawn all that sharply, because paradigms can overlap each other. Especially when the consequences of statements at the meta-level are extended to the theoretical and applied levels, the existence of mixed forms must be taken in consideration. The paradigms discussed here are so divergent, however, that analysis problems of this kind will not give rise to confusion.

1.3 *The object of planning theory*

The plea in favour of a revaluation of theory development at the meta-level raises the question: on what subjects in the field of planning theory should scientific concepts be formulated? In other words: on what points does the scientific object of planning theory differ from the object of other social-science disciplines? In my opinion planning theory indeed has a special object space of its own, which, of course, can be covered by some other disciplines (as is the case with the paradigm "sociology of knowledge"), but may in itself be considered as characteristic of planning theory. Planning theory profiles itself with regard to other social dis-

ciplines on account of its specific scientific object. And this very planning-related object of study creates a special set of scientifico-theoretical problems.

The most important involvement of most social sciences is a *reflection* on social reality: via theory formation (thought) and via empirical insight, research and experience (knowledge) reflection takes place on social reality. Scientifico-theoretical problems presenting themselves at this level relate to objectivity and subjectivity, causality and finality, validity and truth, epistemological explorations, etc. Such problems relating to reflection on social reality (thought and knowledge) are just as important for planning theory as for other disciplines. But in the sphere of planning theory "thought" and "knowledge" are situated in a special context. Planning theory must involve at least two other dimensions in its scientific object, viz. *purposeful* behaviour and *action*. The reflective moments in planning processes are on the one hand localized in a social field of tension between prevailing and desired developments (the tension between "*what is*" and "*what should be*") and on the other hand usually precede new actions (*action*). In this way the specific object of study of planning theory creates its own special problems, whereupon the various paradigms can take up their positions from their own angle of approach.

The most important scientifico-theoretical problems that present themselves in the field of planning theory are in my opinion concerned with the manner in which the 5 various dimensions of the object of study ("what is" and "what should be", thought, knowledge and action) can be related to one another. In different paradigms of planning these relations are qualified in entirely different ways.

In this connection it must be pointed out that these dimensions cannot be studied in themselves, but only in relation to each other. The relationship between the various dimensions in the two paradigms discussed here is actually so close that it is possible to discover *points of crystallization* in both paradigms where the different dimensions of the object of study are integrated to form one whole!

1.4 *The set-up of the article*

The article concerns a study of the perspectives of two different paradigms for planning theory. The point of departure for the discussion lies at the meta-level, whence indications are given for the two paradigms on behalf of the theoretical and applied levels. On the strength of the description of the object of planning theory the discussion is concentrated on (the relations between) the following themes:

—the treatment of problems relating to the tension between the *actual* and the *desired* situation,

—starting points relating to the nature of and manner of using *thought* and *knowledge*,

—starting points relating to *control* and control strategy.

Section 2 deals with the main themes of the system-cybernetic paradigm. Since the system-cybernetic approach originates from biology and physics, some outstanding socio-scientific nuances are discussed in Section 3.

Section 4 contains an explanation of the paradigm "sociology of knowledge". Two important variants of this extensive sociological school of thought (Dewey [17, 18] and Mannheim [19–21] are discussed.

Section 5 (final remarks) recapitulates the exploration study with reference to the object of planning theory as formulated in the introduction. The appendix contains a schematic overview of the most important concepts.

2. THE SYSTEM-CYBERNETIC APPROACH

2.1 *Nature and function of system-cybernetic knowledge*

One of the most remarkable principles of system-cybernetic knowledge is that it refrains from *meaningful explanations*. The argument is that meaningful explanations of social phenomena and processes (more especially the causally inclined explanations) do too little justice to the complexity of social reality. Meaningful models are often of too rigid a nature, their structure is simple, they offer insufficient openings for changes in the system and can thus be characterised as closed models. For system-cybernetics analytical rationalizations offer too little certainty in a world of fundamental uncertainty. Social scientists who endeavour to give meaningful explanations for certain relations in a complex system are trumped by their own arguments. Any ("verstehende") positive indication of a substantial relation ignores the "understanding" of all other possible relations. The degree of representation of meaningful models is inadequate for a complete understanding of complex systems. The argument is clear and correct. Knowledge and understanding are relative phenomena in a world-which does not allow itself to be understood in rationalizing frameworks of knowledge.

The answer of system-cybernetics to the shortcomings of analytical rationalizing models is original, but also highly pretentious. The limitations of human knowledge in a complex world are acknowledged, but at the same time complexity and fundamental uncertainty are regarded as a direct challenge to the own science programme. To start with the solution is sought in another kind of knowledge, which exhibits the following properties:

In the first place social processes are represented as systems. Social phenomena are regarded in relation to each other, as an *organized whole* studied on a *totality principle*. (The whole is more than the sum of its parts.) Two assumptions in one, which, strictly speaking, greatly reduce the degree of representation of social reality (system-cybernetics do not always appear to be aware of this reduction).

A second fundamental property of system-cybernetic knowledge is its orientation on *effective behaviouristic relations* of systems.

Attention is not focussed on the intentions, the interests of positions of the power of the groups and parties forming part of the system, but on actual system behaviour. No more explanations of inherent qualities and processes, but only registration of the effective system transformations. Hence, in the attention of this kind of knowledge the accent shifts from the causes to the effects of social processes. The substantial, often *causally* inclined, method of explanation makes room for a purely registering, *efficient* explanation. The system-cyberneticist is not interested in the question of why events take place. His type of knowledge merely observed only that they take place.

It speaks for itself that the economical type of system-cybernetic knowledge can not fulfill the same *understanding* function (however relative this may be also elsewhere) as the explanations of substantial rationalizations. But in this approach knowledge has an entirely different function: knowledge serves in the first place to enable forecasts to be made in respect of system

behaviours and system disturbances. The function of knowledge in the system-cybernetic paradigm is to reduce the almost infinite margins of the system to be controlled. In this connection it is not necessary to understand *why* certain processes will take place (meaningful explanation), but it suffices to know *that* they will take place with a certain degree of probability. Forecasting is the primary function of this knowledge and via forecasts the difficult problem of control can be simplified later. The most refined form of forecasting is *quantitative* forecasting, a stagement, however, that cannot simply be transferred from the sphere of physics to that of the social sciences. Nevertheless, the requirement of quantitative orientation of system-cybernetic knowledge and forecasting is maintained equally rigorous also in the field of social study.

A last fundamental property of system-cybernetic knowledge and forecasting relates to the fact that it is impossible to forecast with any degree of certainty in complex systems. It is possible, starting out from a moment in the past, to indicate "trajectories" of the system, but the uncertainty in respect of future behaviour remains very great indeed. A further complication is that the system-cybernetic method, true to principle, takes into account any kind of system behaviour potentially to occur. The solution is not to work with deterministic models, but with *probabilistic* models: Developments of systems do not take place according to a determined pattern, but can be indicated in terms of probability. The rule which then once more applies is that to the system-cyberneticist the degree of probability, the "organization" of the system, is of greater interest than its substantial content.

2.2 *System-cybernetic control*

In the above characterization the system-cybernetic approach displays a very specific form of knowledge, but this type of knowledge does not offer yet any solution to the enormous problems of control in complex systems. Let's turn to the connection between knowledge and action. When discussing the system-cybernetic method of control, it is necessary to deal in the first place with an essential and main principle, briefly referred to as *cybernetic teleology*: The system-cyberneticist is interested in *living* systems. In these systems he discovers natural principles, laws and mechanisms of control. The principal idea is that such systems embody internal goal-seeking mechanisms, which automatically direct the developments of the system along a given course (self-regulation). For the sake of clarity it should be added here that the goal-seeking behaviour of the system is not the goal of the system-cyberneticist, but a teleological mechanism of the system itself which is under examination. The principal form of goal-seeking behaviour which system-cyberneticists discover in living systems is the built-in tendency towards *survival*, towards continuity of the system. When external or possibly internal disturbances threaten the continuity of the system, its self-regulating mechanisms will come into action immediately in order to keep the essential variables of the system within the limits essential for survival or continuity or, if necessary, to bring them back within these limits. Survival, self-preservation and continuity thus constitute the principal focusses for the cybernetic method of control. In the original descriptions of the cybernetic loop the closest attention is given to systems which are in a certain state of equilibrium. Deviations ("errors") are corrected by self-regulating mechanisms, and thus brought back to their original condition. This is referred to as negative feedback. Later the social scientists especially were to add greater dynamics to the closed loop of cybernetics. They point out the significance of learning processes, of the adaptivity of systems. Nevertheless, these positive feedback loops, which provide for the progression of systems, also come within the teleological basic pattern of continuity and survival. The significance of such socio-scientific nuances are evaluated in Section 3.

For the present argument it is important to point out that the cybernetic method of control is based on a given type of presupposed, self-regulating behaviour of the system. This conception of self-regulation creats a special relationship between controllers and the system to be controlled.

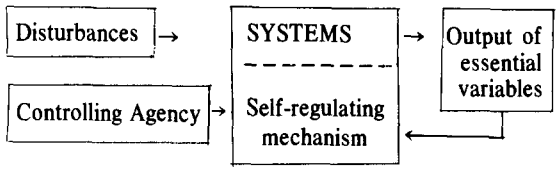
In system-cybernetic reasoning the chances of successfully controlling living systems via direct control from an external position are considered to be nil. Control of this kind is rejected as idealistic on the strength of the so-called *law of requisite-variety*. What this (quantitative) law briefly amounts to is that only variety can destroy variety, i.e. that the controlling apparatus must be just as varied as the disturbances of the system. Even the highest degree of bureaucracy is incapable of meeting these requirements when it comes to direct external control. Rather unfortunately, Ashby is usually cited for his formulation of the law of requisite variety. But this law can never hold out the promise of cybernetics, since it does not indicate the possibilities of control, but exactly its limitations! In effect, Ashby uses the law of requisite variety merely to set the limits for an indirect and sophisticated method of control, which is brought to expression in a second law: the law of supplementation.

What the *law of supplementation* amounts to is that the controlling system (with due observance of the conditions of the law of requisite variety) can improve its limited capacity for regulation of the system to be controlled. This indirect method of control is based on the principle of coupling of systems. The external control system can greatly increase its limited control potential without itself incorporating this variety in its own system, because the movements of powerful self-regulating mechanisms are activated by properly *selected* injections. Thus, cybernetic control of systems takes place from within these same systems. This sophisticated perception of the position of the controller has certainly had a sobering effect on idealistic views on planning. The control of the planning agency (which functions as independent input for the system to be controlled and thus occupies an *external* position) can only activate the self-regulating mechanism of the system. Hence, cybernetic *process planning*† is not a steering, but a *following type* of planning. According as the direction of the goals

†The cybernetic definition of *process planning* differs from the description given in the Operational Research handbooks. Cybernetic process planning is based on a concept of control. It gives expression to a certain relationship between the control system and the selfregulating "process" in the system to be controlled. The Operational Research interpretation of process planning on the other hand relates to the progress of the "planning process". This school of thought endeavours to increase in particular the flexibility of planning processes (via cyclic phasing and continuous progress). The two interpretations may not be confused.

of the planning apparatus become further removed from the internal goal-seeking behaviour of the system, the basis for control becomes weaker still. The law of requisite variety watches over this principle and punishes "wishful thinking". With this nuancing perception of control cybernetics has once and for all made short shrift with the naive planning optimism, which was so characteristic of the initial attempts at planning theory, but the teleological basis for this relativization is —as will be seen in Sectors 3 and 5—itself not without problems in a socio-political context.

In most cases the self-regulating mechanism does only come into action if slight "errors" have already arisen in the state of the system, which impede the progress of the system (common example: the operation of a thermostat).



If the reaction of the system does not take place until after small disturbances have occurred, we speak of so-called *error-controlled feedback.* This way of feedback control (negative or positive) is generally characterized by its stepwise nature. The majority of disturbances namely occur in many stages, in which stimuli for feedback reactions are continually present. Moreover, the feedback regulator can be prepared for major disturbances on the strength of information concerning small disturbances. Here, the external planning apparatus can take action in two ways:

—Firstly, selective forecasting studies can now be carried out to foresee possible further disturbances in order, in this way, to narrow down the margins of uncertainty (selective attention with regard to system input).

—Secondly, it may be endeavored to activate the self-regulating mechanisms of the system. It is assumed that the controlling body has to its disposal technical instruments to set this mechanism in motion, its effectiveness being checked against certain output variables.

As previously pointed out. Before, the direction of such control is indicated by the nature of the internal goal-seeking behaviour.

The strict interpretation of the cybernetic decision-making model stands out in sharp contrast to the analytico-rational procedures. Apart from abandoning the meaningful analyses, there is also the fact that the purposes of the controlling body only appear in derived and system-following form. Precalculations of policy alternatives, scenarios, impact analyses, policy evaluations and other kinds of such procedures actually become altogether unnecessary.

The analytico-rational procedure of planning processes is replaced by a model of efficient *precalculations* of threatening system inputs (to narrow down uncertainty) on the one hand and by technical *process monitoring* on the other. In recent variants of the analytico-rational, decision-making model "process monitoring" has in the meantime also been added as copingstone to the rational procedures, but it must be realized that as regards intention, nature and function such *a-posteriori* adjustment procedures differ from cybernetic regulation via process monitoring: In the Rational Actor Model the process monitoring follows a "rational" planning process, and the point of departure of the later adjustment procedure lies in the difference between the state of the system intended by the decision-makers and the actual state. The cyberneticist does not believe in the effectiveness of this concept of planning and is convinced that external and a priori formulated purposes in decision processes will not be realized. In his view process monitoring *takes the place* of "rational" procedures. Unlike the analytico-rational concept of process monitoring cybernetic process monitoring is initiated from the goal-seeking or self-regulating behaviour of the system itself. This process monitoring takes automatically place when the variables essential for survival are affected. The controlling body can at most activate this self-regulation and for this purpose has at its disposal a number of "blind" manipulation facilities (operations of which the controller does not know the social consequences). The controller *experiments* with the system and checks the results only against the criteria of effectiveness. Insofar as substantial moments of choice are involved they lie within the "tendency to survive" of the system concerned.

The interpretation of the cybernetic control method, strictly from the *control* point of view, is strikingly technocratic and in a social and political context unavoidably evokes legitimation problems. In actual fact a number of less strict interpretations of cybernetic control are now current, in which adjustments are made to the cybernetic method of control from, nota bene, the rational actor model. I cannot pay attention to this in the current context, while furthermore for the present discussion it is more important to clarify the scientifico-theoretical foundations of the pure system-cybernetic model. A brief remark will therefore suffice. The most striking tendency in this respect is the attempt to project the analytico-rational stage of plan preparation (objects, analyses, policy alternatives, evaluations and the like) over system-cybernetic process monitoring. Composite constructions of this kind are highly confusing, because the underlying scientifico-theoretical principles in such "syntheses" are not discussed. And they are contradictory: the system-cybernetic method of control does not tolerate an analytico-rational head of plan preparation. It has deliberately turned away from it. In these notes an as strict as possible interpretation of the system-cybernetic scientific programme is maintained, not merely in an attempt to avoid a confusion of tongues (as previously pointed out in introduction, the system-cybernetic flag covers many cargoes), but more in particular to ensure the purity of identity of the underlying, scientific concepts and specific principles.

3. NUANCES OF THE SYSTEM-CYBERNETIC BASIC MODEL IN THE SPHERE OF SOCIAL SCIENCES

Ever since the early sixties the possibilities of the system-cybernetic approach for applied knowledge and the remarkable perspectives for controlling complex systems have raised great expectations in the social sciences. A problem is, however, that the discussion moved rather too quickly from the scientifico–theoretical level to that of direct application. In fact, a number of fundamental problems have hitherto eluded discussion almost entirely.

The most important nuances applied relate to the nature of cybernetic teleology. Such authors as Deutsch, Beer, Dunn, Buckley, Schon, Argyris, etc. apply variants in the goal-seeking behaviour of systems: Under the pressure of serious disturbances the internal goal-seeking behaviour can be subject to change. This is referred to as learning processes. Living systems do not incline towards "direct self-preservation" under any circumstances, but exhibit a progression if conditions ask for such adaptation. In this respect attention is drawn to the "*growth*" of systems and a relation is established with "*evolution*" phenomena (initiated from external or internal disturbances). On the strength of these and similar additions with respect to goal-seeking behaviour considerable dynamics is actually imparted to the original teleological line of thought (which with Ashby is still very static), but the basic philosophy: the built-in tendency towards "survival" and "progress" of the system merely derives a firmer foundation from such nuances. The identity of the system *as such* is not made a subject for discussion.

This premiss is anything but evident in the social sciences. As a matter of fact various other development possibilities have been brought into the discussion for quite some time now (regressive, dialectic, revolutionary, discontinuous models, etc.), while history has proved often enough that unlinear evolution theories have an extremely limited power of validity. A fascinating question is whether more fundamental adjustments could not also be accommodated in cybernetic teleology, so as to ensure that (to put it strongly) instead of systems inclined towards survival other systems tending towards self-destruction are also considered or that both forces are recognized in one and the same system (!). It is easier to pose this question than to answer it.

Fester is one of the few who has studied this problem. His criticism of cybernetic teleology is based on the same grounds: The perspective of a model oriented to a basic condition of survival rules out reflection on the system itself. In the adjustments of Deutsch and others evolutionary learning processes of the system are, in principle, regarded as *reactive* as a safeguard against unforeseen futures! Fester elaborates his criticism towards a constructive suggestion of a framework capable of being expanded in the direction of self-transformation. Later Fester was to associate this suggestion with the famous concept of "communicative planning". In Fester's proposal fundamental changes are the main concern in the development of the system. The dynamics for which room is created in this proposal certainly offers a better hold for the social sciences than the frameworks described earlier on. But Fester leaves off where the serious problems begin. The question is *how* such elaborations of cybernetic teleology can be performed without departing too far from the original context and from the accurately formulated principles of the system-cybernetic approach! The teleological premises constitute the essential mainsprings of cybernetic control. Such concepts as self-regulation, feedback control, planning strategy, etc. are essentially based on a specific teleological foundation. Therefore, if the "natural" teleogical foundation is changed or weakened to the extent that at once all forms of goal-seeking behaviour (ranging from tendency to survive to self-destruction) are considered possible, what basis would then remain for self-regulation, feedback control or planning strategy? This problem is not easy to solve.

A *second nuance* of the original system-cybernetic model as suggested at the time of its introduction in the sphere of social sciences relates to the denial of substantial explanations. Some are of opinion that the cybernetic type of efficient explanations present too little substantial insight into social processes. Especially in quarters of policy sciences it is emphasized that system-cybernetic knowledge passes by *power* phenomena [3, 4]. Hence, it is suggested in these quarters that the model could be supplemented with such substantial analyses. From other quarters as well attention is drawn to the need to add more substantial knowledge to the cybernetic paradigm. The problem of these approaches is that the scientifico-theoretical points of departure of the analytico-rational and system-cybernetic paradigm are mixed up. According as more substantial elements are added to the original cybernetic paradigm (why should one confine oneself to an analysis of the phenomenon "power" and not add concepts as internalization, socialization, alienatation, etc.) the specific quality of the approach (i.e. quantitative forecasts of effective system behaviour on behalf of system control) will be lost more and more, while at the same time the "understanding" level of purely analytico-rational approaches remains out of reach. Hence, it is not advisable to mix the properties of different scientific programmes, because the specific useful value of each individual programme will then be lost. Each programme has its possibilities and limitations. Instead of artificial mixing of methods of approach, I would suggest an elaboration of different science programmes of planning theory based on their *own specific* theoretical principles of knowledge and evaluated for *different ways of use.*

For the time being these variants from the angle of social sciences round off the discussion of the system-cybernetic approach. The final remarks (Section 5) will include an evaluation of this perspective for planning theory. But first attention will be given in the next Section to the perspectives of an entirely different science programme, which bears no relation to the system-cybernetic approach. This concerns the science programme of the sociology of knowledge, of which two classical subvariants are discussed. Like system-cybernetics, the sociology of knowledge applies very specific scientific concepts, which mutually differ in many respects. Planning theories, strategies and methods derived from the two paradigms display equally fundamental differences.

4. THE PERSPECTIVE OF THE SOCIOLOGY OF KNOWLEDGE

4.1 *Two variants of the sociology of knowledge*

Like system-cybernetics, the sociology of knowledge has a very firm basic structure, of which own specific planning theories, strategies and methods can be derived. Yet, the perspectives of the sociology of knowledge have remained practically unknown in the later development of planning theory (the basic principles of the sociology of knowledge date back to the begining of the century, while planning theory presented itself as an independent discipline very much later). Its fame usually does not go much farther than Mannheim's notorious "synopticism", a comprehensive planning ideal, which is regarded—and not altogether without reason–with some disdain. But the sociology as knowledge has more to offer and Mannheim himself in the first place.

Two variants of the sociology of knowledge are discussed. They concern the so-called American and Euro-

pean schools. The former originates form *pragmatism*, the philosophical expression of this typically American outlook. Peirce and James were the founders of this influential philosophical school of thought. Mead and Dewey were responsible for its sociological elaboration. In present-day sociology Mead's work especially is of great influence (see, for example, "symbolic interactionism"), because he was succesful in laying down his views on knowledge in a sound theory. In this respect Dewey must definitely give way to Mead. Yet, in the context of the present discussion a connection is sought with Dewey, because it was he who very expressly associated the theoretical component of knowledge with the component of meaning giving on the one hand and with the action component on the other. Dewey's theory is the theory of "meaningful and capable action", the basic pattern for planning theory. The so-called European variant is much less of one mind and also more difficult to delineate. The origin of this school lies in 19th-century philosophy and sociology. This article links up with the manner in which *Mannheim* deals with the Marxist and Weberian tradition.

The choice of two classical variants implies that some elements have meanwhile proved either outdated or inadequate for present-day problems. This limitation applies to various elaborations by Dewey, but also to some by Mannheim. With the latter the limitations apply, paradoxically, precisely for those moments at which in his later period ("Man and Society") he explicitly expresses himself on planning (what I have to say will, therefore, be based especially on the specific explanations in respect of the sociology of knowledge in Mannheim's earlier works). Nevertheless, both approaches are characterized by a surprising unity of basic conceptions, of which the structural lines possess a special topicality for the current problems in planning theory.

The ideas of Dewey and Mannheim are imbued with the relativity of human knowledge. The effort to achieve "*perfect certainty*" creates false alibis in a world of uncertainty, as Dewey puts it, while instead he gives the action dimension a central position in knowledge processes. Mannheim on his part emphasizes the need to recognize the partiality of all knowledge and elaborates this point of departure into a theory of perspectivistic knowledge.†

Both authors thus reject the absolute significance (and application!) of human knowledge in what is, in principle, an unknown world. In the sociology of knowledge processes of thought and knowledge are related to a social and changeable context. The unimpreachable and universal products of thought of traditional philosophy are renounced. Knowledge is no longer exclusively a resultant of the thinking individual, but in the sociology of knowledge both reflective moments (thought and knowledge) are associated with a worldly context which in different theories are elaborated into different concepts of "existential determination" (Seinsverbundenheit). It is perhaps Dewey who wages the strongest opposition against the rational philophies, which had remained unassailed for so long. He speaks in this connection of the necessary pragmatization of thought and knowledge. Dewey's *pragmatization* proceeds in two directions: on the one hand the emphasis lies on the antecendents of knowledge("existential determination"), i.e. knowledge is placed in a real world of actions, while on the other hand knowledge itself initiates new actions (with this second pole, the action dimension, Dewey comes to his most strinking pronouncements). Thus, Dewey's pragmatization appears as a continuous process of action, reflection and action and new reflection and action. With Mannheim we find the same unity of basic concepts. The concept of "existential determination" and the action dimension are the subjects of the next two sub-sections (4.2 and 4.3). In the final subsection (4.4) a relationship is established with a third key concept in the sociology of knowledge: the normative component.

4.2 *The first dimension: "existential determination" of thought and knowledge*

Unfortunately, Dewey has failed to substantiate convincingly the theoretically important concept of "extential determination". In effect, the greater part of the criticism which his sociological method has attracted can be brought down to this problem. What Dewey's proposal briefly amounts to is that action and reflection are placed in the process of interaction between man and nature. In the permanent struggle with the surrounding forces of nature man is invariably faced with new problems, demanding new insight and new solutions. In this type of knowledge any problem is as important as the next and no attention is given to structures of a human (instead of natural) world, while the main emphasis of the analysis lies on the acting, atomized individual, etc. The criticism is just a little too obvious. As pointed out before, Dewey's kindred soul, the pragmaticist Mead, elaborated this knowledge component more precisely in his theory of "symbolic interactions". The sophistication of Dewey's method would stand out to greater advantage on the other side of pragmatization (the action dimension).

Unlike Dewey, Mannheim does throw all his energy into the first site of pragmatization. In this respect Mannheim elaborates a special type of perspectivistic knowledge from a critical reflection of the marxist ideology concept. In everyday usage the concept of ideology has a somewhat contaminated meaning. One speaks of ideology if there is question of unreliability in someone's behaviour. Referring to someone's ideology is an unmasking activity and amounts to referring to a certain consciousness. The consciousness in which human thought and knowledge take place has been elaborated in philosophy into one of the main themes of the theory of knowledge. This is not a matter of superficial unmasking, but the theme of consciousness is related to the *total* mental structure of the individual (total "*Weltanschauung*"). Originally, the philosophical attention remained confined to the philosphical history of thought, but the materialists added a social dimension. It is here that thought and knowledge processes find their foundation in *collective historical experiences.* Mannheim tends to connect up with the latter version of the theory

†The problem of *uncertainty* is thus not a discovery made in system-cybernetics, as is suggested in some handbooks.

The sociology of knowledge is equally imbued with the relativity of human knowledge in a complex world. The difference between the two approaches does not, therefore, lie in the perception of uncertainty, but rather in the different ways in which this problem is approached. The answer of cybernetics is that the object is to achieve certainty after all by lowering the quality of the knowledge level (reduction to registration of effective relations). The sociology of knowledge on the other hand indeed endeavours to discover relations of understanding, but then adds as a consequences that the understanding acquired is indeed partial.

of ideology, but elaborates it in his own way. In the Marxist theory of knowledge the weapon of ideology is presented as the privilege of a single class. Mannheim puts it, however, that one cannot brand everybody else as ideological from one point of view without placing oneself in the same position. Seeing that Mannheim permits of various, mutually opposing points of departure and thus renders the position of the thinker a relative one, he rises the concept of ideology, characterized as unmasking, to a new and general principle of knowledge. So as to avoid confusion with ideological thought Mannheim speaks of *perspectivistic knowledge. Knowledge is essentially partial. It originates and develops in relation to certain collective experiences, social situations and the specific Weltanschauungen (philosophies of life) which accompany it.*

In this connection Mannheim has made remarkable studies of the liberal, fascist and socialist "Weltanschauungen". The actual subject of the sociology of knowledge thus becomes the onesidedness of observation and experience. Knowledge is associated with the "social situation" of the observer and must be judged from this perspective. (It should be pointed out by the way that Mannheim's often sociological definition of the "social situation" ought to be extended by a structural and institutional dimension.

The relational nature of Mannheim's type of knowledge implies that different perspectivistic segments of social reality stand alongside and opposite to each other and that they can also overlap, thus excluding an *objective* and *absolute* form of knowledge, validity and truth in this conception. This observation does not imply that perspective knowledge can lay no claim whatsoever to validity and truth, but what it does amount to is that the *conditions* under which perspectivistic pronouncements are made must be closely watched.

4.3 *The other side of pragmatization: the action dimension*

Dewey concentrates first and foremost on the action dimension. He replaces the quest for certainty in traditional philosophy by the search for possibilities of control. Dewey, however, was so obsessed by the absence of the action dimension in traditional philosophy that in his own method he subordinated all other components to the category of action. In this way thought and knowledge acquire a derived function and these concepts become purely *instrumental* to the required actions. Dewey does not believe in pre-existent knowledge, which fulfills an independent function. Knowledge must grow towards completion via practical experimenting and can only be judged on the strength of the practical results of the actions to which it gives rise. The reflective moments of the process of knowledge serve to set out the problems more sharply and thence to suggest new solutions by trial and error. Via "thought" (varying from loose ideas to complete theories) a more *intelligent* course can possibly be given to relatively blind actions, but the test ultimately lies in the results. Knowledge processes in themselves imply actions. The method of *action research* designed later can find useful support in Dewey's pragmatic theory formation. Dewey's "observer" actually participates in the reality he investigates and the significance of his knowledge will have to be demonstrated experimentally. To Dewey knowledge is a process of discovery about which no certainty exists or can exist beforehand. The resulting planning strategy is, logically and deliberately chosen, one of trial and error and has many points of agreement with the "muddling through" formulated in later planning theories. It is the consequence of an approach governed right from the start by the idea of direct actions. Dewey pursues this unity between knowledge and action so far that even criteria of "validity" and "truth" are found in the results of actions. If knowledge provides the answer to the problem is question, it is "true" and "valid". If it does not, it is worthless. "That which guides us truly is true."

On the one hand this is a stimulus for researchers to bear action-perspectives constantly in mind, but on the other hand such unity is presented in a much too absolute sense, if knowledge derives its function *exclusively* from practical results.

Like Dewey, Mannheim also considers the pragmatization of thought and knowledge in two directions. Action is not purely presented a rational consequences of the thinking individual, but processes of thought and knowledge are themselves also placed in a context of action. (The sequence is action, reflection, action.) Individualized and independent thought and knowledge can be regarded as exceptional. The greater part of thought and knowledge originates from collective actions and the power of the collective unconscious cannot, therefore, be denied. In this connection Mannheim introduced perspectivistic knowledge. Via the method of knowledge this sociology of knowledge aims to involve parts of the irrational origin of thought in the scientific analysis; and from the scientific analysis in political action. Social processes, but also unconscious motivations and suppositions, must be perceived in order to enable them to be controlled. At this interface between irrational actions and theoretical knowledge Mannheim localizes his "rational" action perspective: planning. Planning is situated in the historical course of actual movements, as well as of processes in the field of force of the collective unconscious. This planning is not an idealistic, external control, but expressly seeks to connect up with processes taking place in reality.

In this connection a brief comparative remark would be in place with respect to the relationship between theory and practice in the system-cybernetic approach. In both science programmes the position of the controlling person or institution is related to social processes. In the system-cybernetic approach this development of the "system", however, is presented as a "natural" process ("survival", "evolution"). Mannheim's sociology of knowledge on the other hand tries to "understand" the social context in an *ideological* and (to a lesser extent) *structural* sense. Mannheim takes the view that it should be possible to establish the social prime movers (the "principia media") of a given period and to find in them strategic action points for control. As regards the unity between knowledge and action Mannheim, unlike Dewey, places the emphasis on a given manner of knowledge. In this more or less rational guidance for action perspectives is to be found. Mannheim's planning makes use of indirect control, a type of control which moreover is of a socio-psychological character. Hence, it is a method of control which for this reason alone demands very accurate legitimation.

Mannheim's view on planning acquire a doubtful character in my opinion when he later speaks of *comprehensive* planning coupled with a "massive state". The basic idea is that different perspectivistic segments of social reality can be synthesized to a comprehensive

whole on the strength of which control activities can be undertaken. Such an abstraction process presupposes an unattached position of the central system over and above the parties. This position is little realistic and has a veiling effect in the end. Apart from the fact that the central planning system has itself a certain identity in the social, ideological and structural field of force (amidst other more or less "controlling" parties), it is further so that this synthesis of different perspectives should not in the first instance take place in a system of planning agencies, but must via confrontations acquire form on political and social platforms.

4.4 *The third dimension: normative processes*

Apart from the "existential determination" of thought and knowledge and the unity of these concepts with the action dimension, it is necessary also to discuss "the normative" component as a last structural component in this context. Dewey elaborates the "normative" component in a concept of instrumental ethics, forming an integral part of his experimental method. This discussion can be brief, because the ethical guidelines in the process of knowledge and action are subject to the same instrumentalization as the ideas and theories already described. Dewey has no confidence in the independent existence of universal, exalted Ethics. Such Ethics function as an alibi for failing action and, in effect, create a separation between theory and practice and between objectives and means. Entirely in line with his method Dewey places opposite intrinsic Ethics a concept of *instrumental* ethics, i.e. ethics as a motto for action, ethics as method. Like the knowledge process, the origin of these ethics lies in a problematical relationship between man and the surrounding forces of nature while again the usefulness and meaning of the ethical guidelines must become apparent from the results of the action process. Thus, in ethics the action dimension is once more already included. Taking into account the remarks made previously, pragmatic ethics constitute a useful suggestion for planning theory, but in my view Dewey takes instrumentalization rather too far when he reads his motto also the other way round and draws the conclusion that without action ethics would be impossible.

Mannheim also considers the possibility of involving normative processes in his perspectivistic knowledge. The voluntaristic element can then be kept in or out of knowledge processes:

—In the *non-normative* analysis the method remains confined to demonstrating the association between intellectual point of view and social position. Value and object-tied elements are removed from the object of knowledge as possible. The object of this method is to acquire insight into the mutual connectedness of things and the narrowness of individual standpoints. The transition from non-normative to evaluative studies often proceeds unnoticed (this is something which even the advocate of non-normative science, Max Weber, experienced in his own socio-historic studies). Qualitative studies of social and political processes can hardly be divested of normative moments. For this reason Mannheim gives close attention to a method in which room is explicitly created for normative elements.

—The *normative* analysis is very suitable for acquiring knowledge which is only accessible from a specific social perspective. Social and political knowledge are mostly in a process of "becoming". The whole of collective objects and interests of which an individual forms part fulfils a function in this process of creation. The perceiver is not an observer, but actively participates in the process perceived. Decision and standpoint form an integral part of this type of knowledge. In such cases the interests, the normative moments and the "Weltanschauungen" cannot be divorced from the product of thought.

5. SCIENCE PROGRAMMES AND PLANNING THEORY: FINAL REMARKS

As suggested in the introduction planning theory is gradually detaching itself from the formal frameworks which dominated in the recent past. The view that it is possible to develop from different paradigms also entirely different theories, strategies and methods is more and more accepted. The exploration in the present study confirms this trend. An exploration of only two science programmes brings me to the conclusion that the existence of different planning theories must be recognized, while it would seem to me that further research on an even greater theoretical planning variety would moreover be highly beneficial if not necessary. Earlier attempts to design an overarching planning theory used to reduce attention exclusively to the procedures of planning processes, while substantial studies were kept separated as "field explorations". In my view a separation of this kind rests on a scientifico-theoretical error. A point which is overlooked is that different science programmes are based on different theoretical principles (with respect to meaning-giving, knowledge and action), involving very specific procedures of their own.

It is advisable instead to study different theoretical planning perspectives for their specific scientifico-theoretical principles and then evaluate them for the different ways of use. The evaluation will recapitulate the differences.

5.1 *Evaluation of the two science programmes on the basis of the object of planning theory*

5.1.1 *The tension between "what is" and "what ought to be".* In the system-cybernetic model the tension between "what is" and "what ought to be" receives an exceptionally striking, albeit sometimes paradoxical, treatment.

The "controller" (the controlling person or body) functions as independent input of the system to be controlled, i.e. he takes up an *external* position. Cybernetic handbooks do not speak of the identity of the "controller", and exclusively deal with the strictly technical aspects of control. In socio-scientific elaborations of "cybernetics" the controller is usually identified with the central control positions of the system concerned: the top management in industrial organizations [5, 6] or the government control in social systems (Deutsch[7] and other authors). The controller is, in principle, able from his own external position to introduce *own* objectives into the system, but as will become evident his margins are narrow. The tension between "what is" and "what ought to be" is *also* present in the system to be controlled. Internal goal-seeking behaviours bring into operation self-regulation mechanisms in order to react on the "errors", which have occurred as a result of disturbances.

The original assumption is that the objectives of the external controller and the internal goal-seeking system behaviour are in *alignment.* The enormous control perspectives of cybernetics are based on this principle of

coupling of systems (indirect control). By coupling controller and self-regulation an enormously increased regulation potential can be obtained via the law of supplementation. The converse position, however, is also true. When the external controller formulates more independent objectives (which deviate from the internal goal-seeking behaviour) he no longer has the required variety to ward off complex disturbances. The technical control requirement of *tractability* with respect to internal, goal-seeking or self-regulating behaviour is at the same time the essence of the cybernetic conception of process planning. This view of process planning relates to a perception of control, which greatly relativizes the position of the controlling apparatus: the control activities are very expressly related to developments within the system.

This tractability is taken rather too far. Cybernetic planning *confines* itself to warding off threats to the system, to avoid calamities ("failure planning". What is more serious, however, is that the assumed goal-seeking movements of the system are not related to the real social forces (power phenomena, social relations, religions, etc.) which are active in social systems, but rather to *laws of nature.* It is assumed that by nature the system exhibits a built-in tendency towards "survival", "continuity", "self-preservation", to which sociologists have added "progression", "growth", "evolution". The cybernetic revolution thus becomes a matter of belief, of perpetuating belief moreover.

Mannheim also furnishes a model of *process planning,* in which a perception of control finds expression. He also argues in favour of an indirect method of control and he likewise relates the position of the controlling body to social processes. But Mannheim actually does relate the movements in the social field of force to social process (ideologies and structures). The sociology of knowledge indeed attempts to arrive at an understanding of the movements in the system via perspectivistic analysis. Tractable analyses of situations, collective experience and Weltanschauungen, capable of being corrected at all times. The control activities are undertaken in close relationship with social processes. The tension between "what is" and "what ought to be" and between theory and practice thus does not result in wishful thinking. Planning is recreating instead of creating, reconstruction instead of construction.

Nevertheless, an inconsistency has crept into Mannheim's view of planning as well. On the one hand his essential partial knowledge leads to a *relational* analysis of reality (Weltanschauung, social situation), but in his later work on the other hand he admits of a *comprehensive* synthesis of perspectives, on the strength of which the controlling body (i.e. the government) exercises control. His relational argument is apparently no longer applicable in this process of "particularizing" abstraction. All of a sudden partial perspectives can be abstracted from a position over and above parties. Mannheim's controller rises above the ideological and structural context and thus finds himself in the same *external* position, which the cybernetic controller had already reached from another direction.

5.1.2 *"What is" and "what ought to be", thought and knowledge.* With the method of explanation in terms of effectiveness and of probabilism we considered already two important aspects of the nature of system-cybernetic knowledge. In the relationship between knowledge processes and the field of tension between "what is" and "what ought to be" the cybernetic approach opts for the *non-normative* method. This implies that value and objectrelated elements must as far as possible be eliminated from the object of cognition (as otherwise the transition to normative knowledge inadvertently takes place only too soon). This condition sets few problems for the system-cybernetic method, because the selective attention is in any case exclusively directed to effective system transformations on the strength of the need for quantitative forecasts. These forecasts, however, do of course take place in a normative context. The political options precede the forecasts.

Dewey and Mannheim elaborate the essence of thought and knowledge processes according to a concept of *existential determination.* In the relationship with the field of tension between "what is" and "what ought to be" the two variants of the sociology of knowledge do indeed present openings for normative cognition: Dewey via his concept of instrumental ethics and Mannheim via his ideal-typical constructions "ideology and utopia". Political development process in particular embody important parts of knowledge which are solely accessible from a certain involvement and Weltanschauung, as Mannheim puts it. A necessary condition then is, of course that these moments of choice are clearly made explicit.

5.1.3 *"What is" and "what ought to be", thought, knowledge and action.* When the relations between "what is", "what ought to be" and knowledge (the independent category of "thought", the role of ideas and theories actually only appears in the models of Dewey and Mannheim) are supplemented by adding the final action dimension, the picture of the differences in planning strategy is complete. *As centres of crystallization* of the different approaches then appear successively the cybernetic "error-controlled feedback", Dewey's "intelligent action" and Mannheim's "principia media".

The main idea of "error-controlled" feedback is that the self-regulating mechanisms react in order to correct "errors", which have occurred in the positions of the essential system variables as a result of disturbances. The external controller can activate the self-regulating mechanism, if he expects even more serious disturbances on the strength of prognoses. The tension between "what is" and "what ought to be" is present in the behaviour of the controller and in the internal goal-seeking system behaviour. The relationship with knowledge processes is present in the selective forecasts (aimed at possible further threats to the system and initiated as a result of minor errors, which have already occurred), while on the other hand knowledge processes are now also related to actions of the controller: by suggesting in the first place possibilities of coupling between controller and self-regulation (the controller has manipulation facilities at his disposal, "recipes" to activate self-regulation) and in the second place by checking the effectiveness of such "blind" control operations against a number of feedback variables. This feedback control is, in other words a strictly engineering form of process monitoring. Unlike in the case of the procedures of the analytico-rational model, no memoranda of goals, no substantial analyses, no scenarios, no alternative policy models, no evaluations of the above-mentioned procedures are to be expected from the controlling body, but instead selective forecasts and on the strength thereof points of departure

for control operations. These operations as well are not analysed for their social consequences, but for their effectiveness. If the operations turn out the wrong way, a signal will be received automatically and new operations can be tried.

The two centres of crystallization from the point of view of the sociology of knowledge are characterized by differences in accent. In Mannheim's "principa media" the emphasis lies on perspectivistic knowledge, while in Deweys' "intelligent action" it lies on the action dimension. But in both concepts the relations between the five dimensions of the object of planning theory converge.

5.2 *An interpretation of limitations and possibilities for use*

Reverting to the discussion of two science programmes the conclusion may be drawn that they result in two kinds of planning theory, which on essential components such as meaning-giving, knowledge and control apply entirely different points of departure and methodological procedures.

Judging by the scientifico-theoretical criteria formulated on the strength of the specific object of planning theory both schools of thought can be regarded as sound references for planning theories. But on the strength of these criteria it was also possible to observe the differences in style and identity. The sharply outlined identity of the two approaches includes directly the specific *possibilities and limitations* for use in planning. These theoretical assumptions must be taken into account when searching for possible applications. The limitations of the system-cybernetic perspective have been discussed with some emphasis on account of the popularity of the approach and in view of the absolute pretentions allocated to it in a large part of planning theory. It is an original and particularly coherent approach, but also one which precisely on account of its special identity is *totally unsuitable* to fulfil a *framework function* in social planning. Two categories of arguments stand in the way of the above use of the system-cybernetic perspective:

—In the first place there are the transformation problems of a method of approach, which—without remarkable adjustments—was transferred from the "exact" to the social field of study. In the sphere of social sciences the approach simply fails to stand up to the consciously chosen challenge of complexity and uncertainty, the quantitative character, the calculations regulating potential, etc. The social reality is too fickle for a system-cybernetic cure. I have discussed this category of more or less technical arguments somewhat more extensively elsewhere (Planning Theory in Perspective, 1979). Special attention was given there to the excellent criticism by Berlinski[8].

—The second category of arguments attacks the framework function of the system-cybernetic method of approach on a more fundamental basis, because it relates to the scientifico-theoretical principles. The centre of crystallization of the system-cybernetic science programme is the "error-controlled feedback". Normative processes, knowledge processes and control processes (three main pillars of planning theory) are integrated in this feedback principle. The feedback behaviour is based on a teleological mechanism, which is presented as a "natural" principle. In this framework aspects of meaning-giving, knowledge and control are identified, in principle, with such intractable "natural" principles as "survival", "growth" and "evolution". Quite apart from the content of the assumed natural behaviour of certain systems the teleological point of departure is in itself an unstable base to rely upon in a social and political context. Social planning takes place in a context of human structure and perspectives, which guide the developments of social systems along certain courses. Systems-cybernetic teleology does not seek to link up with such social factors.

Hence, the possibilities of the system-cybernetic science programme for social planning could better not be sought in the function of general framework. Parts of this approach such as the capacity to perform efficient forecasts, can, of course, certainly be used under certain conditions. As a reasoning model the cybernetic model raises interesting items for planning in a social context, but as an application model is it unsuitable in its present form.

The *control rationality* of the system-cybernetic approach stands in sharp contrast to the *analytical rationality* of the sociology of knowledge. In cybernetic teleology the object-orientations of systems are regarded as natural data. The system-cyberneticist does not attempt to understand the movements of the system. He confines himself to "monitoring" these processes. The sociology of knowledge on the other hand is a prototype of the Rational Actor Model. Action perspectives are rationalized from constantly changing, but continuously and specifically localized object-assessments and from substantial analyses. Actions are motivated and identified from these rationalizations. Insofar as survival or self-destruction tendencies of social systems present themselves in this approach, they are immediately related to social action patterns. I am of opinion that planning processes situated in a social and political context *must* conform to the basic structure of the Rational Actor Model, because the actions of planning bodies can only be *justified* on the strength of political arguments and concrete analyses (in the same way as for that matter decisions not to plan can be justified on these grounds).

This standpoint is not so obvious as one might be inclined to think in the first instance. On the strength of empirical studies various researchers have come to the conclusion that the behaviour of complex organizations often by no means proceeds in accordance with such rational patterns (see for example, Allison's thorough analysis of the rocket crisis in Cuba[9], studies by Steinbruner[10], Halperin[11], etc.). These authors point out that in the practice of complex organizations the Rational Actor Model meets with numerous restrictions. It is observed, for example, that:

—processes of object-assessment, analytical processing and actual actions of complex organizations proceed in almost *independent circuits* and can by no means always be brought about completely in line with each other;

—the rationalizing processes are disturbed by a variety of *irrational* elements; the behaviour of organizations is even more incomprehensible than that of individuals;

—analytical rationalizations do too little justice to *complexity* problems, etc.

The objections are serious: The structures of Rational Actor Model cannot offer *certainty*, but with all their limitations they do present the only conceivable foothold capable of providing *responsibility* to planning processes in a social and political context. Politicians must base their decisions simply on political and analytical

arguments. The recommendations of cybernetics to eliminate the basic structure of the Rational Actor Model (in favour of a model along cybernetic lines) would appear to me only to lead from bad to worse, because it does not give solutions at all for above named problems. Social reality is no black box, which can be experimented upon.

The approach according to the sociology of knowledge is one of the paradigms that can be qualified as rational action models. In my view this approach, therefore, certainly offers more perspectives for the development of theory formation with respect to social planning processes than the system-cybernetic paradigm.

It must be pointed out here immediately that the sociology of knowledge is not the *only* suitable perspective and that in planning practice different scientific programmes can be used one alongside the other. There is no objection to this at all, provided one realizes the consequences of the underlying presuppositions and care is taken to ensure that no mixing of specific *uses* takes place. Another point that should be made here concerns the fact in this text only two variants of the sociology of knowledge are discussed, which moreover have meanwhile come to belong to classical sociology. The motive underlying this choice was that precisely these classical explanations in the sociology of knowledge made it possible to bridge the main pillars of the object of planning theory with fundamental scientific perceptions. They indeed fulfilled this promise. Judging by the scientifico-theoretical problems with respect to planning both subvariants of the sociology of knowledge offer an attractive and full perspective for planning theory. But as far as conceptual design of the theoretical level is concerned there are still some blanks that require to be filled. This is especially true for Dewey, whose design of the reflective moments (in particular the concept of "existential determination") leaves room for improvement, as a result of which his trial-and-error method acquires too arbitrary a character and the action dimension is represented too absolutely. In the later development of the sociology of knowledge these theoretical refinements have for that matter already taken place to some extent[12–16]. Recent injections also emerge from the philosophy of language.

Mannheim's elaborations are already more plausible, but his concept of existential determination as well must be extended by a structural component. In addition, he works out (such in conflict with his own relational cognition!) a suggestion of comprehensive planning, which in the present context cannot be deemed particularly realistic.

5.3 *Final remarks: Openings from the perspective of the sociology of knowledge*

The last observations made with respect to Mannheim's concept of planning can be elaborated into a constructive suggestion. In actual fact the perspectivism of the sociology of knowledge already provides the elements for a more realistic style of planning. Mannheim's specific elaboration towards *comprehensive* planning is definitely not a necessary consequence of the theory of the sociology of knowledge. It is more likely a suggestion of the thirties, which more and more found itself in the hold of fascism. The hope of a justified and democratic comprehensive planning was perhaps naive in that context, but certainly understandable. For a short while the conditions for such a planning concept seemed present during the rise of the welfare states after World Wa But in the meantime new breaches have occurred in initial, postwar, social consensus on the structure society, causing the basis for such an ideal typical styl planning to be lost.

The role of the state is once more put up for c cussion, its planning is no longer accepted without qu tion. In the more recent planning literature the legitima of planning is questioned more and more. Attempts a being made to place planning more expressly in a plu form, social context. Etzioni's "active society" is a example of this, as is the concept of "communicativ planning". Both these concepts constitute attempts t *open up* planning in relation to social processes. It i true, nevertheless, that both concepts are still related to a system-cybernetic planning framework (with all the inconveniences this entails).

In addition, there are the so-called dialogue models, of which Friedmann's "transactive planning" is an example. It is more difficult to determine the theoretical planning reference of these models. Within the scope of this article it is impossible to indicate more than just a trend in the planning literature. The topicality of identification problems and the trend towards polyarchical conceptions of the institutional context of planning are unmistakable. But it is equally clear that for the time being these discussions are more likely to be of a problem-setting rather than a problem-solving nature. In conclusion, I should like to outline a possibility of contributing to this discussion from the point of view of the sociology of knowledge. This suggestion implies that the perspectivism of the sociology of knowledge (which was previously defined as an attractive basis for a planning theory on account of the interrelated basic principles of meaning-giving, knowledge and control) could be elaborated towards a polyarchical concept of planning. It is a suggestion for *confrontation planning.*

What the essence of the perspectivism of the sociology of knowledge amounts to is that knowledge is partial and relational. Via a concept of existential determination knowledge is related to *social situations* and to the meaning-giving elements contained therein. On the other hand knowledge initiates new action. Mannheim worked out this basic pattern in his "comprehensive planning". The characteristic feature of such planning is that rationalization and control ultimately take place from a single planning position (more or less over and above the parties). The idea is that it should be possible to integrate the perspectivistic segments of reality into a single pattern (synthesis of "principle media") on the strength of which this reality is then controlled. In effect, Mannheim uses an artifice in this abstraction process, which pushes aside the principles of his own relational perception. A comprehensive planning of this kind presupposes a rationalization and control position over and above the parties, which does not exist in practice.

—Apart from the fact that planning bodies (e.g. governmental organizations) are *internally* divided in horizontal and vertical patterns, each having its own scope and responsibility, it is also essential that in a social context the presence of other rationalizing and (more or less) controlling parties should be acknowledged. A social reality of this kind receives greater attention in a concept of *confrontation planning.* Assuming a pluralistic society confrontation planning recognizes the essentially perspectivistic nature of social reality. Unlike Mannheim's planning, the "synthesis" of perspectives is

not brought about in a control apparatus standing above the context, but in a social confrontation between the different stand-points themselves. In this connection Horowitz makes the statement that "pluralism is separatism and conflict politics and not the hidden hand of consensus politics" ([15], p. 96]). Planning is thus placed in a social field of force, in which the government (for so far as the productive and not the arbiter function is concerned) is itself one of the parties with a clearly established interest of its own. Confrontation of different standpoints takes place on social platforms, resulting conflicts and concrete agreements. Parliamentary politics merely constitutes the tip of the iceberg of these social platforms. Planning is *opened up* with respect to current social movements (with all its conflicts and opposing interests) and the central apparatus formerly placed above the parties exhibits an identity of its own in this structural and ideological field of force.

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APPENDIX

A schematical overview of concepts

As the text is set up in mainlines from three angles the results can be indicated by the construction of two crosstables. The three dimensions involve:

(1) *Paradigms.* Two paradigms are analyzed: The system-cybernetic paradigm (Table 1) and the paradigm of the sociology of knowledge (Table 2).

(2) *Science programmes.* Both paradigms are analyzed at three levels. The three levels are:

—the meta-level (scientifico-theoretical principles);
—the theoretical level (sets of theoretical statements);
—the applied level (practical reaearch and action).

(3) *The object of planning theory.* The analysis is concentrated on the essential and interrelated dimensions of planning theory (the tension between "what is" and "what ought to be", "thought", "knowledge" and "action"). For sake of simplicity the schemes are shorted to:

—what is/what ought,
—reflection,
—action.

Table 1. The system cybernetic paradigm

	metalevel	theoretical level	applied level
what is / what ought	-external controller + -cybernetic teleology (goals seeking behaviour)	-patterns of surviving models -inclusive learning	-system adaptation -communicative planning
reflection	-efficient explanation (dissociate from substantial knowledge) -probabilism (with respect to uncertainty and complexity)	-systems approach -computer simulation -variety (entropy and information)	-quantitative registrating models -test and refinement methods (calibration)
action	-selfregulation of the system -connections controller selfregulation	-feedback (negative and positive) -accent on 'error-controlled' feedback -law of the supplementation	-cybernetic process planning ('guidance') -monitoring as overall strategy -'failure' planning (preventing catastrophes) -recipes (Simon)

Table 2. The paradigm of the sociology of knowledge (two alternatives: Dewey and Mannheim)

	metalevel	theoretical level	applied level
what is / what ought	-Mannheim:ideology and utopia Weltanschauung -Dewey:instrumental ethics	-Action oriented *problem structuring* Dewey:interaction man-nature;individualism. Mannheim:ideologies and structures	-methods for problem structuring -planning as *reconstruction* -process planning
reflection	Mannheim + Dewey: -existential determination of knowledge -relationism in view of uncertainty Mannheim:perspectivism Dewey:pragmatization of knowledge;instrumental truth and validity	Mannheim:Principia media (social situations,intermediate factors) Dewey:Logic of Discovery Mead:symbolic interactions Elias:social configurations	-participative knowledge -action research Dewey:piecemeal engineering Mannheim:synthesis principia media by particularizing abstraction
action	-Rational Actor Model (Actions rationalized from goals and reflection) -Dewey:intelligent action	Dewey:method of experimentation Mannheim:action perspectives included in knowledge	Dewey:methods for problem solving -strategy of trial and order Mannheim:comprehensive planning strategy (synopticism)