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THE LIMITS OF PLANNING: NIKLAS LUHMANN'S SYSTEMS THEORY AND THE ANALYSIS OF PLANNING AND PLANNING AMBITIONS

Kristof Van Assche
Minnesota State Universities-St Cloud State, USA

Gert Verschraegen
University of Leuven, Belgium

Abstract   In this article, we argue that Niklas Luhmann has a lot to offer present-day planning theory. Until now, planning theory has been engaged with Luhmann's work only minimally. Convinced of its potential, we want to show how Luhmann's systems theory offers fresh insight into both limits and possibilities of planning in contemporary society. We argue that Luhmann's understanding of society as functionally differentiated into self-referentially closed subsystems (politics, economy, law, science, etc.) creates space for a complex and subtle analysis of planning practice. In particular, we look at the role of planning within an autopoietic account of society, and its ability to steer other social subsystems. Planning is seen as the form of steering aiming to coordinate processes of spatial organization, therefore an activity dealing with steering problems. We illustrate key concepts of the systems theory in brief analyses of planning situations and interpret these situations using the systems theoretical framework. The analyses center around the questions of planning's steering capacity and the role of the planner, thus creating linkages with mainstream discussions in planning theory.

Keywords   communication, Niklas Luhmann, participatory planning, social systems theory, steering

1. Introduction

In his 1988 book, *Die Wirtschaft der Gesellschaft*, the German social theorist Niklas Luhmann wrote that:

> the theory of planning finds itself in a desolate state. It has for decades had to deal with the problem of complexity but could at first hope to find better solutions using an approximate method of building models or simulations, by a slow adaptation of society to planning, this means by getting used to being planned and by the due concentration of attention. (Luhmann, 1997 [1988]: 41)

Apparently, for Luhmann, this hope of a reconciliation between planning and society is now lost. However, this dismal diagnosis does not imply there exists no societal need for planning anymore. On the contrary, in contemporary society:

> it is difficult, almost impossible, to abandon the notion of steering and to let the future come as it comes. The semantics of time of modern society, the accentuation of the differences between past and future seem to prohibit this. And on the other hand, it is not easy to see if and how at least some of the expectations related to steering could be saved. (p. 41)

In this article we argue that Luhmann's systems theory provides an answer for the above dilemma; although it is impossible to abandon the notion of planning or steering we can no longer rely on the heretofore familiar ideas of direct societal steering and centralist planning. Luhmann's work provides a convincing model that reformulates these traditional ideas of planning and steering by putting more emphasis on indirect steering and on the multiplicity of perspectives involved in modern planning. By applying some central ideas of Luhmann's work to planning activities, we aim to show how the concerns of planners can be contextualized within a complex picture of society as a whole. By articulating the societal preconditions which all planning activity has to take into account, we hope to offer fresh insight into both limits and possibilities of planning in contemporary society.

In the first part of the article, we will show how some core ideas of Luhmann's systems theory can help us in understanding the possible role of planning in modern society.[1] We will argue more particularly that Luhmann's understanding of modern society as functionally differentiated into self-referentially closed subsystems (politics, economy, law, science, etc.) creates space for a complex and subtle analysis of planning practice in contemporary societies. We will regard planning primarily as a form of steering aiming to coordinate different processes of spatial organization. Because of society's functional differentiation, the different systems involved in spatial organization (politics, economy, architecture, etc.) are subject to their own different logics and they are driven by their own coding. They consequently cannot be controlled or steered directly by planning actors, which have to rely on indirect forms of steering. Planning thus emerges as a highly complex, improbable and uncertain affair. In order to explain how planning is still possible in such a functionally differentiated

society, the second part of the article will focus on some possibilities and examples of indirect steering.

2. *Luhmann's systems theory and its relevance for planning*

Luhmann's ambitious reconstruction of the theory of society has inspired a growing number of scholars working in disciplines as diverse as sociology, public administration, law, literary theory, organization studies and theology (for an overview, see de Berg and Schmidt, 2000). Yet, it is remarkable that Luhmann's systems theory, until now, has known little reception in planning theory. Some interesting headways into complexity theory, closely related to social systems theory, were made, but Luhmann rarely appears there (e.g. Chettiparamb, 2006a, 2006b; Innes, 1992; also Allen, 1997; Byrne, 2003; Gren and Zierhofer, 2003). Two reasons appear most obviously to account for this state of affairs. First, there is the simple fact that Luhmann's work is not very popular among social scientists in Anglo-Saxon scholarship. In Continental Europe, Luhmann is undoubtedly seen as one of the most important social theorists of the 20th century, but the English-speaking world does not assign the same importance to him. It's true that recently several translations of Luhmann's writings into English have been published (although Luhmann's 1997 magnum opus *Die Gesellschaft der Gesellschaft* is still not available), yet the reception of this work remains slow and hesitant. The high level of abstraction of Luhmann's work and the multilayered arrangement of concepts and distinctions in his theory most likely do not help to heighten the interest. The conservative, Parsonian ring of Luhmann's sociology – acquired since his dispute with Habermas in the 1970s – was probably also responsible for the lack of interest among English-speaking social scientists.

A second reason that can account for the meager reception of Luhmann's work is more specifically relevant for planning theory. Luhmann has a rather bleak view of modernist rationality, which seems to be at odds with the traditionally prominent role of rationalist models in planning, which are driven by the assumption of a guidance centre, capable of implementing pre-established goals through purposeful planning and 'social engineering' (see Allmendinger, 2002; Scott, 1998). True, in the last decennium, signs of a paradigmatic shift in planning theory can be observed: 'postmodern' or 'poststructuralist' versions of planning emerge, revisiting old beliefs and assumptions concerning steering, predictability, expert knowledge, and power. Often, Foucault, Derrida and Lacan loom large in the background (see e.g. Allmendinger 2002; Flyvbjerg, 1998; Hillier, 2002). Yet, the idiom of post-structuralism has little attention for the broader societal context of contemporary planning (see Smith and Jencks, 2006). Our proposal to bring Luhmann more into the orbit of planning theory can be seen as a sociological counterpart to the postmodern critique on planning (e.g. Rasch and Wolfe, 2000). Like the various movements of postmodern theory, Luhmann's work can be read as a fundamental reexamination of the epistemological and political claims

undergirding the modernist ideas on planning. Yet, in contrast with most post-modern authors, Luhmann mainly stresses the societal preconditions under which planning has to take place. Furthermore, his theory is not simply a critique of planning in modern, functionally differentiated society, but rather a reformulation of the problems, making some of the unthought assumptions of planning more visible, and opening up headways towards solutions.

To understand how Luhmann's work can be made relevant to planning, we first have to introduce some basic concepts and insights from his general theory of social systems, such as 'autopoiesis' and 'operational closure'. In a next section then, we will show how planning relates to Luhmann's theory of modern society and indicate what a systems theoretically inspired view on planning activities might look like.

Theory of social systems

In presenting Luhmann's theory, it's instructive to start with the distinction between system and environment, for the significance of system building rests not only on the internal ordering of parts into the broader system but in a system's continuous interactions with its environment (Luhmann, 1970). From its inception Luhmann established system/environment as the guiding distinction for theory building. At the early stage of his work he described the relation between system and environment as a 'reduction of complexity'. Environments are seen as overly complex, and systems constitute themselves by a selective internal reconstruction of this complexity. Because the environment always contains much more possibilities than the system can respond or adapt to, systems have to make this complexity accessible by 'reducing' it, and by selectively transforming the undeterminable complexity of the world into a concrete meaningful complexity (see e.g. Habermas and Luhmann, 1971).

Until the end of the 1970s, Luhmann defined social systems primarily in terms of such reduction of complexity and differentiation. Following this line of reasoning, a system differentiated itself from a more complex environment and constituted an internal state of reduced complexity. The (maintenance of the) boundary between a system and its environment was therefore the hallmark of every kind of system. Following on the work of the biologists Maturana and Varela (1980) on living systems, Luhmann's work in the 1980s and 1990s started stressing more *the autopoietic or self-productive nature of social systems* (see e.g. Laermans and Verschraegen, 2001; Luhmann, 1984b). Autopoiesis is the description given to the process whereby something reproduces itself from itself, from its own elements (Luhmann, 1984b). The distinguishing feature of *autopoietic systems* is thus that they produce and reproduce all their basic elements – including the system boundaries and structures – through a network of self-referential operations (for an overview, see Mingers, 1995).

Thus, within organic or living systems, cells are produced and reproduced through a network of cellular reactions and interactions. The living character of the cell is synonymous with the fact that it (re)produces its own elements through its own actions or 'operations'. These operations also draw the

border to what becomes the 'environment' of the cell and this as long at it lives – when the cellular reproduction stops, the life of the system also ends, exactly because one can no longer draw a univocal boundary between inside and outside. Although this autopoietic notion of systems was originally developed to describe organic systems such as a cell, the concept can be extended to define various kinds of systems. There is a system in all cases where one can identify a specific kind of operation that is reproduced starting from other operations of the same kind. The theory of autopoietic systems thus results in an *operational* definition of systems. For in order to circumscribe a particular class of systems, such as organic, psychic or social systems, one has to distinguish the recursive (or 'repeated') self-referential operation that ensures the production and reproduction of all the basic elements. Operations of this kind are, for example, thoughts, produced from previous thoughts and generating further thoughts: from their connection results the psychic system, that is, consciousness. There is no production of thoughts outside consciousness, and consciousness exists if and as long as it is able to continuously produce new thoughts that are only its thoughts. These thoughts are indissolubly linked to the chain of operations that produced it and cannot be exported into other consciousnesess; in other words: one cannot enter 'the head' of another individual.

Autopoiesis of communication

Yet, it is possible to establish some sort of coordination between the thoughts of different psychic systems or individuals. One can communicate, and communications constitute for Luhmann a further kind of operation giving rise to another kind of system, the social system. According to Luhmann, 'social systems use communication as their particular mode of autopoietic reproduction. Their elements are communications that are recursively produced and reproduced by a network of communications and that cannot exist outside of such a network' (Luhmann, 1990b: 3).

Social systems – including society, the social system which encompasses all other social systems – are thus not based on actions or actors, but on *communication*. These social systems of communication are clearly autopoietic, for one can only create communications out of other communications and only communications can lead to new bases for making of novel communications. In this sense, the social system of communication exhibits 'operational closure'. Communications produce further communications in a recursive connection, and there is no constitution of communication outside society.

Even the thoughts of individuals are external to communication, and therefore are never as such communications. Once a thought is uttered, it is no longer a mental representation but a communication whose actual status and understanding is determined by the communicative network of previous and contiguous communications. For instance, what one says or writes can be interpreted in a way which is new and independent from the intention of the utterer. In this sense, a communication cannot be reduced to the transfer of a mental representation from a sender to a receiver. Luhmann again and again stresses this

autonomy of social or communicative systems against psychic systems (human consciousness) (e.g. Luhmann, 1990b, 1995). Social systems form autonomous realities which are dependent on (Luhmann would say 'structurally coupled to') but not determined by psychic systems (or 'human beings'). They consist of communications that refer to each other (self-reference) and simultaneously refer to objects, events, and so on in their environment (external reference) (Luhmann, 1997). Psychic systems or organic systems can be distinguished on the basis of their own specific operative closure and are part of the environment of social systems. This does not mean, however, that one has to argue for causal isolation between them. Luhmann argues that both psychic and social systems co-operate within the same medium of meaning and, owing to the use of the medium of language in both systems, they 'irritate' or affect each other (Luhmann, 1995). The point is however that selection of operations of both psychic systems (thoughts) and social systems (communications), as well as the determination of their meanings, have to be understood as being processes guided by reference to two different contexts or networks of such internal operations (i.e. other thoughts and other communications).

3. Planning in functionally differentiated society

As already mentioned, among social systems Luhmann identified one which encompasses all other social systems: society. Building on a long sociological tradition, Luhmann recognizes that modern society involves a far greater differentiation than earlier societies. While earlier sociologists, like Spencer or Durkheim, saw this increasing societal differentiation in terms of roles or division of labor, and sought to account for the stability of modern society in terms of the interdependence generated by increased division of labor, Luhmann identifies society with its communications and the evolution of society in terms of the increased differentiation of those communications. One of the most controversial claims of Luhmann's theory is that, in modern society subsystems of communication become autopoietic, as a result of achieving operational closure (Nobles and Schiff, 2006).

The defining characteristic of modern society is indeed its differentiation into a number of operationally or self-referentially closed subsystems, such as law, economy, religion, arts, science and politics. In contrast with earlier forms of differentiation, which were based on segmentation and stratification, Luhmann describes this modern form as 'functional differentiation', involving the creation of subsystems running on their own self-referential logic and oriented towards a specific function, such as dealing with scarcity (economy), socialization (education), the need for collectively binding decisions (politics), etc. (Luhmann, 1997). The selectivity of communication in these subsystems is structured according to criteria that are fully internal to the system. For instance, in modern *positive* law, only the law system itself can decide what is lawful or not; in science only scientific criteria define the boundaries of scientific knowledge. Such a self-referential closure of function systems is an evolutionary achievement that is highly unlikely to take place, a remarkable

achievement, the result of a long history of accruing complexity, building on slowly stabilized patterns (Luhmann, 1997).

Different functions systems are regulated via 'binary codes' such as true/untrue in the case of science; powerful/powerless in the case of the political system. The legal system constructs the world in self-reference (referring to other legal communications), while basing itself on the distinction legal–illegal; while the political observes the world in terms of government and opposition. The assertion of autonomy of a certain system requires the purification of the communication: the communication of the legal system, for instance, cannot be performed in terms of the other systems; the other systems' distinctions are not allowed to contaminate the autopoiesis of one system. Attempts to talk 'politics' in a court room simply do not work (Teubner et al., 2003).

To put it otherwise: function systems, conditioned by their own self-referentiality and oriented towards their own function, cannot take each other's place. Functional differentiation is characterized not by hierarchy but heterarchy. There is no center in modern society; there are only multiple functionally differentiated systems, each one of them running on its own distinctions, incompatible with other distinctions. Such an idea of functional differentiation is anything but obvious. Even today, we implicitly tend to think of modern societies as hierarchically structured systems, with State and politics as the top of the hierarchy, overlooking and controlling the other systems, and providing for binding decisions for the whole of society. However, functionally differentiated societies have no established ranking of functions, subsystems or rationalities. 'They have to rely on changing priorities and can institutionalize functional primacies only on the level of subsystems. They cannot describe themselves as "hierarchies". . . they have no top and no center' (Luhmann, 1984a: 65).

Absence of a center: heterarchic discourses

Put differently, the many versions of reality produced in these systems are on equal footing: each system provides a very specific description of the world which cannot overrule other descriptions. In planning, different systems such as science, politics, law and economy each generate their own version of the spatial environments to be organized or designed. Politics observes plans in terms of interest groups that are affected, local public support, votes to be gained, while legal counselors observe the legal basis and legal consequences of a plan, trying to keep it legal, make it legal, or rather present it as illegal, depending on the employer's perspective. While the politician's world consists of alliances, votes, compromises, and the like, the lawyer's world consists of legal and illegal acts: whether these acts can secure political support is not a relevant distinction here.

If we state it in Luhmann's terms of recursive communication systems, this means that all communications within planning practices always connect to system-specific chains of communication. The meaning of a communication about a plan within legal communications is connected to all the other kinds of communications that can be made in legal discourse about a plan (zoning laws, legal principles like non-discrimination, equality, etc.) (Luhmann, 1993). Any

communication fits into a wider network of such communications. Similar connections determine the meaning of a plan within the other systems. An economic communication about a plan, for example, an appraisal of the feasibility, will depend on previous appraisals, previous interpretations of housing demands and preferences, ideas on the elasticity of the market and the chances for creating demand for innovative living environments. Every new interpretation of the market only makes sense in terms of a specific and 'systematic' history of interpretations (Platt, 2003; Van Assche, 2004).

One of the consequences of this situation is that the different communicative worlds do not overlap. The different meanings attached to the plans in the different circulating systems of communication cannot become one single meaning for all implicated systems even if there are common moments when the systems interact (in Luhmann's terms 'couple') and communicate about the same plan (e.g. Luhmann, 1997). In other words, the multiplicity of observation sites (in planning, for instance) leads to a mutual (and necessary) blindness for each other's observations, to 'blind spots'. For instance, businessmen might complain that the plan does not reflect their need to do business; architects say that the financiers cannot capture what they intend to build. Politicians lament the ignorance of citizens regarding planning (if politics sides with planners in the administration), their ignorance regarding the costs of their own planning desires (if politics sides with developers) or their lack of insight in the political game itself, in the kind of negotiations politicians still need to enter into, before anything gets decided (Van Assche, 2004).

Operational closure and the need for reinterpretations

The fact that all these systems are dependent on each other (i.e. politicians depend on citizens' votes, architects depend on their financier's money), does not explain such complaints. The distortion lies in the need for each system to reconstruct the plan according to its own code and logic. For instance, law has to make planning design legal; it can only include planning into itself by communicating about it through legal communications (contracts, zoning laws, etc.), linking it to previous legal communications, and ensuring a connection with future ones.

It is then probably not going too far to say that functional differentiation involves the impossibility of systems communicating *with* each other. They can only communicate *about* each other: just as psychic systems form an environment for society as a social system, the different functional subsystems form environments to each other. The key factor in the interaction between these autopoietic, operationally closed systems is translation or 'reconstruction'. Reconstruction translates and re-signifies social meaning engendered in other systems in terms of the own system (e.g. Teubner, 1993).

Consider again an everyday planning situation: a zoning plan means very different things to the different systems involved and consequently, important translation efforts have to be made. For the politician, the plan can be read as a compromise between different factions in the city council and zoning board; for the planner it can be a schematized version of an aesthetically pleasing new

neighborhood that incorporates New Urbanism principles of design, at the same time a tool to enable this kind of design. For a property owner, it could be an annoying restriction of his freedom to team up with a developer, and follow the advice of that person in maximizing the profit for both developer and himself. The owner or developer could then hire a legal consultant to reach their economic goals. The lawyer however will need to translate this economic desire in legal terms, and scrutinize the legal underpinnings of the zoning plan for loopholes, contrast the zoning plan with other legal documents, look for inconsistencies and so forth (Van Assche, 2004).

Obviously, the communicative events which are generated in each auto-poietic world are reinterpreted and translated in other systems, sparking off irritations and creative misunderstandings in these respective chains of communication (e.g. Luhmann, 1997; Teubner, 1993). The aesthetic creations and expectations of architects, for example, will reappear as a factor that reduces or increases costs in the economic world, while the economic language of profit reappears in the world of architects as an insular limitation of creativity and planning rigor. In short, what is deemed valid in one world might be invalid according to the logic of another, such as a zoning plan that is acceptable from an economic perspective but is being rejected as an absolute failure in terms of scientific planning or aesthetically oriented landscape architecture. Yet, the various attempts to reconstruct and translate the communicative events of each autopoietic world in terms of the own system do not merely create misunderstandings.

The ability of systems to create internal versions of the communications of other systems overcomes what otherwise would constitute an enormous impoverishment of opportunities resulting from the specialist systems of communication (Teubner et al., 2003). It infuses the system with checks and balances. By setting limits each system can restrict the colonizing tendencies of other systems. For instance, via legally fixed formats for zoning plans, the legal system can define the area of competence for political players and delineate political influence from all other, non-political influence. When producing plans, planners can limit the impact of money and profitability on the planning activity, if they have legal and political backing. Achieving this can be easier when using scientific arguments showing the pros and cons of certain planning decisions. Thus the complete reduction of one system of communication to another is counterproductive for both systems. They need to maintain their differentiation. This is the reason why function systems deliberately set boundaries between them. The example most fundamental to modern societies is probably the constitutional division of powers, by which the political system tries to restrict its own 'colonizing tendencies' and regulates its relationship with other function systems such as the legal system (Luhmann, 1990c; Verschraegen, 2002).

Operational closure and interdependencies
What should have become clear by now is that the autopoietic closure of social systems we have briefly described, does not imply that systems are autonomous or independent in the sense of possessing immunity from the effects of each

other's operations. On the contrary, they are interdependent (in Luhmann's words, 'structurally coupled') in that the operations of each of them depend upon the operations of others. Typical for functionally differentiated society is exactly that the operational autonomy of function systems parallels an increased dependency upon each other (Luhmann, 1997). For instance, the implementation of political planning-related decisions is highly dependent upon financial resources delivered by the economy and on the public visibility in the mass media.

Or, to take again an example from planning: new developments of a certain size do need the resources of private developers, even if the state was traditionally the major developer – as in the Netherlands. Since the land market there is relatively free, every attempt at development by the state will be anticipated by private parties, this in turn influencing price and feasibility of the plan. Planning administrations nowadays anticipate this state of affairs, and project organizations are often created, with diverse government and private actors participating in planning, development, promotion (Van Assche, 2004).

In more technical, systems theoretical language: the *operational closure* of systems (meaning that a system cannot operate outside its own boundaries) *does not involve causal, informational or environmental closure* (Luhmann, 1997). Operational closure acknowledges that systems cannot be insulated from each other, that communicative events may well have repercussions in many or all other systems. For instance, a court's decision that a zoning plan is infringing on certain contractual rights is clearly a legal communication (legal/illegal) which alters the structure of the legal system. In addition, it is likely to have repercussions within the economic system (for the firms). Similar situations will be identified, the legal precedent can be used to topple plans deemed similar, to recalculate these places, and to use this new calculation routinely when discussing new plans. Within the political system, such a legal decision can very well affect the balance of power between different planning perspectives as represented in the city council.

Systems theory thus hopes to describe the complex ways in which, say, a communicative event in planning participates simultaneously in political, economic, legal, scientific and other 'worlds', each with its own specific language, logic, dynamics and external influences. Luhmann's theory is unable to predict the precise nature of changes in various involved systems, since they depend upon the contingent reconstruction of events within different systems that are partially blind for each other's logic. It is able however, to describe the social conditions that made such events possible. 'Luhmann describes society as being in a constant state of adjustment, with irritations or perturbations in the environment of one system setting off changes in that system which could have a ripple effect throughout all segments of the social system' (King and Schütz, 1994: 270).

5. Planning or the possibility of steering

Luhmann's view on social systems has serious implications for concepts of planning, steering or intervention, be it political, legal and other steering. If

systems are self-referentially closed and if they respond to the environment only to the extent that environmental impulses can be internally reconstructed in the system, then the possibility of purposeful steering is severely questioned (Brans and Rossbach, 1997; Luhmann, 1997). How is planning possible in a society of autopoietic systems where all information is constructed inside systems?

Steering as self-steering

Understanding social subsystems as self-referentially, operationally closed systems implies that steering can only ever be *self-steering* (Luhmann, 1997; Paterson, 2006). According to Luhmann, classical cybernetic steering – exemplified by the paradigm of a thermostat influencing the environment of the steering installation on the basis of continuously measured input values (room temperature) – is no longer possible in an autopoietic world. In self-referentially closed systems all information is produced within the system, so there is no input (e.g. room temperature) or output anymore in the sense implied by classical cybernetics (Luhmann, 1997). All steering operations are necessarily operations within self-referentially closed systems. According to Luhmann, this self-steering should more specifically be seen as the minimization of a difference, an attempt to reduce the difference between the current situation and a desired one (Luhmann, 1997). This definition is consistent with all forms of steering but in the context of a self-referentially closed system the difference is always internally reconstructed. In planning situations, for instance, architects construct the current situation according to their own code and similarly construct a desired situation and apply their program of difference minimization in an attempt to arrive at it. Given that project financiers construct reality according to their own code and steer according to its own difference-minimizing program, the limits of planning ambition become clearer (see Paterson and Teubner, 2005). Planning is only possible by way of influencing the different self-steering processes involved in a planning situation. In other words: any attempt at planning has to take a detour via the self-steering of the different systems in a planning situation, such as politics, the economy, law, architecture.

In systems theoretical terms, planning can then be seen as the attempt to influence and coordinate these different self-steering processes in the field of spatial organization. Only by recognizing the internal dynamics of autopoietic systems, which direct any external force away from the paths and goals sought by the external influencers, steering or planning activities can be successful (e.g. Willke, 1995).

Steering as indirect steering

Although systems theory is skeptical towards classical, direct forms of steering, it can account for more indirect forms of influence that accept they will be subjected to the changes brought about by internal dynamics of autopoietic systems. Luhmann allows the possibility of being able to influence the self-steering of another system. At least two general forms of indirect steering can be distinguished in our modern, functionally differentiated society (Andersen, 2005).

First, modern society contains an array of organizations that are able to influence the self-steering of different systems, by creating 'structural couplings' between them. Organizational systems such as universities, hospitals or firms are able to couple different function systems, precisely in their *different* manner of operation, because they form decisions using the codes of the respective function systems (Andersen, 2005; Luhmann, 1997). A university, for instance, establishes a structural coupling between the educational system and the scientific system by simultaneously making decisions in the world of scientific research and the world of education. A planning firm not only makes economic decisions concerning payments and future profits, it also makes aesthetic decisions about design, legal decisions about zoning plans and political decisions about how to react to other political decisions. The structural couplings made by organizations (such as planning firms) do not destroy the operative autonomy of the coupled systems, because what is economically profitable, aesthetically pleasing or legally correct will still be determined by reference to the recursive network of economic, aesthetic or legal communications, respectively. Yet, the couplings represent a possibility to coordinate different processes of communication (in the field of spatial organization, for instance) and to influence the conditions of the operations of other function systems. That is, organizations can stimulate the different systems to 'irritations'; 'they disturb the system in a manner which is then given an internal form with which the system can work' (Luhmann, 1992: 75). Economic decisions on payments and profitability in a planning firm will influence the aesthetic decisions the architects make, yet the available budget cannot in a direct way steer or determine what kind of design will come out. Although payments are a necessary condition for architectural design, they cannot assure that a certain building or plan *will* be made.

The second form of influence is situated at the level of function systems and can be called 'steering at the programme level' (Andersen, 2005: 893). Luhmann distinguishes between codes and programs. Programs are decision rules stating under what conditions the one or the other side of the code of a function system is rightly or falsely applied (Luhmann, 1994). While codes are invariant, programs can be changed and used for external irritations of the system. The political system, for instance, can influence the programs according to which other systems act. Although states or city councils cannot directly steer how different societal actors should use and organize space it can indirectly influence spatial planning by providing administrative backing and implementation, by financing big public projects, by changing the rules for zoning plans, or by making construction permits more or less difficult to obtain. Thus politics can create conditions that influence the way in which planners are organizing public space. It can provide financial or legal incentives by increasing payments or loosening the regulatory framework, yet it cannot determine that good or inventive planning *will* be made.

According to Luhmann, these indirect forms of planning are largely dependent on the maintenance and utilization of differences between function systems (Andersen, 2005; Luhmann, 1997). Steering must be conducted in a way that benefits from, not eliminates, the differences between function systems.

This is first a matter of observing how other systems work. Given the operational closure of systems, however, it will be obvious that the observation of another system can only be carried out on the basis of the 'steering' system's own distinctions. For instance, the legal observation of an economic enterprise will take place only in legal terms (i.e. a legal reconstruction of economic events) and not in profit-oriented or economic terms. Legal regulatory messages directed at enterprises will then be based on legal arguments first, and are re-read, reconstructed and re-contextualized from an economic point of view only second (Teubner et al., 2003).

In autopoietic systems, change is not caused by outside change as such (politics or law telling others what to do) but depends on the degree to which a system is able to construct novelties that may be triggered by perturbations in the outside world (law, politics, or any other system, inducing reconfigurations of the communications within the other system). Teubner et al. compare this to a process of 'creative misunderstanding' (2003: 918).

> The trick in creating successful contractual autopoiesis across functionally differentiated worlds lies in unlocking a hidden agenda toward compatibility between different worlds (. . .). One discourse uses the meaning materials of another as a provocative stimulus to reformulate something new in its own internal context. Since a real translation is impossible, something is invented. (2003: 918)

We'll elaborate two examples of steering and its limitations in the sphere of planning, to further our analysis of steering and to strengthen the argument for social systems theory in planning: meta-languages in planning projects, and forms of de-differentiation in planning.

Meta-languages in planning?

The main challenge in planning is to make productive couplings between the different autopoietic system requirements and significations. This process, which is not the simple reduction of one set of communications to another, or their translation into a common simpler meta-language, is productive and offers opportunities for creative solutions. A by now common cry for the creation of a common language for all the stakeholders involved in a planning process and policy process (in the literature on deliberative democracy, participatory decision-making, collaborative planning, communities of practice, framing, etc.), a localized meta-language, veils the positive and negative productive boundaries of such languages. Luhmann allows us to see that they will necessarily be superficial, allowing the sharing of only a limited amount of information and concepts. On the other hand, he shows that the improbability of inter-systemic communication can lead to creative reinterpretations.

Even in case of public–private planning project organizations, where nominally the more important stakeholders are united and in direct and frequent interaction, the organization will not be entirely transparent for the managers working on and with the project-specific meta-language. According to Luhmann, this holds for management in general (Bakken and Hernes, 2002). For example, a developer in a project organization is expected to stick to

economic principles, and needs to communicate with his firm in these terms. A new organization is always a new social system, but the new organizational identity in the case of a planning project will not be allowed to develop an entirely new discourse that can replace the other allegiances of the participants (Seidl, 2005; Van Assche, 2004).

The meta-language that a project organization might develop ('this green town square will be sustainable development'), will therefore always be superficial, and will improve the transparency and steering capacity in and of the organization only in a very limited manner. (It might change the organization though; Seidl, in Bakken and Hernes, 2002; Seidl, 2005.) On the other hand: the repackaging of each other's reasoning, and of joint decisions, can allow for diverse forms of openness and flexibility in a planning process, necessary to deal with complexity and changes in the environment. The developer, financier and landscape architect may use the same phrases in the newspeak of the project meta-language, but the project manager will probably miss the blind spots and strategizing under this uniformity, and overestimate his/her insight and steering capacity. At the same time, the manager (here the main representative of planning as a centralized coordination effort) might overlook the fact that the landscape architect's interpretation of previous communications and decisions is leading to a new spatial organization that ignores, overturns, tweaks a number of assumptions held by the project manager, relying on a meta-language deemed transparent, to formulate decisions deemed binding. A design is in itself a form of spatial coordination that can work on multiple problems and create new spatial qualities, while the design process is partly inaccessible and unpredictable for the other stakeholders – members of the project organization (an observation already made by Umberto Eco in the early 1950s, working on *Opera Aperta*).

A public–private partnership, and the project organization it entails, are mostly attempts to improve planning, to improve the coordination of spatial organization. The organization creates a localized and temporal structural coupling between different function systems involved and allowed to have an impact on future spatial organization (first form of indirect steering). Within the organization, the management, working from an original deal by the main stakeholders, tries to achieve the second form of indirect steering theorized by Luhmann: steering by programming. Both forms of indirect steering require communication in the organization to continue, and thus require a common language, a meta-language so to say, drawing a veil over different systemic interpretations. Luhmann allows us to analyze the role and internal mechanics of the organization, as well as the productivity and limitations of the meta-language.

De-differentiation in planning

According to Luhmann de-differentiation is a blurring of the system boundaries, a destabilizing of the slowly acquired capacity to maintain high levels of internal complexity, enabling society to respond better to its environment. Direct interference of the political system with other systems will introduce

de-differentiation, irregularities in their autopoiesis, precedents of breakdowns in the internal logic, fear for similar future events, lack of trust in the system itself, lack of initiative, growing unpredictability, in itself generating more mistrust, unpredictability, etc. ad infinitum (King and Thornhill, 2003). For the observing administration with management ambitions and for the political system considering itself centre of an essentially centre-less society, this makes the task of forecasting, predicting as a basis for regulation even more gargantuan. Every attempt at interference introduces unpredictability, and will create a need for more regulation (Luhmann, 1990c, 1997).

Luhmann is also very critical of science, the scientific system, trying to assist administrations in solving its steering problems if this should entail science overstepping the boundaries of the scientific (Luhmann, 1990a). Lured by money or other incentives, scientists can be inclined to make promises regarding planning and social engineering that cannot be upheld scientifically, that would disrupt the specifically scientific autopoiesis, introduce instability in the scientific system. In planning, Luhmann's theory forms a dire warning against imposing scientific definitions and solutions on issues that ought to be evaluated politically (by the citizens) and a warning against scientific planners pushing politics to interfere with the economic and legal systems to reach their goals. (All this very much in line with the critics of modernism in planning and public policy; see e.g. Flyvbjerg, 1998; Miller, 2002; Scott, 1998.) Different perspectives, different constructions of the world become entangled and try to dominate one another, resulting in the loss of autonomy of one or more systems, which can therefore not fulfill their function anymore. Such an undesirable entangling is the *de-differentiation* that Luhmann considers to be perilous for society, endangering its capacity to process information along distinctly different lines (see also Verschraegen, 2002).

What can de-differentiation look like in planning, and why precisely is it harmful? Within planning administrations steeped in strong modernist traditions (such as that of the Dutch; see Faludi and van der Valk, 1994; Van Assche, 2006), planning issues are often translated into scientific questions, ideally requiring technical solutions. Such a situation offers advantages to all the parties involved (including risk-minimizing for the politicians) and is mostly sustained by a network of mutually supporting organizations in the different function systems, including government-sponsored research organizations, engineering firms with mostly government commissions, university departments following research agendas set in the ministries, etc. (Van Assche, 2004). Under the motto of increased efficiency and applicability, this interweaving of the function systems will tend to increase the knowledge production on planning and the production of plans indeed.

However, we question the quality of plans produced in this situation, by arguing that it is de-differentiated: the scientists are not truly following scientific method, the politicians are avoiding political decision-making, the administration is making political decisions on questionable scientific grounds, and a free market and economic calculations can hardly develop (Luhmann, 1995: 187–94 on differentiation; Luhmann, 1988: 325–42 on the dangers of de-differentiation

for the economic system). The web of otherwise productive organizations involved in planning, the planning system, starts in such a situation to emerge as a new bureaucracy functioning at the boundaries of various functioning systems, and blurring these boundaries. The autopoiesis of the participating function systems is interrupted, and the increased capacity to deal with changes in a complex environment is lost. In such a de-differentiated planning system, the participating organizations will tend to become increasingly blind to changes in the environment, for example, the political environment (see Scott, 1998; Van Assche, 2006; but also earlier, Crozier, 1963). A system-specific reference to an internally constructed environment tends to be replaced by a non-specific reference. The specialization of the types of autopoiesis disappears, the mutual enrichment and correction of perspectives in a planning system is gone. In other words, reference is replaced by self-reference, adaptation to the changing worlds referred to becomes riskier (King and Thornhill, 2003).

Summarizing this example in terms of steering, one can say that de-differentiation in a planning system can take the form of an overly closed symbiotic circle of organizations with different goals, each blurring the boundaries of the function systems their primary goals are situated in. Steering looks easier here, development of useful knowledge, and implementation of plans seem to be more guaranteed. More tangible results can be pointed at. However, we argue that the steering here is likely to be more random than necessary. We argue that less symbiosis, less pre-established consensus, would lead to a better adaptation of spatial organization to changing preferences among users, changes ideally represented in the political system (Van Assche, 2006). In addition, reintroducing differentiation can reaffirm the importance of scientific contributions to spatial organization, within boundaries that allow for the reproduction of science according to its own rules.

6. Conclusions: social systems, steering and the role of planning

Fertile grounds for theory construction
Niklas Luhmann's systems theory has drawn the attention of numerous scholars from multiple fields within the social sciences. As yet, there has been little attention within planning theory to connect to Luhmann's theoretical framework. This article is meant to serve as a first step in such an endeavor, focusing on steering mechanics in a systems theoretical perspective. More work however needs to be done to explore the theoretical potential of Luhmann in planning. To start with, many of Luhmann's concepts and insights that were not dealt with here, can provide insights relevant for planning theory. Besides that, more work should be done to connect systems theory with related work in planning, first of all the postmodern tradition in planning theory.

Topics where social systems theory looks promising to produce an added value in planning theory include: the role of the planner, steering and its limits, organizational cultures in planning, planning as an inter- and transdisciplinary enterprise, power, knowledge and trust in planning. A re-conceptualization of

these aspects of planning can be produced via Luhmann's re-conceptualization of society. Interpretations and applications of Luhmann in organization theory and public administration can serve as useful stepping stones, together with existing postmodern planning theories (e.g. Innes and Throgmorton on roles of planners, van Ark on trust, Flyvbjerg and Hillier on power, Chettiparamb and Byrne on complexity).

Social systems theory is a powerful tool to relate previously unrelated, or simplistically related issues in planning, by situating them in a highly complex, encompassing, de-centered society, typified by interdependencies and adaptations of all sorts. Such a reinterpretation, relocation and connection of issues and debates, can deepen our understanding of the complex and ever changing roles of planning and planners in an ever changing world (politically, economically, legally, artistically, etc.). It shows us how social systems, their elements and interactions, constantly redefine themselves, in a world of ever increasing differentiation.

Steering and planning

Even if steering in Luhmann's perspective is always self-steering, planning (seen as implying some kind of steering) can be successful, the results can be positive, for many reasons. Some of them have been dealt with above, and further research can undoubtedly unearth more. A few key consequences of Luhmann's thought for steering, successful planning and the roles of planners, can be brought together now.

At the outset, we've opted for a definition of planning as a form of steering aiming to coordinate different systems involved in social organization. After the paragraphs on Luhmann, it is clear that a much narrower definition would not have worked in a systems theoretical analysis of planning. One cannot use a fixed definition of planning and the role of the planner. Different nation-states, regions, locales, constructed markedly different institutions and policies to organize their territory, and consequently, assigned varying roles to planners. All of them have some steering ambitions, and encounter some form of steering problems. In that perspective, planning can also be defined as problem-solving, with steering problems as the core issue. Luhmann can help us in conceptualizing how self-organizing societies create their own institutions and policies to organize space, create their own brand of planners, trying to solve self-created and self-defined coordination problems.

In this, success in planning will be different in every system and society, yet overall, one can say that successful planning in a social systems perspective, is creative but well-balanced planning, producing a spatial organization that is acceptable and understandable for the various function systems that participate in its creation. Steering is necessarily self-steering of all the function systems and organizations involved. Every social system adapts to changes in its environment, including attempts originating from that environment to steer the system in question. Steering will necessarily be indirect therefore, with neither politics nor any other social system possessing a full insight into the others, let alone the capacity to steer them and predict their responses. Luhmann does

distinguish two forms of indirect steering that might prove useful for planning, briefly discussed above: planning by structurally coupling organizations, and planning by programming.

Organizations can couple several function systems relevant to spatial planning, and prime examples would be planning administrations. A web of organizations dealing with planning, here labeled planning system, can share the coordination tasks, each of them representing a specific nexus of function systems leading to a specific perspective on planning and a specific co-ordination task. On a smaller scale, a project planning organization, mostly a public–private partnership, represents a (need for) even more specific couplings, a nexus of nexuses, where coordination problems can be tackled that cannot be observed and solved from other sites in the planning system.

It is widely acknowledged by now that communication in and between organizations/stakeholders is a key word in planning, especially since the so-called communicative turn in planning (see e.g. Healy, 1997; Innes and Booher, 1999). And it is recognized that the communicative process and ensuing/parallel processes of consensus-building can be messy, unpredictable, involving a certain bricolage. Luhmann's work, theorizing a world that is socially constructed in and by communications, can deepen the insights into these processes, essential to any form of collaborative, interactive planning. One example briefly analyzed above is the concept of a localized meta-language, for example, at project level, where Luhmann shows us that some productive faculties, as well as severe limitations are traditionally overlooked – relevant observations in a planning world where the cry for 'shared languages' became a classic. Luhmann's analyses of structural creative misunderstandings in planning can be elegantly linked to the substantial body of work on discourses in planning – especially in the line of Foucault (see e.g. Flyvbjerg, 1998; Hillier, 2002). Just as discourses, social systems produce and represent power and knowledge. They are unaware of their blind spots, emerge, differentiate, de-differentiate, reproduce (Harste, in Bakken and Hernes, 2002).

Planning as spatial organization responsive to changing political, economic, etc. environments is likely to be more successful if de-differentiation is avoided and if rigidity is prevented. De-differentiation can create a semblance of enhanced steering capacity, while actually multiplying blind spots, decreasing sharpness of environmental perception. Planning in Luhmann's conception of the world is management of the interdependencies of systems, yet without a manager with complete overview. It is subject to the changes in systems and their dependencies. The role of planning and steering is constantly changing, and needs to change constantly. Absence of a centre in society – whether it would be located in politics, administration or science – does not advocate for the absence of planning. Constant redefinition of planning keeps the politicians political, the scientists scientific, the market parties market-oriented.

Given the fact that planning embodies a longer-term perspective on spatial organization, the need for redefinition will require a balancing act with the need for stability. Luhmann does not provide us with a recipe here, but his theories and observations show us that every social system performs such an

evolutionary balancing act, and that a highly differentiated democratic society makes it easier to do so. Differentiation and democracy stabilize expectations, enhance stability, *while simultaneously increasing openness and unpredictability*, since new ideas and (reconstructions of) new logics can more easily enter the political arena.

Nothing in society can save us from ourselves, but society does give us the freedom to shape ourselves, via productive images of the future. Limits in this perspective are as productive as they are limiting.

Note

1. Good introductions are provided by King and Schütz (1994) and more comprehensively by King and Thornhill (2003).

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Kristof Van Assche is Assistant Professor at the community development program, at Minnesota State Universities, St Cloud State. He is interested in the cultural, political, institutional embeddings of planning theory and practice.

Address: Minnesota State Universities and Colleges, St Cloud State Community Development Program, Stewart Hall 365, 4th AV south, 56301 St Cloud, Minnesota, USA. [email: kvanassche@stcloudstate.edu]

Gert Verschraegen is Fellow of the Flemish Fund for Scientific Research, and post-doc and lecturer at the University of Leuven. He has published widely on social systems theory, human rights, European social policy, and legal theory.

Address: K. U. Leuven, Faculty of Social Sciences, CESO Parkstraat 45, P.O. Box 3601, B-3000 Leuven, Belgium. [email: gert.verschraegen@soc.kuleuven.be]