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SIMULATION UND PLANSPIEL IN DEN SOZIALWISSENSCHAFTEN

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Social Simulation of Polycentric Policy Making: Ex Ante Assessment of Administrative Reform in the Region of Rotterdam

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1. Introduction

Government policy failure is more frequent now than it used to be, it seems, and more precarious for those who are responsible. Policy outcomes have become very difficult to predict as a result of developments in society at large and in the political realm in particular. Government authority is increasingly challenged, traditional policy instruments (legislation, financial incentives) have lost much of their power, and policy making has to take a steadily growing number of complex policy networks into account. As a result of this prediction problem, many policy measures fail to produce the goals set in advance, or produce undesired outcomes, or both. The problem of prediction is still aggravated by government's high ambitions (welfare state, safeguarding economic growth), and by the increase of political interdependencies, as the single example of EMU may already demonstrate.

When policy failure is likely to have repercussions for government officials who are responsible, poor predictability of policy outcomes is likely to be perceived as a source of risk. This perception of risk seems to increase, in most countries, if only because of broad media exposure of policy failure that may soon require measures to be taken for

the sake of government credibility. The present large numbers of extraparliamentary committees, independent reports, consultancy firm engagements, or implementation by a commercial or a ‘hybrid’ third party are not surprising, then, since these are ways to find shelter. Neither surprising is the recurrent practice of politicians passing the buck by leaving legislative activities to judges (Montesquieu would turn in his grave). And finally, the rise of ‘interactive policy making’ and ‘network management’ is not surprising. These latter phenomena reflect recent theoretical insights in the nature of policy processes, we admit, but they also serve the purpose of ‘sharing responsibility’, thus reducing the vulnerability of government actors.

Such attempts to obviate foreseeable consequences of policy failure can be viewed as one strategy to deal with the problem of poor predictability of policy outcomes. Another is rash decision making, which means that at least a policy maker cannot be blamed for ‘doing nothing’. Still another is the creation of separate domains of policy making, a strategy that may be convenient for actors facing a degree of complexity they cannot handle, but also for actors who have a clear solution in mind for some policy issue, a solution they do not want to be diluted (as they see it) in a process of either joint or ‘integral’ decision making. Finally, relying to procedures (in the stages of both policy making and implementation) is also a strategy, perhaps even the most widespread one.

The administrative views underlying these strategies are divergent, and risk-avoidance is not always the only motive (if a conscious motive at all). Still, these strategies have in common that they are ways to evade addressing the problem of adequate prediction of policy outcomes. Rather than exploring the use or the implications of these strategies, we will present social simulation as an instrument for *ex ante* assessment of new policy, administrative reform in particular.

The point is not that social simulation allows very accurate prediction of policy outcomes (though that may also be the case, especially when outcomes are conceived of in terms of behavioral patterns instead of behavioral manifestations), but that it nurtures the process of policy making, offering evidence and experiences that allow actors to face the problem of outcomes that are difficult to predict. Thus, rather than suggesting that social simulation renders policy outcomes fully transparent and predictable, we will argue that participating in a social simulation, observing the processes to evolve, and thoroughly discussing the views and experiences of participants and observers will contribute to learning about the range of possible outcomes of a projected policy. In short, in this paper it is defended that social

simulation can provide policy makers with other (and better) options than risk avoidance, shrinking the playing field, legalism, or simply cutting the knot.

2. A polycentric conception of policy processes

It is not a novel insight that policy processes get more complex, and outcomes more difficult to predict, if more (groups of) people are involved in decision making and implementation. Fairly new, however, is the view that these (groups of) involved people can be seen as actors who do contribute to the policy process, and not merely as subjects to be (re)directed and controlled by ‘the’ policy maker.

Quinn (1978) offers an idealtypical description of the old view, which he calls “formal systems planning approach”. The approach includes such steps as analyzing one’s internal situation, projecting current needs and resources to the future, analyzing opportunities and threats in the market, establishing broad goals as targets for subordinate groups’ plans, identifying the gap between expected and desired results, communicating planning assumptions, requesting plans from subordinate groups with more specific goals, needs, and actions. Occasionally, special studies of alternatives, contingencies, or longer-term opportunities will be necessary. Reviewing and approving divisional plans is always part of the approach, and so is the development of long-term budgets related to plans, the implementation of plans, and the monitoring and evaluation of performance.

While the description pertains to ‘strategic’ tasks in commercial organizations, it serves well to characterize the ‘rational’ approach to policy making in the public sector. Over the years, this ‘rational’ approach has been criticized for misrepresenting the way decisions are really made. According to Simon, people have to act on the basis of incomplete information, have no overall view of alternatives, and are unable to balance possible outcomes (Simon 1957, March & Simon 1958; see also Morgan 1986, Kickert 1988). Moreover, Lindblom (1959) has argued that decision making is a political process in which goals are not unequivocal, sometimes conflicting, and not stable over time. And since the implications of a radically new policy are difficult to predict, Lindblom adds, decision makers tend to stay close to the policies they are acquainted with.

Note that a normative model (as Quinn claims the formal systems planning approach to be) is contested here on empirical grounds. An often repeated argument in

defence of the 'rational model' is that prescription and description are separate domains, and that empirical evidence cannot, for that reason, invalidate a normative approach. It is rather peculiar, however, when a prescription continues to be complied with even though it is known to involve requirements that cannot be met. Moreover, if empirical research shows that a normative model fails to produce the results it claims to deliver (Witte, 1972), the model deserves no privileged position.

From this point on two diverging traditions, broadly speaking, have evolved. A first attempts to save the 'rational model' by changing elements so that important objections are met. Examples are 'mixed scanning' (Etzioni 1967) and 'logical incrementalism' (Quinn 1978, 1982). In political science, the conception of the policy process as consisting of a number of more or less separate activities (agenda building, policy design, decision making, implementation, maintenance, evaluation, feedback) also seems to serve this purpose.

The approaches or normative theories of this first tradition share the assumption that policy is made by a particular category of people, called policy makers. Precisely this assumption is not made in the second tradition. Mayntz (1976) argues that decision making in organizations often involves several actors, which means that "processes of exercising influence in interactive situations" must be studied rather than individuals' cognitions. She also emphasizes that the distinction made in the 'rational model' between goals and means - a distinction that is often supposed to be connected with different hierarchical levels - does not exist in reality. A 'dialogue model' is proposed instead, that is "a complex model of an iterative process where the directives coming from the top are informed by the perceptions of problems, possible solutions, and situational constraints coming from below, and where these directives in turn structure perceptions and the search for solutions at the section level."

As 'dialogue' means 'thinking together' (Senge 1990), the model proposed by Mayntz emphasizes a consensual approach to decision making. Sabatier and Jenkins-Smith, in contrast, assume value conflict to exist between 'advocacy coalitions' that involve actors from multiple government levels and agencies as well as interest group members and researchers (Sabatier & Zafonte 1995).

Both proposals, whether suggesting 'just' dialogue or no less than a professional/scientific forum as a way to arrive at consensus, assume that organizations and organizational networks (private and public alike) are fields of tension, as a result of the different perceptions and problem definitions held and the different judgements

made by the various (interest) groups or stakeholders involved. Accordingly, the picture of government as a monocentric, monorational actor has to be abandoned, in favour of a 'polycentric' conception of policy processes, and in favour of the notion of multiple rationalities (Bekke, Kickert & Kooiman 1995).

By the word 'polycentrism' it is stressed that policy processes are shaped by many actors. No single actor, including government, has full control over the course or outcomes of a policy process. And the picture is even more complicated than that, as government itself can be seen as a collection of different, sometimes even competing actors (Smith 1981).

This 'polycentric' conception of policy processes gives rise to questions that are considerably different from the questions that follow from a 'rational' view of policy making. For illustration, recall the formal systems planning approach. The first question asked concerns analysis of one's internal situation. Given a 'monocentric' view, such an analysis may produce an unequivocal picture of the state of the art, but given a 'polycentric' view it is likely to reveal a variety of group-related perceptions and judgements (Vissers 1994). Thus taken, the question shifts from 'analysis of one's internal situation' to 'investigation of various stakeholders' perceptions and problem definitions'.

A similar shift of focus will be found with other subjects, like 'current needs', 'future resources', 'opportunities and threats in the market', and, very conspicuous, 'goals to be set'. The main question, then, is how to act in the midst of different and sometimes contrasting perceptions (which comes very close to Sabatier and Zafonte's main question).

Actors (to be sure, any of the stakeholders in a policy process) still can resort to an instrumental approach, asking themselves: How can I design and communicate plans in order to get the responses that meet my objectives? Very different is the course of action that can be designated as 'interactive', 'facilitating', or 'responsive' (Mastik, Scalzo, Termeer & In 't Veld 1996). Now, the quality of the decision-making process (and the quality of the policy process in general) becomes the subject of prime concern. It is this interactive approach that is beginning to find broad recognition in public administration (Pröpper & Steenbreek 1998).

Whether an instrumental or a responsive/interactive approach is being pursued, the task of dealing with different views and perceptions is a challenging one, in the context of public policy. It requires knowledge of process dynamics: What interaction

processes will emerge, and how can they be understood, facilitated, and re directed? And what is the part played by the initial policy plan or statement? However, these are straightforward questions (though difficult enough from a researcher's viewpoint) as compared to delicate issues like when to re direct (and on what grounds), and whom to grant participation in the process (and in which part of it). Also intricate is the question of evaluation: In what terms can the process and its outcomes be evaluated, given that evaluation criteria shared by all stakeholders will be hard to find?

3. Reasons for ex ante assessment of reform in public administration

Actors involved in public administration may find it of limited help to observe that policy processes take place in polycentric networks. For such actors, practical conclusions and indications of policy or conduct may be relevant, rather than analysis itself. What is, in other words, a sensible course of action given that policy domains have become very complex because of the increasing numbers of 'external actors' seeking to influence the policy process and its outcomes? Answers, but always provisional answers, can be derived from others' experiences (say, in 'the literature'), or from own experiences.

With regard to 'others' experiences', practitioners in the field of public policy may take advantage from the large and growing literature on subjects like interactive policy making, participatory policy analysis, co production in the public sector, or network management (Kickert, Klijn & Koppenjan, 1997). This branch of work, often explicitly referring to a 'polycentric' conception of policy processes, comprises both comparative analyses and case studies. There is much that can be learned from it. Proper benchmarks (Ammons 1999) and well-documented success stories and failures can be highly instructive. Still, if it comes to adopt a course of action it seems sensible not to rely heavily on others' experiences, either in 'the literature' or provided by an adviser. The reason is that others' experiences cannot compensate for direct (or 'own') experience. But why is direct experience important?

Brown, Collins & Duguid (1989), defending the concept of situated knowledge, argue that 'the constituent parts of knowledge' index the world and are therefore, necessarily, a product of the activities and situations in which they are produced. This means that ideas, suggestions, theories that derive from others' experiences do not apply automatically to a new situation: they have to be 'made fit'. But this is an

uncertain operation. In his discussion of ‘transposability of schemas’, Sewell (1992) defines schemas as intersubjectively available, virtual procedures that can be applied in or extended to a variety of contexts. They are virtual because they “cannot be reduced to their existence in any particular practice or any particular location in place and time”. It is unpredictable, however, what will happen if a schema is actually transposed, that is, applied in an unfamiliar case. In other words, one cannot know in advance, before trying, whether experiences obtained in one situation will fit to another.

While Sewell does not propose a theoretical explanation for the unpredictability of what transposition will produce, the illustrations he offers are quite clear: A joke told to a new audience, an investment made in a new market, an offer of marriage made to a new patriline. In the terms used above, we would say that it is unpredictable how ‘external’ signs will be interpreted and judged by the various groups or stakeholders involved in a concrete situation¹. Thus, the argument from ‘situated knowledge’ bridges the gap between individual and collective (or interactive) conceptions of knowledge and experience.

This line of argument to establish the importance of direct experience provides us with concepts that allow for a more straightforward argument. For a concrete actor, be it a person or a group, direct experience (or self-acquired knowledge) is well understood and justified as compared to knowledge from indirect experience. Since direct experience links knowledge to sensory perception and social encounter, it may support an actor’s sense of having control. Direct experience, moreover, has not been a subject of generalization and transposition which are operations that, inevitably, imply (some) elimination of detail and of justification context. Both reasons apply to ‘players’, those who participate in a simulation, as well as to observers, that is, those who are present in the simulation without being part of it in a strict sense.

¹ While the examples listed in the text are easy to understand in terms of different interpretations and judgements by different groups, Sewell gives also examples that seem more difficult to understand in these terms, e.g. a cavalry attack made on a new terrain, a crop planted in a newly cleared field or in a familiar field in a new spring. Such examples raise the question of ‘objective’ or ‘natural’ causes, and as such are a subject of debate between ‘constructivism’ and ‘realism’. For the line of argument in the present text, it is not necessary to go into this debate. The dynamics of social processes can be studied without making reference to ‘objective causes’, a statement that does not mean to deny that the actors involved in the process often will make such references.

If indeed direct experience is required to get an impression of what transposing an idea, plan, or schema may bring about (which is Sewell's translation of Giddens's concept of 'rule', one of the two elements that - according to Giddens - constitute structure) policy makers face a problem. While acquiring experience in the course of designing and implementing policy, policy makers have to make choices, use strategies, or adopt a way of conduct. However, after a period of time (in which the direction of the process and the results it produced have become apparent), these choices, strategies, or way of conduct may be seen as less than adequate. But then, it may well be viewed impossible to revert (or undo) the process, because others have invested in it, because time has run out, because the costs of reverting are considered too high, or simply because relationships are disturbed anyway.

Experimentation in the field may solve the problem, but not solve it completely. Policy experiments, pilot projects, trial periods, can be used to gain experience before large-scale introduction of a new policy arrangement is decided upon. But what works in Athens may not work in Rome, which is a concise way to say that the outcomes of transposing experimental results may not be fully predictable. Some ('top') decision makers have direct experience from the experiments, which they can rely on when introducing new arrangements outside the experimental setting, but for those not having participated in the experiments these are others' experiences in the above sense.

This is one problem of experimentation in the field. Another problem, also important, concerns the pilot itself. If useful lessons can be learned from experimentation in a pilot, the pilot itself may not take full advantage. A pilot is a place where anything may happen that makes policy renewal cumbersome, and with no actor being experienced enough to facilitate the process. Of course, much more can be said about pilots, for instance that participants may find it encouraging that they are 'making the future', or that they don't have to comply with a model developed elsewhere. And being a pilot often involves also an element of self selection, related to the presence of urgent policy issues or to already ongoing attempts to create new arrangements. Still, that cannot take away that the very site of experimentation may not benefit fully from the experiences it allows for, because of the reasons indicated above (less than adequate choices or strategies, impossibility to revert or undo the process).

Social simulation, used for ex ante assessment of new policy (including reform of administrative structure), is a method to overcome these drawbacks of experimentation in the field (or at least to mitigate the consequences). Participation in a social simulation, or even observation, enables an actor to gain direct experience of change processes to evolve, in an artificial setting instead of a real experimentation site. (For a discussion of uses of simulation in public administration research, see Vissers, Heyne & Peters 1995). We will elucidate this claim by explicating what is meant by the term social simulation, and by describing the application of social simulation in a concrete case.

For proper comparison between social simulation and field experiment it must be added that the advantages of social simulation - in terms of direct experience, but also in terms of experimenting with strategies for change (Van der Meer 1998) - are often balanced, in the case of social simulation, by the problem of having to transfer experience and findings from an artificial to a real life situation .

The case we will discuss is the process of creating a town province in the region of Rotterdam, or more accurately, the implementation of organizational and legal arrangements made for that. This case is relevant for present purposes since the creation of a Rotterdam town province can be considered an exemplar of the problem of being a pilot. The process of creating a town province will be presented first, followed by a picture of the simulation model designed for exploring Rotterdam town province implementation processes, and a report of findings from two tests of the simulation.

4. Rotterdam town province, a brief history

In the plan to create a Rotterdam town province, arisen around 1990, some important developments in public administration in The Netherlands came together. One was the ongoing debate about a proper balance between national, local, and intermediate ('provincial') government. Initially, the debate focused on the distance between local and provincial government, that was believed to be too large. The disorderly pattern of interlocal and regional forms of cooperation - the 'administrative patchwork' - was seen as a direct result of this large distance. This lack of order and orchestration, in turn, was supposed to produce obscurity, inefficiencies, and poor prospects of democratic control. Over the years many proposals were made to resolve

the issue, but none found sufficient support. Some proposals involved the suggestion to create a new, fourth administrative layer to fill the gap between local and provincial government, but these were vetoed by central government, which kept holding to 'the main structure', comprising a national, a provincial, and a local level of government, that was installed in the middle of the 19th Century.

In the 1960s, the four largest cities began to emphasize the specific metropolitan problems they had to cope with. Initially, they focused on financial issues, but later on attention shifted to issues like reconstruction of the inner city, minorities, unemployment, traffic congestion, and public safety. The cities insisted that they were lacking the necessary means (legal, territorial, financial) to deal with this package of problems.

A decade of parliamentary discussion followed, eventually resulting in the so-called 'BoN-process': 'Administrating at an adequate level', in Dutch, 'Besturen op Niveau' (see Koppenjan 1993, Schaap 1997). Central government allowed seven 'metropolitan junctions' to start the processes of regional administrative reform they considered necessary. One of these junctions was Rotterdam.

At that point in time, Rotterdam (the town and its surroundings) already had a remarkable history of reform. Between 1964 and 1986 an administrative layer had been existing between local and provincial government (Berveling, Van Dam, Neelen & Wille 1996). This 'Public Body Rynmond' suffered from lack of internal balance because the city of Rotterdam was larger - in terms of both population size and economic importance - than the other municipalities involved together.

Now the 'BoN process' made a fresh start possible, one that was welcomed by many government officials in the city of Rotterdam. In their view a town province in the Rotterdam area, as a new plan was soon to be designated, would solve two problems. One was that Rotterdam was too small, the other that it was too large. The surrounding municipalities accepted the plan to create a town province, though some of them mainly because they believed that annexation would be the most likely alternative.

The first problem mentioned was that Rotterdam was too small. The city had (and still has) a vital economic function for the whole country. Yet there were important policy domains where it had to rely on neighbouring towns' willingness to cooperate, in particular with respect to public management of harbor and docklands and to public housing. Dependence of this kind was seen as hampering the 'forceful and integrated administration' considered necessary in view of Rotterdam's 'mainport function'. But

incorporation of the surrounding municipalities, the obvious solution at first sight, might not be achievable. The municipalities would fiercely resist such a measure that would, moreover, produce a town that was too large to fit in the administrative landscape in the Netherlands.

But in another respect, Rotterdam was already also too large as it was. In the mid 1980s, an attempt was made to reduce the distance between city council and citizens by installing district administrations that took over several municipal tasks. These district administrations had (and have) no solid legal basis - and no democratic legitimation - because central government did not accept further administrative layers, as indicated. As a result, the district administrations had to resign to a somewhat marginal position in the city's administrative system.

Both problems would be solved by the creation of a town province, that is a new province enclosing the city of Rotterdam and 17 surrounding municipalities. Part of the plan was that the city of Rotterdam was to be split up into a number of new, autonomous municipalities. Creating such new municipalities in the area of Rotterdam would solve the problem of district administrations' lack of legal status, and it would prevent the new province from being dominated by a single large city.

To ensure 'forceful and integrated administration' at the regional level, quite some responsibilities of municipal authorities would have to be transferred to the new provincial authority, in particular those concerning public management of the harbor and its surroundings (including future extensions) and the centre of the 'old' city of Rotterdam. Especially this change in the balance of power between municipal and provincial authorities was highly remarkable. In Dutch public administration of, say, the last two centuries, there is no other example of such a strong province. Still it seemed that the plan would be accepted by key actors like Parliament, the Ministry of Home Affairs, the Province of South Holland (which was to be halved if the plan was carried out), and the municipalities involved.

A spanner was thrown in the works, however. In a referendum in Rotterdam (June 7, 1995) the plan was rejected by 86% of the voters. This referendum had no legally binding status, for constitutional law in The Netherlands did not provide for a referendum, neither for legislative nor for 'corrective' purposes. Still, the results of the referendum created an important political fact (Toonen 1998). It showed that the plan to create a town province was not supported by Rotterdam citizens. Different interpretations were made of this lack of support. Was the referendum result to be

taken as a rejection of the plan to create a town province, or was the plan ‘only’ voted down because citizens objected to the splitting up of the city of Rotterdam? These were important questions as the referendum has been attended by 42% of the electorate. Before, the city council had declared to accept the outcome if the referendum was attended by at least 36% of the electorate.

The present chapter discusses the prospects of social simulation for ex ante assessment of administrative reform. The process toward a Rotterdam town province serves as an empirical case. This process need not be described in full. (For a discussion of the referendum, the preceding process, and subsequent developments, see Van Dam, Berveling, Neelen & Wille 1996, Flierman, Hagelstein, Pröpper & Zaaier 1997, Schaap 1997, Toonen 1998).

We became involved in the process in the autumn of 1993, a year and a half before the referendum was held. By that time, few reckoned with the possibility that the process might not be carried through. Especially those who felt directly responsible for guiding the process seemed immersed in preparing the final text of the special Rotterdam Town Province Act (commonly referred to as *Lex Specialis*), thus illustrating Janis & Mann’s (1977) supposition that people are often able to think open-minded for a prolonged period, but begin to process information in an increasingly selective (Janis & Mann would say ‘biased’) way as they move to a final decision.

The *Lex Specialis* was drafted because parts of the standard legislation concerning provinces and municipalities had to be set aside in order to give the future ‘strong’ province a firm basis. Of course various actors tried to influence the drafting process, and of course these steering attempts were not always in the same direction. Major actors were the ‘Consultative Body Rynmond’ (CBR) that represented all municipalities in the region, and the Ministry of Home Affairs. Important topics of discussion were the number of new municipalities to replace the city of Rotterdam (CBR wanted at least ten, the Ministry five or six), and the exact powers that the new provincial authority would be given.

As mentioned, responsibilities of municipal authorities would be transferred to the provincial authority. The question was: how many, and which ones. Discussion soon concentrated on the issue of a general ‘indicative power’ for the provincial authority. The Ministry of Home Affairs was rather unwilling to accept such a general power, viewing it as a departure from the rules that were existing between municipalities and

provinces elsewhere. CBR, in contrast, considered the granting of this power as imperative, arguing that the province had to be able to intervene if in the future one or more municipalities would act against the interest of the town province as a whole. This viewpoint was defended most forcefully by the city of Rotterdam. The other municipalities participating in CBR rather sought to secure municipal autonomy under a ‘strong’ provincial regime. In most if not all documents concerning the creation of a town province, a phrase returns that suggests these contrasting interests to be very carefully considered and balanced: “local what can be done locally, regional what must be done regionally”.

It sounds like an incantation. The plan to create a strong town province and to split up the city of Rotterdam originated from Rotterdam political and administrative authorities and from officials of CBR. The phrase “local what can be done locally, regional what must be done regionally” may well have been used (by Rotterdam) to reassure the other municipalities, thus keeping them aboard.

5. Questions to be answered by social simulation

While Rotterdam authorities were quite sure that a town province would be accomplished, they worried about possible repercussions of splitting up Rotterdam for the city itself. Was a ‘Rotterdam identity’ likely to be preserved, and would it be used as a basis for future intermunicipal cooperation? Would the new municipalities to be created in the Rotterdam area be willing to cooperate in ways that reflected a sense of shared history? Would they seek to preserve and extend urban cohesion, or would they rather pursue their own interests? And if they would seek to foster urban cohesion, what were relevant conditions? Since the formation of a ‘town province’ was without precedent, it was very difficult to predict the administrative processes and relations to develop.

We were asked by the ‘Project Bureau Regionalization’ of the city of Rotterdam to develop a simulation on intermunicipal cooperation in the future town province². We suggested the Project Bureau to simulate the transformation process itself, arguing that implementation of large-scale administrative reform seldom fully corresponds to the initial plan. The reason is that actors involved in a change process may react in

² Next to the authors, Co Engberts participated in the research for and design of the simulation.

unanticipated ways (Vissers 1994, 1998), ‘using’ their repertoires and perceptions to react to plans, measures, or whatever incentive. These repertoires and perceptions differ between actors (Van der Meer 1999), and so do reactions. It is the interplay of different reactions that makes development processes difficult to predict. We suggested to focus the simulation to be made on the transformation process since we expected this process to influence profoundly the future relations and administrative practices in the town province.

The Project Bureau, however, was first of all interested in using simulation as an instrument that would contribute to adapting, refining, and enlarging Lex Specialis - which the Bureau viewed as a sufficient, if not the only way to assure intermunicipal cooperation. Thus we were asked to concentrate on the situation that the plan was operative, that is, a situation in which there is a town province under the regime of Lex Specialis. In particular, the simulation to be designed should answer questions like:

- what types of intermunicipal problem will appear, especially between municipalities on the territory of the present city of Rotterdam;
- will the instruments of the town province suffice to solve intermunicipal conflict;
- will additional formal or informal arrangements be necessary in order to achieve both a forceful regional administration and ‘vital’ local authorities;
- who will take care of the cohesion of the city of Rotterdam;
- who will take responsibility when typical metropolitan problems arise that transcend the borders of the future municipalities.

A simulation that was designed to answer these questions could still contribute to the transformation process, in the sense that officials who were to function in the town province would be given the possibility to experience the new situation before entering it. Thus, the objectives of the simulation project can be summarized as development and utilization of a simulation depicting (the structural administrative aspects of) the future town province, *in order to investigate the relational and behavioral patterns that may be typical of the future situation* (research objective), *and to support the transformation process by providing participants with ex ante experience about the future situation* (development objective).

From these objectives and from the picture of polycentric policy making given earlier (which includes administrative processes), we derived three sets of design

criteria, concerning structural arrangements, complexity and heterogeneity of administrative processes, and contents of the simulation³.

Structural arrangements

The objectives formulated above require first of all that the simulation to be designed must have an initial situation in which the town province has already come into being. More specifically, this means that a 'strong' province is present, as well as several autonomous municipalities (a number of these replacing a former large city). Both provincial and municipal authorities have to deal with a system of legal arrangements - an abridged version of relevant parts of the draft of *Lex Specialis*. We took this draft as a starting point, not because we believed it to offer a correct representation of what was actually to be put into practice, but because we were (and the Project Bureau was) interested in the potential dynamics of these anticipated arrangements.

Here it must be noted that no 'real life' institutional setting consists only of formal, judicial elements. We had to make assumptions about further organizational or institutional patterns the transformation process would give rise to. An example is what would happen with the municipal service organizations of Rotterdam. Partly relying on interviews with a variety of 'stakeholders' within Rotterdam (see below), conducted before we started to design the simulation, we supposed that some service agencies would be split up and linked to the new municipalities while other agencies would remain intact in a more independent mode, having contracts with different municipalities. Note that this holds for the beginning of the simulation. Such initial conditions can be changed by participants in a simulation, if so desired by them.

Representation of policy and administrative processes

Polycentric policy networks tend to be complex and heterogeneous (Rhodes & Marsh 1992, Kickert, Klijn & Koppenjan 1997). Many actors may be involved and between them a variety of connections may have developed. A simulation of interadministrative processes must allow such a variety to be reproduced, in ways that

³ For a general discussion of feasibility and performability as design criteria, see Van der Meer (1983).

make sense to those involved in the real life situation referred to. For a simulation to meet these requirements, the following design criteria apply:

- the simulation should allow a variety of repertoires to exist, so that processes may evolve that reflect real life interadministrative and intermunicipal communication;
- the ‘contents’ of these repertoires should reflect important themes and preoccupations of (groups of) relevant actors in real life;
- the simulation should introduce or encourage relational patterns that reflect real life policy network patterns.

A simulation that meets these criteria (in addition to the structural arrangements mentioned) may be used to explore the dynamics of administrative arrangements in the future town province. For these criteria to be met, empirical information is needed about real life repertoires and network patterns.

In the town province case, collection of such information was difficult since we were dealing with a situation that did not yet exist. In fact, this was a further reason to prefer a simulation of the transformation process. When an already formed future situation has to be simulated, it is more difficult to decide which patterns and repertoires will have to be present in the simulation, for such a decision presupposes knowledge of a transformation process that has not taken place already.

In the case of social simulation, this problem is mitigated by the fact that repertoires as such do not have to be defined in advance. Repertoires reflect actors’ personal histories and present positions (Van der Meer, Schaap & Van Twist 1992, Van der Meer 1999), so they are generated, reproduced and changed by actors. The design question to be answered, therefore, is not what relevant repertoires will look like, but what histories and structural positions should be present in the simulation design.

This is why we studied the course of discussion on the town province, and in particular the relating perceptions and expectations of various actors: officials of the municipality of Rotterdam, managers of municipal services, officials of several district administrations within Rotterdam. We also made an inventory of social, cultural and economic characteristics of some sub-areas and municipalities within the future town province, and a list of issues on a range of policy domains that seemed likely to show up, especially issues that may - from one perspective or another - require interadministrative coordination (Van der Meer, Engberts & Vissers 1994a).

Using these elements we designed a simulation that comprised dependencies (often, but not always mutual dependencies), resource differences, and other incentives that might encourage repertoire development in ways relevant to the question at hand. We emphasize once more that the development of diverse repertoires not only depends on characteristics of the simulation setting, but also on participants' backgrounds (their 'repertoires ex ante'). Below, we will elaborate on this point.

Content criteria

Next to design criteria concerning structure and process, a simulation has to offer plausible contents, in the sense of adequate selection of policy domains and issues, and also in the sense that participants in (and observers of) the simulation must be able to view and experience the simulation as real. In Raser's (1969) formulation of process validity: "Perhaps all that is required is that the structure seems realistic to the players, that it conforms to their ideas as to what constitutes reality, not that it accurately reflect what is actually 'out there'."

Raser's suggestion is valuable, yet it is not easy to follow because actors in a polycentric policy network may disagree - perhaps even sharply disagree - about what seems realistic. And what is more, the Project Bureau (which had asked us to design the simulation) was part of the network.

The Project Bureau had perceptions, problem definitions, and desires concerning 'the real situation', and expectations and demands concerning the future town province (and thus concerning the representation of it in a social simulation) that differed from those of other relevant actors, as our exploration of perceptions and expectations held by other actors within Rotterdam made clear.

As mentioned, the Project Bureau was primarily interested in a simulation that could be used to identify shortcomings in the formal arrangements relating to the future town province. For that purpose, the simulation would have to demonstrate the functioning of intermunicipal cooperation and coordination in policy areas like public order and public services. About other areas such as environmental planning and infrastructure the Project Bureau seemed less uncertain. However, in the interviews we conducted, we found that these latter policy areas were viewed as greatly important and problematic by many officials, especially by those at the sub municipal level. Moreover, we found that the nature of a policy issue was often all but obvious. For

example, when a road is scheduled in an allotment area, is this an issue of infrastructure, of recreation, of quality of living conditions?

Thus we faced a dilemma in simulation design. For reasons of validity, various perspectives had to be present in the simulation, but the simulation also had to be accepted by the Project Bureau as a relevant contribution to the reform process - which implied that problems had to be formulated in terms compatible with the Project Bureau's repertoire.

We decided that it was necessary to include issues that allowed for a diversity of interpretations. We thought, and still think, that it is not possible to build a valid simulation on a single, well-defined issue or policy area. The Project Bureau members acknowledged this, but were unwilling to accept the consequence that the simulation might focus on problems *they* did not view as realistic or that *they* did not see as relevant. They insisted that provisions were made that would guarantee the simulation to produce the phenomena *they* considered relevant. The risks involved in making such provisions:

- that participants experience 'unnatural' limitations in the simulation, which may lead to reactions to the simulation model replacing reactions to its subject matter;
- that *other* actors come to see the simulation setting or its result as unrealistic;
- that the dynamics and results of the simulation will be invalid and hence that *wrong* conclusions may be drawn.

Despite these risks, the Project Bureau preferred the simulation to be designed around a single issue, public order, and to be very simple furthermore. Eventually, a certain plurality of issues was agreed upon. With respect to degree of complexity it was decided to discuss the matter after one or two tests had been conducted.

The Project Bureau was not convinced by the tests, it turned out, still viewing the degree of complexity as too high, and the phenomena in the simulation as too general and therefore not realistic enough. We tend to see these two points of critique as difficult to combine, since we think that specific and 'real' processes will only emerge under sufficiently complex, 'socially rich' circumstances.

The Project Bureau decided that the simulation would not be used for the purpose of exploring intermunicipal cooperation in the future town province under the regime of Lex Specialis, but that it could be used for development purposes during the transition process. This decision was facilitated by the fact that, at the time of the second test, the

draft law was adapted: The Ministry of Home Affairs had come to accept that the Province Authority was given additional instruments to handle intermunicipal conflict, which came close to the general ‘indicative power’ that the City of Rotterdam (and the Project Bureau) had sought to achieve.

6. Simulation design

In the literature on simulation & gaming methodology there is a tendency to emphasize the way the simulation *setting* is modelled (e.g. Duke 1983). The approach we followed to design a simulation of the future Rotterdam town province, however, focused on the interplay of setting and person (see Bass & Firestone 1980). Thus we concurred with Geurts & Van Wierst (1991), who suggest to concentrate on ‘game-in-use’ rather than on ‘game-in-the-box’. According to these authors, a definition of ‘simulation game’ that also includes playing itself is preferable to a definition that is confined to the set of instruction books and other materials necessary for play.

Setting design

In line with the criteria and choices discussed above we developed a social simulation, called ‘Polis’ after the town province existing in it. In the simulation, the town province enclosed four municipalities, three of which used to be parts of a former large city. Next to these five administrations there was an Information and Consultation Agency (ICA) that could be engaged by administrative authorities for research or advice. Each of these six groups consisted of four or five participants. Within each administration, a distinction was made between political functions (Royal Commissioner and Provincial Executives, Mayor and Aldermen) and civil servants (one mainly responsible for finances, another for town and country planning).

Selection of participants

In relation to participants, a first design question concerns selection (who are to be participants, what selection criteria must be applied), and a second question is whether the simulation is performable (doable) for a given group of participants. If a simulation is designed for a specific group of participants (e.g. for training or organization development purposes, see Peters, Vissers & Van der Meer 1998), only performability

has to be paid attention to. But in other, more research oriented cases, selecting and preparing participants is a major design element.

As stated already, one way of introducing relevant repertoires in a simulation is the selection of participants. Participants bring along their repertoires, the cognitive result of their personal history and their present social positions. These repertoires will be used to make perceive what is going on in the simulation setting and act accordingly. Therefore, the pattern of repertoires and relations to develop in a simulation reflects the culture of a group of participants (Van der Meer 1983, Vissers 1994, 1998). If elements of a relevant cultural context can be specified in advance, and when the people sustaining that culture can be identified, careful selection of a specific sample of participants may help to create a relevant simulation.

In the Rotterdam case it was surmized that the culture(s) of already existing administrations were an important factor in the sense-making and construction processes that were to shape administrative practices of the new town province. It was therefore decided to carry out the simulation experiments mainly with participants from existing administrations.

Performability of a simulation depends on a number of conditions, of which we mention 'paper economy' and 'psychological reality' in particular. 'Paper economy' means the requirement that participants must be able to perform relevant tasks and activities without lengthy preparation. Even when the simulation setting is 'economic' or 'simple' in this sense, participants will often experience a considerable degree of complexity, because of time pressure and because complexity may emanate from interaction about seemingly simple issues. In the simulation we introduced only four municipalities (in reality 27 were planned), we described for each of them the initial situation in only a few pages, we devised simple procedures, simple financial arrangements, etc.

'Psychological reality' denotes the requirement that participants must be able, individually and collectively, to make sense of the situation in which they find themselves. In particular, they must be able to recognize the simulation setting, and take it as an approximation of reality. No formula can be given to make sure that a simulation setting will indeed be perceived and treated as such an approximation. But what can be done is to offer a setting that is appealing to participants - by introducing concepts, themes, and problems that make sense to them (as gathered from field research) and that are still 'open' enough to prompt action or incite discussion.

Preparing the simulation

Before the simulation was started, participants received materials about simulation in general, about the design of 'Polis' (initial situation, history, communication rules, time schedule), and about legal arrangements that were operative 'in the recently formed town province' (materials are described in Van der Meer, Engberts & Vissers 1994b). Participants were given a position in the initial situation (random assignment), and they received materials relating to the position given to them. This 'specific instruction' included:

- history, and an outline of present characteristics of own corporation (province, town, or service agency);
- existing plans (province: integrated strategic plan; municipality: zoning plan)
- local regulations;
- budgets, including estimates for the years to come;
- an official document containing some urgent policy issues (municipality).

A very important point concerns the goals to be pursued in the simulation: Participants were asked to pursue their own objectives and ideals, thereby using the position given to them as a starting point. They could develop their own strategies, make agreements, create new formal or informal arrangements, etc. Only two limitations applied: a 'year' would last 80 minutes, and communication between groups in the simulation was somewhat restricted (only free telephonic and written communication, other communication on request).

In addition to these limitations (or 'boundary conditions'), participants would face restrictions that arose from other actors' behaviours. For instance, a change attempt undertaken by one participant in a social simulation will have implications for other participants. Such implications are not limited to 'tangible effects' like new structures or new procedures. A change attempt may also have an impact on ongoing processes in the simulation: participants are enrolled or refuse to be so, priorities have to be articulated, relations or even groups may become redefined, and so forth.

More or less similar implications may follow from measures, questions, comments, and other 'inputs' from various 'outside world actors' (represented by the facilitator of the simulation). Several types of such 'inputs' can be distinguished. A first type of input is given with the information in the initial situation. A second type is introduced during the simulation and consists of issues raised, questions asked, proposals made by

‘outside world actors’ (residents’ associations, business companies, public welfare services, property developers). These first two types are made in advance, and introduced according to a fixed schedule (concerning type two, without participants being informed about this before). Inputs had been devised in an attempt to make the intended cooperation and coordination issues appear, but note that such inputs, like any action or arrangement, do not determine the reactions to follow. (Van der Meer, Engberts & Vissers (1994b) provide a list of inputs.)

Outside world actors may react to participants’ decisions (or the failure of these to appear), or may be asked, by authorities or officials in the simulation, to reply to announcements, questions, or proposals (in written form). In these cases too, the facilitator would represent ‘outside world actors’, in such a way that interadministrative cooperation would return to participants as a question that *they* had to address.

7. Findings from two tests

The simulation was designed to explore whether and how actors in the Rotterdam region, municipalities in particular, would cooperate under the regime of Lex Specialis. Two tests were conducted for the sake of inspecting the simulation’s performability, validity and relevance in more or less technical terms. Participants in these tests were mainly employed by the Rotterdam City Hall or by district administrations; these participants were inclined to support the coming of a Rotterdam Town Province (in their real life role as municipal or sub municipal officials).

We will not report here on the topics of performability and validity (see Van der Meer, Engbert & Vissers 1994b). Rather we will discuss some significant features of administrative reform we found in the two tests.

Images

In the simulation, a clear and sometimes sharp difference existed between groups’ self images and the images they held of other groups. (The word ‘groups’ is used here as a shortcut for participants forming a municipality or another actor in the simulation.) For instance, the province was viewed by the other groups as rather passive, even though the province tried to stimulate intermunicipal cooperation by

endorsing municipal initiatives rather than by resorting to a top down course of action (first simulation), or by creating funds to support municipal projects (second simulation). Such endeavours in spite, in both simulations provincial authorities came increasingly under attack from other groups, mainly because municipal authorities felt that it was a provincial responsibility to steer and to offer a clear framework for their own policy making. But provincial authorities were also, and sometimes in one breath, criticized for too assertively pursuing a policy of their own.

Relational patterns

Between municipalities, there were surprisingly few bilateral contacts. In the first simulation, municipalities engaged in multilateral negotiations about the foundation of the financial allocation model. Soon these talks dissolved, which is remarkable in view of the image of a passive province. Apparently, municipalities kept focusing on the province, regardless its supposed passivity. The second simulation showed a similar pattern.

In both simulations the province was involved in most of the consultations. In the first simulation, two regular consultations appeared. A first consultation involved the Royal Commissioner and the mayors. Here, discussion was mainly concentrating on the preferable kind of consultation between Royal Commissioner and mayors. Conclusions tended towards: securing progress, making sure that policy contents will be discussed by the assigned officials, and supervision of policy processes. Its procedural objective did not prevent the first consultation from recurrent substantial debate, which means overlap with the second regular consultation, that of the officials who were responsible for town and country planning (portfolio holders).

Discussion topics

In the first simulation, the commissioner and the mayors discussed two encompassing subjects - next to more occasional topics. One was the foundation of the financial allocation model. Some mayors blocked a plan according to which the province would draft a proposal on the basis of municipalities' desiderata. In their view, this plan would give the province too much power. The commissioner then invited the municipalities to present a joint proposal. These talks did not lead to a final conclusion. The second subject was regional priority setting. After extensive

discussion it was decided that each municipality would submit two key problems, which happened to result in *eight* regional key problems.

In the second simulation too, portfolio holders devoted lengthy discussion to a list of key problems. Here, an interesting question arose: To what degree can municipalities be allowed to talk about each others' key problems, and to what degree a key problem of one town could be solved, at least in part, by developments in another town? Discussing these questions appeared to be difficult, not to mention answering them.

Also in the second simulation, most of the interadministrative discussions took place within structures already present by the start of the simulation, or developed right after the start. In most of these consultations the provincial delegate was able to determine the kind of consultation (usually this meant generating inventories or information, especially for the purpose of provincial policy formation). Although the province was increasingly criticized for not being communicative enough, few attempts were made to reshape existing or to create new types of consultation. This had also been the case in the first simulation. Noticeably, a completely new form of communication was developed in the second simulation: the emission of (many) 'press reports'. However, these press reports did hardly contribute to the 'regular' consultations.

8. Discussion: What can be learned from social simulation?

From the observations made above a number of more general insights can be derived that may elucidate the prospects of social simulation for administrative change processes.

First, the simulation offered participants (and observers) impressions and experience relating to a possible, and not unlikely, shape of the future town province. While noticeable differences can be found between the tests (which is in agreement with the contention that social simulation cannot be used to predict detailed outcomes of a change process), the experiences and impressions a social simulation provides may help actors to anticipate future effects. If these effects are undesirable, early recognition may encourage actors to consider alternative courses of action.

The practices to emerge in both simulations did not match the expectations the majority of participants said to have about the real town province. If so, important questions are why and how the actual shape of the town province emerged as it did in

the simulation, and whether the process can be made a subject of steering. Let us discuss some further observations:

Second, the tests suggest that *general* social mechanisms play a role in administrative reform. An example, already mentioned, is the formation of images of other groups. Partly on the basis of evaluative discussions (held after the simulation itself had come to an end) we found that the formation of images is often based on presumptions about other actors' 'strategic' behaviours, rather than on information about (or originating from) these other actors. Some participants ascribed this to a culture of officials that is widespread in the realm of public administration. Others blamed the simulation. Still others viewed presumptions about 'strategic' behaviour an almost inevitable aspect of interaction between equal partners, positing that precisely for this reason a strong higher level authority is necessary. Now, the evaluative sessions revealed that participants' intentions were often far less 'strategic' than presumed by others. Thus, the simulation suggests that many interadministrative behaviours are guided by (often untested, sometimes wrong) presuppositions about other actors' intentions and about what is 'rational' in a given context. Understanding such mechanisms may help to achieve more open and constructive communication in 'real life'.

Third, the tests confirmed that 'only' structural rearrangement is unlikely to produce desired behavioral outcomes (see Vissers 1994). For example, an important reason to create a town province was the strengthening of regional administration. Local administrations may and often will pursue local interests, thus acting in a way that is inconsistent with 'general interest', and it was considered imperative to have an authority that, if necessary, could force municipalities to act according to the general interest. *Lex Specialis* would give province authorities the power to protect the general interest. In the simulation such a strong province (in terms of formal power) was present, but nevertheless in both tests local interests dominated the scene. Provincial authorities made efforts to protect what they viewed as 'the general interest'. They encouraged cooperation in order to avoid 'prisoner's dilemma' situations produced by 'strategic' behaviours, but these efforts were rejected, obstructed, or simply ignored by others. This is noticeable and even distressing since not just a few participants said to be aware of this prisoner's dilemma character of many interadministrative issues in 'real life', and believed that a strong town province is needed to overcome the problem.

The combination of formal arrangements and individual convictions could not prevent or suppress NIMBY-like ('not in my back yard') behaviors, it was concluded in the evaluative sessions. The interplay of new structure and 'old' administrative culture seemed to reproduce many of the problems of the old situation. Moreover it was found that central authorities face practical limitations when trying to use the legal instruments they possess. Thus, more attention may have to be paid to cultural transformation if new administrative arrangements are to function properly.

Fourth, knowledgeable experimentation and strategy development may be very helpful with respect to transformation processes. Here, the potential of social simulation to provide a connection between polycentric policy theory and guidelines for policy actors is conspicuous. Discussion with simulation participants may offer a starting point for developing strategies to be used in the transformation process, or even a starting point for developing strategies to be used in the preceding process of preparing structural and cultural transformation. In addition, social simulation can be used to assess these strategies.

In summary, in this chapter we have attempted to show that social simulation is a useful instrument to enhance awareness and understanding of processes of reform in polycentric policy-making networks. Social simulation may contribute to the understanding of repertoires and patterns of behavior of the actors involved in the network, to explore process dynamics (Van der Meer & Geurts 1995), and to make an *ex ante* assessment of intended policy measures.

In addition to this contribution to 'knowledge acquisition', social simulation can be used for 'knowledge application': for strategy formation and for experimentation with 'modes of behaviour'. Social simulation means, above all, that a setting is provided in which participants can develop and test ideas and behaviours, discuss and adapt these, and test them again.

Going through the insights we presented, one can observe a shift from learning what the new situation will be like, via learning why and how, to learning that relates to constructive design of a new situation. In a sense this final point is not fully compatible with the first. Administrative practices and patterns, rather than being dictated by formal regulations, are the outcome of social construction processes. Legal and other formal arrangements can be one of the factors to guide the process, and so are the intentions and actions of policy makers. Social simulation reveals the impact of

these and various other factors, and allows them to be explored, elaborated, and tested in further 'runs'.

For these reasons, social simulation has the potential to improve processes of administrative reform. This is particularly so when simulation is not used as in an isolated way, but instead is taken up in the wider process of policy making.

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