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Discussant's Comments

Policies, Politics, and Polity[†]

Comment on the Paper by Bianchi

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Bianchi's paper "Improving Performance and Fostering Accountability in the Public Sector through System Dynamics Modelling – From an 'external' to an 'internal' perspective" (2010, this issue) presents a general framework for conducting system dynamics analyses for public sector issues. In order to achieve this, characteristics of the public sector are described and two important distinctions with regard to system dynamics modelling are discussed: (1) an external versus an internal approach to modelling, and (2) a macro/micro/meso level of model application. The arguments are supported by the presentation of two case studies.

With the two distinctions being made in the paper, Bianchi connects to ongoing discussions in the system dynamics literature and to various topics from earlier European System Dynamics Workshops (EuSDWs). In the first half of this comment, these linkages are described in order to establish an overarching perspective on the tradition of the workshops—admitting that the perspective I present is a post hoc construction; there has never been a grand plan governing the selection of themes at the different workshop sites. In the second half of the comment, the focus lies on one aspect that is related to the target elements of system dynamics studies: policies, politics and polity.

With the notion of an internal versus an external perspective on modelling, Bianchi refers to the fact that formal models can be considered to be *objective* instances of a reality domain ("external perspective") or representations of the *subjective* reality of one or many stakeholders ("internal perspective"). His claim is to use both perspectives when employing system dynamics modelling in the public sector. With this concept, he relates to important discussions in the methodological literature of system dynamics.[1] For instance, it has been discussed

- how system dynamics methodology relates to the structure/agency debate in the social sciences (Lane, 2001);
- in how far system dynamics models are affected by the bounded rationality of the modellers and the clients (Größler, 2004);
- whether and under which circumstances modelling is an inductive or rather a deductive endeavour (Schwaninger and Groesser, 2008; Größler, 2008); or (very similar to Bianchi)
- if the objective of modelling is to represent reality—"the micro world view"—or to align the views of problem stakeholders—"the boundary object view" (Zagonel, 2002).

As the first distinction by Bianchi, also the second one identifying a macro/micro/meso level of model application is related to the issue how models can be used effectively in organisational settings by clarifying who is the target group of modelling projects. Bianchi claims that while some models are about managing one system or institution (for example, a company or an administration; "micro

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[†] I am indebted to Peter Milling for initially bringing these three concepts together in the context of system dynamics.

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[1] Some of the issues have been touched upon in two earlier EuSDWs, as the themes have been "Rationality in System Dynamics" in Mannheim (2003; Lane et al., 2004) and "Theory Building with System Dynamics" in St. Gallen (2007; Lane & Schwaninger, 2008).

level") others are about managing a super-system of institutions as in a country's economy ("macro level"). Micro level modelling projects involve managers; macro level projects involve politicians as major stakeholders. The "meso level" of model application allows for a strategic dialogue between the two extreme levels and, thus, the two groups of stakeholders. With its focus on providing effective system dynamics based interventions, Bianchi's distinction here again connects to important discussions in the literature, as for instance:[2]

- the question whether the concept of power is adequately represented in system dynamics (van der Smagt, 2006; Schwaninger, 2006) and if results of modelling projects can be restricted from a hierarchical point of view (Snabe and Größler, 2006);
- the discussion whether system dynamics projects inherently have a too narrow focus, excluding the organization as such—as opposed to the modelling group (Vriens and Achterbergh, 2006; Lane, 2006);
- the observation that "good" models by no means guarantee that model results are implemented (Größler, 2007); and
- the claim that system dynamics projects must be seen as organisational interventions (Rouwette & Vennix, 2006) and require an "intervention architecture" to become effective in organizations (Zock, 2004).

Related to Bianchi's attempt to bring forward useful classifications of models and his interest in the "political sphere" of using system dynamics, I want to add another strand to the discussion on effective modelling, for instance in public sector management. Hereby I refer to the so-called "analytical triangle of political science" (von Prittwitz, 2007). It postulates that analyses in political science must encompass the dimensions of policies, politics, and polity. Milling (2000) applied this concept to the realm of system dynamics modelling for the first time, indicating that modelling projects have effects on and/or must seek effects regarding the policies of an organisation, the politics within the organisation, and the polity of the organisation. This thought is elaborated further in the remainder of this comment, using "3P-concept" and the "3P's" as abbreviations.[3]

Basically, all important publications regarding system dynamics name "policy design" or "policy making" as the ultimate goal of system dynamics projects. Thus, the emphasis is on the improvement of real-world systems. Forrester (1994) defines "policies" in a broad sense as decision processes that convert information into action. In other words, policies are the influence points of management on a system—no matter, whether this is a profit or not-for-profit organisation. System dynamics should help to generate robust policies that allow ordinary people to run complex systems successfully (Forrester, 1961). In terms of political science, policies are the content that political processes are about and the results of such political processes in form of plans, laws, regulations, rules or guidelines. This understanding is coherent with the understanding of policies in system dynamics.

The design of better policies is a mostly analytical, cognitive task. Following the scientific approach, the best policy conceivable is identified and then proposed as a real-world change action. However, the concentration on this rational process is also, why the effectiveness of system dynamics projects sometimes is hampered. While I would argue that system dynamics is successful in its task to design policies for organisations, concentrating on policies alone might prevent us from considering the two other dimensions of modelling, i.e. influences from and influencing of politics and polity. Without the consideration of these two dimensions, system dynamics modelling remains a-political and a-contextual, in the sense that it ignores fundamentals of organisations and society.

Consideration of "politics" on the one hand side reminds us that individuals and organisations involved in the modelling process have self-interests that they want to achieve with the help of the modelling project and that must be consolidated in negotiation processes; on the other hand side, it

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[2] Some of the issues have been touched upon in an earlier EuSDW, as the theme has been "System Dynamics in Organizational Consultation" in Nijmegen (2005; Lane et al., 2006).

[3] To my knowledge, the term "analytical triangle" does not exist in the English literature since it draws its attractiveness partially from the fact that in German one can use the word "Politik" for all three meanings "policy", "politics", and "polity". Of course, also in English texts these three dimensions of political science are analysed.

makes clear that when we want to implement policy recommendations we have to regard these self-interest and cannot simply ignore them as irrational. In political science, "politics" means the process of formulating and applying policies; thus, taking different interests and motivations of the parties involved for granted. Considering "polity" allows to understand that institutional structures determine (the effectiveness of) policies to a great degree; in addition to this, it clarifies that policy changes often have to go in line with institutional changes. In political science, "polity" is the institutional structure (frequently, the state) in which politics takes place, leading to policies.

System dynamics models can embrace the facets of politics and polity in the model structure and in the formulation of the decision rules to be used in the model. For instance, the influence of certain stakeholders on a decision process can be modelled as close to reality as necessary—so, including political tactics or legislator action. Although it is not always made explicit that politics and polity are incorporated in the models, it is one of the strengths of system dynamics to not ignore such real-life deviations from ideal processes and rationality (Morecroft, 1983). Thus, the reason why politics and polity are put forward as substantial dimensions of modelling is that as modellers we should not assume to have sufficiently acknowledged these concepts when we have represented them in the model. At least similarly important is their consideration in the modelling process if modelling projects should be successful, i.e. lead to sustainable change in organisations.

Figure 1 and Figure 2 summarize the relationship between the model and the modelling process on the one side and the 3P's on the other side. Based on Sterman's (2000) iterative representation of modelling with system dynamics, the figures indicate that the 3P-concept serves as both, a determinant and a consequence for the model as well as the modelling process. Figure 1 is about the relation between the model and the 3P-concept. On the one hand, the 3P's influence how models are formulated: system dynamics is explicit about policies that must be represented in rate variables; however, politics and polity are also represented in the model as it should be a valid representation of the real world problem structure. On the other hand, the 3P's are affected by the outcome of the model: new, improved policies are formulated. These new policies change the way in which politics are carried out and the polity is structured. The asterisks at the 3P's on the left hand side indicate that they are potentially changed compared to their original state on the right hand side of the diagram, where they are the basis of model formulation.
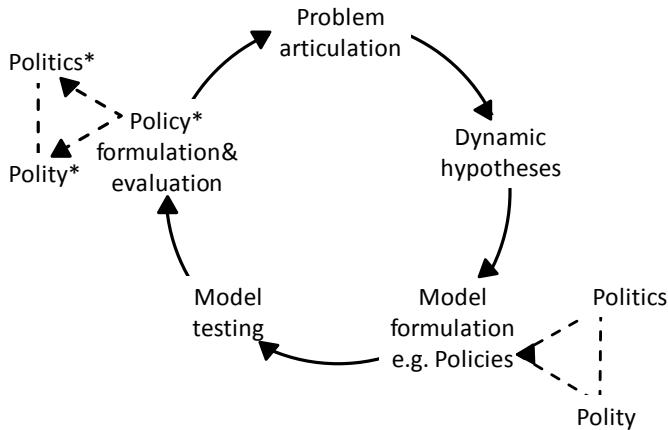

Figure 1: The 3P's and their relation to system dynamics models

Figure 2 shows the relation between the modelling process and the 3P-concept. The real-world 3P's have an influence on modelling, not only on the model generated as a result of this process: why and how modelling is undertaken, what system boundaries are chosen, what is identified as a problem worth being modelled depends on policies in the organisation, on political power plays, and on its institutional structure. In a similar fashion, if and how new policies are implemented that have been identified as beneficial in the course of modelling depends on politics within and polity of the organisation. Nevertheless, as stated above, the 3P's are changed simultaneously by the model and the

modelling process. Thus, it is crucial for any modelling process that strives for organisational effectiveness to take all the 3P's policies, politics and polity into account.
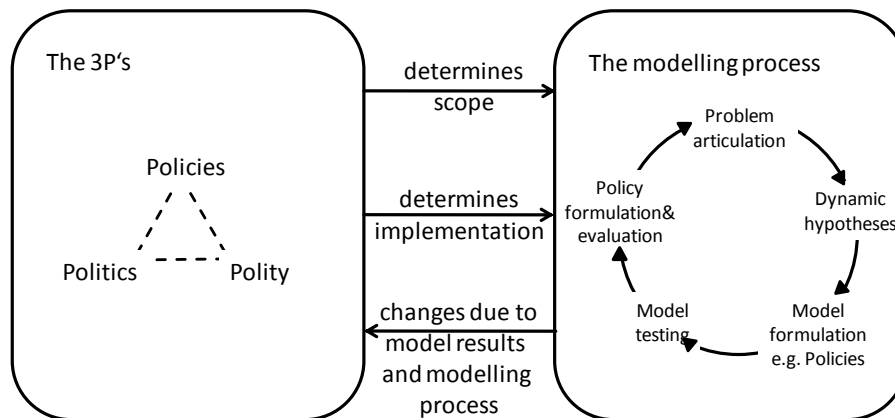

Figure 2: The 3P's and their relation to the system dynamics modelling process

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