

Policymakers face the fundamental problems of uncertainty and unpredictability in trying to manage and steer society. Consequentially, it is a challenge for policymaking to impact the world in the desired way. Simulation models are increasingly being used to inform policy making. The recent UK government review on analytical models (Treasury, 2011) suggests that models "influence many billions' pounds of government expenditure" and "underpin decisions which affect people's lives". This suggests that simulations are useful to policy makers, but not necessarily every type of model in every situation.

My thesis inquires into how simulation models are used to inform policy making and what makes simulations useful to those that inform policy. The study builds on existing literature from neighbouring fields such as policymaking, policy analysis, simulations and model use. For its analytical frame, the thesis draws on the repositories of Science and Technology Studies (STS). For example, it draws on the notions of practices, performativity and materiality. Based on the related literature and the STS literature, it develops an analytical framework that is then used to guide an empirical investigation of simulation models that have been used to inform policy making.

Fieldwork was conducted at government departments, companies and research institutes in the United Kingdom and the Netherlands. The fieldwork consists of 38 interviews with model users, observations of simulation model use and archival study of 42 documents. The data were analysed using a thematic coding approach centred on the identification of practices that the participants engage in.

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## **MODELS IN POLICY MAKING**

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The multi-case research design allows for an intra-case and inter-case comparison of the practices that those using models engage in. This data shows that there are similarities in how simulation models are used and made useful in the context of policymaking. Moreover, it allows for an in-depth description of the social context of simulation model use and a detailed analysis of the practices that make up model use. More specifically, those using models are shown to engage in activities to (1) determine the scope of the simulation model, (2) improve its credibility, (3) make it transparent, and (4) make it relevant.

These four sets of practices provide the basis for a deeper discussion of how model use is facilitated and constrained by the (inter)-organisational structure of use, by model user roles, and model user communities. It is demonstrated that considerable, often non-technical, effort is required to make and keep a simulation model useful to policymaking. The thesis concludes that the usefulness of simulation models cannot be understood in isolation from its social context; those developing models for policy would do well to consider it and scholars of model use should take it into account.

**Daan Kolkman** is PhD student at the University of Surrey and his dissertation focuses on social practices of computational model use in decision making contexts. He has a Master in Human Geography by the University of Utrecht. Since 2012 he works as a freelance data analyst for *Insights for Action*. Recent publication: Kolkman, D.; Campo, P.; Balke, T.; Gilbert, N.: "How to build Models for Government: Criteria for Model Acceptance".