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## **Modeling crime control in the Netherlands**

Etiënne Rouwette<sup>1</sup>  
Wouter Jongebreur<sup>2</sup>  
Paul van Hooff<sup>3</sup>  
Twan Heijmen<sup>3</sup>  
Jac Vennix<sup>1</sup>

<sup>1</sup> Methodology Department, Nijmegen School of Management, University of Nijmegen, The Netherlands

<sup>2</sup> Significant, Barneveld, The Netherlands

<sup>3</sup> Ministry of Justice, The Hague, The Netherlands

Corresponding author:

Etiënne Rouwette

Methodology Department, University of Nijmegen, Thomas van Aquinostraat 1.2.31

PO Box 9108, 6500 HK Nijmegen, The Netherlands

tel +31 24 3611468, fax +31 24 3611599, E.Rouwette@nsm.kun.nl

## **Abstract**

This paper is about a group model building project with the Ministry of Justice in the Netherlands. The aim of the model is to gain insight into the combined effects of an increase in the case load and investments in different phases of criminal justice administration and contextual developments such as increased complexity of cases. A group of representatives from the police force, public prosecution, courts and sentence execution participated in constructing the model. The modeling project is to be concluded in August 2004, and at the moment of writing this paper the conceptualization phase is finalized. In this paper we report on reasons for starting the modeling effort, the process thus far and preliminary conclusions. At the time of the system dynamics conference in July 2004 a more complete presentation will be given of the resulting model and the way results are going to be implemented by the participating organizations.

## **Problem context**

The Dutch criminal justice system is probably best known for its mildness (Tak, 2003). The policy on drugs and low prison rate in the 1970s are known by both foreign scholars and the wider public. Since a few years, this tradition of mildness is challenged. Delayed implementation of prison sentences, in spite of large scale prison construction in the early 1980 and again in the 1990s, became an issue of growing public and political concern. A Safety Program for crime control was formulated by the Dutch cabinet in October 2002 (Ministry of Justice/ Ministry of the Interior and Kingdom Relations, 2002). The policy plan formulates four goals for Dutch safety policy until 2006: 1. lowering the number of offenders who, after serving their sentence, reoffend, as well as more attention for juvenile offenders who are likely to start a criminal career; 2. lowering the number of crimes that do not lead to interventions, 3. a more prominent presence of police in the public domain; 4. increased attention to prevention.

In particular the low number of crimes that lead to interventions by law enforcement agencies is important here. The feeling that 'offenders can get away with it' obviously harms the interest of victims of crime and the credibility of law enforcement agencies (Tak, 2003: 14). The Safety Program estimates the number of crimes that do not lead to any intervention as about 80.000 cases. Since about half of these cases had a known suspect, the number of 40.000 cases quickly gained public status as the 'prosecution gap'. In order to prosecute and close more cases and achieve the other goals of the Safety Program, targets for all partners in the administration of criminal justice were formulated. Over a period of two years, the

police is expected to deliver 40.000 more cases to the public prosecution. For the other partners in criminal justice, capacity to handle cases will be adjusted accordingly, by increasing the budgets of public prosecution, courts and sentence execution. The coordination and monitoring of activities for the Safety Program was delegated to an interdepartmental Taskforce Safety.

There are significant uncertainties surrounding these attempts at controlling crime. The Safety Program does not specify with regard to which categories of cases the police is to increase its efforts. This has inspired discussions in the media, leading some to expect that the police would try to achieve their target by booking only the least labor intensive offenses, such as traffic violations. Recent figures seem to indicate that the extra cases follow the general pattern and no specific category is overrepresented. However, as the target of extra cases has not been completely realized at present, no definite conclusion can yet be reached with regard to the 'seriousness' of the extra cases and the associated workload for the other partners in administration of criminal justice.

A second uncertainty is the spread over time of increases in workload and capacity. While budgets are increased incrementally for several organizations that are responsible for criminal justice administration and the effect of budget increases takes significant time to materialize, the case output of police is ahead of schedule. If workload and capacity are too far out of balance, processing time increases and might conflict with legal requirements. Examples of these are the maximum duration of police custody or the maximum period before a judge needs to pass verdict.

Thirdly, developments in the Dutch society and wider European context have a large and uncertain impact on criminal justice administration. An increase in the crime rate and the proportion of serious and organized crimes (Tak, 2003: 9) lead to a higher case complexity. New regulations inspired by the European Union call for more attention for the victims, including extended possibilities for presence at trials and receiving regular information about trial proceedings. Lastly, a large number of retirements for public prosecutors and members of courts are foreseen in the coming years.

### **Aim of the modeling project**

In order to achieve more insight into the combined effects of an increase in the number of cases, investments in capacity and environmental developments, the Taskforce Safety asked the Ministry of Justice to initiate the development of a system dynamics model. The choice of

system dynamics as the approach to model this problem deserves closer consideration. The regular annual planning cycle of the Ministry of Justice is based on input from a number of econometric models, which are for example to predict crime rates for different categories of offences and estimated need for detention capacity. Most of these econometric studies are carried out by a research agency working on behalf of the Ministry, the WODC (Scientific Research and Documentation Center). However, system dynamics has been chosen to work on this problem as an important project deliverable was a transparent model of causal mechanisms and the effects of different scenarios. Policy makers need an instrument that helps them to figure out what the effects are of the policies they have in mind. The resulting model should provide them with actionable and effective intervention points in administration of criminal justice. The central questions guiding the modeling effort were formulated as follows:

- What is the effect of a structural increase of 40.000 cases on the different phases in criminal justice administration?
- What is the effect of additional investments in capacity of organizations involved in criminal justice administration?

### **Modeling process and results of the conceptualization phase**

The project started in January 2004 and is planned to deliver a quantitative model in August 2004. At the Ministry of Justice two persons would be involved fulltime as members of the project team. Three consultants from Significant, a consulting firm specializing in quantitative methods and techniques (i.e. system dynamics) and project management, planned to contribute a total of about three days per week over the course of the project. Two researchers from Nijmegen University were involved for about two days per week. A senior researcher from Nijmegen University was responsible for quality assurance.

The project was structured using the generic phases of group model building (Richardson and Andersen, 1995; Vennix, 1996) and separated into four phases:

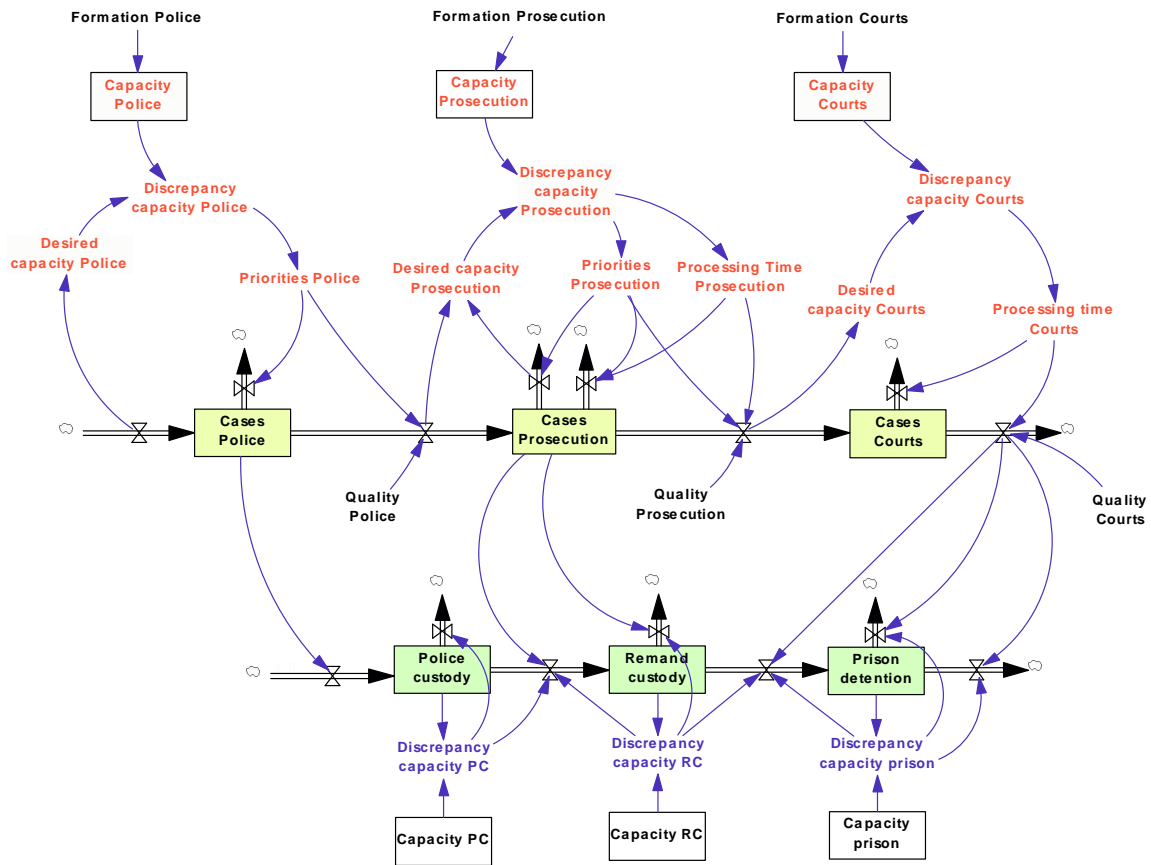
1. analysis (January until end of March): development of conceptual model;
2. development (April until end of June): formalization of the model;
3. testing (July and August): testing and further validation of the model;
4. training (August): handover, further documentation of the model and user training.

At the moment of writing this paper we are at the point of finalizing the analysis phase. Below we report on the modeling process and conclusions reached thus far.

At the start of the project a reference group was composed, consisting of 11 representatives of the main organizations in the administration of criminal law: police, public prosecution, courts and sentence execution, the WODC and different departments of the Ministry of Justice. The analysis phase started with a round of interviews with all members of the reference group. In the analysis phase the reference group and the modeling team met for a kickoff meeting, three workshops and the presentation of the analysis report.

In the kickoff meeting the project administration, most members of the reference group and modelers were present. After a round of introductions, the goals and plan for the project were presented. In order to familiarize the audience with the system dynamics approach, a qualitative and quantitative modeling project were presented. Particular emphasis was put on the involvement of stakeholders and experts in constructing the model and resulting effects on insights for the participants. The interviews focused on four subjects: background of the extra 40,000 cases, expected effects on different phases of the criminal justice system, indicators for system performance and possible intervention points. The interviews provided a general overview of the separate phases of the criminal justice system, as well as insights into unintended effects of policies in one part of the system on other organizations in other phases. An example is the policy of sentence execution decides to free capacity for newly convicted people by releasing offenders that already served the major part of their sentence. To the courts this constitutes an unintended reduction of time served, which might be compensated by longer prison sentences. The reaction to this increase in demand for prison capacity is that in the phase of capacity execution, the minimum time served before a possible early release is lowered. This example clearly shows feedback effects playing out over different parts of the criminal justice system.

The results of the interviews were summarized in two stock&flow diagrams. The first diagram showed the 'paper flow': cases going from police to public prosecution and to courts, as well as the reversed flows (cases sent back, for example because files are incomplete) and the different ways cases can flow out of the system at intermediate stages. The second diagram showed the 'person flow': adults and youths going in or out different forms of detention or carrying out of task penalties. In the three workshops these diagrams were further elaborated. In addition the capacity of different part of the system was modeled. In the report of the analysis phase, a high level view of the model was used to show the relations between the various submodels.



The overview model shows the capacity of police, prosecution and courts for working on the different phases of the 'paper flow' in the middle part of the figure. The police for example draws up a case report of a criminal offense and submits this to the public prosecution. This is the inflow to the work process of the public prosecution, who reviews a case and decides either to dismiss the case or transmit it to the courts. The amount of cases and the quality of the work delivered by police determine the case load for the prosecution, and in combination with prosecution priorities determine which type and how many cases are dismissed. If the case load represents more work than can be handled by the available capacity of the prosecution, more cases will be dismissed. Similar processes operate for the police and the courts. The paper flow drives the 'human flow' in which people are placed in different forms of custody, depending on the available capacity of each. In the analysis report (containing a summary and overview of the results of the analysis phase), the model shown above is separated into 13 submodels. At the moment of writing this paper, we are in the process of transforming the quantified submodels into an overall model.

## **Conclusions and follow-up**

At present the project is on schedule and reactions of the reference group, project leaders and other stakeholders are positive. On the basis of the conceptual models and the first versions of the formal model, some hunches and insights on feedback relations between organizations involved in the administration of criminal justice have already been made more explicit. The conceptual model provides a common and shared basis for communication about the modeling subject. Although the members of the reference group are high ranking officials with busy schedules, they are devoting time generously to the modeling effort. At the time of the conference we hope to report on the formalization of the model and further conclusions that have been reached at that stage.

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