CRISYS: A MODEL OF THE CRIMINAL JUSTICE SYSTEM
IN THE NETHERLANDS

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ABSTRACT

System Dynamics Research and Consult has been asked by the
Ministry of Justice in The Netherlands to develop a
simulation model of the criminal justice system. In this
system a number of feedback mechanism are present that have
negative side effects on the society. The first steps in the
development of the model were taken. A number of small
models of parts of the system were made to gain insight in
the the behaviour of some variables that are hard to
quantify. A larger semi-dynamic model was developed to study
the behaviour of the variables that are better to quantify.
All models have to be integrated in the next part of the
project in order to refine the forecasts.

INTRODUCTION

The criminal justice system in the Netherlands has been in
the centre of the attention of the public in the last ten
years. The reason for this is the very rapid rise in
criminality figures in that period. For instance the number
of reported crimes has risen from 262400 in 1970 to 973200
in 1983. In the same period the percentage of crimes that
were solved has gone down from 41 % in 1970 to 26 % in 1983.
If this last figure is taken into account, then the influx
of cases into the criminal justice system has more than
doubled.

Many parts of the dutch society are influenced by these
developments. One of the consequences was the decline of the
willingness of the public to report crimes. In 1975 55 % of
the crimes in the so called light categories were reported;
in 1983 this figure went down to about 30 %. Many people are
feeling insecure, and some are looking for other ways than
to go to the police to deal with the situation.
Being a criminal is highly lucrative: the net profit of the
whole 'criminal industry' has been estimated to lie between
15 and 20 milliard guilders a year.

There are also effects for the system itself. The capacity
of the system has not kept pace with the rise in the number
of cases. Backlogs have developed and the number of cases
that were dropped by the prosecutor has risen. In 1970 30 %
of the cases were dropped; in 1983 almost 35 % of the cases
were dropped. There are signs that the long wait for people
who are sentenced to imprisonment to the moment that they

actually serve time in prison is influencing other parts of
the system. The independency of courts of justice is an
essential part of the system and the loss of this
independency is highly undesirable.

The problem that the Ministry of Justice is facing is how to
develop a policy to reverse certain trends, without
violating basic rules that are set by the constitution. To
attain this goal an instrument should be developed that not
only gives more insight in the way the system works, but
also gives answers to questions about the number of prison
cells that should be build in the near future.

THE SYSTEM

The criminal justice system consists of four connected
parts. The first unit is the police system. Crimes are
reported to the police and are investigated. The first
filter is the willingness of the people to report those
crimes. The second filter is the percentage of crimes that
are cleared up. If a crime is cleared up a suspect exists
and the case goes to the second unit: the prosecutor. This
person decides whether the case is dropped or not. If a case
is not dropped a decision is made to send the case to the
court system (the third unit) or to have the case handled by
the prosecutor. A case that is send to the court of justice
results in a verdict and if persons are sentenced to
imprisonment they form the influx of the fourth unit of the
system. Persons that are released from prison after they
have served their sentence can become a new influx in the
system because the recidive figures are fairly high.

This simple picture of the system becomes complicated if
feedback loops and long term trends in society are added.
For instance the willingness to report crimes to the police
is influenced by the belief of the public that crimes are
not solved anyway and that criminals are set free because of
the lack of prison-cells. Other feedback loops involve the
effects that the number of prison-cells have on the length
of the sentence and on the willingness of the prosecutor to
drop cases. The number of cases that the prosecutor has to
handle is larger than the capacity to do so. The result
might be that the very complicated cases of white-collar-
crime are dropped more easily than the less complicated
cases.

PRELIMINARY MODELS

The development of a simulation model of this system is a
complicated task. The first steps involved the study of the
material and the drawing of causal diagrams of parts of the
system. Some of these causal diagrams have resulted in
computer models.

The client, the Ministry of Justice, wanted to have a simple version of the final model as soon as possible. This simple model is semi-dynamic. It is a computer program written in Pascal that makes forecasts of the case-load for the prosecutor and the judge.It computes the number of prison-cells that are needed and some other relevant figures. The model is now tested and the first results are satisfactory.

NEXT STEPS

The next steps in the development of the model involve the conversion of the semi-dynamic model to a true system-dynamic model. The incorporation of the variables that are hard to quantify is in this very sensitive field of modelling one of the biggest problems.