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## REGULATIVE EFFECTS OF LEGAL DECISION SUPPORT SYSTEMS

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### Abstract

Regulative effects of legal decision support systems can be considerable. Because of these effects, adequate control and evaluation should be possible. Specific requirements have to be developed for the evaluation of legal decision support systems.

### 1 Introduction

In the last decade, decision support systems have been introduced in the legal field. So far, the number of legal knowledge-based systems among them have been limited to only a few. The developments in the field of AI and Law as well as the habituation of lawyers to work with automated systems will improve the number of operational systems in this field. Automation is generally known to have effects: intended or not intended as well as desired or not desired (van Maanen and Blankenburg, 1991).

The aim of this paper is to signalise a particular form of effects: regulative effects, and to give some preliminary suggestions how these effects can be dealt with in future. In our opinion, the problem of regulative effects should be recognised by traditional lawyers, and specific requirements should be developed for evaluation. For this, further research is necessary. This paper should therefore be read as a tentative paper on a subject we feel more attention should be paid to. This seems a good moment to pay attention to the evaluation of the present systems while the increase of application of operational systems is still to come (cf. Oskamp *et al.*, 1995). This is one of the current research aims at the Computer/Law Institute, embedded in the research on the automation of legal tasks.

The paper describes some regulative effects of decision support systems in the area of policy realisation and tries to establish criteria for the evaluation of these systems. To this end, section 2 presents some examples of decision support systems with regulating effects. Section 3 discusses these examples to a greater extent and discusses the possibility of control. Section 4 deals with the evaluation of the legal decision support systems. Finally, section 5 mentions transparency and adequate documentation.

### 2 Regulative effects

When in an organisation computers are used to aid a decision-making process of some sort, the organisation intends to receive a return on its investment inherent to developing (or purchasing) and implementing the system. The results hoped for are a more effective, more efficient, delegated, and maybe even cheaper decision making (O'Keefe, 1989). In the legal field, several advantages of automated legal decision making have been mentioned like prediction of the system's decision and more processing capacity (de Mulder, 1993). Of course, negative effects may also occur. De Mulder (1993) sounds a warning note with regard to the flexibility of a legal decision support system; one has to reckon with circumstances unforeseen during development.

One of the characteristics of legal decision support systems is that they tend to have regulative effects. This is due to the necessity to use standardisation within the systems, thus introducing rules prescribing a certain conduct of the user. Regulative effects of legal decision support systems arise at different levels and at different times. Some of them are intended, thus the system is built according to these effects with the purpose to

introduce the standardisation. Others are not intended, but recognised while constructing the system, while the most alarming effects are the ones not intended and only recognised when the system is operational. One could sustain that the subject is decision *support* systems, so the decision maker may overrule the system. This may be true, but with a heavy workload it will be more easy to follow the system's proposal blindly, especially when it has proven correct. Furthermore, the individual who regularly takes deviant decisions will be sure to have to explain this (cf. Steenhuizen, 1994). Hence, the impact of regulative effects may be considerable and should therefore be subject to control, as most legal decisions. Here, we will discuss four regulative effects using some of the examples which we have come across in our research.

A. Systems being developed at the same time as the statute they aim to enforce. Illustrious Dutch examples are the Lex Mulder<sup>1</sup> and the Study Grant Act.<sup>2</sup> Strictly taken, these are not decision support systems since they are constructed to settle cases without further human intervention. However, they do constitute a clear example of the standardisation effect of automated decision making. Here, the automated enforcement of the statute was explicitly intended by the legislator and taken into account while developing the statute. There is a reciprocity between the legislation under consideration and the system built correspondingly (Donk *et al.*, 1990).

B. Standardisation is also effectuated by automated decision making initiated by government bodies and industrial insurance boards. These systems support policy makers who still have discretionary power. Clearly, these systems are built after the legislation concerned was developed, and thus contain interpretations of the organisation's policies concerning the enforcement of particular legislation. These systems are mainly developed as decision support tools and support for instance the enforcement of the General Support Act.<sup>3</sup>

C. Automated calculation systems support the enforcement of rules (based on legislation and other sources) by calculating specific amounts of money to be paid or received. Examples are the calculation of the amount of alimony or smart-money. These decision support systems have been operational for some time now and are frequently used. Some of them, for instance alimony systems, are based on standards previously published and have been used by both lawyers and judges. Smart-money systems are mainly developed and used by private enterprises and insurance companies. Here, the calculation is often based on internal policy standards that have not been published before.

D. Regulative effects can also be found as a result of interpretation of some specific rule or *modus operandi* in decision support systems. A very clear example can be found in MLEU. The system holds a behavioural protocol according to which the police officer is obliged to answer questions and input facts in a very specific order and in accordance with the protocol how to investigate an environmental crime properly. Thus, in order to optimise the output, a specific mode of operands is imposed upon the officer that has to be followed strictly and that limits his discretionary power (Groendijk and Tragter, 1994, 1995; Tragter and Groendijk, 1994). Another example in this system can be found in a hierarchy constructed with regard to sample taking.

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<sup>1</sup> The Lex Mulder (WAHV, July 3 1989, Stb.300) is a statute for the administrative settlement of traffic offences. It came into effect in 1992.

<sup>2</sup> The Study Grant Act (WSF18+), that came into effect October 1986, is a statute providing study grants for all Dutch students between 18 and 27 years. From the very start of the legislation process it was intended that this Act would be executed by means of information technology. This fact strongly influenced the legislation process.

<sup>3</sup> In the Netherlands known as the 'Algemene Bijstandswet'.

### **3 Control of legal decision support systems**

These examples show that regulative effects can take different forms and occur at different levels. They have been presented here in an order starting with systems developed within the legislative framework, ending with a system incorporating interpretations of rules not being the main reason to develop the system.

When considering the examples, it may seem that the examples under A and B are of the same type, since they are both developed for the automated enforcement of statutes. Yet, there is a difference. While the systems described sub A are developed in combination with the statute, the systems of B are developed at a later phase. Referring to the systems under A as type-A systems, one may trust that the development of the system is part of the control over the legislative process. Further, it should imply a sound co-operation between the legislators and the system's developers. There is another difference: the control of the enforcement of the legislation related to systems of type A is considered beforehand. Consequently, deviation from the standards set by the system becomes hard, as is the case in the Study Grant Act, or is subject to specific conditions as is the case in the Lex Mulder.

The situation is different for systems of type B. Since they reflect the interpretation of (lower) government bodies, their status resembles policy statements. Today, a major part of Dutch administrative law can be found in policy statements, especially in the field of subsidising and levying taxes. Policy statements are non-legislative rules that tentatively indicate how agency decision makers will exercise a discretionary power. Unlike legislative rules, they remain tentative, not rigid. Consequently, they leave room for flexible application by decision makers: deviation is possible (Asimow, 1985). The policy statements serve as behavioural guidelines (Plannen en beleidsregels, 1993) according to which the government organ has to act.

Since policy statements are not binding upon citizens, it is impossible to lodge an appeal against them. Consequently, a direct examination can only be made by a court entertaining jurisdiction in civil matters when a civil law suit against the policy statement is being made.<sup>4</sup> In The Netherlands, indirect examination of policy statements is more common (Plannen en beleidsregels, 1993). In case a disposition was made in accordance with due regard to the policy statement, a judge will encounter a two-phase examination. The disposition will be investigated, but only after examination whether the policy statement is in fact a reasonable policy.<sup>5</sup>

With regard to the acceptance of the system by the user and the public, the system has to be subject to control and moreover, deviation from the system's advice should be possible. This is especially true where the legislator meant to leave room for policy latitude and consequently not meant to establish fully-binding rules on the government organs. According to literature and case law, policy statements can be deduced from a series of decisions of the government organ without ever putting the policy as such to writing.<sup>6</sup> Therefore, policy statements may also be deduced from the decisions of a decision support system, establishing a standardisation of some sort. Consequently, a

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<sup>4</sup> Section 6:162 Civil Code.

<sup>5</sup> CBB July 4th, 1985, AB 1986, no.19.

<sup>6</sup> One should carefully distinguish these policy statements from so-called 'pseudo-legislation'. Pseudo-legislation is established and promulgated as such, while policy statements can also be deduced from a series of decisions without ever committing the general rule to writing. In The Netherlands, promulgation of policy statements is not (yet) a requirement for their operation (Plannen en beleidsregels, 1993; Nicolai and Olivier, 1993). Compare the United States' Administrative

Procedure Act according to which rule making involves publication in the Federal Register of a notice of what is being proposed, a comment period during which the public can file written remarks about the proposed rule, and the agency's statement of the final rule's basis and purpose (Sargentich, 1994).

judge should also take into consideration whether this deduced policy statement is a reasonable one.

Systems of type C are restricted to a calculation formula. The regulative effects are caused by the fact that in order to specify the amount of money, specific formulas are used. This is not much different from the situation where a type of calculator was used instead of a computer. The formula itself is rarely expressed in a statutory rule nor in a rule of policy. The formula represents the interpretation of the courts or of other organisations of a specific type of regulation: coupling amounts of money to specific situations.

Note the difference between alimony and smart-money calculation systems. In the case of alimony calculation, the formula's used have been published previously, and were created in an open environment. This implies it has been possible to evaluate them and agree upon them. Since the input factors are clear, (motivated) deviation of the output is possible. The situation is different for smart-money systems. The formulas used in these systems are often not published and they are hardly ever subject to control. Smart-money systems are frequently used. One would presume that a judge would be able to evaluate the decision and motivation of the system. This can be questioned. In The Netherlands, the number of known cases in which a judge was asked to give an opinion about the calculation method concerned or about the input factors and their value is practically zero. In the exceptional case where a judge has been asked to give his opinion, he seemed very reluctant to do so, as became clear in the case *Pals vs. Audelet*.<sup>7</sup> In this case, the issue was about unfair competition, more specifically: whether the program of the defendant (Audelet) could rightfully keep the claim that it was 'unprejudiced, verifiable and a neutral standard' in his publicity. Although this would be an excellent opportunity for the judge to evaluate the (transparency of these kind of) systems, both the president in summary proceedings as the Court of Appeal hardly even referred to the issue. One of the plaintiff's remarks was that the program is unmistakably prejudiced towards the interests of insurance companies. The Court dealt with this issue, not by considering the program, its calculation formula or the input factors, but by stating that input factors will always be subject to discussion. Since the discussion with regard to the system was held within an Advisory Board including members not being employed by the insurance companies, the Court would assume the program to be neutral. Of course, one of the purposes of these systems is to lessen the arbitrariness while making the calculations. However, if these systems are used on a large scale and the standardisation of the decisions will thus be enhanced, as such a regulative power may be executed that has not been controlled properly and cannot be controlled either.

The systems pointed to as type-D systems, are systems containing interpretations of rules that have regulative effects. The example mentions a behavioural protocol in the MILIEU-system. Here, the protocol was only an intended side effect and was not the main reason for building the system. The regulative effect is the result of the interpretation process and the decisions taken while developing the system and not based on legal rules. This resembles systems of type C and differs from systems of type A and B. There is another difference with the systems of type A and B: the authorities involved. The protocol incorporated in MILIEU was developed by the Dutch Forensic Science Laboratory, the client, not being the responsible authority to deal with this matter. For MILIEU, only being a prototype to see if knowledge technology could be used to investigate environmental crimes, it did not really create a problem. However, when developing a system for actual use in the field, the proper authorities should be held responsible for the system, and make sure that it reflects their policy consistently. This implies that they may be forced to form or alter their policy during the development process.

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<sup>7</sup> Procedure in matters of special urgency, March 5th. 1992, annotated by (Oskamp, 1995).

#### **4 Evaluation of legal decision support systems**

The purpose of a decision support system is to support the user with decision making. Hence, considerable attention has to be paid as to whether the support is qualitatively good and sound. Therefore, the system should be evaluated on this point. The system's decision, its knowledge, the procedures and its effects should, just like the content of the policy itself, be subject of evaluation. Decision support systems are all evaluated in some sense, if only when declared to be a total failure and of no use whatsoever. Though several methods have been designed to decide upon the 'quality' of such a system, an evaluation of the quality and the system's benefits is only rarely carried out in an adequate manner (O'Keefe, 1989; O'Keefe and O'Leary 1993; Sharma and Conrath, 1993).

According to Sharma and Conrath (1993), quality can be defined as "the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs". Currently, no standards have even been established to evaluate expert systems and decision support systems adequately (Sharma and Conrath, 1993). Most researchers deal only with verification and validation, thus restricting themselves to a given state within the life cycle of a system and not considering all relevant aspects (O'Keefe, 1989; Sharma and Conrath, 1993). Based on definitions of policy evaluations (cf. Graaf and Hoppe, 1989), evaluation of decision support systems can be defined as a method to judge according to certain measures the content of the system, the procedures surrounding it and the effects caused by using the system. Thus, addressing the benefits of the system to all stakeholders: users, sponsors, authorities and the organisation (Wognum and Lippolt, 1991; O'Keefe and O'Leary, 1993).

Before conducting an evaluation, several topics have to be considered, such as the purpose of the evaluation, when the evaluation has to be carried out, by whom and according to what measures the system is to be judged (cf. Graaf and Hoppe, 1989). In general, the purpose of an evaluation is to determine and judge the results of a certain policy by way of using the system. It is a measure for success together with a method to learn and adjust and ultimately to control the system.

An evaluation can be carried out prior to, during and after policy making and system development. The result aimed at in *ex ante* evaluation is to provide insight into a complex situation for both the policy makers and system developers. Evaluation during development is concerned with the situation directly after the implementation. This constitutes good learning facilities by providing a short-term feedback between that what was desired and that what actually will be achieved. It gives opportunity to react to unexpected obstacles and unforeseen situations. An *ex post* evaluation aims at making the effects of a policy or system that have been in effect for some time evident, in order to be able to learn from them (Graaf and Hoppe, 1989).

In order to carry out an evaluation, one has to agree on the measures according to which the system is to be judged. With regard to *legal* decision support systems we feel that in order to be able to deal with all effects the system may cause, additional measures should be developed. Uptil now, only a few measures have been mentioned since attention in the AI & Law field has also concentrated on the validation of systems (cf. for instance Kracht, de Vey Mestdagh and Svensson, 1990). Nevertheless, some good starting points have been mentioned in literature.

In the discussion of the Association for Administrative Law [VAR] about automated decision making, Franken (1993) formulated a number of requirements for automated decision making, resembling the 'general principles of good management' for government organs<sup>8</sup>, that define a number of requirements for the 'decent use of information technology'. He states that the data should be available, valid, complete and up to date and, moreover, should be used confidentially. The system should function correctly and

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<sup>8</sup> Known as 'algemene beginselen van behoorlijk bestuur'.

generate data that are both correct and complete. The decision reached by the system should be valid and authentic. Furthermore, the system should be flexible, i.e., both the program and data should be easy to update. Finally, the system should be transparent. According to Franken (1993), transparency means that the system should be able to present the user how and why a solution has been arrived at, that the technical measures match the aims of the system, and furthermore, that it is clear how the system can be legitimately used.

De Mulder (1993) and Oskamp and De Mulder (1993) pay more attention to ex ante evaluation aspects. They describe that it first has to be considered whether the subject and its design are suitable for automation, i.e., is it permitted to automate the decision making? This condition has two important parts: can the degree of, for instance, individualisation and flexibility be implemented in the system, and can the intended degree of policy latitude give an indication for the design of the system as a transaction system, a decision support system or a computerised decision system? The second condition refers to the fact that it should be decided who is in power to conclude upon the final version of the program. Here, questions should be answered like: who can take the initiative for the automation of issuing the rules, who is authorised to confirm the initiative formally, who is allowed to design, implement and maintain the program, and who is allowed to verify the program on a permanent base?

These conditions combined already give a good starting point to evaluate a legal decision support system, but they are not sufficient. More explicit attention should be paid to the possibility of control: how can control be effectuated and how should this control be taken into account during the development process? Let us first reconsider the examples mentioned with regard to the subject of control.

For type A, the transparency of the system for control purposes is considered in the legislative process. Since the development of the system is part of the legislative process, in principle the requirements for legislation also apply to the system. The control is also regulated in the legislative process. Deviation of the outcome of the system is either very hard, or subject to specifically mentioned conditions.

With regard to type B, control is less well organised. When the system reflects already published policy lines of the authority, we consider control less of a problem. When on the other hand, the policy lines have to be entirely deduced from the output of the system, control is of major concern. The authority in question, the authority to which appeals may be directed, the target group and the judge should ideally all be able to understand and evaluate both the knowledge and the inferences used by the system to come to its decision. This may not be possible, but we feel that at least the interpretation of the knowledge should be included in the understanding and evaluation. Therefore, research could try to find ways to document the decisions taken in course of the system's development.

With regard to type C, the transparency of the system should enable the control of the calculation formula and the definition of the input factors and their weighing. These may be published beforehand, but this is not really necessary and may not even be desirable because of competition considerations. However, one may ask whether the decisions referring to the formula and input factors are reproducible in such a way that control is possible.

Systems mentioned under type D should explicitly contain the interpretation by the responsible authorities. The evaluation ex ante as well as during development of the system should safeguard the control of the authorities. This may be difficult to obtain since it is often difficult to clarify the questions about the decisions that have to be taken to the authorities. To deal with this situation, the involvement of a lawyer with thorough knowledge of automation and AI, to act as an intermediate, may diminish this problem.

## **5 Discussion**

As benefits of legal decision support systems can be mentioned: equality before the law, legal security, reduction of waiting and the possibility to enforce legislation requiring numerous decisions. However, the first two of these advantages are only achieved if it is clear what exactly is done by the systems and why, what the effects of the systems are, and whether these effects are indeed intended. It should be watched that the benefits of the use of legal decision support systems are not obscured by decisions taken while building the systems, since they contain some kind of interpretation of the knowledge. Thus, transparency not only means that the reasons how and why the system reaches its decisions are clear, but also how the knowledge was formulated and represented, why in this particular way and by whom, and to serve what purpose. This is more than the system could explain, should it only contain a 'why-function'.

To enable control of the system and improve its openness, a veracious documentation should be available. The documentation should not only be a description of the system itself but also of the construction (process) of the system. Without being exhaustive, the documentation should at least reflect the policy lines, the selection of knowledge, the interpretations made by the knowledge engineer, the input factors of a calculation method and the weighing of them, the authorities and the extent of their involvement. In short, the documentation should reflect everything that may have influenced the establishment of the system. Consequently, the resulting system can be judged as to whether the desired goals have been achieved and if the effects caused by the system were foreseen during development and allowed for.

## **6 Conclusion**

A legal decision support system may have considerable regulatory effects, intended or not. This asks for adequate control and thus accurate evaluation of the system. More than presently is the case, research should try to develop requirements to evaluate legal decision support systems adequately. To this end, an accurate documentation will be most helpful. Moreover, the introduction of decision support systems gives an opportunity to enlarge the openness of the law. We think advantage should be taken of this opportunity.

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