

Reducing the processing time in a civil case; a project conducted for the Dutch judiciary

Gerard Noorda

Business Consultant

Ordina Business & Enterprise Solutions B.V.

Ringwade 1

3439 LM Nieuwegein, The Netherlands

(+31) 30 663 88 00

Gerard.Noorda@Ordina.nl

Abstract

In the Netherlands it can take more than a year to get a verdict in a civil case. This is not desirable from a social and economic point of view. The judiciary has made it one of its top priorities to reduce the processing time in the next couple of years. In order to gain more insight we were asked to use system dynamics to tackle this problem. The only road to success was to make sure that all stakeholders fully supported the model, its outcomes and the drawn conclusions.

This paper describes how the civil process at a district court is captured in a model. It shows how we discovered the dynamics of the civil process that were unknown until now. This new insight has led to a change of the perspective of the decision makers in what are good policies to reduce the processing time.

The paper also reveals how a new stakeholder was discovered through the use of system dynamics.

About the author

Gerard Noorda studied Econometrics at the University of Groningen (Master of Science in econometrics and operations research). After his study he joined the management consultancy agency Oasis in 1999. Since 2004 Oasis is part of Ordina. At present day Gerard is a Business Consultant specialized in modelling complex ill-structured problems.

Introduction

In the Netherlands it can take more than a year to get a verdict in a civil case. This is not desirable from a social and economic point of view. The judiciary has made it one of its top priorities to reduce the processing time in the next couple of years. In order to gain more insight we were asked to use system dynamics to tackle this problem. The only road to success was to make sure that all stakeholders fully supported the model, its outcomes and the drawn conclusions.

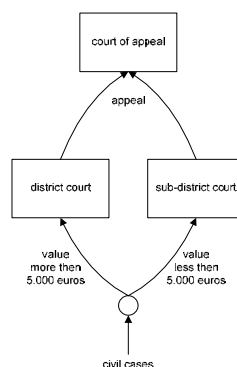
This paper describes how the civil process at a district court is captured in a model. It shows how we used system dynamics to discover the dynamics of the civil process that were unknown until now. This new insight has led to a change of the perspective of the decision makers in what are good policies to reduce the processing time.

The paper also reveals how a new stakeholder was discovered through the use of system dynamics. But first we start with a description of the Dutch judiciary.

Going to court

When a person¹ has a dispute with another person that they cannot settle, a case can be heard in court. The judge will rule a decision in the conflict. This is called civil law². If one or both of the parties disagree with the judgement passed by the court they can go to the court of appeal. The court of appeal re-examines the facts of the case and reaches its own conclusion.

The Netherlands is divided into 19 districts, each with its own court. Each court has a number of sub-district venues. It is relative simple for ordinary persons to have their case heard in the sub-district sector. This means that they have the right to argue their own case and do not need a lawyer to represent them in court. In terms of civil law, the sub-district judge deals with all conflicts involving an amount under 5.000 euros³. The district court deals with civil cases above the 5.000 euros and a lawyer is mandatory.



¹ A person can also be legal person such as a company

² Other types of law are criminal law and administrative law. In criminal law the government is the plaintiff and a person a defendant. In administrative law a person is the plaintiff and the government is the defendant.

³ A sub-district judge also deals with all cases involving rents, hire purchase and employment.

The assignment

The processing time⁴ of a case appearing before a district court is on average more than one year. As a comparison the average processing time in a sub-district is two months. A comparison reveals that there are also essential differences between the district courts itself. The highest and the lowest processing time of a district differ by several months. Long processing times are not desirable from an economic point of view. With regards to equality of rights, it seems unfair that the processing time differs between two district courts.

In the next couple of years the district courts have the challenge to reduce their local processing time. The question is: what is the most effective way to reduce processing time? This leads to the next question: what determines processing time? The council for the judiciary⁵ asked us to tackle this problem with system dynamics. A system dynamics approach has proven to be successful in other parts of judiciary system, such as a project modelling crime control conducted for the Ministry of Justice. The assignment was to see if system dynamics is the right tool to gain insight and helps to support the decision making process. We were asked to develop a model that was both qualitative and quantitative and not a black box.

The approach

Before starting this project we had no more knowledge of the law than any average citizen. We started with studying literature and interviewing persons all having different functions within the judiciary system to learn more about the law and the judiciary system. What became clear from the interviews was that it was a highly political environment and that no model would be a success without the support of all the different parties involved. From the information gathered in the interviews we build a preliminary qualitative model and presented this in an expert meeting to all parties. The expert meeting was to validate our understanding of the process of law, give the people an idea where this was going and select a district court for a pilot project. A pilot at a district court was crucial to further developing the model and gaining support from local decision makers. A district in the east of the Netherlands was willing to participate in the pilot.

At the start of the pilot we explained to a broad delegation of this district court what we were planning to do. The delegation consisted of decision makers, process experts and other people who might be affected. Including a broad delegation is import to start building support as early as possible. At this meeting people were sceptical about how this model could support decision making. One of the arguments was that there were already a lot of different models and information systems available. What could this model possibly offer more? Another reaction was that no model was going to tell a judge what to do. Although some were sceptical about the value of the model, most participants were curious where this was going.

⁴ Processing time starts when a case is submitted at court and ends when judgment is ruled and recorded on paper.

⁵ The council for the judiciary safeguards the independence of the judge. It stands between the court and the Minister of Justice. Its tasks include allocation of the budgets from the Minister to the courts and promotion of the quality of the judiciary system by innovative projects.

To be efficient and effective, the pilot itself was conducted with a small group of process experts of the district court. These were two people who knew almost everything about the business of processing civil cases and the decision making involved. For a period of six weeks we met for one afternoon each week. In these sessions we extended the qualitative model to a quantitative model. But more importantly we were building support within the district court for the model and subsequently for the results of the model. At the end of the sessions we presented the model and the results to the delegation. But before we come to that lets start by describing what happens if a case goes to court.

The processing of a civil case

For the model we made a flow chart presenting the different steps within a civil process. When a case enters the chain it will be officially called on within one or two weeks where the claim will be read. Before the case is called on it can be withdrawn by a plaintiff if a settlement is reached. After it is called the processing time starts. A case can be either defended or not defended. If a case is not defended the judge will rule by default of appearance in favour of the plaintiff. If the case is defended the process continues. The next step is called answer. In this step the defended explains his side of the story to the claim in writing. The defendant has six weeks for this.

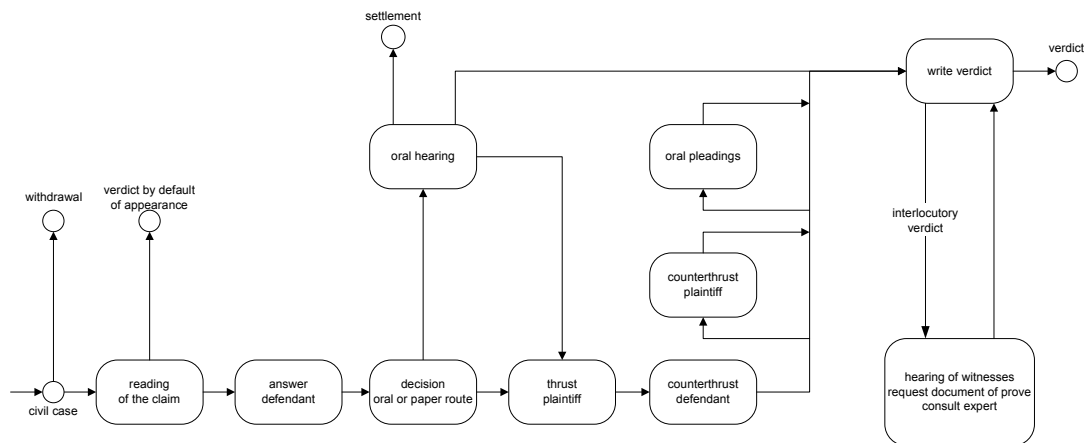
Next it will be decided if a case is suitable for oral treatment or should be handled in writing. This process takes two weeks. If a case is orally conducted both parties are submitted to appear for court. The judge will hear both parties and will try to settle the case. If one of the parties does not want to settle, the judge can rule a decision. He then will write his verdict. Sometimes during the hearing it becomes clear that a case is not suitable for oral treatment. The judge can then decide that the case should still be handled in writing. The oral hearing was introduced to speed up the process. However since it involves all parties to be present it is a logistical challenge and it takes up to ten weeks before a hearing. We will call this the oral route.

If a case is handled in writing the process continues with a reply which is called a thrust. In a thrust the plaintiff can reply to the answer that the defendant made in the previous step. The defendant in his turn does a counterthrust in which he reacts on the thrust of the plaintiff. In some cases the defendant has made a counterclaim. If this is the case there is one extra step with the counterthrust of the plaintiff. All this is done in writing by the parties. Sometimes the writing is orally clarified to a judge. This is called oral pleading. The process of thrust, counterthrust, counterclaim and oral pleading will be called the paper route. Each step in the paper route takes six weeks. This is so that the parties have sufficient time to prepare and write down their arguments.

The paper route will be followed by a verdict. The judge has six weeks to write the verdict. Sometimes a judge has not enough information to pass a verdict. In this case he can collect more information. For example he can submit a hearing of witnesses, request for a document of prove or consult an expert. So instead of writing the final verdict he writes what information is still needed to pass a verdict. This document is

called an interlocutory verdict. After the missing information is collected the judge can pass verdict or collect even more information.

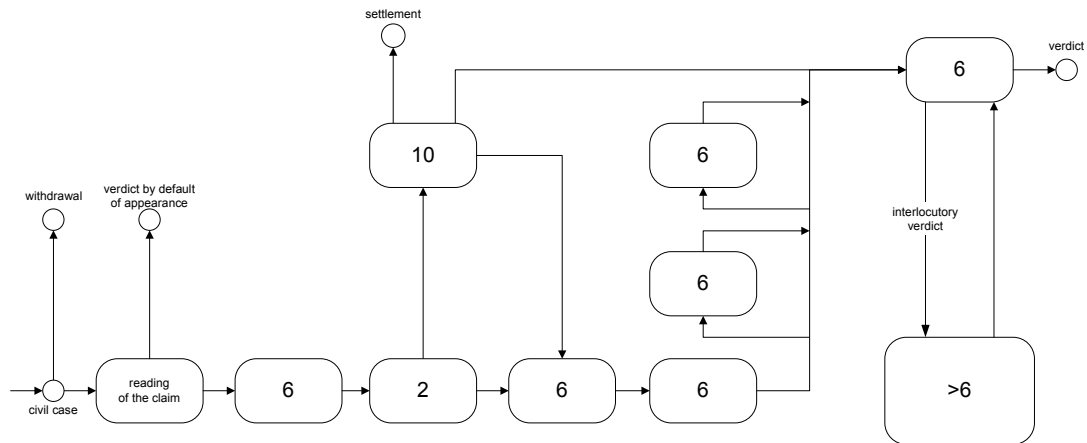
The collecting of extra information takes a lot of time. The scheduling of a hearing can take a couple of months. This is because a hearing is a logistical challenge. The judge, the plaintiff, the defendant, their lawyers and the witnesses all need to come together at the same place at the same time. Another time consuming activity is consulting an expert. The finding of suitable expert accepted by both parties can take over a year. This is because suitable experts are scarce.



Summarized a civil case can take two possible routes; the oral and the paper route. In an oral hearing all parties come together and are heard. The judge checks if parties want to settle, if not he decides whether he has enough information to write a verdict or the case as yet needs to be done in writing. In the paper route both parties write down their arguments. Hereafter the judge will read the arguments and rule judgement. If the judge has not enough information he can collect more information. Once all the information is available the judge will rule judgement which is called the verdict.

The processing time

The processing time of case starts after 'reading of the claim'. The processing time stops if a case leaves the system. Looking at the total processing time; a verdict after the oral route takes a minimum of 24 weeks, a settlement at the oral hearings a minimum of 18 weeks and a verdict after the paper route 26 weeks. The processing time becomes longer if extra steps are required such as a counterthrust or consulting an expert.

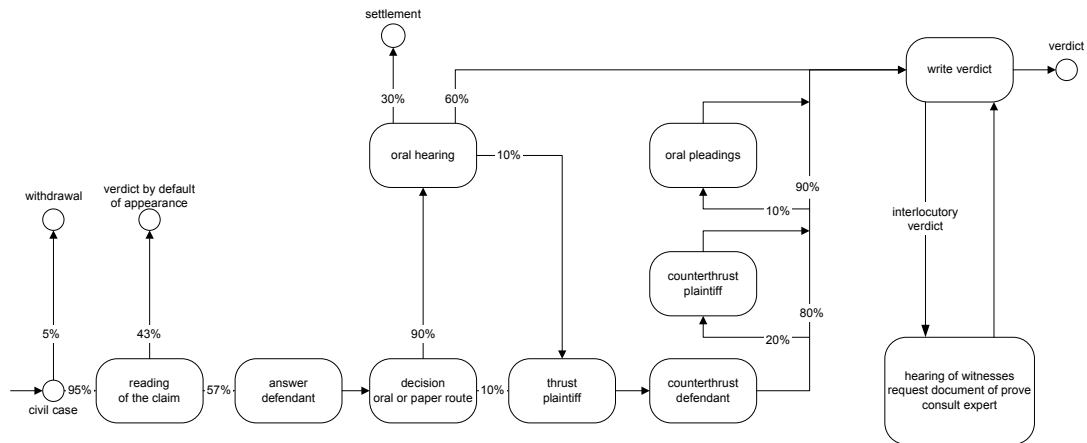


Another reason why the processing time of a case becomes longer than the minimum processing time is postponement. The plaintiff or the defendant can ask for postponement if the regular time at a process step is insufficient. This happens if a lawyer is ill or has not had enough time to prepare. It is up to the judge to decide if postponement is granted. If postponement is granted the parties obtain a similar period to prepare. For example if postponement is granted at the oral hearings, it will take another ten weeks till the next hearing.

The amount of postponement that is granted is a policy of the court. It can therefore be used to influence the average processing time. Which court had a strict policy in granting postponement. Postponement is on average granted once in 20 percent of the cases. For presentation purposes this is not represented in the flow chart but is modelled.

A verdict and a settlement at ‘oral hearing’ are not the only possibilities to leave the system. Parties can reach a settlement without the involvement of a judge at any time during the process. If this happens the plaintiff drops the case. After a case is dropped it leaves the system. Asking for more time to negotiate can also be a reason for postponement.

Next we asked for the percentages at the crossroads. For example what is the percentage of cases that enter the oral route and thus what percentage enter the paper route. We do this so the model transforms an average case at the inflow into a variety of different types of cases at the outflows.



	Inflow	Outflow
Civil case	1	
Withdrawal		0,049901365
Verdict by default of appearance		0,404674421
Settlement at oral hearing		0,128517389
Verdict		0,347466145
Settlement by parties during process		0,06896523

Combining the crossroad percentages and processing time per step information together we can simulate the average processing time of the different types of cases.

	Minimum	Average
Withdrawal	-	-
Verdict by default of appearance	3	3,00
Settlement at oral hearing	18	24,14
Verdict	24	43,05
Settlement by parties during process	-	11,60

Overall	-	34,61
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What is noticed is that the average processing time of a verdict is much higher than the minimum processing time. This is because of the extra steps that are needed and the postponement that is granted. The 'overall processing time' is the weighted average of verdicts and the settled cases. Verdicts by default of appearance are not included in the overall processing time. The overall processing time for this court is 35 weeks.

Validation

Before we start simulating we have to set the inflow and the available capacity. There is a steady inflow of 47 cases per week. Historical data shows that there are almost no fluctuations in the inflow.

In order to keep the process running, judges and administrative support is required. From the early interviews it became clear that if there are capacity problems; judges are the bottleneck. Judges are only actively involved in hearings and writing verdicts. But the district court where we conducted the pilot had no capacity problems. So the capacity at each step was set to unlimited.

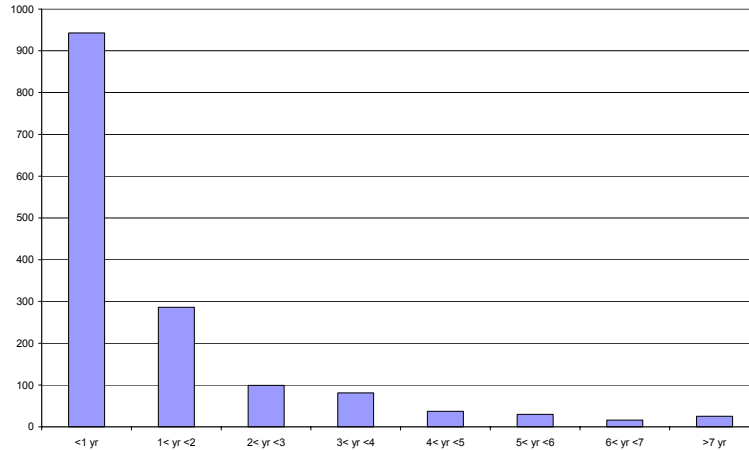
We started the simulation with an empty stock and an inflow of 37 cases per week. It is like beginning a new fictional district court with all the properties of the real pilot court. Because we have enough capacity to handle all the cases, the model will go to a steady state. That is: the output, the stock and the overall processing time become stable after a while. A steady state of these variables is also observed in real life. We could now validate the output by comparing the simulated values from the model with the measured values from the courts information system.

	Measured values	Simulated values
Stock	1500 cases	950 cases
Processing time	55 weeks	35 weeks
Verdicts	750 cases per year	850 cases per year
Settlements	300 cases per year	300 cases per year
Verdict by default of appearance	950 cases per year	950 cases per year

The validation showed that further refinement was required. The deviations were so great that we suspected that there was something structural missing from the model. After playing with the model by changing the parameters and studying the results we noticed that without creating capacity shortages it was not possible to simulate an overall processing time of 55 weeks. A brainstorm session with the project group revealed the missing link.

A new insight

If the overall processing time is 55 weeks, there must be cases that take many years to process. The project members knew stories of cases that took years of processing. But these cases were considered to be an exception. In order to see if this was true we examined the age of the stock.



Cases on stock

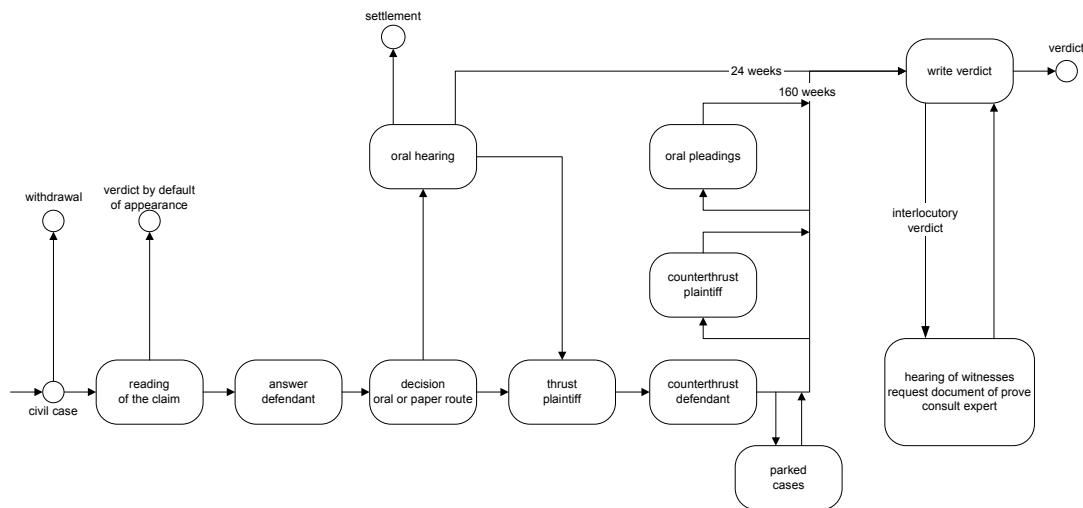
The graph reveals that 35 percent of the stock was older than one year! There were cases that are 15 years old and still in the system. The perception that very old cases are an exception is incorrect. The question we needed to answer was: why are these cases still in the system? We learned that there are two main reasons why cases are much longer in the system than expected; negotiating and bankruptcy. If a case has a very high interest both parties may want to negotiate before moving forward in the process. This can take many years. If a defendant goes bankrupt during the process the case has to pause until bankruptcy is officially declared. This can take years.

These special cases that take years before moving forward are 'parked'. This means they are set aside so they do not interfere with the regular process. In general a case will be parked for 18 months. After this period the state of the case will be re-examined. It is then determined if a case stays parked for another 18 months, goes back in the process or be removed from the process.

So how could we have missed it? There are approximately 100 cases parked per year which is relative small. But once parked they can be in the system for many years. After being parked the boxes with the case information is moved from the judge's room to the basement until needed. So a judge only sees the cases on the shelves that are in the 'regular' process. All the 'old' cases that are parked are out of sight. This is the reason why in the perception of the people working in court, parked cases are an exception.

Theoretically a case can be 'parked' at any step in the process, but in practice, it is cases in the paper route which are most likely to be parked. There are two reasons for this. The first is cases in the paper route are generally more complicated with a

financially higher interest. Therefore parties are more likely to negotiate for a long period. The second reason is that the average processing time of the paper route is much longer than the average processing time of the oral route. Therefore the chance that the defendant goes bankrupt and the case is parked is much higher in the paper route. Data collected for another independent survey of processing times of civil cases conducted by the council for the judiciary confirmed this. The data revealed that the average time it takes a case to flow through the paper route is 160 weeks! The oral route only takes 24 weeks.



The model was extended to include a ‘parked cases’ area. A percentage of cases are parked after the counterthrust. This point is the centre of gravity where it is most likely that a case will be ‘parked’. After 18 months the case is re-examined. The information system of the district show that approximately 50 percent stay ‘parked’, 10 percent return to the system and 40 percent are removed from the system. A lot of the cases that are removed were already settled by the parties or bankruptcy was declared official, but this was not reported back to the court. Running the model again showed the following results.

	Measured values	Simulated values
Stock	1500 cases	1520 cases
Processing time	55 weeks	55 weeks
Verdicts	750 cases per year	750 cases per year
Settlements	300 cases per year	300 cases per year
Verdict by default of appearance	950 cases per year	950 cases per year

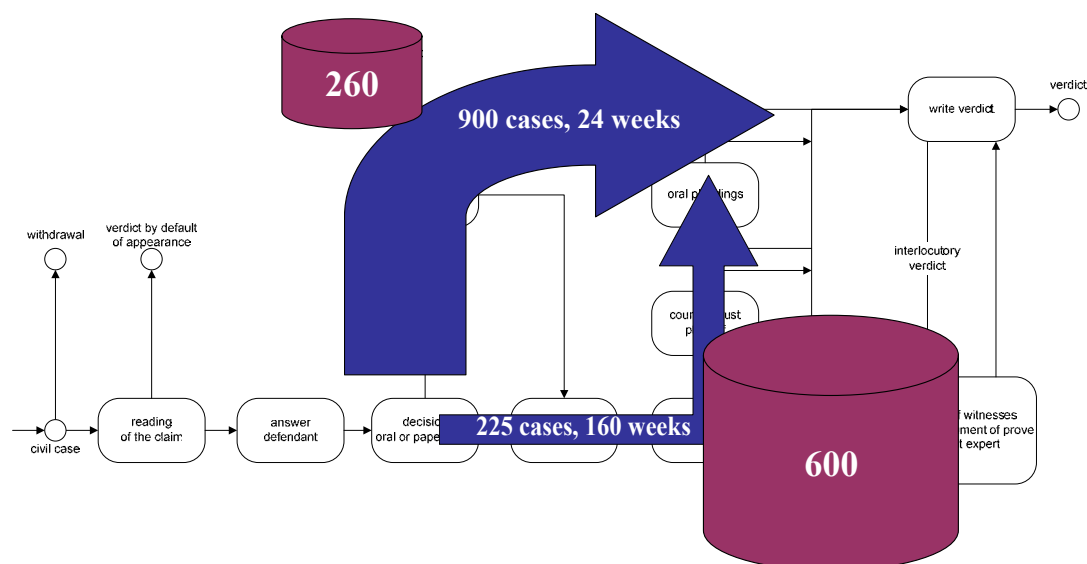
This time the validation showed that output of the model simulates the real world in an accurate way. For the project members the model represents their local district court from a qualitative and quantitative point of view. They were convinced that anyone who worked in a district court would recognize the flow chart. Input information on crossroad percentages, processing time per step, the size of postponement were all checked during the project. The outcome that the model generated was validated. In short; the model became a model representing their local district. There was now enough confidence to continue, start playing with the model and examine the output.

By simulating all kind of different scenarios we learned about the dynamics within the system.

Dominance in the system

When we simulate the model we start with an empty stock and constant inflow of 47 new cases per week. It takes 20 years before there is equilibrium. That is when the stock and all output are constant and there is a steady state. This is an indication that when parameters change it can take a long time for the effects to be fully visible and for the model to return to equilibrium.

When we look where the stock is located we noticed that there is almost three times more stock in the paper route than in the oral route despite the fact that there are almost four times more cases sent to oral route than to the paper route. This imbalance has great influence on what policies are suitable for decreasing the processing time.



Policies for reducing the processing time

At the start we asked the participants what policies they thought were most effective for reducing the overall processing time. The answers were:

- Reducing the process time of finding suitable experts
- Aiming at a high settlement rate during oral treatment
- Sending cases through the oral route instead of the paper route

If a case needed an expert it took three months for the expert to report back to the judge. In comparison with other districts where it took sometimes a year this was a very good result.

In order to see if policy is effective we decreased processing time of consulting an expert from three months to six weeks. In practice an average of six weeks between the request for an expert and the expert reporting back is virtually impossible. But this is a simulation model, so we can play with it in order to see sufficient amplitude in the

results. The processing time decreased from 55 weeks to 54,5 weeks. Not a very impressive result.

Next we tested the policy by doing the opposite. We ran a scenario where the time was increased from three months to one year. This is more realistic. The processing time increased with two and a half weeks. This was much less than expected. The conclusion is that the time it takes to find a suitable expert is not dominant in the overall processing time. So the policy of reducing the processing time of finding a suitable expert is not effective for reducing the overall processing time. The reason that people named the experts as an important factor is that almost everyone knows an example where it took years before the right expert was found. In people's minds the extreme becomes the average. In practice there are only a very few cases that need an expert so the contribution to the overall processing time is very limited.

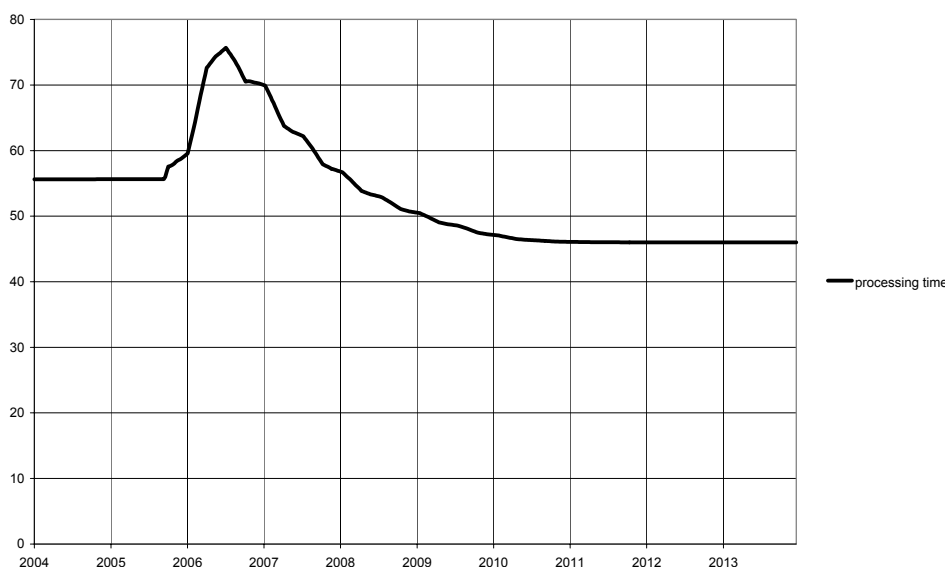
The second policy named to reduce the processing time is a high settlement rate. If a case is settled it leaves the system at the oral hearing. The processing time of a settled case at oral hearing is therefore shorter than a case that needs a written verdict after an oral hearing. Therefore the overall processing time will decrease. The idea that the settlement rate can be influenced by the judge and if so should be, is controversial. The controversy is: should a judge influence the outcome of trial? But what everyone agrees on is that the influence of the judge on the settlement rate is limited. The nice thing about the model is that it is not limited. So we can choose values for the parameter that are unrealistic in practice. We found that the participants find this difficult but we encouraged people to do this because there is a lot to learn from the extreme.

In order to test the effectiveness of the policy we increased the settlement rate from 30 percent to 60 percent. The overall processing time dropped only with two and half weeks. Realistically the settlement rate can perhaps be influenced by a couple of percent. This has no significant impact on the overall processing time. So the policy of increasing the settlement rate in order to decrease the overall processing time is not very effective.

So what does influence the overall processing time? Because cases that are parked have such a long processing time and the stock of the 'parked cases' makes one third of the total stock, these cases have a dominant effect on the overall processing time. If we want to decrease the overall processing time significantly a policy should focus on the parked cases.

The third policy named was to make sure to only send a case through the written route if it is necessary. In this case already 90 percent of all cases were directly sent to the oral hearing and only 10 percent were sent back to the paper route after an oral hearing. In comparison with other districts this is already a high figure. To test the effectiveness of the policy we simulated what happens if the percentage that is sent to an oral hearing drops. If we decrease the percentage to 80 percent the overall processing time increases from 55 weeks to 66 weeks. It takes more than 20 years to fully expose this effect.

Another effective way to decrease the overall processing time is to change the policy for parked cases. Instead of checking what to do with parked cases once every 18 months we check it once every 6 months. This also is controversial within the judiciary but some other districts already have done this. The effect of a change in this policy is a decrease in processing time from 55 weeks to 46 weeks. But in the short run the processing time increases to 75 weeks. What happens is that when you clean up, a lot of ‘old’ cases, with long processing times, are leaving the system. So there will be an imbalance between ‘old’ and ‘young’ cases that causes the overall processing time to increase. Gradually the old cases leave the process until there is new balance between ‘old’ and ‘young’ cases.



Duration of parked cases from 18 to 6 months

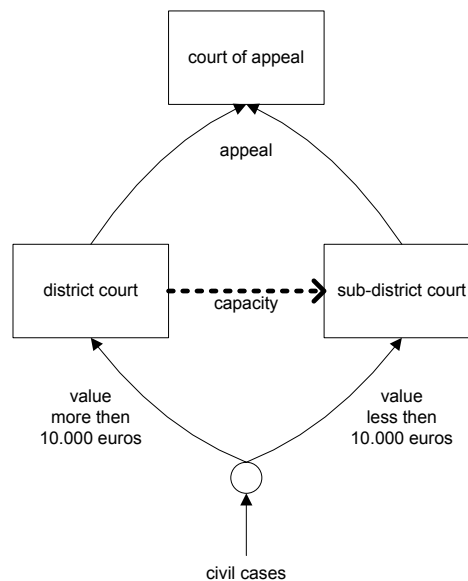
In conclusion: it is possible to reduce the overall processing time. A good policy for reducing the overall processing time should focus on reducing the parked cases. Policies that do not focus on the parked cases will have a limited effect on the overall processing time.

We already had some great results to report back and, more importantly, the participants in the project team fully believed in the model and the drawn conclusions. We asked the project team if there was currently a problem that they were handling for which we could use the model. The question of the day was the possible change of the limit for civil cases that determines if cases are handled in the district court or in the sub-district court. In the next section it is explained how the model was used to support the decision making. It is also explained how during this process a new stakeholder was discovered.

Decision support

In the beginning of this paper we described that there are district and sub-district courts. A case involving an amount lower than 5.000 euros goes to a sub-district and

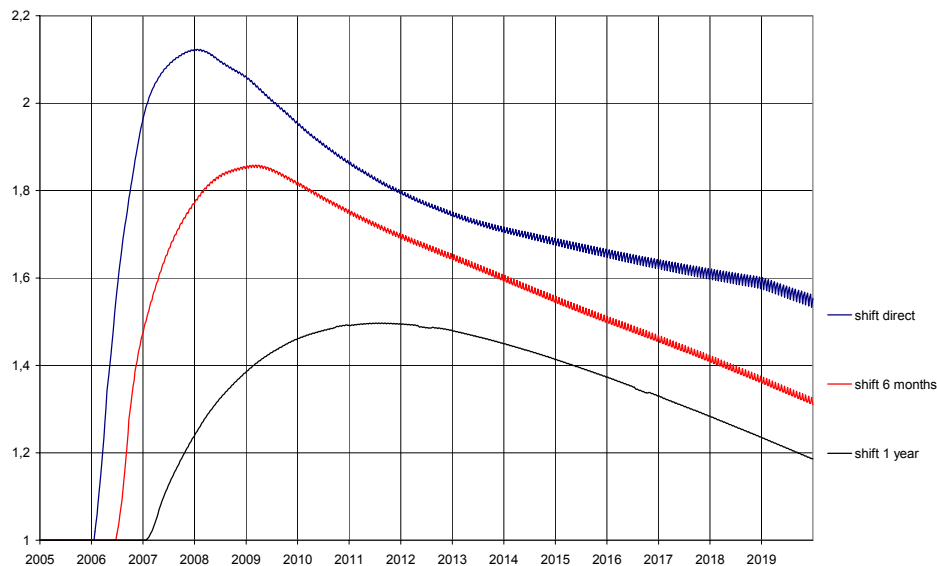
case higher than 5.000 euros goes to a district court. The council for the judiciary played with the idea to raise the limit to 10.000 euros. One of the arguments was that due to inflation the limit should also be periodically upgraded. Another argument was that sub-district courts can process a case much faster than a district court; an average of three months compared to one year. If the limit was going to change, all cases between 5.000 and 10.000 euros would now need to be handled by the sub-district courts. This is only possible if capacity is switched from the district to the sub-district courts. The intention is that this is done without any extra salary costs since no extra judge are needed.



So the council for the judiciary asked the districts how many cases between 5.000 and 10.000 euros are dealt with, and how much capacity is needed for handling these cases. This problem is political because it directly involves people. It is argued that there are great culture differences between districts and sub-districts, and therefore the shift of people to the sub-district court will not be successful. The total inflow will increase. The higher limit would make it easier for citizens to take a case to court since no lawyer is mandatory in a sub-district court. This will attract more cases. The district court is also a training institute for new judges. Therefore, shifting the relative ‘easy’ cases to sub-district courts will also lead to the loss of good teaching material within the district courts. This could lead to quality problems in the future. In short, it is a very complex discussion with a lot of arguments.

Instead of modelling all these arguments we used the current model to demonstrate how it can already support decision making. We demonstrated how the model can help with determining the required capacity in the future. Not only the total reduction of capacity in the end, but a well-founded plan when capacity can be missed. In other words if lesser judges are needed due to a decrease in inflow; how many judges do I have to let go in the future and when do I have to let them go. In addition, we can see if there are any unexpected side-effects.

The question how many cases lie between 5.000 and 10.000 euros and how much capacity is needed to handle these cases is not a difficult one. That is you do not need a system dynamics model for this. There is enough experience within the district court to answer this question. Approximately 30 percent of the cases lie between 5.000 and 10.000 euros. This means a decrease from 47 to 35 cases per week. It is estimated 25 percent of the judge staff could then be shifted to the sub-district courts. When we asked the project members from the district court when the staff would no longer be needed the answer was: after six months. The idea is that 90 percent of cases take half a year to process so after six months most of the cases are out of the system. The results of a scenario with a decrease at once at the beginning of 2006 confirm the estimated loss of cases and required staff. But the extra information that the model provides is that this should be done more gradual than estimated in advance. The graph below displays the results of several scenarios we simulated.



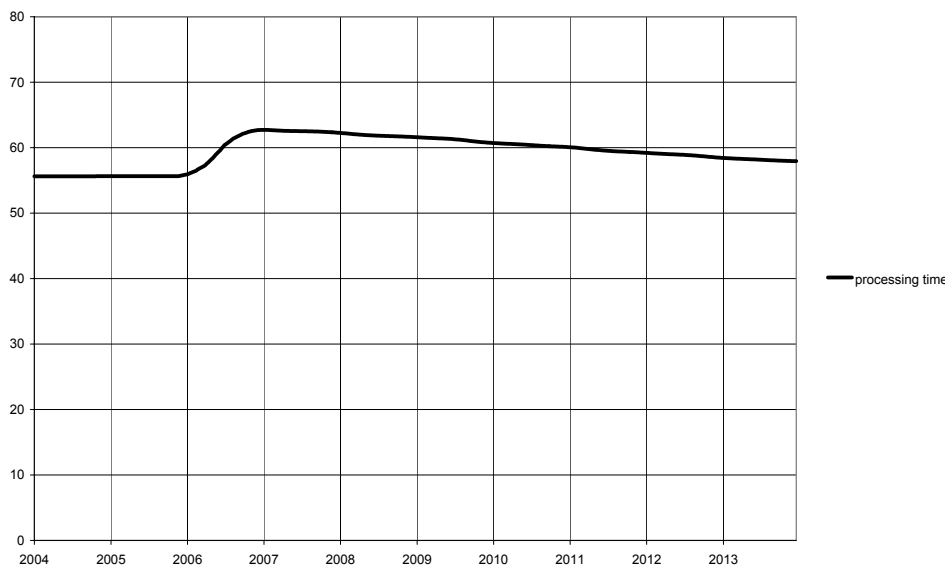
Ratio required vs. available capacity for writing verdicts

The following assumption is made: at the start of 2006 there is just enough capacity to handle all cases. In practice the capacity is a bit higher to make sure that small fluctuations do not instantly create a backlog. But after the shift of capacity from the district to the sub-district this extra capacity is still required. Therefore the assumption is valid.

When the shift of judges takes place at the same time as the raising of the limit to 10.000 euros at the beginning of 2006, there will be great capacity shortages in the beginning. But after two years the shortages will decrease. This is due to the fact that in the long run there is enough capacity available. Shifting all the judges after six months or even shifting them after one year still leads to temporary capacity shortages. The reason shortages arise even after one year is that it takes many years before all the 'old' parked cases have been cleared out. So a fast drop in the inflow does not mean automatically a fast drop in the outflow.

A good scenario from the district courts point of view is that the shift of judges should occur gradually, making sure that there is enough capacity to deal with the ‘old’ parked cases in the future. In practice this means that the staff should be reduced with one judge less than originally planned to make sure no backlogs are created.

So if we gradually relocate the judge staff making sure no backlogs will occur, are there still any unexpected side-effects? One of the side-effects, no one thought of in advance, is that the decrease of cases has great effect on the overall processing time. If we reduce the inflow by half and make sure that we have enough capacity at all time, the expectation is that it does not effect the overall processing time since the system and all its properties have not changed. This is correct, in the long run. In the long run the overall processing time is still 55 weeks. But in the short run the overall processing time increases to 65 weeks and takes 20 years to return to its original equilibrium. The reason for this phenomenon is due to the decrease in inflow, the imbalance between the paper route and the oral route is in the short term enhanced. That means that there are a lot less oral cases to be judged almost instantly but the number of paper cases decrease at a much slower rate. In the long run the ratio will be same as before the drop of the inflow.



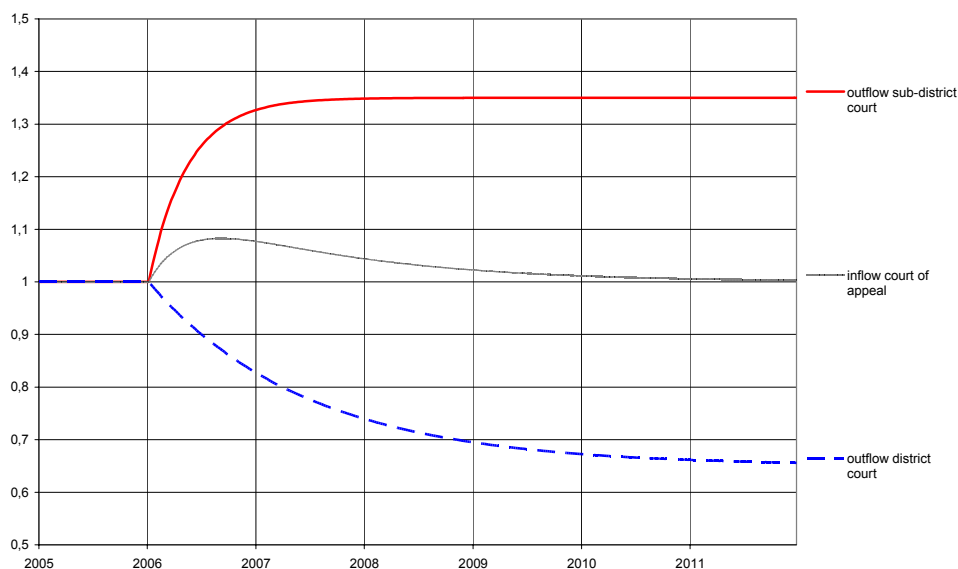
Decrease inflow from 50 to 35 cases per week

One important lesson is that people tend to think in equilibrium. We do not always realise that it takes time to move from one equilibrium to the next, even if the outcome from the equilibrium is the same.

The discovery of another stakeholder

In order to make sure that there will be no capacity shortage at the district courts the shift of judges to the sub-district courts should be done gradually. But this causes a problem for the sub-districts because they need the extra capacity immediately to handle the extra cases! The means for the first couple of years extra capacity should be

made available. In other words it is not possible to change the limit to 10.000 euros and prevent backlogs without extra capacity and thus extra personnel costs. In order to demonstrate this we created a new simple model that included the district courts, the sub-district courts and the court of appeal. With this model we discovered another stakeholder that was not included in the discussion so far but is effected; namely the court of appeal.



Relative change in outflow (sub) district courts and inflow court of appeal after the change of the limit to 10.000 euros

We start with the assumption that extra capacity is made available so that both the district and sub-district courts have enough capacity to process all cases. The figure shows a gradually decrease of the output for district courts. The increase of the output for sub-district courts, is in comparison almost directly visible. This is because the sub-districts do not have a dominant volume of parked cases. Therefore the processing time is much smaller. The consequence of this is that the sum of the output from the district courts and the sub-district courts is in the first couple of years higher. Under the assumption that the percentage of appeal is not effected, the inflow of the court of appeal will also be higher for the next couple of years. In practice this means that in order to prevent a backlog at the court of appeal there is also extra capacity required.

So the model revealed new insights in what happens if the limit is raised to 10.000 euros. If one wants to prevent a backlog after the change, extra capacity is required for the district and the sub-district court. If the extra capacity is made available the change will lead to a temporary raise of the inflow at the court of appeal. In order to prevent a backlog at the court of appeal there should also be extra capacity made available. In other words the court of appeal is also a stakeholder and should be included in future discussion.

Finally I would like to emphasize that models like these should be used as a decision support tool. It is not a matter of translating the results into action. There are many

factors in real life that are not included in the model. Therefore the final decision may be very different. The model is just a tool to lift some of the fog surrounding a problem like this.

Sharing the results

In the end we presented the model, the results and the process of accomplishing this to all participants. During this presentation the discussion shifted from a technical discussion about the model towards an intrinsic discussion about what does this mean for controlling the district court with respect to processing time. The president of the civil sector at the courthouse where we conducted the pilot directly translated the new insights into an action. She said that she and her team were going to check parked cases the next day to see if there were any cases that should not be parked anymore.

The overall conclusion was that system dynamics is a great asset in gaining new insights into problems. Later on at the annual conference of Justice the pilot project was presented by the participants of the project. The president of the civil sector stated about the project: 'Maximum result with a minimal effort'.

Perhaps the greatest value of the model lies in the fact that the flow chart and the model help in discussing a problem in a clear way. Instead of just discussing the problem orally, people can use the flow chart and the model to exactly point out what they mean when addressing a specific topic. In other words people better understand each other. One of the participants from the pilot said: 'It does not only answer my questions, it helps me to formulate new questions'.

Since the pilot we implemented the model at other district courts and started a similar pilot project for sub-district courts. An implementation is not just filling the model with numbers but a process of collectively looking critically at the model and making sure the model represents the local situation. In other words there is only a possibility of success if the model is not a black box.