Table 4. Characteristics of the e-Court System for rendering Default Verdicts in Debt Collection Proceedings

Key Task in Debt Collection Proceedings under Dutch law	Characteristics of the e-Court System for rendering Default Verdicts in Debt Collection Proceedings	
	System Requirements	Nature Rule-Based / Frames and Semantic Nets / Case Based / External ES/ /Human Intervention
1. Identify the Parties, and verify their data (birth date, address)	Import the data from the documents (contract, copy of invoices) and verify the data against the state's formal registers.	External ES (court bailiff's)/ /Human Intervention (court bailiffs)
2. Establish competence of the court	(a) Review the contract for a forum choice; (b) Establish that the Defendant (i) was duly notified, (ii) did not use his right to evoke competence of the public court	(a) Human Intervention takes place prior to the admission of a Plaintiff to the e-Court system in a principal, pro-active manner rather than in a reactive case-by-case manner; (bi) External ES (court bailiff's expert system, (bii) External ES (court bailiff's expert system
3. Establish that the proceedings were held in accordance with the court's Arbitration Rules	E-Court System does not allow to deviate from the Arbitration Rules, and the Parties have editing rights for claim/ defense/ reaction/ final defense	Rule Based ES
4. Select correct template for a Default Verdict	In the absence of an uploaded defense into the e-Court system, the status of the case is Default. The selection of the template is linked to this status.	1. Case Based System 2. Rule Based ESs
5. Award the claimed amounts	Due to the lack of defense the claim is awarded fully	1. Case Based System 2. Rule Based ESs 3. Semantic Networks
6. Produce the digitally signed original, as well as an unsigned copy of the completed verdict	Make the verdict available in PDF, and allow for the original document to be digitally signed.	Administrative Software
7. Determine that the claim is not unjust or unlawful		Human Intervention takes place prior to the admission of a Plaintiff to the e-Court system in a principal, pro-active manner rather than in a reactive case-by-case manner

systems; if no verdict has been composed continue the work by reasoning in a semantic network.

The stages 6 and 7 are more elementary and can therefore be performed by Administrative Software. Of course, in a human court, it will be done in interaction between human beings and administrative programs.

We will explain the simplicity of the computer procedure by using an example in relation to the establishment by the judge whether or not the court is competent to render a verdict. Let us assume that a health insurance company in the Netherlands wishes to submit its debt collection cases to e-Court for handling it according to the existing legal ruling. The company indicates that there will be approximately 30,000 legal proceedings per annum. As to the first System Requirement, the digital judge will not have to make the assessment on a case by case basis. The assessment is made in an earlier stage, being the moment when e-Court decides whether or not to give the health insurance company access to the e-Court System. There is a plaintiff acceptance policy established, which is similar to the "know your customer" rules and regulations in the financial industry. One topic of investigation is a review of the standard contract used by the Plaintiff, in order to determine whether the standard contract contains a forum choice for e-Court. Following this due diligence of the future Plaintiff, which includes discussions in the field of consumer protection, the Plaintiff will or will not be accepted. This process is performed by human intervention, as e-Court prefers to establish a level of trust and would like be convinced of the integrity and the good faith of the Plaintiff.

The third conclusion is that the success of AI in the legal system will largely depend on (1) finding a well-considered path through a minefield consisting of the almost infinite number of technical possibilities, (2) the limited financial resources, and (3) the hindering complexity of the legislation, as well as (4) a legal conservative culture that enhances professional fear and mistrust of applying new ideas in practice.

A brief analysis results in the following. (1) finding a path will be perfectly performed by the current AI-programs, (2) the limited financial resources are advantageous for the computers, (3) the complexity of the law with respect to using computers is currently a real obstacle, and (4) the legal conservative culture among lawyers is the main obstacle for computer courts.

Following to point (3) and (4) above, the introduction of the first digital (i.e., non-human) judge in a legal environment as performed by e-Court had to be taken with utmost care. Hence, e-Court started resolving conflicts of a non-complex nature. Here it was soon revealed that even a simple software tool can evoke a huge impact on the legal system. The rationale behind the cautious policy is that a conservative approach of even a small step in technology can show the promise it entails. By doing so, e-Court has successfully averted the danger of falling into the trap of highly complicated, time consuming and expensive development processes that in the end would have resulted in a system far

too sophisticated for the tasks ahead. The lessons learned over the past six years allow for further steps in the use of AI in legal decision making.

4. The Rise of the Robotic Judge

In view of the information provided, we acknowledge that there are many more benefits of the e-Court robotic judge in relation to our case study. We will restrict ourselves to a discussion of three (evident) benefits of the use of the digital judge (see 4.1.), followed by a presentation of one major legal complication (see 4.2.). We will then describe how the public courts currently process the verdicts and how they should be processed within five years (see 4.3.).

4.1. Three benefits of the e-Court digital judge

The first benefit is that the digital judge works fast. In today's world large numbers of well educated, well organized consumers participate in the economic and legal community. Since consumers purchase many goods and take even more services (with as implied consequence the emergence of many conflicts), the demand for justice has equally grown and now reached a scale that makes the use of ICT-tools a necessity.

The second benefit is that the digital judge can be considered the "most objective judge of the Netherlands", as the judge is impartial and will give rulings without favoring any of the parties involved on the basis of past or present relationships, misplaced empathy, admiration or other subjective influences in the decision making.

The third benefit is that the digital judge works without miscalculations. The software has been designed in such a manner, that all amounts are calculated without the risk of human error. (We disregard here, on purpose, the Volkswagen case.)

Finally, it is recalled with much emphasis that the benefits are based on handling conflicts of a non-complex nature.

4.2. The major legal complication

There is one major legal complication in relation to the performance of the digital judge as seen from a legal point of view. Despite the benefits of using AI in decision making, Dutch legislation does not provide for the possibility of a digital judge. Its incorporation in the laws and regulations is not to be expected soon, although there is currently some reconsideration. The last fundamental modernization of the arbitration rules has just taken place, and the new arbitration law has come into effect as of January 1st, 2015. The solution to this problem

required some legal engineering. The outcome thereof is the situation, whereby the digital judge renders the verdict in the name of the (human) judge. The task of the human judge is therefore limited to a random testing of the verdicts. To date, there has not been one case in which the human e-Court judge was able to improve the verdict by the digital judge.

4.3. Handling the executional process by the public court

Prior to the execution of an arbitrational verdict, one must still obtain a title for execution under Dutch law. These titles are listed in article 430 Dutch Code of Civil Proceedings. In relation to arbitrational verdicts the parties will usually seek permission for execution from the public court (article 1062 Dutch Code of Civil Proceedings). The procedure for obtaining the right of execution is as follows.

Since 2011, the original, digitally signed verdicts in PDF are sent to the public court, as an attachment (on a CD, USB or other data carrier) to a formal petition (on paper). The court will then print all verdicts on paper, and a court's clerk will manually insert the data, such as the names of the parties, the name of the (human) e-Court judge) in the public court's system. The clerks will then recalculate manually the awarded amounts (claim amount, interest rate, and other costs). This process is manually executed one verdict at a time.

To date, there has not been one case in which the clerks were able to improve the calculations in the verdict. However, there have been examples whereby human error occurred as a result of manual process of the clerks copying all data into the public court's system. We are curious to see how long this procedure would hold its position. We believe that within five years tables have been turned.

5. The future of the digitally produced judgment

In this paragraph we will briefly review two views (viz. by Susskind (see 5.1.) and Van den Herik (see 5.2.) relating to the expectations about the future digitalization in the legal domain. We complete the review by Richard and David Susskind's *"The Future of the Profession"* [49].

5.1. The end of lawyers?

The first view is taken from the book by Richard Susskind with the daring title *"The End of Lawyers?"* [50]. In our opinion this is an important pointer for those who have an interest in how the legal profession will evolve in the time ahead. It relates technology (especially the Internet), collaboration, globalization, and other forces.

Obviously, they are changing the fundamental rules of providing legal services. The book contains several key observations about how the legal marketplace is being transformed. [51]

The central idea is the identification of an evolving and fluid spectrum of legal services categories: (i) bespoke (one-off, highly specialized and highly priced), (ii) standardized (drawing upon precedents, process or previous work), (iii) systematized (reduced and applied to automated systems), (iv) packaged (systematized services exported to clients) and (v) commoditized (packaged services so commonplace at a low price). Most lawyers and judges insisted until a few years ago that their practice consisted of rare and unique cases which eliminated any form of standardization, let alone that they could be commoditized.

In 2010 the senior author (HWN) of this article participated in the expert panel with Susskind (and others), on the occasion of a seminar on the commercial law practice in 2020, at the Dutch Nyenrode University. The discussion focused on the five above mentioned observations. The decomposition of legal tasks into component parts that can be delegated to various sources, was the main issue; only few of the actual law firm lawyers accepted this view. However, in our opinion, the developments offer tremendous opportunity for more efficient and effective legal services; we admit that they also represent major threats to various aspects of the traditional law firm business model. In fact, in the Netherlands we have already seen this development in practice in the debt collection industry. A part of the legal practice required the intervention of (specialized, highly priced) law firms until the late 1990's. After the turn of the century (1), lawyers played a much smaller role in the debt collection industry and (2) legal advisors of various sorts (paralegal offices, court bailiff organizations) took over. Software allowed for standardization and a systematic approach packaging and debt collection became a commodity.

In the same time in the Netherlands, Henriette Nakad-Weststrate had already evoked some debate defending the argument that e-Court was an example of the accuracy of Susskind's vision, as court proceedings had already developed from a luxury product into a commodity. One of the underlying assumptions widely supported is that one can recognize the quality of the work by the cost of the services. The advocates of this statement emphasize the human notion "speed equals lesser quality" due to the rush with which the work was done. Yet, they will soon learn that for computers the reverse is true.

5.2. Judging court cases changes from a human activity to a computer based activity

The second publication we review is the contribution by Jaap van den Herik and Jan Jaap Oerlemans to the Evening of Science and Society 2014 around the theme *Blueprints of the future, today's science is tomorrow's world* [52].

Their contribution was presented around the statement *"Judging court cases is changing from a human activity to a computer based activity"*. In the article "Lawyers follow chess players" they noted that some lawyers seemed to have established as a fact that no single computer had ever been attributed the competence to adjudicate. Therefore, computers could never judge court cases. Other lawyers, who had an open mind to the notion as such, indicated that computers could never interpret correctly the vague norms and could never judge court cases for that reason. Still, almost all lawyers acknowledge that computer science facilitated the legal practice, and that data science will do even more so.

Van den Herik and Oerlemans simply stated that the judges will definitely follow the chess grandmasters. They are completely outperformed by the chess programs. There is no reason to assume that the world of lawyers is different from the world of chess grandmasters.

Next to *Deep Blue* beating Garry Kasparov– world champion at that time – in 1997 at the chess table, we have seen that the software program Watson proved to be the best player at the game JEOPARDY! in 2011. So, we can no longer deny that computers are marching on. Computers are better at searching, creating, and predicting than humans. Therefore, the significance of computer science for the legal practice will only increase.

Computer science does not only change the services of the legal profession, but also the society in which the legal profession operates. Van den Herik and Oerlemans concluded that the specialization of computer science is all-round, innovative and multidisciplinary. Moreover, it raises additional questions.

The most fascinating question that remains in the end is: do people see this development as progress? Possibly even more intriguing is the question: do computers hold the same view?

5.3. Big Data and trends in law

In his Valedictory Address at the Tilburg University (on January 29th, 2016) Van den Herik argues that Intuition is Programmable. [53] This is not only very important in chess, but also in law. The technical details will be suppressed here, but the statement in itself is sufficiently interesting to give it a thought. We would like to refer to the works of Big Data and in particular to the site www.ravellaw.com.

A search machine is able to find the trends in a judge's verdicts and to distinguish peculiarities and also trends in the peculiarities. This implies that (1) human verdicts can be predicted and (2) lawyers have a means of influencing the judge's thought by anticipating on the trend the judge has shown so far.

Within ten years, there is more chess in the court room than there is law in the exciting chess world, where disputes are on secretly using machines during the game is nowadays usual.

In *The Future of the Professions* Richard and Daniel Susskind missed the opportunity to give their opinion on the profession of chess grandmasters. Imagine, the strongest computer program JONNY plays 400 Elo-points stronger than the human world champion. But still the grandmaster tournaments continue, see, e.g., the Tata-steel tournament in January 2016 in Wijk aan Zee, the Netherlands. The Susskinds re-iterated their earlier opinion on law and lawyers as given in [50] and state: "We predict that the legal world will change 'more radically over the next two decades' than 'over the last two centuries'". So, there is still a competition between chess grandmasters and lawyers. The authors believe that the chess grandmasters are the toughest survivors since they really love the game.

6. Conclusions

In this paper we examined the use of AI in rendering verdicts by e-Court, the first online private court in the Netherlands. We discussed the legal decision making in the meaning of rendering default verdicts in debt collection proceedings.

We categorized the parameters required for rendering this type of verdicts, followed by a discussion of the Intelligent Systems in legal decision making. After analysis of the nature of the e-Court system, we had to conclude that the e-Court system makes only very limited use of the available Intelligent Systems in legal decision making. We introduced and discussed the rationale behind the cautious approach by e-Court. We then mentioned (1) three benefits of the use of the digital judge, (2) a major legal complication and (3) the manner in which the public courts process these verdicts.

The question arises whether we could argue that the robotic judge has developed from science fiction to a science fact, by coming into existence in this contemporary court house. Our answer to that question would be: "Yes and no".

The answer is "yes", because the verdicts in our case study are indeed generated solely as a result of the – selective, cost efficient and smart - use of AI, without any human reason or intervention involved whatsoever, once the Proceedings have started.

The answer is "no", because the type of cases this robotic judge can handle do not involve the weighing of arguments, the application of case law (jurisprudence) and a decision model in the case of doubt. In other words, the robotic judge has not yet come into its full power and existence from a technical point of view.

We will therefore not make the case that the robotic judge has come to its full Artificial Intelligent potential at e-Court. Nevertheless, he has indeed been brought to life, and he has successfully performed its tasks over the past four years. Our overall conclusion would therefore be that we are indeed witnessing the rise of the robotic judge in modern digital private court proceedings.

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