E-JUSTICE: NO GROUND FOR OPTIMISM

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Abstract

If we accept the production of inventions to accelerate exponentially, we will very soon have to face the risk of any individual having the capability of mass destruction. Then we require global e-justice services relying on ubiquitous surveillance and pro-active law enforcement in order to face this risk. However, ubiquitous surveillance and pro-active law enforcement by e-justice services may destabilize our legal systems when they reduce natural legitimacy (internal support) as they are expected to do. We do not (yet) know how to model e-justice services that support natural legitimacy. Moreover, we do not have the capabilities to avoid the risks of the knowledge-asymmetry syndrome, currently inherent to e-justice project procurement. Optimism concerning e-justice is romantic.

1 Introduction

Questions

E-justice is one of these terms that have not yet settled as a natural-language concept and yet manages to be attractive to academics, public servants and politicians alike. I understand e-justice as referring to legal-adjudication-and-enforcement arrangements, gradually absorbing more ICT-services in their operational architectures. These services wash ashore on the ICT-tidal waves of our time. In this context it is no more than natural to raise questions (i) about e-justice being a good or a bad thing, (ii) about whether the e-justice choices we make are on the right track or not and (iii) about what influence our choices have anyway. This discussion paper focuses on what light law research may shed on answering these questions.

Methods

As the future of any social phenomenon (including e-justice and its role in society) is unknown, the paper addresses a rather severe problem: what legal knowledge will help us to face, design and evaluate the unknown? Do we have methods and criteria that may help us?

Legal method (adjudication)

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Of course, the legal profession is processing this very problem as a matter of routine when adjudicating individual cases. Then it has to understand the interests and the behaviour of individual parties, and to find a verdict with remedies that not only defines the future relationship between these parties but also expresses how coherence in the law system is maintained and how it will be applied in the future. Doing so rationally implies reckoning with what effects verdict and remedy will have on the future state of the law-governed social system. Consider, as an example, how legal adjudication methods will influence the future of our financial system as it has been and still is melting down. Consequently, mainstream legal methods are relevant to the analysis of our questions.

Legislation method (social design)

What has been said about the legal profession counts *mutatis mutandis* also for legislators. They are also processing the problem of how to face, design and evaluate the unknown by promulgating and enforcing material laws. They have also to take into account the interests of who will be subjected to the new rule. And they will also want to reckon with what the effects of the new rule will be on the coherence and the vitality of the social system they are meant to serve. Consider, again as an example, how legislation methods will influence the future of our financial system as it has been and still is melting down. Consequently, mainstream legislative methods may also help to answer our questions.

There is a wonderful parable by Oliver Wendell Holmes Jr. that relates to the heart of the matter at hand. It is made available in two different phrasings as presented by Jones [5] and Bobbitt [1].[2]

> "I do not pin my dreams for the future to my country or even to my race […] I think it not improbable that man, like the grub that prepares a chamber for the winged thing it never has seen but is to be – that man may have cosmic destinies that he does not understand. And so beyond the vision of battling races and an impoverished earth I catch a dreaming glimpse of peace." [5]

Jones selected the above version as a closing word to soften his rather pessimist analysis of what human destiny we may expect in a context where we only have international law to curb the immense risks of the nuclear age. In this version, the law is not mentioned. But in the other version Bobbitt adapted the original, acknowledging it:

> "Law reflects and at the same time determines the fate and worth of our society […] Like the grub that prepares a chamber for the winged thing it never has seen but is to be, we labor within our forms of constitutional decision to bring into being a just society." [1]

Here, Bobbitt substituted 'cosmic destiny' by 'our labouring within our forms of constitutional decision,' making the second version much more appropriate for his book on constitutional law. Both versions together suggest that material law (constitutional, international) is significant to the destination of mankind, which happens to be a basic assumption founding my argument.

No method at all (or: empirically framing the invisible hand of evolution)

[2] I do not have access to the source reported by both [1] and [5]: Oliver Wendell Holmes Jr., Collected Legal Papers, 1920.

Both legal methods and legislation methods share a clear lack of scientific rigor. They thrive on normative opinions and on strategies to make them enter into the nucleus of core functions in social systems. Individual and collective attitudes to *ought-to* questions are inalienable parts of these. Will social systems perform better when they adopt more comprehensible e-justice systems? What different brands of e-justice promise to be most successful? And what are the criteria for better social-system performance anyway? As it is a Darwin-memorial year, it seems appropriate to adopt a bold working hypothesis and suggest we might be able to look empirically into the history of social systems for rule-set mutations that support forking into different species, the surviving ones better suited to their particular environments.[3] How, then, about the concept of *laissez faire*, of assuming an invisible mechanism of survival of the fittest for different successful species of social systems, and let this mechanism select the inherent normative arrangements? From this perspective the method of empirical analysis of the evolution of social systems with their legal arrangements against their different environments may also help us answer our questions.

Plan of work

As this is a short working paper on the future of e-justice, meant as food for discussion rather than as authoritative research, I feel free to use opinion and experience as basic ingredients for my argument. First I will discuss an extreme vision on the development of artificial intelligence (AI) and add some comments as to what it may mean for e-justice in the future. Then I will summarize some of the risks and some of the blessings e-justice initiatives may entail as discussed in earlier publications [7], [8], [9]. Finally, I give concluding propositions.

2 Kurzweil and his singularity point

Discussions on e-justice are often in two completely different keys. On the one hand a Panglossian tone may be struck when predicting how ICT-services will help improve our adjudicatory systems while on the other hand a more reluctant tone can be heard, pointing at the risks that automation will bring to the art and culture of classic adjudication arrangements. It is indeed remarkable how euphoric one can get about automation in general. Ray Kurzweil provides an extreme example. He suggests the “singularity point” to be near. What does he mean?

The singularity point

Kurzweil’s argument is founded on two observations. The first one plots the percentage of people, using inventions (electricity, telephone, radio, television, mobile phone and internet respectively) against time (roughly from 1860 to 2000) in order to show that mass use of inventions is growing exponentially and has almost reached the point of full saturation. The second observes an exponential acceleration of ‘paradigm shifts’ in history. I let Kurzweil explain the paradigm-shift observation himself:

[3] I here refrain from taking part in the jurisprudential discussions on the evolutionary approach to law (see for an approach I generally agree with; Allan C. Hutchinson and Simon Archer, Of Bulldogs and Soapy Sams: the Common Law an Evolutionary Theory, *Current Legal Problems*, Vol.54, p. 19-59); my reading of ‘law systems’ and the role of ‘constitutional’ rules would require disproportional space and attention for methodological issues in the current context.

> "The paradigm shift rate (i.e., the overall rate of technical progress) is currently doubling (approximately) every decade; that is, paradigm shift times are halving every decade (and the rate of acceleration is itself growing exponentially). So, the technological progress in the twenty-first century will be equivalent to what would require (in the linear view) on the order of 200 centuries. In contrast, the twentieth century saw only about 25 years of progress (again at today's rate of progress) since we have been speeding up to current rates. So the twenty-first century will see almost a thousand times greater technological change than its predecessor." [6]

Kurzweil illustrates this observation with the sheet in Figure 1. Figure 1 plots paradigm shifts ("technical progress") using two identical exponential time scales. If I understand correctly, the first is used to express the intervals between the occurrences of paradigm shifts (paradigm shift time). The second one is used to order these paradigm shifts as moments in history (years ago).[4]

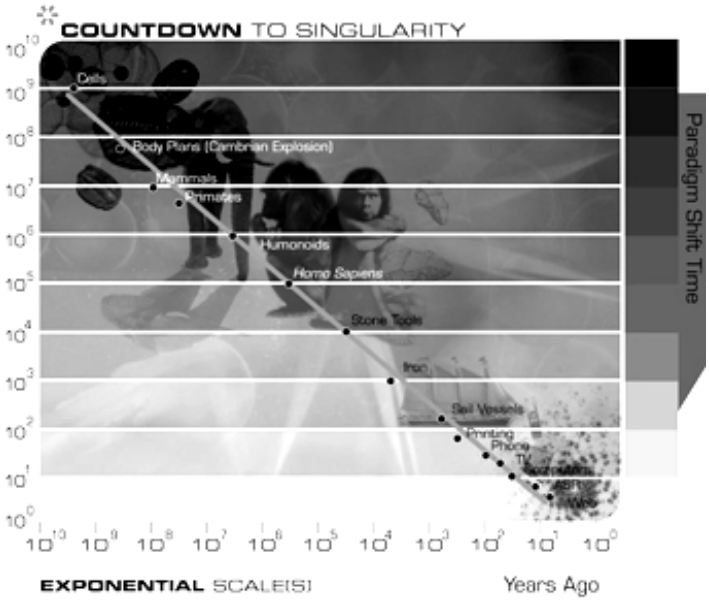

Figure 1: Kurzweil's countdown to singularity

In Kurzweil's interpretation of Figure 1 the exponential acceleration of paradigm shifts is of great importance.

> "If we examine the timing of these steps, we see that the process has continuously accelerated. The evolution of life forms required billions of years for the first steps (e.g., primitive cells); later on progress accelerated. During the Cambrian explosion, major paradigm shifts took only tens of millions of years. Later on, Humanoids developed over a period of millions of years, and Homo sapiens over a period of only hundreds of thousands of years.
> With the advent of a technology-creating species, the exponential pace became too fast for evolution through DNA-guided protein synthesis and moved on to human-created technology. Technology goes beyond mere tool making; it is a process of creating ever more powerful

[4] I must confess that my reading of the axes in Figure 1 must be confused, as the first one mentioned is redundant once we employ the second. If my reading were right, all paradigm-shift points would land exactly on the plotted line. As some of these points are slightly off, I must miss something. What I am missing does sadly not become clear from Kurzweil's explanation [6].

> technology using the tools from the previous round of innovation. In this way, human technology is distinguished from the tool making of other species. There is a record of each stage of technology, and each new stage of technology builds on the order of the previous stage." [6]

Apparently, considering the background illustrations in the upper half of Figure 1, Kurzweil has found inspiration in Darwin [4]. Nevertheless, his main point is depicted by the vortex in the lower right corner of Figure 1. This is the singularity point, the point where paradigm-shifts get so densely compressed in time, that we will no longer be able to cope and will have to accept that the products of artificial intelligence, combined with nanotechnology will take over in a world we no longer understand. The next species Kurzweil envisages is an in principle immortal, enhanced concoction of mixed artificial intelligence and nanotechnology, based on an exhaustive scan of an individual's nervous system. The new species may be brought to life by gradually replacing parts of the human beings that are to be transformed into it. The best the remaining[5] mere humans may then hope for is that their species will be tolerated by the next after it has taken over. One cannot but wonder what will happen to e-justice after the singularity point has arrived. One of its first quests will be to decide on who will be immortalized and who will not.

Some comments on singularity-point thinking

Considering Kurzweil's rather considerable techno-optimism, I would expect him to predict that his new 'species' will be organized under some extreme high-quality form of e-justice, although he is not very clear about it where it matters. What he *is* clear about are the dangers that accompany technological paradigm shifts that are meant for the good, yet may be employed for the bad. Past, current and future examples are technical paradigm shifts allowing for kaleidoscopic threats to realize, e.g., chemical, nuclear and biological warfare, global heating, computer virus attacks and terrorist actions deploying self-reproducing nanobots. I do not share Kurzweil's optimism, as I do not see how the extreme high-quality form of global e-justice required will emerge from first copying current humane intelligence and subsequently let it improve itself. There are real threats in technological progress and in the ways we may employ its results.

One of the most amazing aspects of [6] is its complete blind spot for law systems as significant environments to how inventions will be used. Another surprise is Kurzweil's use of 'paradigm shift,' embodying both significant DNA-mutations *and* moments of significant technical progress, thus blurring the connotations of both concepts. I simply find it very hard to stomach humans with- and humans without a particular batch of new inventions as different *species*. And I find it excessively romantic (Mary Shelly-like) rather than scientific to consider the immortal bionic man to represent a species at all.

Nevertheless, I partially agree with Kurzweil's argument. Technical progress is accelerating exponentially indeed, and, with it, the threat-rate of mass-destructive abuse is accelerating towards quite another singularity point: the moment that a single individual will be capable to mass-destruct its proper species on earth. Where singularity-point thinking leads to fantasies about turning some of us into immortal bionic men with superhuman intelligence, I loose interest. Where singularity-point thinking leads to worries about a world wherein a, any, single individual is capable of mass

[5] As this process when available must be quite costly and not available to all, selecting who may and who may not be converted into an instance of the immortal 'next' species must be considered to belong to the class of tragic choices [3].

destruction, I do not. Assuming the president of the United States of America to be one of the few individuals who currently have mass-destructive capabilities, we hope (sometimes in vain, though) that the law guides his decisions. We may need to rethink our legal arrangements however when mass-destructive capabilities get randomly proliferated over individuals. When the enormity of the risks involved requires pro-active enforcement (including surveillance), we may even need to turn to quite comprehensive e-justice services in order to survive. If better (e-)justice would help, we need it now. But first, we need to understand its dangers, and how to manage them.

3 Expected risks and blessings of e-justice

Let me now turn to less futuristically oriented observations and summarize some of the risks and blessings for e-justice I have discussed earlier and elsewhere more at length. I follow the path down from the Olympus of singularity-points, via the slope of more traditional artificial-intelligence [8], descend further onto the ridge of law-system quality thinking [9] and end down to earth, at the actual state of affairs in the Netherlands [7].

Ought Computers Adjudicate?

One step down from singularity-point thinking lays conventional AI-thinking. Whether computers ought to adjudicate if they perform consistently better that human adjudicators is a typical AI-and-law question. In [8] I discussed this question analytically, finding the following risks and blessings along the way.

1. The risk to *natural legitimacy* of a law-system's jurisdiction under AI-level e-justice. When we consider jurisdictions (or law systems) to be social systems of which legal arrangements are a part, we face questions about their origin and sustainability. One approach is to assume reciprocal value equilibriums to exist that mark the area where members of social systems are no longer motivated to comply with the system's judicial arrangements. Systems that remain within this line have natural legitimacy and will motivate the majority of its members to comply. Systems that cross it do not. Several revolutions (French, American, Eastern Europe) come to mind as examples. Transferring judiciary functions to ICT-services requires knowledge about and continuous monitoring of the natural legitimacy of the social system it serves. There is little evidence that we know enough to model how to do this.
2. The risks of the *incommensurability trap*. Accepting the natural-legitimacy equilibrium(s) to involve functions that perform rational evaluations, we need to know what these functions are and how different values are made commensurable if our ambition is to have AI agency in these matters. But we have only got somewhere with *economic* value. As we do not know how to make the values *e.g.* of public order, of freedoms and of ideals commensurate, let alone how to process these values into a single measure of natural legitimacy operative to all members, we would take serious risks when transferring these tasks to AI applications.
3. The blessings of *countering conventional legitimacy-producing mechanism failures*. Of course, we take exactly the same risks when we leave avoidance of the commensurability trap to the discretion of human judges and civil servants. Our current legitimacy-producing mechanisms, of which (e-)justice is only one, are based on trust. Trust in an invisible hand, working towards optimal natural legitimacy, expected to emerge from individual decisions by independent judges who heed material law and who decide in awe of their reputation among peers when material law is not available or clear. As said, in conventional justice we take exactly the same risks as in AI-supported e-justice. Analogous to economics, in law

science we may also trust our capabilities to recognize and understand clear *failures* of the conventional mechanism. And yes, if we do recognize and understand such failures, we may opt for AI-based e-justice services to counter them. A famous example would be the Sentencing Guidelines as introduced in the 1980s in the USA judicial system as a countermeasure to consistent discrimination in conventional sentencing.[6]

Thus, we may do well when we limit our AI-mediated e-justice services to these functions we understand, or, if we do not, to these functions we at least know to yield superior results.

Radbruch in Cyberspace

There have been times when the quality of legal systems was heavily debated between legal theorists. One of them, Gustav Radbruch, had intimate empirical knowledge of the German legal system in its different appearances before, during and after Nazism. He started out as a positivist (also the current mainstream position in legal theory), that is: accepting all law to be valid that was promulgated in accordance with valid rules and procedures. He felt unable to uphold this position in the face of what happened during and after Nazism, because during Nazism its laws were carefully based on valid rules in the sense of the positive-law position and some immediate post-Nazism rules were retroactive. Thus Radbruch started a search for normative criteria that legitimate revolt against valid material rules, meanwhile shifting from a positive-law to a more natural-law position. However, *ought-to* answers to *ought-to* questions may be of very little impact in the face of law systems, that actually take a positivist turn for serious bad quality. In my reading, Radbruch's problem is not to be addressed by analyzing how to invalidate bad positive law through theory, but to theorize about how individual and collective revolt (actual behavior) against positive law relates to law-system quality. This is the type of knowledge we need when introducing e-justice services, as they will affect the quality of the law systems they serve.

If a legislator creates a new law system's rule, individuals participating in the law system have the following behavioral options:

- to comply,
- to try and leave the law system, or
- to revolt against the law system,

and those outside the system have the following options:

- to try and join the law system,
- to try and cooperate with the law system,
- to try and fight the law system.

We can in principle *count* these (or similar) behaviors during periods of time, and link them to individuals. We can also try and analyze *why* these behavioral options are chosen. And finally we can try and interpret the figures and the motivations into confutable *models for law system quality*. This approach might create the knowledge needed for adequate legislation, enforcement and adjudication policies anyway. Sadly, this line of work remains in the blind spot of mainstream law-science scrutiny. All this leads to the identification of another risk for introducing e-justice services.

[6] AI people will not recognize these guidelines as AI-services. Nevertheless they serve as such. Their operation is autonomous and without human intervention. As such, they may be considered to belong to the class of Intelligent Agents. And, as such, they show the risks mentioned. It is likely that banning discriminatory attitudes from the USA judiciary would be better for natural legitimacy than the introduction of mechanical guidelines.

4. The risks of *scientific ignorance on law-system quality*. These risks are there, whether we use e-justice services or not. They only become more and more urgent, as the deployment of e-justice services becomes unavoidable in the light of the current trend towards pro-active protection against security threats of ever, exponentially increasing size. The framing of science-based security threats tends to urge for additional digital enforceability regulations, creating laws supporting digital surveillance services, in a political decision making process, characterized by a lack of scientific knowledge about how to gain and preserve law-system quality.

Looking at the variables mentioned, and that are supposed to make research into law-system quality possible, another matter of concern may be brought forward. Legal systems are law systems are social systems are institutions – and let me say again: as it is a Darwin-memorial year, it seems appropriate to adopt a bold working hypothesis and suggest we might be able to look empirically into the history of institutions for rule-set mutations that support forking into different species, the surviving ones better suited to their particular environments. Thus accepting the Darwinian explanation of the origin and preservation of species in the struggle for life as a parable for the origin and preservation of institutional species, we may wonder if and how we can influence the last. Of course we can influence the *origin* of institutional species, as we may agree (or be forced) to create them and to accept their defining constitutions. Things become more complex when we want to *preserve* institutional species, as preservation is dependent on the environment. The environment of institutions is largely made up of other institutions we have no jurisdiction over. According to the parable those institutional species will survive that better respond to (protect themselves against, fit in) changes in the environment *and* maintain adequate natural legitimacy internally.[7]

It is clear that ICT developments create an environment in which new institutional species may thrive and old ones may be extinguished. Especially interesting to whom is worried about e-justice services it may be noticed that centrally supported peer-to-peer services like Google and Wikipedia tend to adopt both characteristics, that of an institution and that of a *global* environment for other institutions. And that Google and Wikipedia show both adequate responses to their environment *and* adequate internal legitimacy.

If the singularity-risk of any individual being capable of mass destruction becomes real, we will be in sore need of e-justice services that operate as global environment real soon. And if we want to support the preservation of our e-justice services as institutional species, we should design their architecture accordingly. Thus there is another risk and another blessing for e-justice:

5. The risk of designing e-justice services in a manner that will prevent them to participate in a global service.
6. The blessing of available ICT architectures that support global *de facto* cooperation of individual e-justice services.

To here and no further with law-system thinking. For if we look at the current state of the art of e-justice in a developed country like the Netherlands, we may lose our confidence in what the mechanism of survival of the fittest institutional species as suggested by the parable employed will do to our legal arrangements.

[7] Interesting in this context is Bobbitt's magnum opus on the history of 'great wars' and the evolution of sovereignty-based institutions towards 'market states,' e.g. as material that might offer refutations against the parable employed, see [2].

Compared to what is required, e-justice developments in the Netherlands are very disturbing indeed. In [7] I have focused on the risks of knowledge asymmetries between the principals and the providers of e-justice and e-government projects. E-justice and e-government project failures are ubiquitous in the Netherlands and our 'Rekenkamer' (the independent authority which looks at Dutch government expenditure efficiency and effectiveness) has produced two reports on how Government can learn from its project failures. But let me cite a comment in a local ICT magazine on a well-known and recent disaster (a project aborted in 2008).

> "Only a small part of the ICT-services meant to support execution of the Law on Social Security can be used by the principal. We speak of 3,5 Million Euro out of 87 Million invested in the project." (in: Computable, 6-10-2008, translation AS).

As it is hardly conceivable that a principal who knows what he is doing will allow a situation to develop wherein he pays 87 Million for ICT which is worth 3.5 Million, I consider the e-government project disaster under consideration a symptom of the ICT knowledge-asymmetry syndrome. The principal has been had by the provider. The principal simply should have known-, the provider should have behaved better. But they didn't. And there are no signs of recovery. This means another risk to e-justice, at least in the Netherlands.

7. The risks of *knowledge-asymmetry*. The judiciary as an institution preserves or commands too little ICT expertise to be able to play the role of ICT-project principal effectively and, consequently, can hardly ever procure what it needs.

Finally, I want to mention one disturbing observation that relates to the potential to face the knowledge-asymmetry problem. At Leiden University, we had some 900 freshmen reading law, last year – and 25 reading computer science. With these numbers, considering the ongoing demand and the growth of e-government and e-justice investments, it will be difficult to banish knowledge-asymmetry risks in the future.

4 Concluding propositions

I. If we accept the production of inventions to accelerate exponentially, we will very soon have to face the risk of any individual having the capability of mass destruction.
II. The risk of any individual having the capability of mass destruction requires global e-justice services relying on ubiquitous surveillance and pro-active law enforcement.
III. Ubiquitous surveillance and pro-active law enforcement by e-justice services may destabilize our legal systems when they reduce natural legitimacy.
IV. We do not know how to model e-justice services that support natural legitimacy.
V. We do not have the capability to avoid the risks of the knowledge-asymmetry syndrome, currently inherent to e-justice project procurement.
VI. So there is hardly reason for optimism.

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