

LawTech, Smart Contracts and Artificial Intelligence

Bundesministerium Der Justiz Und Für Verbraucherschutz

Ministry of Justice, Berlin

Tuesday 14th May 2019

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Introduction

1. I am delighted to have been invited to come to Berlin to meet this distinguished group of lawyers and officials.
2. This afternoon, I want to say something about technology and the law. Although I have no technological qualifications, I believe strongly that judges and lawyers across Europe need to make greater efforts to embrace the new technologies that are, quite literally, revolutionising the way that business is done. The objective and *raison d'être* of the courts for which I am responsible, the Business and Property Courts of England and Wales, is to serve the best interests of the national and international business community. For that reason alone, it is part of that responsibility, I think, to do what I can to make sure that those courts are alert to the technological changes in business and finance processes.
3. 10 days ago, I gave a lecture at the University of Liverpool entitled *Cryptoassets as property: how English law can boost the confidence of would-be parties to smart legal contracts*.¹ My thesis was that English law was in a good

¹ <https://www.judiciary.uk/announcements/speech-by-sir-geoffrey-vos-chancellor-of-the-high-court-cryptoassets-as-property/>

position to provide the necessary legal infrastructure to facilitate smart legal contracts. It is interesting that many of the coders, who are developing the algorithms for smart contracts, tend to believe, everywhere – not just in the UK – that no legal basis is necessary because the answer to every question and every dispute is built into the code. This is a mistake, because mainstream investors will not be prepared to put good money into cryptoassets unless they have the confidence that their investments will be protected by an appropriate system of legal redress if things go wrong, or in the case of fraud or cyber-crime.

4. As I said in my lecture last week, the lawyers will need to be persuasive about the need for a legal infrastructure, as coders are now developing technologies aimed at not needing to wait until the legal position has clarified. My hope is that English law and our UK jurisdictions will be able to provide state-of-the-art dispute resolution mechanisms specifically tailored to inclusion in smart contracts. I will return to that issue.
5. Before I go back to what judges and lawyers can actually do in this technical space, there are a few fundamentals that I would like briefly to address. I want, first, to mention the distinction between law and regulation. Secondly, I want explain briefly where we have reached in the courts of England and Wales. Thirdly, I want to say a few words about the use of artificial intelligence, and then something about alternative dispute resolution.

Law and regulation

6. As I see it, there is a clear distinction between the legal issues that underpin the mainstream use of cryptoassets and smart contracts, and the regulatory issues that will undoubtedly arise once those legal issues have been resolved. In most jurisdictions, the status of cryptoassets recorded on a distributed ledger (whether DLT or some variation like DAG) lacks clarity. For the uninitiated, DAG

is “Directed Acyclic Graph” which, instead of adding blocks sequentially to a chain as in DLT, requires each transaction to be verified by two randomly selected nodes in the system. This saves power, and increases the speed of the process. Our vision for a new dispute resolution system needs to take these prospective developments into account also.

7. But I digress. In my view, before one starts to regulate economic activity, one needs to understand precisely the legal status of the activity that is being regulated. It is for that reason that, in my view, one should start any consideration of the use of cryptoassets and smart contracts with an understanding of the legal status of the property that is being exchanged and, of course, securitised. Once that much is clear, it will fall to the regulators to make sure that the businesses operating in this space are doing so within the law, and that their investments are properly protected against misdealing, fraud and cyber-crime.
8. One cannot, however, regulate until one fully understands what one is regulating. Some jurisdictions have, I think, fallen into the trap of thinking they can. Over-regulation can stifle innovation and, in a sense, the threat of it is what has made parts of the technical community so unwilling to accept that any legal basis is needed for smart contracts. Moreover, these same coders are driven in the financial services industry at least by the desire for disintermediation, and they see lawyers and law as epitomising the costly intermediaries that they are keen to circumvent. All this will solve itself once mainstream players and investors embrace smart contracts on the blockchain, but that will not happen until they can have confidence that their legal remedies will be the same in respect of cryptoassets as they are for money or physical assets.

The use of technology in the courts of England and Wales

9. I am pleased to say that much has already been done to take advantage of the new technologies in the UK. But there is a

vast amount still to be done. This is, as far as I know, the same all across the European Union.

10. In the Business and Property Courts of England and Wales, we introduced electronic filing some 6 years ago. This is hardly high tech, but it has done away with a vast amount of paper. Its use has now been extended pretty well across the High Court and shortly to the Court of Appeal. In addition, the UK government has invested £1 billion in a courts' reform programme that will, in due course, see the introduction of an end to end computerised case management system across the country.
11. Already, we have introduced Online Dispute Resolution for small claims up to £10,000, for divorce, for guilty pleas in criminal cases, and for many administrative tribunal claims in relation to social entitlements and other issues. Smaller commercial disputes will surely follow. These are crucial developments aimed at improving access to justice, reducing costs and speeding up mainstream dispute resolution.
12. I cannot claim that all judges have put their pens aside. Those of us that have done that entirely are still a relatively small band. But, major commercial cases are generally undertaken with end-to-end digital case management systems. Indeed, my colleagues and I recently heard a long appeal concerned with the multilateral interchange fees charged by Visa and Mastercard, where there were at least 20 barristers and many more lawyers, 10 days of legal argument, and millions of pages of documents. I did the entire case including writing a major part of the judgment without looking at a single piece of paper.
13. As I have already said, much more needs to be done. But I think that we are well on our way to a complete re-think of the way we resolve business disputes, large and small. In doing so, we will need to pay close attention to the developments in FinTech and LawTech that affect every financial and commercial sector.

14. If we do not achieve this – all over Europe – not just in the UK - we risk allowing our court-based dispute resolution services to become dated and irrelevant. As I so often say, business people nationally and internationally bring their cases to our courts because they produce a state-of-the-art dispute resolution service. We will all need to invest heavily in technological solutions that will make litigation less costly, quicker and more efficient. That brings me to the question of artificial intelligence.

Artificial intelligence

15. I am a member of the Lord Chief Justice’s Advisory Group of Artificial Intelligence.² We are lucky to have a number of real experts advising us. But I want to talk this afternoon about how we can use artificial intelligence without jeopardising the integrity of our justice systems. That is a risk, I am sure, but not as great a risk as some think.
16. Artificial intelligence can and should be used to process and analyse the documentary foundation for business disputes. Any other approach is labour intensive, costly and unnecessary. There are, of course, risks of bias even in this process, but those risks can be minimised by making sure that they are understood at the outset.
17. Secondly, artificial intelligence systems can, at least in our system, usefully process and analyse the legal precedents that underlie the ultimate legal argument for both the parties and the court. Much of that is unlikely to be controversial.
18. There is one more thing to consider. I do not think that, in a few years, we will be resolving quite the same kinds of dispute. Nowadays much of the process is devoted to

² <https://www.judiciary.uk/announcements/lord-chief-justice-sets-up-advisory-group-on-artificial-intelligence/>

resolving factual issues: who said what to whom, when precisely did A meet B, and so on. But I think that, in future, factual issues will not arise in the form we have been used to. People now record and photograph and report on WhatsApp everything they do in business and in their personal lives. There will be far less scope for traditional factual disputes. Every document will be photographed, and every conversation will be recorded, as will meetings, phone calls, and messages. Meetings, discussions, and indeed all communications will be matters of record. Factual disputes will be a rarity.

19. The less easily accessible use of artificial intelligence concerns online dispute resolution. We are finding already in the processes we have introduced that algorithms can make a big difference to the efficiency of the process. They need, however, to be carefully handled so as to ensure that the courts and the judiciary keep control of the process. I am sure that the use of AI in dispute resolution will, as time progresses, streamline the process, ensure fair mediation and settlements and hugely improve access to justice by making sure that anyone with a proper case can vindicate their right.
20. I do not think that these developments will abrogate the need for courts and judges. There will still ultimately, in those disputes that are not resolved consensually, be the need for judicial determination. It is just that more people will be able to access the system. Historically in the UK at least, many disputes have gone unresolved because the parties did not have the money to go to court. Hopefully, that will become a thing of the past when online dispute resolution fills many, if not all, of the gaps.

Alternative dispute resolution

21. As I see it, alternative dispute resolution or ADR, is fundamental to this discussion. In the future, we will need to take a far more joined up approach to ADR. At the moment, we use ADR in a rather disjointed and insufficiently

integrated fashion. ADR should be an inherent part of every dispute resolution exercise. That is why I jointly chaired a project organised by the European Law Institute and the European Network of Councils for the Judiciary, which produced a Statement that sought to explain *[t]he Relationship between Formal and Informal Justice: the Courts and Alternative Dispute Resolution*. We published a statement on how courts should interact with ADR methods under the present European systems. That interaction will, as I say, need to become far more sophisticated in the world I am envisaging. We will need to make far greater use of ombudsmen that determine disputes arising in particular industries, and of mediation and early neutral evaluation amongst other, mostly online, methods.

22. In every dispute, the parties see a balance between cost, time and the integrity of the outcome. A consumer who has a €100 dispute with a utility company will not wish to spend any money on it, will want it resolved immediately and will not care all that much about the outcome. But a major corporation with a €50 million dispute will be prepared to spend some money on lawyers, accept some delay in its final resolution, so long as the outcome is right, just and fair. There is a three-dimensional graph that one can imagine with these three parameters. But the point is that there are millions of disputes every year that no municipal court system has the capacity to handle. All systems need to make maximum use of all available court-based and non-court-based dispute resolution mechanisms if citizens and businesses are truly to be provided with appropriate access to justice in claims of all kinds.
23. I come then to my vision for the future of dispute resolution more generally.

Smart contracts and dispute resolution

24. I have been thinking for some time about the future of dispute resolution in the context of smart contracts. As you

will know, there have not yet been many, if any, end-to-end smart legal contracts. But when there are, they are likely to become ubiquitous in financial services transactions very quickly indeed. The legal community will, I think, need to be prepared. As I have already said, I am sure that smart legal contracts will require some form of inbuilt dispute resolution if they are to be attractive to mainstream banks and financial services providers. The key will be to devise a system that is sufficiently streamlined and efficient to ensure its acceptance by the coding as well as the legal community. One of the things that puts the technological community off a legal infrastructure for smart contracts (apart from their desire for disintermediation) is the idea of a long-winded legal process.

25. There are three issues. The first is how we should build a dispute resolution process that can operate within the technical infrastructure of the smart contract itself, providing mediation as part of the process, and only resulting in a judicial determination as the last resort. The second is how one can enforce any judgment or resolution against cryptoassets or crypto-wallets. The third question concerns the use of pseudonymous parties, rather than real or corporate persons as parties to smart contracts.
26. The first question is the one that primarily concerns me, but it is one that I think can most easily be solved if, as I say, we persuade the coders that dispute resolution is important. After the DAO (a digital decentralized autonomous organization) scandal, one might have thought that the need for some legal foundation was obvious. But that is probably just a judge talking. I am sure that lawyers and judges across Europe should be working hard with the tech community to explain why a legal basis for their work is needed, and why it does not threaten, but rather supports, their innovations, and even the disintermediation, that they are trying to achieve.
27. The second issue, namely the ability to enforce against crypto-wallets is critical if we are going to be able to persuade the mainstream commercial community to enter

into smart contracts in the first place. It is all part of the investor confidence of which I was speaking earlier. But for my part, I think the problem will largely solve itself once we persuade the mainstream financial players to enter the market. It is a case of the chicken and the egg. Whilst it is mostly insubstantial entities that invest in cryptoassets, enforcement will be a problem. Once the mainstream engages in the market, the problems of enforcement will reduce, just as they have done in mainstream business.

28. The use of pseudonymous parties also epitomises the need for a legal foundation for the use of cryptoassets. We are at a turning point here. If we allow coders to create financial transactions that are unreal in the sense of not being undertaken by a known entity and allowing for no legal redress, there is the risk of a threat to the rule of law itself. Again, I see this risk as abating once the mainstream comes to the party.
29. Against this background, the UK Government has established both a FinTech Delivery Panel and a LawTech Delivery Panel. I am a member of the LawTech Delivery Panel and chair of its UK Jurisdiction Taskforce (the “UKJT”), which was established with the objective of demonstrating that English law and UK jurisdiction can provide a foundation for the development of DLT, smart contracts, artificial intelligence and associated technologies.
30. The UKJT published its public consultation last Thursday.³ It seeks views primarily from lawyers and coders on the key issues of legal uncertainty as they affect the status of cryptoassets and the usage of smart legal contracts. The UKJT intends to publish a legal statement of the current position together with worked examples to explain those legal conclusions, prepared by leading experts in the field. The UKJT’s legal statement will also provide any

³ The link is: www.lawsociety.org.uk/policy-campaigns/articles/lawtech-delivery-panel/

suggestions for legislation that may be considered or recommended.⁴

31. The principal question in relation to cryptoassets, is under what circumstances, if any, would either a cryptoasset or a private key be recognised to be an object of property in English law. As to smart contracts, the principal question is whether a smart legal contract is capable of giving rise to binding legal obligations, enforceable in accordance with its terms.

Conclusions

32. So, my vision for the future involves four strands of future dispute resolution that will need to be integrated and perhaps reconciled.
 - (1) The first strand is the extended and enhanced use of ADR, about which I have already spoken.
 - (2) The second strand is the fact that small disputes will, in future, be resolved by online dispute resolution processes. Those processes will include elements that will allow resolution by mediation. There will only be an occasional need for traditional court hearings, whether online or on other platforms or media or in court. This type of dispute resolution will inevitably influence the way people think about determining larger and higher value commercial issues.
 - (3) The third strand is a restructured approach to the resolution of major business disputes, reforming the way we deal with evidence, use artificial intelligence and determine the outcome of the dispute itself. This re-think will need to take account of what is going on with online dispute resolution and develop to meet the

⁴ The closing date for the consultation will be 14th June 2019, and it is hoped to publish the legal statement by late Summer 2019.

expectations of the new generation of business disputants.

- (4) Finally and perhaps most significantly, we will need to look carefully at the way disputes arise in a world of smart legal contracts. These contracts will arise in every imaginable sector, including, of course, financial services, banking, corporate mergers and takeovers, construction, energy, intellectual property, telecoms, and transportation of physical goods. The 21st century has only just begun. As I say, the way we resolve these disputes will be critical to the rule of law in the future. Courts will need to ensure that they can remain relevant to dispute resolution in these legal coded contracts recorded on the blockchain or its equivalent.
33. All that I have been talking about is a long way from simply digitising what we do already. I don't think we can or should be content with what has already become commonplace. It is not enough simply to replace books with online legal materials. It is not enough to use simultaneous transcription of court hearings and digital case management systems. It is not enough to increase the use of telephone, video or online hearings. These systems simply make the way we do things now more accessible for the computer literate.
34. I think the future of dispute resolution in our new cyber-world is exciting and challenging. Lawyers and judges across Europe and beyond will need to live up to that challenge.

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