<u>Northumbria University, Newcastle</u>

<u>Resolving disputes about Smart Contracts</u>

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<u>Introduction</u>

1.   It is a pleasure to be back in Newcastle to talk to such a distinguished audience. Many thanks for inviting me.

2.   The last time I spoke here in Newcastle was at the launch of the Business and Property Courts in Newcastle on 1st March 2018. Some of you may recall that it was one of the coldest nights of a very cold winter. Mr Justice Barling, who was instrumental in bringing the Business and Property Courts to Newcastle, was one of the few to make it to the launch through the snow and ice. That fortitude has characterised Gerald's tenure as Supervising Judge for the Business and Property Courts in the North and North-East. I am sure that everyone here would want to join with me in thanking Gerald for his services as Vice-Chancellor of the County Palatine, and to wish him well for his forthcoming retirement in September 2019.

3.   Since the launch in March of last year, much has happened. Electronic filing became compulsory for professional users of the Business and Property Courts in the regions at the end of April 2019. I hope you will agree that the Business and Property Courts have already demonstrated their utility in providing an intelligible whole for what we actually do, and providing the connectivity between London and the regions that was previously lacking. Certainly, I find that there is significant additional demand for High Court Judges to sit outside London, and I hope I have been as good as my word in showing that no case is too large to be tried in the regions.

I know that you are increasing your usage of your Business and Property Courts here in Newcastle. For example, in October this year, you will be able to bring small intellectual property claims in the Intellectual Property and Enterprise Court (IPEC) here in Newcastle.

4.   Please let me know if you have any ideas about how we can improve the super-highway that I believe now genuinely exists between London and the regions.

5.   I am sorry to have digressed. I was not asked to talk about the Business and Property Courts this evening. But those of you that know me, will know how hard it is to shut me up on that subject. Let me move on now to the very important topic of *Smart Contracts*.

What are smart contracts?

6.   Smart contracts are, in the simplest terms, enforceable legal agreements expressed to a greater or lesser extent in computer code. Nick Szabo, the original smart contract icon, defined a smart contract as a set of promises, specified in digital form, including protocols within which the parties perform on these promises.[1] My erstwhile judicial assistant, Dr Jason Allen, has indicated that a smart contract could be defined as a recording of a legal agreement between parties that is written in a language that is both human-intelligible and machine-readable, whose text incorporates an algorithm which automates some or all of the performance of the agreement.[2] These definitions will do for the purposes of this talk.

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[1]   Nick Szabo, 'Smart Contracts: Building Blocks for Digital Markets' (1996) 16 Extropy, available at: http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html.

[2]   J.G. Allen, 'Wrapped and Stacked: "Smart Contracts" and the Interaction of Natural and Formal Language' (2018) 14(4) European Review of Contract Law 307 at 313, following a review of some of the current definitions.

7. In practice, smart contracts have a close association with various forms of distributed ledger technology, blockchain data structures, and with cryptoassets.

8. Perhaps the most difficult part of a smart contract to understand is the relationship between any written text that the parties may agree on the one hand, and the self-executing computer code on the other hand. In fact, this is not really difficult at all. People generally ask how one can know which is to govern: the code or the prose? What happens if the code creates one outcome and the prose indicates another? How can the code that has executed a transaction, and perhaps already transferred value or property rights, be unwound?

9. In fact, the answer is as in any contractual situaton: the code will govern if that is what the parties have agreed. And the prose will govern if that is what the parties have agreed. It is conceivable that there will be prose representations that will induce parties to enter into smart contracts. In which case, unless otherwise agreed, one may assume that the normal consequences of such a misrepresentation will follow – anyway if English law applies.

10. That then raises the next commonly asked question: how will one know which, if any, law applies to a smart contract, when the contract is itself on the borderless blockchain, and therefore is indelibly recorded on nodes or computers across many countries and jurisdictions. Again, the answer is straightforward. The law applicable will be what the parties agree it to be. This is, however, the subject of something of a tug-of-war between the computer scientists and the lawyers. I will come back to it, but it seems to me at least that a legal foundation for smart contracts is going to be absolutely critical for a number of reasons I will mention.

11. But before I do, let me say something about my involvement in this area of endeavour.

<u>The UK Jurisdiction Taskforce</u>

12.   The UK Government has established a LawTech Delivery Panel. I am a member of that Panel and chair of its UK Jurisdiction Taskforce (the "UKJT"), which was set up with the objective of demonstrating that English law and UK jurisdiction can provide a foundation for the development of distributed ledger technology and smart contracts, amongst other technologies.

13.   The UKJT issued a public consultation, which closed on 21st June 2019.[3] It sought views 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 legal position together with worked examples to explain the positions adopted, prepared by leading experts in the field. The UKJT's legal statement will also outline any suggestions for legislative change that may be considered desirable as a result of the consultation responses.

14.   The principal question that the UKJT is considering 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.

15.   Translated into common parlance, what we are trying to do is to provide an appropriate and dependable legal foundation for mainstream businesses, banks and financial services providers to make use of smart legal contracts on the blockchain.

16.   English law is, I think, in a good position to provide the necessary legal infrastructure to facilitate smart legal

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

contracts. Mainstream investors will not be prepared to put good money into smart contracts and 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.

17. 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 want lawyers and coders alike to recognise that a legal foundation is necessary. But, as I shall say in a minute, we will need to ensure that the dispute resolution processes we provide are stream-lined, tailor-made, economical and expeditious, if we are to prevent the coders trying to short-circuit the law and legal remedies.

18. If you want an insight into the difference between the lawyers and the coders, you might be interested in what an internet commentator wrote about the speech I gave at Liverpool university in May on cryptoassets. The blog is called "Cryptostar.Money". He (for I have little doubt it was "he") said of my presentation "It long and I will have to read it all before I can comment", but I was gratified to read that he thought that one helpful remark sprang from the page. He said that I was right to suggest that the appropriate term was 'cryptoassets' rather than 'digital assets', because the term 'cryptoassets' directed attention to assets that were recorded on a distributed ledger, and stopped short of electronic data and intellectual property. His conclusion was that that was, and I quote, "advice from a top lawyer that [did] not cost £500 per hour"!

Litigation arising from smart contracts

19. There has probably been less consideration than you might think about how disputes arising from smart contracts will be resolved. That is because many of those coding these new forms of algorithms, often believe that no legal infrastructure is necessary. They believe that the performance of a self-executing smart contract recorded on

the blockchain is, by definition, incapable of giving rise to a dispute. The consequences are all written into the code. If you win, you win. If you lose, you lose. That is the end of the matter – either way. My perspective as a judge is that that is a naïve approach. Unless the parties to these algorithms are themselves machines – which, by the way, is not itself inconceivable – there will be room for legal dispute. There are likely to be claims made in mistake and misrepresentation, as already mentioned. There may even be claims arising from coding error, something that is sometimes dismissed as impossible – even though it is not.

20. Judges and lawyers will, however, need to be persuasive about this, as coders are now developing technologies aimed at not having to wait until the legal position has clarified. This is my point about the tug-of-war.

21. Anyway, whatever those devising the code that will underlie our smart legal contracts may think, there may be disputes. That much is clear. But what is not clear is how they will be resolved.

22. I believe that we, the lawyers and judges of this generation will need to devise a new dispute resolution approach for the new age. There are really 4 strands to the debate.

23. First, the fact that most, if not all, small disputes will, before long, be resolved by online dispute resolution processes. Those processes will include an element that will allow resolution by mediation. This will mean that there will be a lesser number of occasions on which a traditional court hearing will be required, whether online or by other media or in court. This type of online dispute resolution will inevitably influence the way people think about determining larger and higher value commercial issues.

24. Secondly, therefore, there will be a need in due course for a carefully restructured approach to the resolution of major business disputes, reforming the way we deal with evidence, use artificial intelligence and resolve the dispute itself. This re-think will need (a) to take account of what is going on

with online dispute resolution, and (b) to meet the expectations of the new generations of business disputants.

25.   Thirdly, there will need to be a far more integrated approach to ADR, since greater access to justice means many more disputes. The courts do not have the capacity to deal with disputes in all sectors, and we need to make more structured use of ombudsmen, mediation and early neutral evaluation to provide dispute resolution that is better tailored to each particular type of dispute.

26.   Fourthly and perhaps most significantly for the purposes of the debate this evening, there will, as I say, be a 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 financial services, banking, corporate mergers and takeovers, construction, energy, intellectual property, telecoms, and transportation of physical goods. 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.

Civil litigation arising from smart contracts

27.   I come then to the point. How can dispute resolution be most appropriately provided for disputes arising from smart contracts? The most appropriate approach has to take into account some of the things I have already said.

28.   First, the borderless nature of smart contract technology and the blockchain. Secondly, the potentially complex inter-action of prose and code. Thirdly, the coders' reluctance to engage with lawyers and the legal system. And fourthly, and perhaps most importantly, the fact that much of the usage of cryptoassets and smart algorithms thus far has been driven by a strong desire for disintermediation. In other words, the first movers in using the blockchain for commercial purposes have been driven by their wish to avoid engagement with banks, financial services providers and all

other kinds of intermediary – most notably in this connection, of course, lawyers.

29. So, one could perhaps rephrase the question: how does one best provide dispute resolution for those who want as little as possible to do with lawyers and courts?

30. I come back first to the rule of law. It is, to say the least, not desirable for a revolution in commercial relations to take place without making available independent judicial dispute resolution to the participants when necessary. There is, therefore, an important imperative at stake. I take the view that these issues should drive the mainstream commercial and legal community to be imaginative. The dispute resolution that is required will need to be light touch, economical and accessible. That said, the availability of independent judicial dispute resolution is critical if the technologies that underlie smart contracts are to secure the confidence of mainstream investors.

31. The first choice is probably between arbitration and litigation. That is not a choice for judges to make. I have no doubt that a robust arbitration and choice of law clause inserted into the code for smart legal contracts would be entirely satisfactory. Arbitration, however, can often be as time consuming and expensive as litigation.

32. In my view, lawyers and judges operating within our English & Welsh justice system should consider carefully whether we can provide a streamlined online dispute resolution clause for the use of future parties to smart contracts. They can draw on all the existing UK and international experience of online dispute resolution. The important thing will be to devise an approach that will bring the community of coders and computer scientists on board. Lawyers and judges should not want to disincentivise innovation. Instead, they should, I think, be doing everything possible to win the confidence of those that are participating in this technological revolution, and to provide a workable and accessible legal infrastructure to support innovation.

33. Our familiar dispute resolution processes are often complex, costly and time-consuming. But there is no reason why a dedicated process for disputes arising from the coded smart legal contracts should be so. The code itself will be binary and self-executing. Disputes should, therefore, be few and far between. I do not see why we could not devise a menu of online dispute resolution processes that allow the parties to choose a process that meets their expectations in terms of cost and speed of outcome. Any limitations on what we now regard as normal expectations in terms of time, cost and the availability of appeals can be agreed in advance.

34. In short, it will be important, if fair and accessible judicial dispute resolution is to remain available in the context of smart legal contracts on the blockchain, for there to be much thinking outside the box.

Some other questions about smart legal contracts

35. Thus far this evening I have tried to keep things simple. But I would be the first to admit that smart contracts potentially raise some knotty questions.

36. The UKJT is asking its legal experts to tell us how they would expect the general principles of contractual interpretation to apply to a smart legal contract. In an era where questions of contractual interpretation seem to dominate our appellate courts, this must be a critical question.

37. Then, one needs also to know precisely in what circumstances an English court look beyond the outcome of the running of the computer code that is part of a smart legal contract. As I say, I think that will depend on the answer to the first question, namely what, on a proper interpretation of the arrangements, have the parties agreed as to whether code or prose dominates.

38. Another commonly discussed question is about whether a smart legal contract between anonymous or pseudo-

anonymous parties can give rise to binding legal obligations. Since one can contract with an undisclosed principal, I do not find that a particularly hard question.

39.   There are then questions about whether a statutory requirement for a contract to be signed or in writing[4] can be met by affixing a private key or in some other manner.

40.   In a forthcoming article, I will suggest that there are another series of questions that will need to be answered, such as where an end-to-end smart contract starts and ends. This question raises issues about the precise layers of such an agreement, and whether there will be any legal presumptions as to what the parties have intended when they enter into a smart legal contract.

41.   Finally, there is the very interesting question of whether the smart contract's roots in the blockchain will be maintained. Or will it ever be possible for there to be smart legal contracts disassociated from the blockchain, blockchain data structures, and without involving cryptoassets?

42.   I think there is more than enough for another talk on this subject before too long.

Conclusions

43.   I hope I have been able to give you an idea of the issues that will arise in the immediate future.

44.   I fully expect smart contracts to take off in the months and years to come. It may be that partial smart contracts, rather than fully end-to-end smart legal contracts, are likely to prove more accessible to mainstream business in the short term.

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4   For example, in the context of a disposition of an equitable interest (under s53(1)(c) Law of Property Act 1925 (LPA)) or of a legal assignment (under s136(1) LPA)?

45. Either way, we will need to make sure that the legal community provides ways in which disputes arising between the parties to early smart contracts can be speedily and effectively resolved. As I have said, I very much hope that English law and the UK's jurisdictions can prove to be market leaders in this field.

46. The immutable recording of transactions and events on the blockchain has already arrived. The blockchain in its many forms may provide an unfamiliar foundation for 21st century transactions. It is, however, technology which all lawyers and judges will need to understand.

47. I am pleased to be able to say that I am doing everything I can to ensure that the judges in the Business and Property Courts are ahead of the game. It is, as with so much that is new, all about education and experience.

48. I hope my talk this evening will have won a few converts. It is critical that all lawyers get involved. Only then will we be able to ensure that justice is available to all sections of our society – including those that make use of smart contracts and cryptoassets, as well as assets more familiar to us.

49. Many thanks for your attention. I will happily answer any questions you may have for me.

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