

DISPUTE RESOLUTION IN THE ERA OF BIG DATA AND AI

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Legal Briefings - By **Charlie Morgan and Rebecca Reed**

Advanced automation will shake up the entire disputes ecosystem.

Be it machine learning, natural language processing, augmented analytics or distributed ledger technology (aka blockchain), new technologies are revolutionising the way in which business is done in every industry.

In order to leverage the benefits of these disruptive technologies, businesses are increasingly 'going digital'. This is leading to an era of Big Data in which the volume of data those businesses generate increases exponentially year on year.

If collected and analysed effectively, that data can provide unparalleled insight into the functioning of complex organisations and commercial relationships. However, if data is mismanaged or inadequately protected, the vast swathes of data that are generated can create real headaches.

This process of digitalisation is as relevant in the context of disputes as it is for companies' day-to-day operations. Indeed, it stands radically to disrupt the way in which disputes arise, are managed and are resolved between commercial parties.

The digitalisation of dispute resolution is certainly not new. Indeed, most commercial arbitrations and litigation now take place primarily by means of electronic communication, and e-filing in courts around the world has become more commonplace in recent years. Similarly, machine learning software is already being used to expedite dispute resolution processes that involve large volumes of data. However, more fundamental changes that go to the heart of the dispute resolution process may arise as the capabilities of artificially intelligent software continue to improve.

This article gives a brief overview of what artificial intelligence (AI) means and assesses how process automation and machine learning is currently having an impact on dispute resolution, and what things might look like in future.

ARTIFICIAL INTELLIGENCE: THE BASICS

The term artificial intelligence (AI) is used very loosely and is often said to refer to systems that can "*think*". In short, it is the application of advanced analytics and logic-based commands to interpret events and automate decisions and actions.

Self-driving cars, Alexa, smart thermostats and Netflix's personalised movie recommendations are all examples of artificial intelligence at work. However, while some sci-fi books and media would have us believe that robots will soon replace humans in all walks of life, we are not at that point quite yet.

In fact, we are very far from machines actually being able to replicate human cognitive ability wholesale. Instead, we have machines that can be programmed to perform specific tasks very well (in some instances much faster and more accurately than humans).

This is known as "*weak*" artificial intelligence or "*applied*" artificial intelligence. Smart personal assistants such as Siri and Google Now, automated email categorisation and voice to text features are all examples of weak artificial intelligence.

Artificial general intelligence on the other hand refers to the more lofty ambition of enabling machines to undertake cognitive functions similar to a human mind. Also known as "*strict*" or "*strong*" artificial intelligence, artificial general intelligence is able to multi-task and make decisions on its own. Strong artificial intelligence is still some way off but considerable investment and development are being made in this area.

Much of the research and development in the field of artificial intelligence relates to machine learning. Machine learning (a subset of artificial intelligence) involves systems which can learn from data using algorithms. This means that the software can learn and adapt based on the data it receives and processes rather than requiring explicit programming.

Machine learning is enabled by the fact that machines are able to store substantial volumes of data and recall this data very quickly, making them more efficient than humans when it comes to analysing massive amounts of data. A machine can be made to learn through several methods. Supervised learning comprises of data which has already been tagged or categorised: the algorithm can then use these tags to learn the characteristics of a data set and apply its learning to a new set of uncategorised data. Unsupervised learning, on the other hand, is used when large amounts of uncategorised data is to be analysed. Since the data is not understood, unsupervised learning can only cluster sub-groups of data based on common features. The third type of learning is called reinforcement learning. In this case, the algorithm learns through the "*trial and error*" method. There is no labelled data set that the algorithm can learn from. Instead the algorithm reinforces its successful decisions (as confirmed by human reviewers) and learns from the decisions which lead to negative outcomes.

APPLYING AI TOOLS IN DISPUTE RESOLUTION

Data analytics and AI tools can create significant time and costs savings for dispute resolution in the same way that they do in the context of the business operations of dispute resolution's end users. A number of such tools are already enhancing dispute resolution processes, a few of which are discussed below. But many more applications of this continually-evolving technology stand to disrupt the dispute resolution process more fundamentally.

At the transactional stage

As things stand

Most of those tools apply after a dispute has arisen, but AI could also help parties at the transactional stage to craft a dispute resolution provision which is fit for purpose and tailored to the parties' needs. Machine learning tools could process factors such as: the place of performance and any mandatory laws applicable as a result; where the parties' assets are understood to be located; which language is most appropriate; and what procedural rights or powers of the tribunal are most desirable in each case.

The use of this type of software in itself would reduce the number of pathological dispute resolution clauses and, therefore, the number of procedural disputes arising from those clauses.

Looking ahead

As parties and their lawyers put in place more sophisticated mechanisms for collating and interrogating data from past arbitrations and trials, those tools will become increasingly effective at tailoring a recommendation to the individual party's preferences and past experiences.

In the longer term, the combination of AI, data analytics and contract automation software should enable automated contract drafting for increasingly complex contracts, incorporating recommended dispute resolution clauses.

At the time of breach or failed performance

As things stand

The generation and storage of real-time data pertaining to operational activities, coupled with AI-driven data analysis, will increasingly enable parties to anticipate, identify and address issues regarding contract performance as soon as they occur. This will also ensure that parties are able to

pin point with greater accuracy the context surrounding (and/or any justification for) failed, incorrect or incomplete performance. This should, all other things being equal, enable parties to narrow the scope of their disputes and increase the scope for amicable settlement of 'traditional' disputes.

That said, the digitisation of assets and the reliance on data will breed new types of tech disputes arising out of contracts that would – to date – not be characterised as technology contracts.

Looking ahead

This is one area where disruptive technologies look set to impact upon existing dispute resolution processes.

The adoption of distributed ledger technology (blockchain) and the implementation of smart legal contracts (SLCs) will lead to a significant shift in the way contracts are managed and parties interact with each other. With the increasing digitalisation of assets and business practices, smart legal contracts will enable parties to automate aspects of their contract performance. (The term smart legal contract refers to a contract in which the natural language provisions have been fully or partially translated into computer code, creating a digital contract that can call upon external data and perform digital actions based on the data that it receives.)

An example relevant to the dispute resolution process is that parties will in due course be able to automate the occurrence of digital actions in the event of a breach or failed performance. The simplest example is that where the software underpinning the digital contract identifies that an event had not occurred when it was meant to. The contract can then automatically generate and send a notice in a form agreed between the parties to the party responsible for the non-performance. Further down the line, parties may go one step further. Instead of the contract merely issuing a notice, the software may generate an audit trail of all contractual events and forward that record to an independent decision maker to rule on where responsibility lies for the non-occurrence of the event in question. A number of start-ups are developing programs for the online resolution of disputes using blockchain technology. There are a number of technical and legal obstacles to overcome before this world becomes a reality but this is a very exciting area of evolving law and practice.

Regardless of the automation of contract performance under SLCs, the use of technologies like blockchain to track and record contractual events will generate a more robust and reliable audit trail of past events, if and when a dispute arises. The design of the blockchain used by the parties should help parties agree on a 'single source of truth' and therefore to understand better where a problem may have arisen and where responsibility for that issue lies. In turn, this will help to narrow the scope of disputes or avoid disputes altogether (because parties will have better quality data available to them at the outset). It will also improve the efficiency of the dispute resolution process, enabling the parties to 'call up' a chronology of their relationship.

Devising case strategies for building a claim or a defence

As things stand

Machine learning software also allows parties to build detailed case strategies at an earlier stage in the dispute resolution process through the efficient processing of vast volumes of data and the automatic identification of documents which may be pertinent to the claim.

Several AI-based applications also allow users to understand better how a particular judge or arbitrator has ruled on similar issues in the past (insofar as that information is publicly available) or how long a particular kind case usually takes to be resolved. Again, an increasingly data driven analysis by all parties on these aspects of the dispute resolution process should help foster early settlement and increased efficiency.

Looking ahead

Machine learning software is continually improving and in the future will become more dynamic. It is very much possible that such software will be able to create complex case strategies and also update and revise strategies as the case progresses. Counterclaims, injunctive applications and unexpected delays make dispute resolution unpredictable once it starts. A continually evolving case strategy which automatically updates as the case progresses could help dispute resolution practitioners to stay ahead of the curve.

Legal research

As things stand

The preparation of legal submissions involves a significant amount of legal research as well as factual analysis. AI tools could enable practitioners to streamline that research process. Traditional online research tools rely on keyword searches. In many cases, relevance of search results is determined by the number of times the keyword is used. Of course, filters can also be used to narrow down a pool of results. But AI can take search functionality several steps further, enabling programmes to understand the context of words used; analyse and connect relevant information; and cluster by theme (or cause of action) producing faster and more tailored results.

Constant improvement and fine tuning of machine learning algorithms have made legal research much faster. Some of these tools are also capable of predicting the outcome of disputes at low cost and in very short order. These tools allow lawyers to give their clients more informed advice at an early stage of a dispute resolution process about their options, to manage expectations and promote early settlement.

Looking ahead

The future holds an increasing dependence on AI research tools. As the technology associated with research tools becomes "*smarter*" and more sophisticated, it is quite likely that these tools will not only list the relevant precedents with greater accuracy, but be able to contextualise and apply the research to the given practical scenario as well. This will ensure that legal research becomes more efficient and junior lawyers are only reviewing the most relevant information, instead of trying to find a needle in a haystack.

Bundling and administrative tasks

As things stand

AI tools are also being used to perform tasks such as the automatic creation of bundles, generating exhibits indices and making summaries of relevant documents. Historically, considerable human time has been spent on these tasks, and artificial intelligence should help to reduce the administrative and logistical burden associated with an arbitration or a trial. Again, this should free up junior lawyers to perform more substantive tasks.

Looking ahead

Another application of artificial intelligence is chatbots. A chatbot is a system which is capable of carrying out conversations through audio or text. Linked to an e-discovery and e-bundling platform, a chatbot could have the potential to fulfil the secretarial and administrative functions currently performed by more junior members of a team.

Disclosure

As things stand

Predictive coding has transformed the disclosure process in contentious proceedings. Predictive coding, also known as technology assisted review, uses artificial intelligence in the document review phase to learn and identify relevant documents. Disclosure these days can involve hundreds of thousands, if not millions, of documents. Those numbers will only grow with the increasing digitisation of businesses.

The manual (human) review of these volumes of data would take months or years and would often lead to disproportionately high legal costs compared to the value of the issues in dispute. Predictive coding is an application of AI which reduces the time spent on document review. It is not entirely machine led in the sense that predictive coding works by training the algorithm with a set of sample data. This involves a skilled legal professional reviewing a sample data set and categorising it as relevant and not relevant. The algorithm is then able to learn from the reviewer's pattern and identify similar, relevant information from the subsequent documents. The algorithm is continually learning from each document that it processes. For instance, if the reviewer marks as irrelevant a document which was previously identified by the algorithm as relevant, the information in relation to the algorithm's incorrect categorisation will be recorded and the algorithm will be able to function more efficiently in the future.

Looking ahead

While predictive coding is a very useful tool, parties and lawyers have been slow in introducing this technology for all arbitrations and trials. The main reason for this has been cost. The use of predictive coding software remains expensive and the software is generally used only in high value matters with large volumes of data. However, in the era of Big Data, document volumes will continue to grow even in smaller, low value disputes. This will force parties to harness the benefits of predictive coding more often or to agree to a more narrow scope of disclosure in arbitrations and trials than what is currently customary.

Trials

As things stand

Video conferencing has transformed the way trials and arbitrations are run. In cross jurisdiction disputes, parties and expert witnesses don't have to travel to the place of hearing and witness interviews and cross-examination now take place through video conferencing. This has contributed to increased speed and reduced costs, thereby making the dispute resolution process more efficient.

During trials, lawyers often find themselves addressing new issues at short notice. Machine learning based software can tag and cluster related data. This reduces the review time for lawyers, contributing to better preparedness and consequently a more efficient legal system.

Looking ahead

Artificial intelligence has made significant strides in recent years: many of us have facial recognition technologies on our phones and voice recognition devices in our homes. It should not come as a surprise therefore that these technologies have the potential to transform the way trials are conducted.

Artificial intelligence can be used in document review while preparing for cross examination. Instead of having to recall and flag each relevant document for corroborating or refuting a witnesses' account, with the combination of technologies like text mining, natural language processing and predictive coding, it may be possible to automate much of this process. For example, a witness statement could be analysed with machine learning software, which has already reviewed and processed all the available evidence associated with the case. The software would then be able to find the relevant documents and highlight inconsistencies in the witness' account.

Other examples of AI-based tools which could stand to change existing practices are real-time automated transcription and translation. A human transcriber or translator may not be needed in the future for simultaneous translation and transcription of witness testimony. This would save costs and make the trial process less cumbersome and more efficient.

Considerable research is being done in relation to algorithmic decision makers (i.e. a computer which processes the parties' data, analyses relevant case law or submissions and generates a judgment or order). Online dispute resolution tools are already being used to help parties narrow issues between them and to facilitate settlement and to determine small claims. It is not beyond the realms of imagination that parties may chose in future to resolve disputes by means of an algorithmic decision maker. It is also very likely that AI tools will be used as a first, non-binding step for dispute resolution in years to come, in the same way that early neutral evaluation works today. The advantage of using computer software is that the process stands to be much cheaper and faster.

However, given the legal and ethical obstacles to the enforceability of a computer-generated order (without consent from the 'losing' party), in the near future at least, decision makers will still be human. That being said, those human decision makers may increasingly be assisted by technology in reaching their decision on the facts and law. One simple example of how technology might assist a decision maker would be the use of facial recognition software to assist a court or tribunal to assess what weight to give oral witness testimony. Such technologies along with voice recognition can now be used to review video and audio files to analyse body language or tone of voice with accuracy. That accuracy will only continue to increase in the years to come.

THE FUTURE

Automation has contributed to economies of scale, increasing efficiency, reducing costs and disrupting the way businesses have traditionally been run. Businesses today are demanding faster delivery of legal services, greater certainty and lower expenses. We all need to do more, with less. The nature of disputes is also fast evolving as businesses are going digital.

Harnessing the benefits of disruptive technologies will continue to give disputes practitioners a competitive advantage, allowing them ultimately to service their clients better. It is imperative that the legal sector, including disputes practice, is not left behind and is able to leverage the benefits which artificial intelligence has to offer.

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