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A special report



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Customers are the winners when the iTunes moment hits law

Change is in the air. You can sense it. Actually you can experience it, now!

We see a rapidly growing desire among our customers to understand how the technology revolution we're living through will impact business models generally, their business, their function, and their people specifically. Twenty-six years after Tim Berners-Lee invented the World Wide Web there is a realisation that none of us are immune from the exponential impact of Moore's law. A law that has had (and will have!) many consequences, including IBM Watson (a computer), beating the two all-time (human) champions on the TV game show 'Jeopardy!'.

Law is definitely not immune from this revolution. Neither are other professional services (TurboTax), taxi drivers (Uber), hotels (Airbnb), record shops (iTunes)... The regulatory barriers that protected sectors are falling, failing or being overtaken by customer action. Trust in brands and professionals is being replaced by alternative trust systems. LegalZoom is the best known legal brand in the US. None of us needs to trust in a hotel brand now that we have the combined experience of contributors to TripAdvisor.

Accepted norms and ways to do things are being challenged, daily, by increasingly connected customers, whether consumers or businesses. Start-ups and technology have no blinkers, they do not know it cannot be done. Think about the implications of the wonderful comment from the IBM executive who said: "Watson doesn't know it won Jeopardy!"

In legal this growing desire to understand has to be measured against a low starting point. When we set-up Riverview Law in 2012 and talked about the impact on the delivery of legal services and lawyers of automation, expert systems, analytics and visualisations we were greeted with the same shrug of irrelevance and 'you don't understand the law, dear boy' as we do now when we talk about computable contracts, blockchains, virtual assistants, and the rise of the knowledge worker.

However, over the last year there has been a change. Our annual customer seminar in June - The impact of global technology trends on your business,

'There will be no one date for the legal equivalent of that iTunes moment. But the direction of travel is very clear.'

**Karl Chapman,
Riverview Law**



the role of the legal function and what you can do about it today - was oversubscribed. Increasingly bigger in-house legal and IT teams visit our Wirral Service Delivery Centre to see how people and technology can work seamlessly and effectively. In the last two weeks I've been asked three times 'so when is the iTunes moment in law?'

There will be no one date for the legal equivalent of that iTunes moment. But the direction of travel is very clear and we can already identify the most likely source of this moment: the arrival of category re-defining virtual assistants.

The race is on to create virtual assistants that will help customers, whether consumers, small businesses or large corporations, access legal (and other) support and guidance quickly and cost-effectively. They are already here in other areas: Hive, Cortana, Siri and Indigo. They are emerging in law: ROSS, Amelia, Ravel and Judicata. Like Uber, which owns no taxis, and Airbnb, which owns no bedrooms, these assistants will put knowledge in the hands of customers. They will change where value sits. They will disintermediate large swathes of the current supply chain.

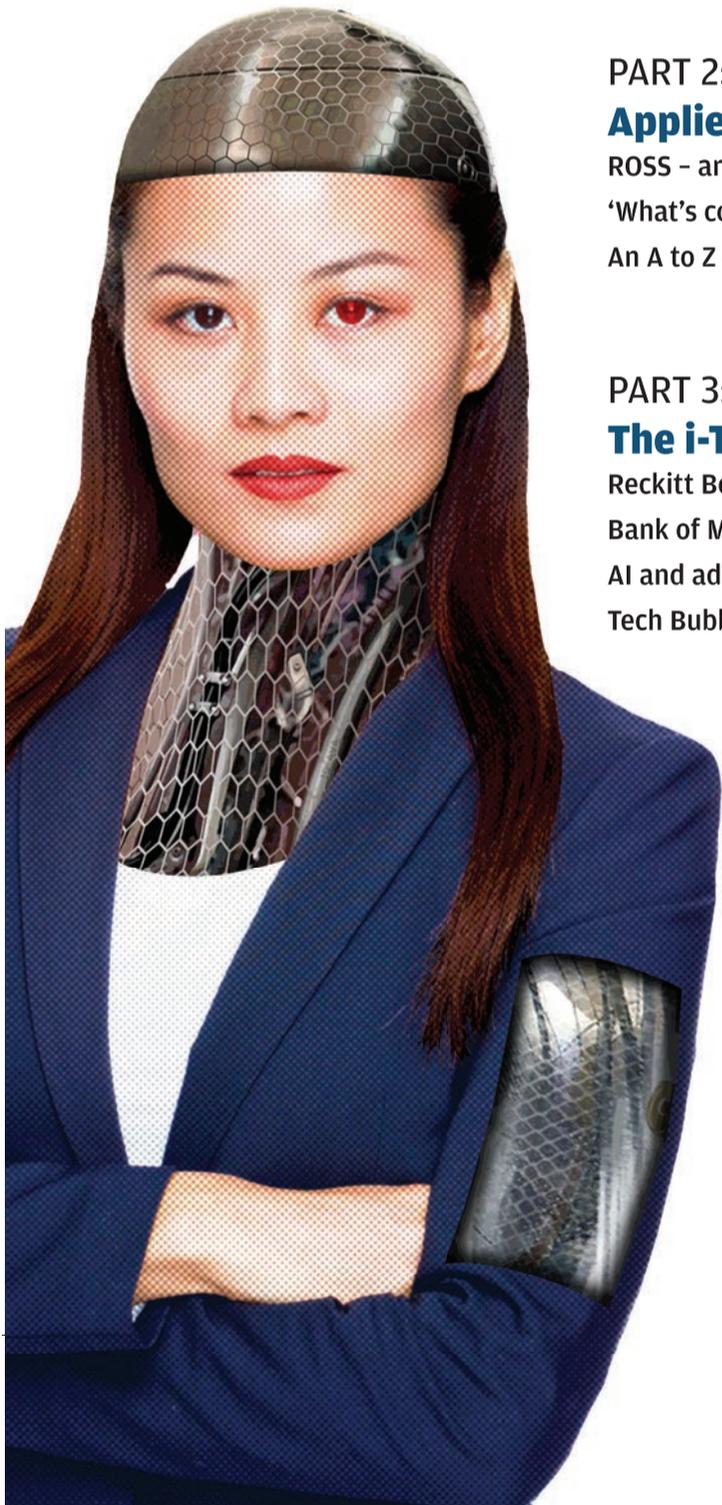
This is great news for customers. They are the winners when the iTunes moment hits.

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LEGAL BUSINESS



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Deep Blue sky thinking

Artificial intelligence is big news once again in law and beyond. *Legal Business* speaks to leaders in the field of advanced automation to assess what it means for the profession

JAMES WOOD

- > How are you today?
 - * I'm afraid AI will change the legal profession.
- > How long have you been afraid AI will change the legal profession?
 - * Since I started speaking to AI researchers.
- > Can you elaborate on that?
 - * They were telling me about their latest research.
- > I don't understand you.
 - * Neither did they, that's why I wanted to see a therapist.
- > Tell me more...

The above conversation shows one of the first AI programmes, Joseph Weizenbaum's 1966 ELIZA, in action. ELIZA, an intentionally condescending approximation of Rogerian psychotherapy, didn't try to understand language at all, it merely reordered the user's statements as questions and gave random prompts. Today it would be classed as a chat-bot rather than an AI system. In spite of its simplicity, some people were fooled into thinking they were having a conversation

with a human therapist. Arguably, ELIZA passed a low-bar Turing test, the AI benchmark proposed by pioneering computer scientist Alan Turing of a machine able to exhibit intelligent behaviour that a human cannot distinguish from another human. As with so many early AI programmes, ELIZA turned out to be a false dawn. Continued research gave us better chat-bots, not HAL 9000. But, nearly 50 years later, AI researchers are again confident that their field is about to transform the world. ►

IN ASSOCIATION WITH RIVERVIEW LAW



UPGRADE THIS LAWYER OR

THE PROFESSION GETS IT

► According to Ray Kurzweil, director of engineering at Google, we've got until 2029. That's the date Kurzweil predicts human intelligence will be matched, and swiftly surpassed, by machines. A more modest and frequently repeated prediction from tech research group Gartner is that by 2025 around one third of current jobs will be largely automated.

Fascination and anxiety over sophisticated machines replacing workers is nothing new. In 1933 John Maynard Keynes made the oft-cited forecast of mass unemployment 'due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour'. However, recent advances in information technology and internet-backed services, the ubiquity of powerful portable computers in smart phones and tablets and the emergence of technologies like self-driving cars have given the debate an entirely new potency.

Lawyers may breathe a sigh of relief and pity the manual labourers facing unemployment, but the predictions are that the next machine revolution will cut high up into the professional hierarchy, turning many white-collar professions on their head.

A number of economists have put forward the idea that automation is hollowing out middle-income jobs once thought safe, leaving a polarised workforce of the low-skilled at one end and the highly educated, highly paid knowledge workers at the other. Proponents of this view, particularly those with a gloomy mindset, note how few workers are employed by tech titans such as Facebook and Google, compared to the traditional corporate giants of the 20th century. For example, Uber employed between 550 and 1,500 people last year, excluding drivers, and is now valued at around \$50bn. US retailer Target Corporation, with a market cap of \$47bn, employs nearly 350,000.

The reason why many believe that the law in particular will be transformed by AI and at least advanced automation is easy to grasp. Law and legal services are based on familiarity with codified information accessed and delivered through a very expensive professional framework relying heavily on one-to-one consultation. A much quoted 2013 report from two Oxford University researchers, which argued that



'There were lots of promises made about AI that have not been lived up to, but you will see products coming to the market in the coming months that draw on this research.'

**Dr Katie Atkinson,
University of Liverpool**

47% of jobs in the US were at high risk of being replaced by intelligent machines 'in the next decade or two', concluded that paralegals and legal assistants were in the high-risk camp. (The authors, Dr Carl Benedikt Frey and Michael Osborne, did, however, conclude that lawyers themselves were in the low-risk group, in an analysis that placed 702 jobs into high, medium and low risk from 'computerisation'.)

The many advocates of automation foresee a world in which legal matters are primarily dealt with by machines, slashing the cost of legal services while turning the conventional law firm model on its head.

The legal technologist Richard Susskind – in his latest book, *The Future of the*

Professions, written with his economist son Daniel – is one of many forecasting an industry in which 'our professions will be dismantled' in favour of 'increasingly capable systems'.

These sentiments extend well beyond the small but growing band of legal futurists, with many major law firms sizing up the prospects of AI to transform the legal services industry.

But avoiding the hype and distortion in a hugely complex subject is a challenge. Predictions in this field have often proved widely off the mark, both over and under-estimating the impact of technology dramatically. As such, we have teamed up with Riverview Law for a special report on the prospects of AI in the law. Is AI, and, more broadly, advanced automation, about to transform the legal market? Will we see systems that not only automate work according to a predefined task, but that learn and improve as they go along? And will this really lead to the sea-change in the legal profession that many are predicting?

A QUESTION OF SEMANTIC ANALYSIS

Given that senior lawyers have little interest in technology, the ripple of curiosity and concern about artificial intelligence among law firms is striking. Many firms attended last May's IBM World of Watson trade show and, as the recent flurry of press releases indicates, many more are trying to commercialise developments in the field of AI. The feeling that AI might be about to deliver on its promises is not just based on hype. There have been huge advances in the ecosystems that support intelligent systems technologies. The cost of memory, the speed of processing, increased connectivity of devices, and the capabilities of software have all improved dramatically in recent years. This has not so much led to a take-off in new technology as it has allowed existing technology to be applied in a cost-effective manner. At the same time, there have been incremental but important advances in AI and related fields of machine learning.

'My take is that new technology is finally making inroads and connecting some of the computational logic researchers have been developing for the last few decades with sophisticated language processing tools,' says Kevin

Ashley, Professor of Law at the University of Pittsburgh and one of the world's leading researchers in the field of computer modelling of legal reasoning.

Dr Katie Atkinson, Professor of Computer Science and researcher at the University of Liverpool's agent applications, research and technology group, is confident that AI-based systems will soon be a noticeable feature of the legal market. 'We are starting to see people from start-ups and law firms present products at academic conferences. There

management systems that can identify the way in which concepts or information are being used in legal cases, and machine learning can identify cases a human hasn't tagged before, so it can identify sentences that state rules, extract and flag them,' says Ashley. 'That's a big advance. Systems can incorporate rules into their logic without having them programmed in by a user. But they can't explain their answers. That's the bit we're still missing.'

Bart Verheij, researcher at the University of Groningen's Institute for Artificial

A report from two Oxford researchers, which argued that 47% of jobs in the US were at high risk of being replaced by intelligent machines, concluded that paralegals and legal assistants were in the high-risk camp.

were lots of promises that were made in the past about AI that have not been lived up to, but you will see products coming to the market in the coming months that draw on this research.' Atkinson, whose research team at the University of Liverpool recently entered into a knowledge-transfer partnership with Riverview Law, is drawing on her work in data-mining, natural language processing and computational argumentation to help bring intelligent systems to the legal market.

Still, it is important to be clear on the terms of debate. Researchers often draw the distinction between 'hard' and 'soft' AI. While research into hard AI seeks to replicate the flexible and adaptive reasoning processes of the human brain, soft AI simply seeks to replicate human outputs in a narrowly defined task. Currently all working forms of AI are soft. The debate rages about when, if ever, there will be a breakthrough in hard AI; estimates from those working in the field vary widely from 'several years' to 'never'.

In spite of advances in AI research, computer systems are still unable to act in anything resembling a cognitively-demanding context. 'Advanced architecture allows for unstructured information

Intelligence and Cognitive Engineering, has a similar take. 'One of the main reasons we have not seen the huge progress in AI that we were dreaming of is that machines don't understand what we're doing as people. We tell machines a lot about our lives through social media, but they don't understand our lives. A key element of the law is understanding what is going on. We are not near to achieving that kind of understanding in machines.'

While many are confident that their work will be brought to market within the coming months, researchers are keen to emphasise that we are a long way from seeing 'strong' AI systems capable of replicating human thought. As Dr Roland Vogl, director of the Center for Legal Informatics (CodeX) at Stanford University, cautions: 'There is some fantastic research in AI and law, but most of this is not what's being offered to firms right now. People speak of theoretical developments in AI and then jump to the rise of new technology in law firms and conclude that the really cutting-edge AI stuff is changing the legal market, but that's not the case. Law firms might be talking about disruptors and trying to reposition themselves, but most of the computer

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THE SURPRISINGLY LONG HISTORY OF AI AND THE LAW

Just as the genealogy of AI as a professional discipline is generally traced back to the 1956 Dartmouth conference in the US, AI and law can be said to have begun in earnest with the first International Conference on AI and Law, which took place in Boston in 1987. From that moment, a scholarly community of computer scientists and lawyers galvanised around the idea of bringing machine intelligence to the law. Trevor Bench-Capon, honorary visiting professor at the University of Liverpool's Department of Computer Science, was one of the founding members of this community and editor of its journal. 'In the 30 years that I've been involved in it a lot of things have happened.

Computers are a lot more powerful, and information that was only available on paper, such as case law, is now available online. Most important of all, lawyers who had never touched a keyboard when I started are now using technology at work all the time. In spite of all these changes, the main ideas we started out with in the 1980s are still the most important ones that guide the field. We're still trying to represent legal arguments computationally and we're still working on better ways of retrieving information. There's been huge progress in computing, but the field itself still investigates most of the same issues.'

Many of the ideas in AI and law can be traced back to Lee Loewinger's 1949 paper, 'Jurimetrics: The Next Step Forward', in which the use of mathematical techniques is suggested as a means of removing the determination of legal cases from the hands of lawyers, 'a secret cult of a group of priestly professionals'. The legal AI movement started with a simple idea. The law is a system of rules and logic-based programming is very good at dealing with rules. The next step is to take a statute book and translate it into computer code. One of the earliest attempts to represent legal expertise in this was carried out by the Logic Programming Group at Imperial College. This project sought to codify the British Nationality Act (BNA) of 1981. The idea was to produce a programme that could check the residency entitlement of an applicant by taking some key information (date of birth, place of birth and so on) and having the system calculate the

outcome of the case. The BNA System was deemed a success, but the relatively unambiguous nature of the information it relied on made it a poor test-case for systems modelling large and complex statutes. Subsequent research has led to much more advanced codifications of law, but the essential ideas behind the BNA System remain unchanged.

Computer scientists working on legal problems have tended to form two distinct and relatively unconnected groups. Crudely, one group has attempted to build systems that can understand human language and semantics while the other has applied machine learning and probability theory to large datasets. While there

have been major advances in both fields, researchers believe the big breakthrough in automated legal analysis will come when ways are found of connecting these two branches of legal AI.

Bart Verheij, researcher at the University of Groningen's Institute for Artificial Intelligence and Cognitive Engineering, comments: 'On one side you have knowledge technology, which deals typically

with logic based and associated with semantic web expert systems, business rules, open data and so on. They have applications in the law, but a problem for those kind of approaches is they are typically not so adaptive and not so strongly connected to data streams. On the other hand you have data technology. That side of things has strong connections to data streams but it is not so easy to have complex structures inside the data. What you would like to see is some kind of fundamental connection between the two. In the law it is exactly what is needed, because there is a role for both knowledge and data.' Verheij's own research explores the role of argumentation (the study of how conclusions can be reached through logical reasoning) in this process. 'Argumentation shows how knowledge is connected to data. In a legal argument you look at facts, you find structures in facts, you present them as hypotheses and you test them. That kind of argumentation process is exactly what is needed in AI: to connect the knowledge technology side where complex structures are studied and processed and the data management side where we have all these files filled with natural language information.'

AI and law can be traced back to a 1949 paper in which the use of mathematical techniques is suggested as a means of removing legal cases from 'a secret cult of professionals'.

► science behind these systems is not new at all.'

Verheij also feels the relationship between academic research and commercial application is often overstated. 'Even though we have made a lot of progress there is still no real breakthrough that we could call true artificial intelligence. Some of the successes people

are talking about are technically at a very shallow level and the business side of AI is often not so very exciting for researchers, but these systems indicate what is possible.'

At least part of the problems stems from the term AI itself which, as Burkhard Schafer, Professor of Computational Legal Theory at the University of Edinburgh, says, has misled many. 'People do very

good work in AI and law but it is not what the man in the street is hoping for when he thinks of AI. The term "intelligence" is being used here in the sense in which it is used in the Central Intelligence Agency. It's really research into expert systems or decision support systems applied to huge amounts of information. A second sense in which these systems are intelligent is that

you orient them toward observations made about behaviour and try to replicate their reasoning processes. In idealised AI you are trying to replicate it to such a degree that a machine becomes indistinguishable from a human, but what AI researchers are really trying to do is generate similar outputs. We are simply asking which aspect of legal behaviour we can replicate sufficiently well to relieve lawyers of some of the burden of their job.'

Schafer makes a key point. In many regards the compelling notion of AI blinds and confuses the general observer. But technological advances in law are likely to come from the productisation or systemisation of legal services. This is a process that will be underpinned by machine learning, data analysis and sophisticated algorithms, but the application of existing technology and a change of mind-set in how to deliver professional services will be just as important.

From this perspective, the most successful systems in legal technology are not adding intelligence but eliminating stupidity. They are identifying the parts of a process that can be automated without appreciable loss in quality and taking it away from highly paid workers.

Machine learning technologies will play an important role in delivering these services, but technologically less sophisticated systems will be just as important.

THE LAWNTREPRENEURS

All of the above strongly suggests the real impact of automation in law will come with the application of well-established and cheap technology.

One of the simplest and most successful examples of a working system in computational law is TurboTax, used by millions of Americans each year to prepare their tax returns. In essence, TurboTax is a form of automated legal analysis that takes facts about individual circumstances and the tax code to produce an output (a completed tax return). The widespread adoption of this system stems from its simplicity. It works because it

is applied to a single, well-defined problem. A range of similar domain-specific systems are now being developed for the in-house and law firm market, most requiring little or no technological expertise to operate.

'What we are excited about at CodeX,' says Vogl, 'is that the internet and widespread availability of legal data lets us make progress without needing the most

The debate rages about when, if ever, there will be a breakthrough in hard AI; estimates from those working in the field vary widely from 'several years' to 'never'.

advanced systems. This is where there is a real change coming, and it's coming from the bottom up. It's still relatively new to have start-ups in the legal industry, but it is happening now. That's why I think it's not a matter of if but when the market changes.'

The relative lack of technological sophistication at law firms and the domain-specific nature of a lot of legal work has led to a highly fragmented market for legal tech. It is striking that many of the legal tech start-ups are coming out of university departments, the so-called Homebrew Computer Clubs of law. As Ken Grady, the chief executive of SeyfarthLean Consulting, who teaches at Michigan State University's 'LegalRnD' programme, notes: 'We are seeing a significant number of entrants come in and try to devise new tech solutions for the industry. It's the first time it's happened really. Young, ambitious students are no longer just looking at how they can get into a top-tier firm, they are exploring how they can transform the legal industry with technology.'

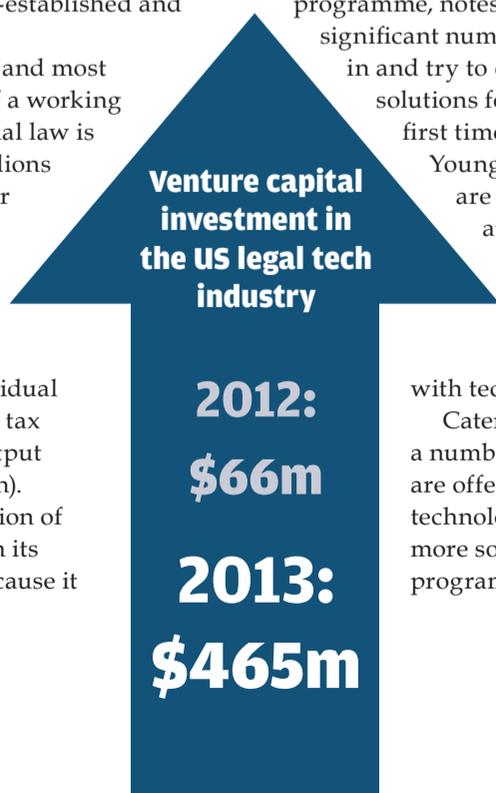
Catering to this ambition, a number of universities are offering courses in legal technology and incorporating more software into their programmes. For example,

students at Georgetown University use software provided by Neota Logic to build and test legal delivery apps as part of the university's acclaimed Iron Tech Lawyer competition. Neota Logic, a no-code delivery platform that can be configured to deliver substantive legal advice by those with no background in programming, now offers its software

free to a number of universities in the US and Australia.

Investors, too, seem to believe we are heading for a tech-led shift in the legal market. Total venture capital investment in the US legal tech industry rose from around \$66m in 2012 to around \$465m in 2013, according to figures from CrunchBase, a database of tech start-ups run by online publisher TechCrunch. LegalZoom, Rocket Lawyer and Axiom were the top three beneficiaries, between them raising over \$250m that year. Though reliable statistics are hard to come by, the figure is estimated at over \$400m for 2014. While the venture capital market is notoriously volatile and offers little indication of long-term trends, it does suggest that investors now see potential for disruption.

Further evidence of a sea-change in the industry can be seen in the many trade shows that cater to the legal technology market. The list of exhibitors at the bi-annual LegalTech Conference, held in New York and San Francisco, gives a sense of the range of companies entering the sector. And it is big business. According to Professor Oliver Goodenough, director of the Centre for Legal Innovation at Vermont Law School, the legal tech industry is now worth up to \$30bn (around 10% of the annual value of the US legal industry). While the legal tech market has traditionally been dominated by e-discovery providers or suppliers of software to large firms, tradeshows are



► increasingly attended by companies that are looking to offer services directly to clients.

Karl Chapman, chief executive of Riverview Law, notes a general shift in the way both start-up companies and investors are thinking about the legal services industry. 'I spend a lot of time looking at the new tech ventures in the US and it's really staggering. The tech companies out there are no longer saying, "How do we make law firms more efficient?", they're saying, "How do we disintermediate?" That's why we shifted from being a technology-enabled company to a technology-led company. We became determined that if anyone is going to disintermediate us it will be ourselves.'

If technology must be part of the solution to an inefficient legal industry, tech sceptics point out that it is also part of the problem. The volume of electronically-stored information has grown exponentially in the last decade and while tech-driven tools are lowering costs of processing data per terabyte, they are not lowering costs overall. The explosion of data and technical and organisational complexity means in spite of improvements, technology is running to stand still in many contexts. Dramatic advances in technology have made the law much more efficient, but have not so far resulted in a reduction in the number of legal professionals.

By enabling more data review to take place in a shorter time and at a lower price, technology encourages more data to be presented for review. Put simply, this is Parkinson's law of data applied to the legal profession: 'Data expands to fill the space available for storage.' The explosion of data and cases means that traditional legal research systems are struggling to cope. The typical large organisation now has tens, if not hundreds of thousands of contracts and agreements, and systems that allow lawyers to process this information are in demand.

Many of the new entrants to the legal tech market operate in the field of contract management, applying sophisticated algorithms to large unstructured databases. For example, Kira Diligence Engine offers a contract analysis tool that can explore a data room and extract information for diligence review. Legal OnRamp, which



'AI systems can incorporate rules into their logic without having them programmed in. But they can't explain their answers. That's the bit we're missing.'

Kevin Ashley,
University of Pittsburgh

partnered with Riverview Law last year, uses aspects of IBM's Watson to identify and process thousands of contracts to help institutions better manage their risk.

Dutch contract management software provider Effects was recently acquired by Wolters Kluwer. The publisher has also acquired ELM (formerly TyMetrix), which along with CEB produces the *Real Rate Report* identifying the actual cost of legal services by provider, rather than their reported rates, along with spending trends. Large publishers of legal information must now be considering whether they continue selling to law firms or risk their primary revenue stream by trying to disintermediate. It would be a bold move, but with improvements in data management and legal analytics it is no

longer an inconceivable one. At the same time, legal publishers are now facing their own disintermediation risk from venture-backed start-ups. Lex Machina, which began as a research project at Stanford's CodeX, combines data mining techniques with advanced algorithms to search the entire archive of US IP litigation cases and predict a series of likely outcomes, from whether a judge is likely to dismiss a case to the strategy opposing counsel is likely to adopt. Ravel Law, a legal search, visualisation and analytics platform which raised over \$8m of funding last year, grew out of two Stanford law graduates' collaboration with the engineering faculty at the university. Other promising new entrants to the market include Modria, an online dispute resolution platform based on technology spun-out of eBay.

While it may be some time before research into the notoriously hard problems of AI such as automated legal reasoning are fully incorporated into practical systems, the 'weak' or 'soft' AI incorporated in these and many more start-ups' offerings is thought by many to be the most likely means of producing a seismic shift in the legal market, realistically within the next five to ten years.

The main limiting factor here is not technology, but the willingness of clients to engage with new ways of resourcing legal work. History suggests this will be a slow process. As Mike Mills, co-founder of Neota Logic, points out: 'In-house teams are typically reluctant to use technology and the demonstration of that, at least in the US, is e-discovery. For years now there have been some very good tools based on advanced machine learning concepts that do a faster, cheaper and more accurate job than humans do in analysing large volumes of electronic data, but general counsel are not insisting that their law firms use it. It surprises me that general counsel do not have a universal rule that says we will not pay attorneys to do discovery.' (See 'The i-Team', page 90.)

Seyfarth's Ken Grady sees something similar in the slow uptake of diligence review software. 'Software like Kira Diligence Engine works. It can do things that would take a team of paralegals and attorneys many days to do, but you're still not seeing everyone jump in and use it. You

can show all sorts of charts and statistics but people are still going to be sceptical and ask whether it is catching the right type of information.'

While scepticism is essential when it comes to artificially intelligent legal systems, many of which will require a lot of road-testing before they are commercially viable, the fact that a technology-based approach is not perfect often misses the point. As legal tech specialist Ron Friedmann of Fireman & Company points out: 'If your next best alternative is a room full of lawyers who are very expensive and whose error rates are well known to be far higher than the error rates of most software systems then you can't just dismiss technology as imperfect. Your valuation metric has to be set up properly; it can't have perfect tech on one side and the status quo on the other.'

THE REAL CUTTING EDGE

The intuition that legal documents ought to be particularly suitable for computational analysis has guided AI and law researchers for a long time, but, as Verheij says, it has not led to the expected results. 'Legal decisions are typically all about details and the nuance of the specific words that are used, which is why the law is so interesting from a research perspective, but also why it's so hard.' Legal documents may be dry, but they are also full of tacit assumption and subject to interpretation.

If computers struggle to comprehend legal language, what if humans instead wrote laws in a language that computers can understand? The computational representation of contracts is a project Harry Surden, Professor of Law at the University of Colorado and resident fellow at CodeX, has been engaged in for the majority of his career. 'My take is that computers can't do natural language processing at the level necessary to make useful legal assessments and probably won't be able to do so anytime soon', says Surden. 'But you can translate at least some legal assertions and statements into computer code.' One of the big advantages of this approach, according to Surden, is that it reduces the transaction costs associated with contracts. 'Large numbers of commercial contracts are for repeat orders in a stable supply chain and there is



'Ambitious students are no longer just looking at how they can get into a top-tier law firm, they are exploring how they can transform the legal industry with technology.'

Ken Grady,
SeyfarthLean

simply no need to have a human involved in any stage of this process.'

The Computable Contracts Initiative at Stanford is working on developing a universal Contract Definition Language (CDL) – a rules-based logic programming language designed for expressing contracts – that will allow terms and conditions to be represented in a machine-understandable way. An automated contracting system would, at least in principle, be able to check a contract's validity with respect to the laws as well as calculate the utility of a contract for achieving certain aims.

While there is a lot in a typical contract that cannot be represented particularly well in computable form, Surden points

out that the real-world evidence of whether money was transferred or goods arrived at a location is already recorded by computers as financial or tracking data. As a result, companies could manage their contractual obligations much more efficiently with computable contracts than they could by applying even the most sophisticated analytic techniques to natural language contracts.

It is often claimed that there is something unique about legal obligations that requires human oversight, but Surden thinks this objection has been overstated. 'If you speak to anyone in business then the most important things in a contract are the simple things. A typical contract may have 59 clauses, but 57 of them are irrelevant. They're there to quantify risks in the event of a disaster. It's those two key clauses you care about 99.9% of the time, and they can be monitored by a computer.' Indeed, in finance automated and computer executed equity options contracts are already the norm. 'These documents are not written in human language but as data records that few lawyers would be able to read. Disputes still arise if people accidentally enter into a financial contract when they intended to specify something else, but there are various provisions and internal processes for dealing with those disputes. The system is so well integrated with the practice of finance that people forget it represented a big change in the way financial contracts got written just a few years ago.'

A related, but still more distant prospect comes in the form of smart contracts. While computable contracts would only be used within an established supply chain or institutional trading network, smart contracts are designed for any type of commercial transaction. The term smart contract was first proposed by the cryptographer and legal scholar Nick Szabo in 1993, but serious attempts to create such a platform have only just begun. One notable development in this field is Ethereum, a programming platform that helps distribute smart contracts among users.

This, in Vogl's opinion, is one of the most exciting areas of legal informatics. 'Smart-contracts research really is applying computer science to contract law. Contracts that are operationalisable – ►

WHAT IS WATSON?

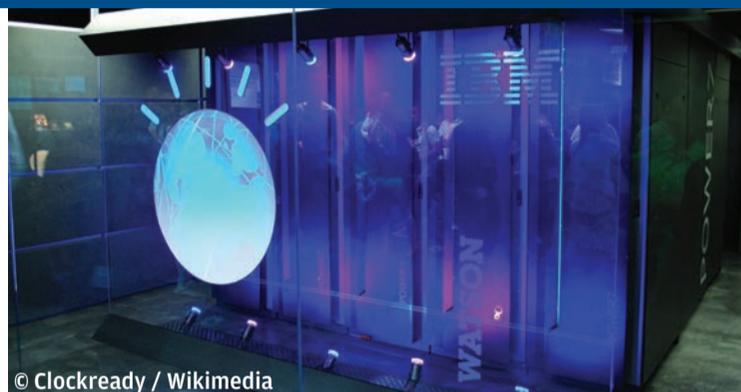
It may not rank among the top 500 most powerful computers, but IBM's Watson is undoubtedly the most famous supercomputer in the world. It is also the system most lawyers and legal futurists point to when discussing the potential for AI to transform the profession. There are good reasons for this interest. Ever since Watson in 2011 beat the two most successful players in the history of Jeopardy! at their own game anyone with a passing interest in the development of AI has been monitoring its progress, and any system capable of processing a million books' worth of information per second is likely to catch the eye of those working with large amounts of complex information. But few people seem to be able to come up with the answer in response to Merv Griffin's question: 'What is Watson?'

At its heart, Watson is a system for hosting and processing large unstructured databases. The core of Watson's power comes from the roughly six million logic processing rules that help it perform simultaneous data mining and complex analytics on the information stored within its servers, enabling it to extract data points far more accurately than previous systems. The prospect of a system capable of processing large amounts of unstructured data is a tantalising one for most corporations. According to a study conducted by the International Data Corporation (IDC) in 2012, only around 0.5% of available global data is used for analysis and 80% of all data is unstructured; a figure that has certainly risen since that time with the continued proliferation of social media and mobile communications. Unsurprisingly, IBM is putting a lot of effort into developing Watson for commercial application: the New York-based IBM Watson Group has 2,000 employees and is funded with \$1bn in capital.

A second aspect of the system is that it can respond to requests for information without relying on keywords, enabling users to summarise a concept as they would do in normal speech. For example, provided the structure of the question is sufficiently clear, a request for information relating to the presence of indemnities in a contract will be processed by Watson even if the term 'indemnity' is not used. Further, Watson will not simply list the documents on its server containing a discussion of indemnities; it will isolate the relevant passages and suggest an answer to the question.

The final strand to this technology is its much publicised machine learning component. While the initial calibration of Watson's rule to a particular domain requires a lot of behind the scenes programming, automated learning capabilities – part of the AI that Watson is famous for – allows it to incorporate feedback from users to improve these rules automatically (ie without a programmer's intervention). In this space, at least, Watson has some notable competitors, including Microsoft's predictive analytics platform, Azure, and, more recently, Amazon Machine Learning. All of which highlights the fact that Watson is not really a single thing, but a family of related services drawing on the same underlying algorithms and data processing capabilities. When companies speak of 'using Watson' they are not purchasing a physical system but adopting certain members of the Watson family, via cloud computing, and integrating them with their own IT systems.

One of the most important aspects of Watson is its adaptability. It is worth remembering that, for all the attention Watson garnered for its



One senior IT lawyer who had spent time investigating Watson said he had trouble distinguishing it from Google and described it as 'a very, very good search engine'.

ability to beat humans at a popular quiz, the system was not designed to play Jeopardy! in the same way that a programme like Deep Blue was written to play chess. Because the various tools of the Watson family can be adapted to so many different domains the scope for application is wide, but like any ambitious family IBM plans to send its children into medicine, law, and education.

The first commercial agreement seeking to bring Watson to market was signed between IBM and US healthcare insurer WellPoint (now Anthem Inc) in 2011. This has since been expanded to include the Memorial Sloan Kettering Cancer Center in New York. By using Watson's unstructured data processing capabilities to review a database of patient records, clinical notes, and thousands of test cases, the partnership should benefit patients, doctors and insurers by significantly reducing the time taken to pre-approve various therapies. Applying Watson to the legal industry is an intriguing and potentially lucrative idea, but one that may struggle to achieve the same economies of scale: not only is the data of medicine easier to handle – most scientific literature written in English and case notes tend to be recorded in a more or less standardised form – but the body is not subject to jurisdictional variation in the same way that a legal concept is. Nonetheless, many law firms and third-party suppliers are now taking Watson seriously enough to invest in their own systems (see ROSS Intelligence, page 86).

While optimism abounds, there are also a not inconsiderable number of sceptical voices. One senior IT lawyer who had spent time investigating Watson said he had trouble distinguishing its functionalities from Google and described it as 'a very, very good search engine' that may one day have general purpose AI layered on top. So, the big question, will Watson replace lawyers anytime soon? For now, at least, the answer is... probably not. According to Clyde & Co's global IT director, Chris White, Watson is a 'great discussion point' that has encouraged people to think about how technology may be applied to the legal industry, but it will not change the profession in the short-to-medium term.

► ie where a computer can perform the contract – are a huge opportunity that people are trying to break into. This is something that is really exciting and at the cutting edge of our field. There is huge scope here for disruption in the market. This could be the way the corporation of the future operates.’

Data-oriented contracting is an area in which human willingness to reimagine ways of executing the law is at least as important as technological advances. According to Professor Michael Luck, Dean of Faculty of Natural and Mathematical Sciences at King’s College: ‘We are at the point in computing where we have systems that can do a lot of this already. They do transactions electronically and provide services in an automated fashion, but we haven’t used machines for doing more legal aspects of that work thus far. We are still not quite where we need to be in terms of application. It’s partly technological, but it’s mainly because people are not ready to turn such things over to machines. But there are a lot of automated provisions of electronic services that we take for granted. We just haven’t put the next layer above. We need the environment to catch up.’

DISRUPTED, THIS TIME

It is notable that academics and technologists working at the frontiers of computer science are often more pragmatic and less hyperbolic regarding the transformative impact of AI than others. For example, there is a good deal of cynicism in such circles about the industry hype built up regarding IBM’s Watson (see ‘What is Watson?’, opposite).

What looks most likely to impact on law in the foreseeable future is a change in mind-set and a growing demand that firms approach more legal problems via tech-backed systems rather than as a guild of high status professionals.

In law, this looks to be the prime suspect to deliver the ‘disruptive innovation’ proposed by the academic Clayton Christensen, whereby new entrants up-end the business model of leading industry players. In the short-to-medium term, the most fertile ground for such disruption is the routine-heavy areas of law involving large groups of contracts and huge amounts of data, such as litigation discovery and compliance work.

More powerful forms of AI may be the fuel that dramatically accelerates this process, but the productisation of law is where the real progress is currently being made.

There are already a group of providers, among them Riverview Law and Axiom, some legal process outsourcers and a handful of law firms using technology to remodel legal processes. A number of in-house teams are also taking an interest – though, unlike in Christensen’s model, it is currently large institutional buyers rather than marginal early adopters that are progressively experimenting with such tools.

AI may be the fuel that dramatically accelerates this process, but the productisation of law is where the real progress is currently being made.

Does this herald the end of professions and mass unemployment? In many regards the answer appears to be no, though the consensus among specialists in the area is that there will ultimately be proportionately fewer legal professionals required in 20 years’ time. Keynes’ analysis of the impact of technology on labour has, after all, proved wrong many times. And there will also likely be a host of new jobs, working on the interface between technological systems and the law. It seems likely there will soon come a day when major legal services providers will spend a lot more on technology than they currently do on rent.

In this regard some turn to the augmentation theory of automation – the idea that, as machines take on increasing parts of the workflow, humans will evolve towards areas in which they have comparative advantage against technology. This concept is expressed at the conclusion of the much cited Oxford report that, as technology races ahead, workers will ‘reallocate to tasks that are non-susceptible to computerisation – ie, tasks requiring creative and social intelligence’ before concluding: ‘For workers to win the race...

they will have to acquire creative and social skills.’

In law, the cognitively and socially advanced skills of negotiation, business development, client handling and forming judgements in the face of poor information won’t be replaced anytime soon and, as such, will probably command a greater premium.

It should also be remembered that automation has to be not only possible, but commercially viable against the benchmark of a person. The Oxford report, for example, concludes that there will be relatively quick computerisation of many jobs before engineering and

technology bottlenecks slow the advance of automation.

Likewise, the march of technology suggests that many services will become commercially viable thanks to the ability to process huge amounts of information. An example of this can be seen in accounting, where technology is leading a shift from auditing via sample to a ‘total audit’, where every transaction a company carries out could be included in the audit. In a legal context that could constitute real-time analysis of all a company’s contracts and legal exposures.

Such factors suggest that there will be a considerable period of evolution in which roles, skills and resources will re-allocate as technology impacts on law, though it is hard to dispute that the process will lead to profound change in the next ten years, let alone beyond that.

But the law will not merely be a passive partner. As Verheij concludes: ‘Many people think that technology will change the law, which is true and in fact happening, but also rather mundane. What is more interesting is that I expect that the needs of the law will lead to significant changes in technology.’ **LB**

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Applied science and snake oil

The cutting-edge science in artificial intelligence in law is startling, but does the tech currently offered by commercial legal providers match the hype?

HELEN MOONEY

It's a sign of the times: Berwin Leighton Paisner (BLP) now has its own 'robot'. In September, the firm announced it had teamed up with tech company RAVN Systems in a deal to use its artificial intelligence (AI) platform, known as the Applied Cognitive Engine (RAVN ACE).

RAVN ACE reads, interprets and extracts specific information from documents. It converts unstructured data into structured output in a fraction of the time it takes a human. The firm recently used the platform to work on a 1,000-page contract project alongside a team of four lawyers. According to BLP, the robot finished the work to the appropriate standard within a few hours – after ten days spent configuring the computer program – while the legal team took three months to complete the job.

But despite the fervour that surrounds discussions over AI and automation, it

is far from the panacea that it is being presented as. David Halliwell, Pinsent Masons' director of knowledge, risk and legal services, warns that in the legal technology sphere, it can be a challenge 'trying to identify the genuinely new offerings from the snake oil'.

'A lot of people have taken existing products and wrapped them in an AI banner, but there is some credible software out there. It's more a question of identifying business need,' he says.

But while the endgame is to use the technology available to offer clients cheaper, quicker and more accurate advice, in reality much of the low-end legal work that the large firms carry out has already had the tech treatment. The technology available to speed up the front-end process of law has for years been impacting in areas such as conveyancing and property,

due diligence, corporate and M&A transactions, and even in some areas of litigation.

I, LAW FIRM

BLP has initially rolled out RAVN ACE across its real estate practice, identifying this as one area with a lot of repetitive work.

The system extracts data such as client names and addresses from Land Registry documents, enters it into a spreadsheet and cross-checks data to ensure there is no duplication, negating the need for junior lawyers to handle time-consuming, repetitive tasks.

Matthew Whalley, head of BLP's legal risk consultancy, says that the technical term for the system is 'specific disembodied artificial intelligence'.

'It has a specific purpose: reading through Land Registry documents and outsourcing ►

► contracts to find the same data points in each contract,' he says.

'It is disembodied because it's software, obviously, and it's AI because, as it goes through each document and interacts with the lawyers at the end of the process, it learns whether what it has done is useful or not and then it will apply that to future tasks.'

Whalley admits that the effectiveness of the computer's learning process varies with the complexity of the documents being processed, but says it can learn well with fairly limited exposure.

'This type of tech isn't going to take off if the fine-tuning effort required from lawyers is too arduous, because they're not going to spend a lot of time doing that. They will be sceptical about the whole thing.'

But while traditional law firms, such as BLP, can see the benefits of using this technology, for alternative legal service providers such as Riverview Law, emerging technology is an integral part of the business. In January it announced that it had formed a knowledge transfer partnership with the University of Liverpool to work together and use its AI expertise.

Under the agreement, Riverview has access to the university's computer science research in areas such as AI, text processing, network analysis, computational argumentation and data mining.

Riverview chief executive Karl Chapman says the work done by the university is 'breathtaking'.

'It works because it looks at something practical rather than this [IBM] Watson stuff. We've got linguistic analysis from [the partnership] already, looking not just at how to extract data but how to interpret it.'

ROSS – ARE STUDENTS BRINGING ROBOTS TO A LAW FIRM NEAR YOU?

For those who beat the drum of 'disruptive innovation', the story of ROSS Intelligence is almost too perfect: a group of young, IT-literate entrepreneurs studying at a North American university enter a competition to develop IBM Watson technology for commercial applications.

One year on, these poster boys of the tech-led revolution in law have attracted venture funding and interest from dozens of law firms, leaving highly-paid technologists and legal software developers trailing the bandwagon. The reality is slightly different, but the narrative remains potent.

In 2014 a University of Toronto student, Jimoh Ovbiagele, opened an e-mail containing a link to the IBM Watson competition, calling on computer science students across North America to develop entrepreneurial systems harnessing Watson's capabilities. Ovbiagele enlisted the support of three colleagues – Akash Venkat, Shuai Wang

and Pargles Dall'Oglio – and teamed up with a young lawyer, Andrew Arruda, to provide subject matter expertise and help develop their entry, ROSS Intelligence. ROSS narrowly missed out on the \$100,000 start-up funding prize. That honour went to a group of students from the University of Texas at Austin, developers of the CallScout prototype app that draws on Watson's ability to respond to natural language questions to streamline the delivery of social services. However, ROSS has since been granted permission to continue operating within the Watson Ecosystem, attracted accelerator funding from Y Combinator (which typically offers \$120,000 in return for a 7% stake in ventures) and signed up as Dentons-backed NextLaw Labs' first portfolio company.

Much like Apple's Siri, Google Now or Microsoft's Cortana, ROSS can respond to questions in plain English. ROSS doesn't in a conventional sense answer questions it is asked; it scans a large database of cases to provide information that is likely to be relevant

to the enquiry. Inaccurate information can be flagged as a false hit, helping the system to run more smoothly next time. 'Watson is like a brilliant child and we took that child to law school,' comments chief executive and co-founder Andrew Arruda. 'We have taught it to understand the law so it can help lawyers do their research. Situated dead-centre of ROSS at all times is a human lawyer. What it does is help the end user answer questions; it is augmented intelligence.'

By allowing huge amounts of data to be mined every few minutes, ROSS, along with a host of similar systems coming to market, could potentially negate the advantage well-resourced firms with teams of paralegals have over their smaller competitors. (It is no surprise that Arruda started his career at a boutique litigation firm.) According to Arruda, ROSS is currently being tested in the bankruptcy practices

of 20 top law firms in the US and Canada. The company has also signed up with NextLaw Labs to develop a suite of artificial intelligence (AI)-based research tools.

'Situated dead-centre of ROSS at all times is a human lawyer. What it does is help the end user answer questions; it is augmented intelligence.' Andrew Arruda, ROSS Intelligence

ROSS, like many advanced knowledge management systems, addressed a basic problem many organisations now face with exponential data growth: subject matter specialists lack the IT skills to manipulate large volumes of data, while IT professionals are not familiar with the significance of its content. As with most successful legal AI systems, ROSS works by focusing on a specific set of documents. The ROSS prototype was trained to read and process Ontario corporate law decisions and statutes, though later incarnations have been focused on bankruptcy law documents. These are early days and the system still needs to prove itself in practice. Whether the great story of ROSS's creation will be remembered in ten years' time will depend on its ability to meet the needs of the firms it services. But it will also depend on the strength of its competitors. After all, if four students and one junior lawyer really did outmanoeuvre the legal tech incumbents in the space of a few months, all bets are off.



‘Our focus is not on how to replace legal judgement per se, but how to enable lawyers to render better and more consistent judgement.’

Sandra Devine, Axiom

He adds that the long-term goal is to develop a substantive AI platform and the firm will work with the university to develop tools to automate in-house legal work.

In September the firm acquired New Jersey-based knowledge automation business CliXLEX, allowing it to create ‘virtual assistants’ for in-house counsel. The cloud-based platform provides corporate counsel with automated case-management processes for new instructions, so that work can be given to the right person based on previous behaviour.

Chapman sums up Riverview’s ethos: ‘We’re focused on the middle 80% of work that all in-house teams have to do every day of the month, every month of the year, that you can package into long-term contracts –

employment law, litigation, commercial contracts and obligation management. We do the things you have to do, but they can be done better on a fixed-fee basis.’

Competition between alternative legal providers is intense. In 2014, fellow New Law pioneer Axiom Law launched its IRIS contracting platform, now being used by BT. IRIS is Axiom’s proprietary, cloud-based technology platform, and involves the capture and translation of text contained in contracts to structured data.

In a submission for this year’s Legal Business Awards, in which Axiom was shortlisted for Legal Technology Firm of the Year, BT’s general counsel Dan Fitz highlighted some of the early benefits of IRIS: ‘[It enables us] to spot key performance indicators, such as turnaround time on commercial contracts, which clauses are most frequently negotiated versus not, and so on, [with a view to] increasing the volume of transactions.’

Axiom executive vice president Sandra Devine says that the firm chose to focus on automation in its legal contracts, which she says can be deployed broadly in corporate work. In June this year, Axiom went live on a deal with Dell to provide it with a technology-backed, managed service, responsible for the capture, management, reporting and analytics of legal and commercial information contained in Dell’s sales agreements globally.

‘At Axiom, we come at automation and technology from a few different directions, but generally starting with the data and the repository,’ says Devine.

‘When the contracts repository is done right, it means structuring the data in a manner that lays the foundation for practical intelligence via data analytics. When repository is done wrong, it means an expensive storage device. With respect to AI, there is certainly a lot of hype on its application to legal. Our focus is not on how to replace legal judgement per se, but rather how to take routine tasks off the plates of lawyers and contract professionals, and how to enable these individuals to render better and more consistent judgement.’

Aside from BLP, other traditional law firms have also made significant investment in AI and automation technology. This includes Pinsent Masons, which in July acquired a ▶

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‘WHAT’S COMING DOWN THE TRACK’ – THE CONVERSION OF RIVERVIEW LAW

To the uninitiated, the list of hubs in the legal tech revolution would probably not include the North West of England, but from unlikely beginnings, the Wirral-based Riverview Law has quickly established itself as one of the most vocal advocates for using technology to improve legal processes. In the three years since its launch, Riverview has arguably joined the pioneering US provider Axiom Law as one of the brand names for tech-driven New Law challengers.

But that positioning was something of a shift. Riverview first launched in 2012 in a blaze of publicity with the backing of a group of DLA Piper partners, largely targeting small and medium-sized businesses with an array of fixed-fee products. While much of the sales pitch was a deliberate break with the conventional law firm model, within 18 months Riverview was focusing more heavily on institutional clients.

The backbone of the business is managed legal services for large in-house teams, often handling large contractual, compliance or regulatory tasks. Riverview also covers legal projects and litigation via an allied but independent group of 13 QCs through its Riverview Barristers arm. Unlike a conventional law firm, Riverview makes no effort to replicate practice areas, instead positioning itself as an operational extension of in-house legal teams.

Riverview chief executive Karl Chapman sums up the strategic shuffle: ‘We could see from our previous business backgrounds that if you deploy techniques, processes and technology from other sectors, you would stand a very good chance of succeeding in the legal sector, but it needed to be a managed service model. We found that large companies were very much more receptive than small companies. They were outsourcing certain aspects of their legal work to us that were historically done in-house or by external law firms. Not only were we saving them up to 30%, but the in-house team was freed up to focus on the key strategic elements of legal work.’

Chapman saw the technology moving to a more central part of the Riverview offering. ‘We were growing rapidly, but we were deploying a model that was ten to 20 years old in business terms. People were saying our offering was innovative and we won awards for it, but we knew it wasn’t innovative and disruptive in other industries.’

At the same time, Chapman says, Riverview became increasingly aware of the developments in artificial intelligence (AI) and legal automation that were coming out of US and UK universities and start-ups.

‘We realised, if we are being praised for innovation in the legal services industry by using a model that isn’t new, imagine what we’d accomplish if we used a model and technology that is new. We started to look at the technology and business models that would replace Riverview Law. We wanted to know what was coming down the track.

‘You’ve got a massive technological revolution taking place that you can’t ignore. Existing technologies will make law more efficient,

but they will only restructure the existing marketplace. We wanted to know what would happen when next-generation technology hits. A lot of the developments we saw in the US were staggering. From that point we shifted from being a technology-enabled company to a technology-led company.’

Riverview’s focus on new technologies led it to explore a string of bolt-on acquisitions. Most recently the company acquired US-based CliXLEX, a knowledge automation service that can take instructions coming from any department in a business with a legal requirement and filter them into self-service or triage streams. An important aspect of this system, says Chapman, is an ‘integration layer’ that allows it to be combined with a client’s existing IT platforms.

The CliXLEX deal also facilitated a second US office launch for Riverview, with New Jersey joining its existing Manhattan branch. The firm’s approach was illustrated at last month’s International Bar Association conference when one panel debate quoted Riverview’s US vice president, Andy Daws, when asked if he thought Riverview could get good lawyers in New Jersey. Daws reported response: ‘Good lawyers we can find

anywhere, the hard part is to find legal technologists.’

Chapman argues that the CliXLEX platform is flexible enough to add on new tools emerging from the company’s partnership with the University of Liverpool. The agent applications, research and technology group at the University of Liverpool is a research centre in the science underpinning AI, robotics and advanced automated decision systems. In late September, Riverview also launched a related consultancy to help in-house teams develop their own automated legal processes. Unusually, Riverview also licenses its technology and platforms for use by in-house teams.

Riverview has so far expanded substantially, having grown to around 150 staff, with additional offices in London and Manchester alongside its Wirral headquarters. The business’s last available accounts in 2014 showed its turnover as £5.01m, having more than doubled from £1.94m the previous year.

Chapman sets out the company’s aspirations: ‘Tech is not only getting more complicated, it is getting simpler. Developers are working on coding platforms that are so simple anyone can use them. Within two hours you can design an end-to-end business system. Configuration, not coding, may be the way of the future. When you start putting the tools in the hands of the people at the front of the business you start to see a big change. Customers have had enough [of the old models of law] and the tech is now available to disrupt the market.’

‘The developments we saw in the US were staggering. From that point we became a technology-led company.’
Karl Chapman,
Riverview



► majority stake and all technology rights in Complete Electronic Risk Compliance (Cerico), the cloud-based compliance joint venture which it launched with IT consultancy Campbell Nash two years ago.

Cerico, which is deployed on Microsoft Azure's cloud platform, automates the processes that businesses require to comply with essential corporate legislation, such as the Bribery Act and the Health and Safety at Work Act. It allows clients to ensure employees and suppliers can undergo regular, rigorous compliance checks in a fast and auditable manner.

Richard Masters, Cerico executive chair and partner at Pinsent Masons, says: 'Essentially what we're doing is helping corporates support their code of conduct. Everything that is done creates a solid audit trail, so we can see who took decisions and what the basis of those decisions were. It's putting a technology solution around a very heavy administrative burden.'

However, he says technology does not remove the requirement for human input. 'If a supplier is flagged as carrying a higher risk, then someone needs to look at that. We're not removing or replacing compliance professionals, but we are making their jobs a great deal easier.'

THE SPOT ON THE CURVE

Marc-Henri Chamay, global head of e-business and chief executive of Allen & Overy (A&O)'s subscription service, aosphere, agrees that the AI term is over-hyped and the most significant progress to date has been around process automation. A&O has been using automation in some form for the last ten years, he adds.

'We use it, for example, in our banking practice, where we have automated a number of banking documents to facilitate the task of our lawyers,' he says.

According to Chamay, the software can, for example, allow lawyers to create a draft of a complex credit agreement with all the relevant clauses and data within a few minutes. 'The agreement can then be negotiated by the lawyers who have access to a database of standard clauses if amendments need to be made.'

A&O is currently using Business Integrity's ContractExpress DealBuilder document automation system, which is also used by a number of other firms, including Ashurst, Linklaters, Eversheds, Dentons,



'Some of the tools we are hoping to use did not even exist six months ago. We are currently seeing a drastic acceleration in pace.'

Tae Royle, Ashurst

Mishcon de Reya and Nabarro. Clifford Chance has used ContractExpress since 2001, when it replaced an inefficient system of many different manual templates.

The software has proved popular with law firms because it does not require programming skills, only a basic knowledge of document mark-up. Chamay adds that aosphere is also experimenting with how it can roll out software created by Neota Logic.

'It allows us to build applications that can process complex rules and reasoning. For instance, it could be used to build a marketing compliance application,' he says.

The Neota Logic software asks the user a few questions about the product or service they intend to sell and then flags up any restrictions or documents that are required for the transaction.

'The application can also be used to automatically create the documents required based on the characteristic of the transaction,'

says Chamay. 'The rules are coded by content experts using a standard set of tools that sit on the platform.'

Like A&O, Ashurst has also recently been seduced by the new automation technology and earlier this year announced its intention to automate its legal precedents across all practice sectors and international offices, in a significant deal driven out of the firm's Glasgow support centre. Tae Royle, head of legal services innovation at Ashurst, is leading the process.

'We are implementing a major document automation project globally and we are at the stage where we are working through the firm's precedents and the most commonly used client documents, and automating these. This should decrease turnaround time and bring efficiency into the production process,' says Royle. 'Time savings and efficiency improvements will be tracked on a document-by-document basis and will depend on a number of factors, including the complexity of the document and how frequently it is produced.'

Royle adds these documents can include anything from a two-page non-disclosure agreement to a 300-page facility agreement. And they can also be pulled into 600 or 700-page packages.

He adds that the firm's team of legal technologists take a precedent document in Word format and 'apply a layer of code over the top of the document'. The document is then fed into the ContractExpress system. Lawyers are asked a series of questions and the code triggers amendments to the underlying document, based on the lawyers' responses, to produce a Word document tailored to the requirements of the transaction.

However, Royle feels that AI has become an 'abused term' in the legal profession and more generally.

'There is the conception of a general purpose AI and we are a long way away from that. When people realise that, they ask if AI is of any use. Actually that is a false dichotomy, because a significant amount of what can be done is around project management, breaking down legal work into discrete components and asking who the task can be done by. Should it be done by a partner, associate or by software or bespoke AI? It is about moving to the most efficient spot on the curve to get the most value.'

Royle adds that Ashurst has also started using the software for due diligence, which uses machine learning – a form of AI that provides computers with the ability to ►

AN A TO Z OF ARTIFICIAL INTELLIGENCE AND LAW – THE LEGAL BLUFFER’S GUIDE

A is for **Artificial Intelligence (AI) and Law**, a subfield of AI research that first emerged as a substantive area in the 1980s. Research seeks to apply the techniques and methods of computer science to legal problems.

B is for **Blockchain**, a decentralised ledger of transactions distributed to a network of users. Blockchain is part of the architecture that underlies cryptocurrencies like Bitcoin and smart-contract platforms like Ethereum. The public nature of the blockchain means a trusted third party (eg a law firm) is not required to draft and validate a contract.

C is for **Computational Law**, a branch of research concerned with the automation of legal reasoning.

D is for **Data Mining**, a subfield of AI that seeks to identify patterns and overlapping features in large, unstructured datasets and extract useful information from them.

E is for **Expert System**, a computer program that can solve problems typically requiring human expertise in a particular discipline (law, medicine, engineering, etc). Although a number of legal expert systems were developed by researchers in the 1980s, their failure to produce reliable outputs led to most of the software being rebadged as ‘decision support systems’ intended to assist, but not replace, a human expert.

F is for **Forward Chaining**, a process that reasons from facts to conclusions by repeatedly applying if-then rules. Rules-based AI systems work either forwards or backwards. (In the latter case the system would start from the question and work backwards to find more data that could satisfy the enquiry.)

G is for **Genetic Algorithms**, an AI search heuristic mimicking the flexibility of natural evolution to allow for principles of selection, crossover and mutation in finding the best available solution to a problem.

H is for **Heuristic**, an experience-based approach to solving problems in which a system deploys a rule that is likely, but not certain, to lead to a desirable outcome. Much of an expert’s reasoning can be reduced to if-then heuristics (eg, if it looks like the merits of a case are weak, appeal to pity). The Stanford Heuristic Programming Project, which began life as the DENDRAL project in 1965, was one of the earliest attempts to build an expert system.

I is for the **International Association for Artificial Intelligence and Law**, an organisation formed at the first International Conference on AI and Law in 1987. Since 1992, the Association has published the *Artificial Intelligence and Law* journal.

J is for **JURIX**, a Netherlands-based foundation that works at the intersection of computer science and the law. Following the first JURIX conference, held in 1988, it has since become one of the most important forums for AI and Law research.

K is for **Knowledge Management**, a system for collecting, organising and distributing knowledge within an organisation. If knowledge is defined as information translated into meaning, an AI-based knowledge management system is capable of identifying data as information relating to a particular subject.

L is for **Legaltech**, a biannual tradeshow, held in New York and San Francisco, showcasing the latest developments in legal technology.

M is for **Machine Learning**, a process through which computers work out how to analyse data, draw inferences or make more accurate decisions without relying on rigid rules-based programming.

N is for **Natural Language Processing**, a branch of research that explores ways of enabling computers to read and process natural language expressions, whether they occur in a journal article, a blog post, a court docket or a contract.

O is for **Open Texture**, the philosophical principle that usage rules for certain ideas or concepts cannot be fixed in such a way that their future application can be rigidly defined. Many of the early computational law systems encountered problems with the open texture of legal language, leading researchers to re-examine their approach.

P is for **Petabyte**, the currency of Big Data. A petabyte is a quadrillion, or 10^{15} , pieces of information. Although data-based management systems are entering the legal market rapidly, the amount of information a law firm handles is relatively small. Even Big Law does not yet truly deal with Big Data.

Q is for **Quantum Artificial Intelligence**, a project established by NASA in 2013 to explore how quantum computing could help develop advanced machine-learning tools. Computers act as a series of switches that perform calculations on information that can exist in one of two states, 1 or 0. Because quantum particles exist in a ‘superposition state’, holding multiple properties at the same time, a quantum computer would be able to perform multiple calculations on each bit of information, making them potentially much faster than a normal computer.

R is for **ReInvent Law Laboratory**, a Michigan State University project established by professors Daniel Martin Katz and Renee Newman Knake in 2012 that brings together thinkers in technology, law and business. ReInvent Law has since spread

to other cities and inspired students at a number of universities to look beyond the traditional ways of delivering legal advice.

R is also for ROSS Intelligence, a much-touted electronic paralegal system that can respond to plain language questions without relying on keywords as prompts. ROSS was created by a group of students at the University of Toronto for entry in the 2014 IBM Watson Challenge, a North American contest calling on computer science students to develop entrepreneurial systems. While ROSS narrowly missed out on winning first place, it has since attracted accelerator funding from Y Combinator and has been signed up as Dentons-backed NextLaw Labs' first portfolio company. (See box, page 84.)

S is for Semantic Networks, a means of representing knowledge by plotting a series of relationships between objects (eg specific contracts) and types (eg all contracts of a particular kind). Semantic networks allow the information of a domain to be structured into shared concepts that both humans and machines can understand.

T is for the Turing Test, a means of identifying whether a machine can think, proposed by pioneering computer scientist Alan Turing in his 1950 paper, 'Computing Machinery and Intelligence'. To pass the Turing test, a machine must be capable of deceiving a questioner about its identity as frequently as a human in an imitation game in which both are trying to convince the third player that their opponent is a machine.

U is for Universities, encouraging students to apply technology to the solution of legal problems. Noteworthy examples include Georgetown University Law Center's Iron Tech Lawyer competition, Michigan State University's ReInvent Law, Stanford University's CodeX, and Suffolk University's Institute for Law Practice Technology and Innovation.

V is for Vacuum Tube, a glass tube containing electrode switches that formed the circuitry of early computers. Colossus, the first programmable computer built in 1943 at Bletchley Park, relied on vacuum tubes.

W is for Watson, the IBM supercomputer consisting of 90 servers and six million logic processing rules. Watson can perform simultaneous data mining and complex analytics on large, unstructured datasets to identify patterns and assist in making decisions. IBM is currently exploring ways to commercialise Watson in a number of sectors, including legal. (See box, page 80.)

X is for CodeX: The Stanford Centre for Legal Informatics, which encourages students, researchers and entrepreneurs to collaborate in designing legal technologies. In addition to supporting a number of leading research initiatives, CodeX is working with Thomson Reuters to promote university-led work on next-generation legal technologies.

Y is for Y Combinator (YC), a venture capital 'technology incubator' that invests in and provides advice to start-ups, with past successes including Airbnb, Dropbox and Reddit. YC is now showing an interest in legal start-ups and has just launched Ironclad, an automated assistant that manages legal paperwork.

Z is for LegalZoom, one of the leading online self-help platforms, which, along with competitors like Rocket Lawyer, Responsive Law and LegalShield, is helping to bring affordable legal advice to the mid-market and transform the retail legal services market.

► learn and change when exposed to new data without being explicitly programmed – to refine a set of algorithms so that a computer can pull out material that it has been tasked with looking for.

The legal technologist identifies a contract clause to the software that appears in a sample set of 20 to 40 documents and the machine starts building an algorithm to recognise the clause in other documents. The legal technologist then provides the software with a larger set of documents, and supervises and corrects the software when it makes a mistake. The software is then used to identify and extract the relevant occurrences of this clause into a table, drawing from a very large pool of documents forming part of a due diligence exercise for further review. Additional clause reviews are added to the same table and the software creates a draft review of the due diligence documents as a whole.

Royle believes the legal industry is currently witnessing an explosion in legal technology that did not exist five years ago.

'Some of the tools we are hoping to use did not even exist six months ago. We are currently seeing a drastic acceleration in pace. There have been huge advances in application programming interfaces in the last three or four years, which are enabling one system to talk to another. These advances are a significant factor in the current acceleration.'

In reality, many large firms have already set off down the path of introducing the available new legal technology. As one lawyer puts it: 'There is a silent arms race going on in the top firms.'

Tony Joyner, managing partner of Herbert Smith Freehills' Perth office, says he believes there is a 'game-changer coming up'.

'It will require the senior management of law firms to take action. We've had tech coming into the law firm model in the past, but it was safe tech. E-mail didn't change what lawyers do, it just made it quicker. Video conferencing didn't change the way we speak, it just allowed us to do it over distances. But some of the stuff that gets called AI will change the business model.'

'You can't just buy this tech and plonk it in the office. It requires a discussion about how to integrate it, how to make sure it delivers for you and the client, and so on. I'd be staggered if the board of any sizeable firm isn't discussing this. Along with joining the gym and eating more vegetables, it's the one thing on everyone's to-do list.' **LB**

The i-Team

Pioneering GCs are taking control of legal spend, armed with the latest tech. Can the rest of the in-house community keep pace?

JAISHREE KALIA

If conventional law firms have been slow to embrace technology – and they have – their counterparts in-house have been barely moving. But in the last five years signs have emerged of ‘early adopters’ in the bluechip general counsel (GC) community who are willing to do more than apply new tools at the margins. The GCs are turning to technology to reshape the way they work.

Aside from the obvious efficiency benefits, the appeal to such GC pioneers is often more potent to the professional soul: control.

As Reckitt Benckiser’s vice president and GC Claire Debney comments: ‘I want the intellectual capital in-house, in my team. I don’t want to be outsourcing all of our supply agreements, distribution agreements, or our digital platform agreements. We want our people at the meetings and in the negotiations and have the external back-up if we need it.’

As in-house teams have gained prominence – largely due to budget-conscious companies squeezing external legal spend post-crisis – a number of legal



► heads have made it their business to get to grips with the latest technology. Many recognise that data analytics can help rather than hinder, and that the right software can save time and costs while increasing overall team performance. This is most evident in the e-discovery arena, where predictive coding and computer-assisted reviews have created efficiencies that directly translate to time and cost savings.

While there are GCs that fear the necessary changes associated with implementing new software and processes, some, particularly those from more tech-driven or heavily regulated sectors such as TMT, banking and life sciences, are using technology to reshape their own teams and operations. However, such overhauls do not come cheap and legal teams have often struggled to get heavy investment for IT and infrastructure.

‘The trouble with technology is it’s expensive and you need to remember you’re part of a business with an integrated information system. You have to make sure you optimise what you have. There are products out there that can help, not least by ensuring ready access to information,’ concedes Vivienne King, outgoing GC and director of business operations at The Crown Estate.

Nilema Bhakta-Jones, group legal director at media house Top Right Group, takes this point further: ‘Budgets are always challenged. You have to put together a business plan to support the capex spend. It is more likely to succeed if your plan demonstrates that tech improves cash flow, adds to revenue or creates efficiencies with those outcomes. For those organisations that are not focused on technological innovation, there will be little pressure on in-house legal teams to do so. Instead there may be reliance on external providers and private practice firms to provide cheaper tech solutions. Other in-housers want to innovate and will use technology as an enabler. They make it work for them; for example, they might use social media to communicate key messages, or use it to ‘beta’ test a new legal portal that provides contracts management. It’s a choice for the legal head about how best to create operational efficiencies or engage with their business colleagues. Ultimately, it has to fit in with their, and their chief executive’s, vision and purpose.’

But there is a significant emerging group of GCs with ambitions to harness

RECKITT BENCKISER: GETTING THE BALANCE RIGHT

Reckitt Benckiser (RB)’s legal team, led by vice president and general counsel (GC) Claire Debney, who also heads up the legal affairs and compliance group, has been described as ‘a balancing act of risk and quality’ by peers. Some of this boils down to the team’s ability to embrace automated systems and adapt to new ways of working.

The group recently put into place the final component of its contract-management system – a compliance ‘sniff test’ that gives the lawyer an idea of what a contract is about based on a questionnaire comprising five questions around key areas of compliance, data protection and competition, integral to RB’s business. ‘With this added software, we can pick up stuff much earlier on, particularly on data protection,’ says Debney.

Under predecessor Bill Mordan – who recently stepped down from his senior vice president and GC post – the group pioneered a proprietary contract-management system i-Legal – a tool that enables clients to create their own contracts covering anything from non-disclosure agreements to supply agreements, without compromising legal certainty.

RB also teamed up with software provider Business Integrity to develop a cloud-based application, i-Contract, using ContractExpress. It offers flexible contract automation, contract management, and archiving, and also allows RB to include its compliance strategy.

In 2014 the legal team generated over 1,000 contracts, of which less than 15% required direct legal approval. This directly reduced contract conclusion times. ‘We were drowning in contracts and needed to find a way to empower the business to take ownership of their own contracts, and come to us only when they needed to,’ says Debney.

‘I joke about how Tesco want to know what I want to buy before I buy it. We have data on all the contracts that are being completed and we can see patterns – where there is heavy usage – and we have created new contracts that people didn’t use three years ago. Who knew what cloud sourcing was three years ago?’

On average, Debney’s team alone pumps out between 600 and 700 non-disclosure agreements a year, and from this stems the potential of joint development agreements



‘With this added software, we can pick up stuff much earlier on, particularly on data protection.’

Claire Debney, Reckitt Benckiser

and supply agreements. ‘It becomes a contract family so the foundation is really key,’ she adds.

But while RB is setting the pace in the contract system world, e-discovery tools in general will take some time to gain traction. The company currently does not have any e-discovery manager tools, but uses accountancy firms like KPMG and Deloitte, which Debney describes as ‘exceptionally helpful’.

‘In a wholesale investigation I would return to a third-party provider. This is a big one-off event and wouldn’t be something we invest in, so we are happy to outsource as it’s not the day-to-day work where we could add value.’

In 2010, the Office of Fair Trading (OFT) fined RB £10.2m for infringing UK and EU competition rules on abuse of dominance, after it tried to protect its Gaviscon product from generic competition by creating an updated version of the drug and delisting the original product in order to extend the patent protection. The fine was reduced by £1.8m following RB’s co-operation and admission of liability under the OFT’s settlement programme.

‘RB did have several years of investigations and challenges that were common to the consumer products market in Europe,’ says Debney. ‘This is now behind us. We have moved from cure to prevention through these tools.’

new tools. BAE Systems group GC Philip Bramwell sums up his goals for the next year: 'Our biggest challenge is around the way we work as lawyers – this will be one of our themes for 2016. Lawyers now have no idea of life without the internet; there are electronic versions of the old paper world now. I'm making use of the newest devices and wireless technology. We've got to be better educated on managing [the] cyber security rise and inputting as crisis lawyers, while striving to keep abreast with changing law and regulation.'

For some of the biggest names in the in-house legal world, such as ITV's GC Andrew Garard, embracing more sophisticated processes has become a priority that clients have to take the initiative on, rather than wait for external advisers. At ITV, the team has created a system to allow the business to create contracts with minimal oversight.

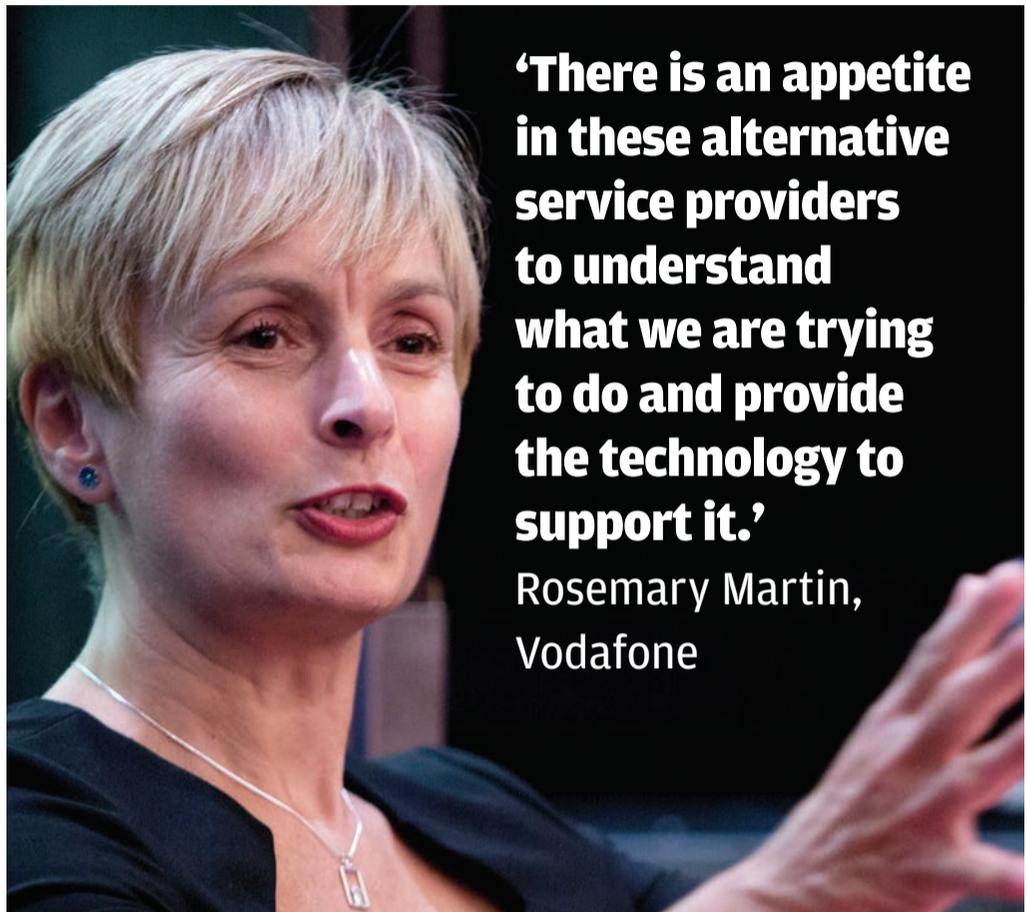
'Annually we have over 10,000 contracts just for our advertising business with a team of four lawyers doing it – it means the sales guys can put together some of their own contracts based on languages the lawyers have provided and they can't change it. They feel empowered, we know the language is safe. But they don't have to wait for a lawyer to review their contract so the business moves faster; it's less overhead. God, the profession is slow to pick up on technology – in private practice, appallingly slow.'

IN-HOUSE IN ORDER

Figures from technology research company CEB show that around three-quarters of in-house legal departments spend nearly a third of their time reviewing contracts. And as contract volumes continue to climb, automated contract management systems have unsurprisingly proved top of the priority list for GCs trying to implement better systems.

With its own system i-Legal, Reckitt Benckiser is ahead of many peers (see box, opposite). But Novartis has also embraced the concept and is seeing the benefits after moving away from years of storing documents locally to using a centralised electronic document management system in 2010, following a six-month pilot of the system. Because of its successful application, the same tech is currently being rolled out across the general legal function.

'Everything used to be paper-based, stored locally and moved from



'There is an appetite in these alternative service providers to understand what we are trying to do and provide the technology to support it.'

Rosemary Martin,
Vodafone

attorney to attorney around the world as responsibilities changed,' says Nick Finnie, head of legal operations and IP management at the Swiss pharmaceutical giant. 'Now, you log into the system, access the entire file, and access related files with a matter that involves, say, 20 countries. This allows me to compare and contrast what has happened – so the ability to access the information to do my job has dramatically increased and improved.'

Meanwhile, Vodafone, for years one of the most innovative and tech-savvy legal teams in the industry, is currently getting alternative legal providers to pitch to extend the handling of contracts. Vodafone group GC and company secretary Rosemary Martin comments: 'We are trying to get an end-to-end process around contracting with our business customers, handling the contract creation, execution of workflow, storage, retrieval, and metadata so we can manage those contracts in a very real and tight way.'

Martin, who notes it is alternative providers rather than law firms making the running in this area, adds: 'I know

that other corporates are trying to do the same thing. Our experience has been good so far. There is really an appetite in these alternative service providers to try to understand what it is that we are trying to do and then provide the technology to support it.'

Coca-Cola Enterprises (CCE) is in the early stages of rolling out a contract lifecycle management tool and this summer launched a five-year strategy to transform its internal systems following a consultation with legal management consultants Jomati. A new system for the creation and storage of contracts was implemented in the UK in May and launched in Europe four months later.

'It's a bit cart before the horse, because the first step is to run a technology need analysis and review what tech is out there and how it can help the business,' says CCE vice president, legal and company secretary Paul van Reesch. 'But when this is fully rolled out, it will allow people to generate a contract themselves or request a legal team to create it if it's complex. This can then be sent to a customer and drafts

THE CLIENT PERSPECTIVE ON AI

► can be exchanged using a negotiation portal. Internal approvals can be received and contracts can be signed electronically by both the customer and us, which can be stored electronically.'

CCE's team of 30 lawyers is currently awaiting sign-off of the negotiation portal, approval process and electronic signature aspects. 'This doesn't mean we will abandon face-to-face meetings, but means we can exchange documents with customers,' van Reesch adds. 'We have sales people of all age groups that are often on the road and have time constraints. So how do you best leverage the traditional things and get the message or advice deeper into the business? This is what tech enables us to do: engage people on multiple platforms in multiple ways, with advice on the go without having to talk.'

Similarly, BT's legal team is in the process of implementing a case-management system, having first showed its interest in the legal tech realm in 2012 when it acquired Tikit Group, one of the largest independent suppliers of technology and services to legal and accountancy firms, for around £64m.

BT's GC for UK commercial legal services, Chris Fowler – a noted advocate of the use of tech in legal departments – says the advance of technology has been significant in the law.

'Eighteen months ago, we wouldn't have realised what we could do with SharePoint. People are demonstrating how technology can take some of the noise away and allow us to focus on the coalface stuff.'

Similarly, Westfield's 14-lawyer team, which has an external legal spend of around £7m to £10m a year, also signed a deal with NetDocuments early this year to implement its cloud-based software-as-a-service (SaaS) DMS.

But not all in-house teams can see the immediate benefits of investment in technology. Daniel Toner, GC and group company secretary at Spire Healthcare, comments: 'We are looking at case-management systems but it's not viable for us to get value compared to the cost. We have looked at artificial intelligence systems and looked at programmable logic controller systems, for example. I don't see it having any interplay with our business. Reckitt Benckiser has a case-management system but it operates in 70 jurisdictions. A lot of



BANK OF MONTREAL: OPTIMUM CONTROL

At the Bank of Montreal (BMO) Financial Group, deputy general counsel and chief knowledge officer Jolie Lin has been busy implementing tools in all three of the most popular areas for in-house legal technology development: contract management, e-discovery and e-billing.

In the past year, the 150-lawyer team has teamed up with Microsoft and rolled out an enhanced document-management system that allows better record keeping, increased efficiency and reduced costs.

Four years ago, the group started using e-discovery tools, and the result now is a 90% reduction in the number of documents sent to external counsel thanks to tools such as predictive coding and improved search.

In 2013, the group began using e-billing platform TyMetrix and introduced a new system to ensure contract process adherence. Lin says: 'We wanted to have better control and management over our external counsel use. We wanted better clarity over spend and whether we can get more use. So we implemented a new platform just to manage this.'

'[The software] checks on rates and disbursements. Whatever the agreement was

between us and the external counsel, the system flags all of that and ensures it doesn't go through without people checking it.'

The automated systems, which cut out the manual review of every single invoice, have reduced the bank's external legal spend by nearly 20%. Another turning point came when the team restructured its legal panel by severely cutting its go-to adviser list of 1,000 law firms globally down to 150 in one year.

Lin, who also oversees BMO's legal, corporate and compliance group, is currently working with Chicago-based software vendor KMStandards to build bespoke contract-creation tools that make legal work more efficient through the analysis of key terms. 'It's a tiny little shop that is turning out some really interesting stuff,' says Lin. 'A lot of companies say they are capable of conceptual search. They're not even looking for key words anymore; they are looking for concepts. They've got the algorithm managed at a level where the machine can do it for you.'

She concludes: 'This doesn't mean the end of lawyers, but it certainly means there will be fewer lawyers.'



‘People are demonstrating how technology can take some of the noise away and allow us to focus on the coalface stuff.’
Chris Fowler, BT

what we do is bespoke. It will be a long time before we replace people with machines.’

Senior legal counsel David Johnson at First Gulf Bank agrees: ‘Producing new documentation quickly has been a struggle. Institutions across the world have moved from growth mode to cost-sensitive mode. You find external counsel who will work to almost any deadline you set, compete aggressively on pricing and do whatever is needed to secure transactions.’

A BETTER GENERATION

With many GCs frankly still wary of applying heavy automation and new processes in contract management, e-discovery and tech-backed litigation support has arguably seen more substantial change in the last five years. Novartis’ 500-strong legal team has in the last two years centralised a lot of its

AI AND ADVANCED AUTOMATION – THE CLIENTS’ VIEW

Over half of legal teams expect automation to have a significant impact on the way they work in next three years...

As part of this special report, *Legal Business* last month canvassed general counsel (GCs) and decision-makers on their views on the current uses and prospects for AI and advanced automation in the law.

The results of the survey – which generated over 600 responses – are clear: in-house teams expect the automation of legal services to significantly change the way they work in the next three years. More than half of legal teams believe the impact will be ‘significant’ or ‘very significant’, while only 3% believe automation and new

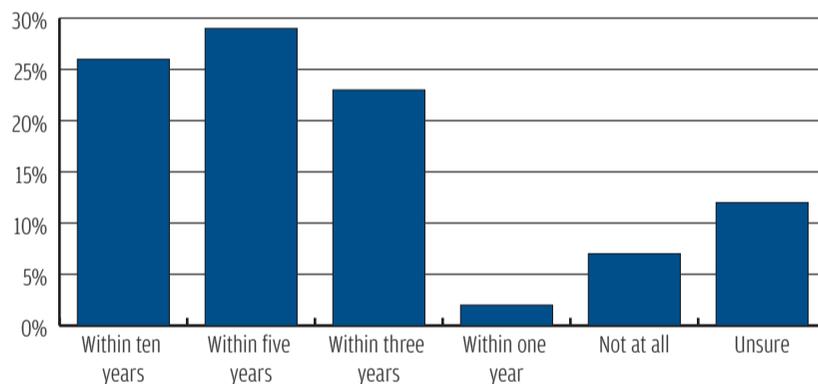
technology will have no impact at all.

Larger organisations are considerably more attuned to new tech-driven tools; 69% of FTSE 100 companies surveyed believe workflow automation and IT will change the way their legal function is structured in the next three years.

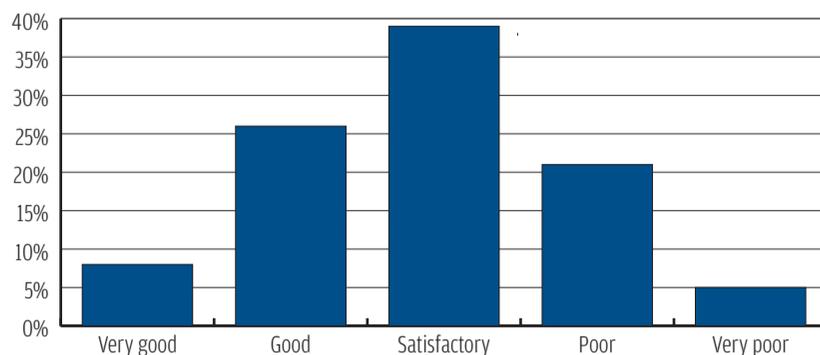
AI will change the way legal teams work, it’s just a question of when...

In-house teams also believe AI-based systems will materially transform the way they provide support to business in the near-term. But while legal teams are unanimous that AI will have an impact there are widely differing views as to the speed of change.

IN WHAT TIME FRAME, IF AT ALL, DO YOU BELIEVE THAT ADVANCES IN ARTIFICIAL INTELLIGENCE WILL HAVE A NOTICEABLE IMPACT ON THE WAY LEGAL SUPPORT IS PROVIDED BY YOUR FUNCTION TO YOUR BUSINESS?



HOW DO YOU RATE THE QUALITY OF MANAGEMENT INFORMATION AND TREND ANALYSIS DATA THAT YOU HAVE IN YOUR LEGAL FUNCTION?



(continued, page 97)

TECH BUBBLES

Key findings from our AI and automation survey:

69%
of FTSE 100 companies expect automation to change the structure of their legal function in three years

82%
of FTSE 100 companies plan to spend more on legal tech in the next three years

8%
of companies regard the quality of their legal information management and trend analysis as 'very good'

88%
of legal teams believe it is important to improve the quality of information management and trend analysis

25%
of 300+ staff legal teams believe automation will have a 'very significant' impact on their function

11%
of legal teams spend more than 5% of their budget on legal technology

► work around e-discovery, as well as implementing tools that have driven down costs and led to productivity savings of around \$30m since 2011.

It is notable that e-discovery services are increasingly being handled by technology-driven providers, some LPOs and major accounting firms, rather than conventional law firms. By a similar token, the dramatic escalation in cyber attacks on corporates, and corresponding liabilities, is forcing many in-house legal teams to engage, however grudgingly, with providers deploying data analytics and more sophisticated tools.

But while the Novartis team is now reaping the benefits, implementing the software and changing the mind-set of users can be challenging. 'We didn't think there was much work to do after the first year of implementing e-billing. But we had to learn quite a lot very quickly once the tech was in place,' says Maurus Schreyvogel, head of operational excellence at Novartis. Unsurprisingly for a pharmaceutical giant with a significant patent portfolio, the benefits have been primarily felt in IP disputes, allowing business users to collaborate across different jurisdictions. 'Tech gives us the freedom to assign work to people globally. We are now no longer forced into giving document discovery work to external firms. Instead, we can use e-discovery vendors around the globe. Using IT systems reduces costs from \$130 to around \$70 an hour,' adds Schreyvogel.

Some in-house teams are using other methods to drive down costs. GlaxoSmithKline (GSK), for example, has a policy that requires all litigation or corporate work over £250,000 to go through an online auction process using the platform OCSI (online collection software instances), where law firms can bid for work.

'The lowest bidder doesn't always get the work,' says senior counsel Tom Spencer. 'It is the combination of the team, experience, relationship, and what else the firm is offering that is considered. These different scores will be weighted along with the bid and then a decision is made.'

But for all the talk of tech transforming legal departments, in-house teams still have a long way before they even get to deploying the knowledge-management tools that are already mainstream in some industries, let alone working with the cutting edge AI.



'You find external counsel who will work to almost any deadline you set, compete aggressively on pricing and do whatever is needed to secure transactions.'

David Johnson,
First Gulf Bank

But relatively slow change isn't no change. E-billing, for example, has revolutionised the way some teams monitor legal expenditure, with companies like Novartis and the Bank of Montreal (BMO) (see box, page 94) making substantial savings, and has won support for data analytics.

Tyco International uses e-billing tracker Serengeti to monitor all its external legal spend. It also this year introduced an online system for generating non-disclosure agreements. But vice president and regional GC of EMEA David Symonds says that while the systems 'take the work off our desks, beyond that, we're not very far along in the use of tech in our legal department'.

CCE's van Reesch sums up: 'It's not about trying to automate 50% of our

AI AND ADVANCED AUTOMATION – THE CLIENTS’ VIEW (CONTINUED)

Only a third of organisations rate the quality of their legal data as above satisfactory...

If legal teams think a change is coming, they also see a need for it; many rate their current systems and practices as average.

Only 8% of respondents rated the information management and trend analysis data of their legal function as ‘very good’. For those occupying senior legal positions – GCs, heads of legal, and company secretaries – this figure fell to around 5%. Senior legal staff were also more likely to rate the quality of information and data management as ‘poor’ or ‘very poor’. More than a quarter of respondents felt

quality was ‘poor’ or ‘very poor’, while 39% rated it as ‘satisfactory’.

Legal teams also think more needs to be done in this area; 88% of teams said it was important to improve the quality of management information in their function.

There was a wide variation in response across market sectors and company sizes. Logically, one would expect companies with lower legal budgets to spend proportionately more on expensive technological systems, but this was not the case. Companies with a legal budget between £5m and £10m were over three times more likely to spend more than 5% of their budget on technology as those with budgets of £500,000-£5m.

Those that spend a higher proportion of their legal budget on technology were significantly more likely to report confidence in existing systems and practices: while 28% of organisations spending more than 5% of their budget on legal technology rate their data as ‘very good’, only 6% of those spending around or below 5% on technology are of the same opinion. Conversely, only 6% of organisations with a legal technology spend exceeding 5% of their

28%
of organisations with a legal technology spend exceeding 5% of their legal budget rated their data as ‘very good’

There are signs of change. More than two thirds (74%) of legal teams expect to spend more of their budget on legal technology over the next three years.

legal budget rated quality of systems and processes as ‘very poor’, a figure that rose to 26% of those who spent less than 5% of the budget.

But investment is not a guarantee of success. Media companies were the joint highest spenders on legal tech, with over a quarter dedicating more than 5% of their budget to it. They were also among the least satisfied with existing systems, with only 6% rating them as ‘very good’, though this may indicate higher expectations. Conversely, public sector organisations were the second lowest spenders on legal technology, but their legal teams showed the most confidence in existing systems; while 56% of public sector

organisations were in the lowest-spending bracket for legal technology, 22% rating their systems as ‘very good’ (a positive rating that was over twice the average across all market sectors).

Legal tech budgets set to increase...

Big spenders on legal technology remain in the minority. Only 11% of teams spent more than 5% of their budget on legal technology, compared to 44% spending less than this (the balance of respondents either spend around 5% or were unsure). While confidence in existing systems was generally low across all sectors, there are signs of change. More than two thirds (74%) of legal teams expect to spend more of their budget on legal technology over the next three years.

Again, larger organisations are at the forefront: 82% of FTSE 100 companies, 66% of FTSE 250 companies and 69% of Fortune 500 companies say they will spend more on legal tech in the coming three years. This resonates with the views of many of the academics, third-party suppliers and technologists we interviewed. Despite the often invoked model of disruptive innovation put forward by Clayton Christensen, which suggests smaller or marginal clients initially support disruptive market entrants, in law it is larger institutional clients, which are far more frequent users of legal services, that are the most receptive to tech-assisted tools and new models of working.

legal work but about getting the right balance with human interaction while moving with the times. In five to ten years, we will see more millennials coming through and we need to engage with these people.’

As tech continues to evolve, it is important GCs liaise with the right providers. BMO Financial Group deputy GC Jolie Lin comments: ‘Providers outpace and leapfrog each other all the time, so

you have to re-consider your providers every three to five years. I am a little vendor-agnostic. Different platforms can do different things and are rarely the only provider that can do it.’

Debney adds: ‘I like the smaller companies that think out of the box and are happy to partner with us. We like to take solutions and slightly torture them by saying, “That’s a great starting point; can we have some more?” I like to take it as a

platform and then ask the provider – “Are you happy if we tinker with it?”’

She compares her team’s progress with private practice when she says: ‘Compliance, contracts and learning are all interlinked, and should not be siloed, because you will create a better generation of lawyers that are able to deliver services in an incredibly streamlined way. We are going to leave private practice in the dust.’ **LB**

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