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Artificial intelligence in the legal sector: pressures and challenges of transformation

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Recent technological developments in automation and artificial intelligence (AI) promise to disrupt the very foundations of how legal work is practised and delivered. Yet how they challenge current business models, where they encounter resistance and how the benefits of AI can be realised remain unexplored. Drawing on interviews with professionals in the UK legal services sector, the article highlights how technological and market pressures combine to challenge the business models of legal services firms. However, the findings reveal important cultural and structural challenges that hamper transformation. The article extends the debate on technological disruption in legal services through a focus on business model innovation as a tool that can support firms in the sector to reimagine legal services provision.

Introduction

The legal services sector worldwide is facing pressures to innovate and transform from a variety of quarters. The advent of new data-driven technologies spurred by automation and developments in artificial intelligence (AI) is promising significant disruption to long-established practices. Importantly, the disruptive potential of such new technologies is greater in the legal services sector as this has traditionally under-utilised technology (LexisNexis, 2014). Fuelled by developments in automation and AI, the proliferation of 'legal tech' highlights that legal services are no longer immune to innovation

(Sheppard, 2015). While manufacturing has typically been the focus of disruptive innovation, services have received significantly less attention. This article presents insights into the pressures and challenges of transformation in legal firms through a case study of the UK legal services sector. It draws on perceptions of legal professionals of the nature and type of challenges in relation to AI and automation.

The Industrial Strategy White Paper published by the UK Government identifies AI as a key driver to enhance the competitiveness and productivity of the UK economy. The sectoral focus of the Industrial Strategy

highlights the opportunity for AI to transform the UK professional services sector, which accounts for almost 80% of the UK's economy and provides over four million jobs (House of Commons, 2017). As one of the largest professional services sub-sectors, accounting for 13% of the GVA from the professional services sector (House of Commons, 2017), the UK legal services sector is particularly interesting for studying the effects and potential of AI. First, it is particularly vulnerable to disruption from AI (McGinnis and Pearce, 2014). A combination of regulatory changes that enable new entrants to deliver innovative services outside of the structure of traditional law firms, alongside the emergence of new technologies that speed up labour-intensive functions, are expected to significantly transform how the business of law is carried out and what it means to be a lawyer (Alarie et al., 2018; Susskind and Susskind, 2015). For example, AI-based technologies have greatly reduced the time required for legal research and contract review and analysis, speeding up procedures and augmenting decision-making (Alarie et al., 2018). Moreover, as a more symbiotic relationship is likely to develop between lawyers and technology, the redeployment of human skills to new areas and the emergence of a new species of digital lawyers are highly likely scenarios (Susskind, 2017).

However, the legal services sector generally has been resistant to innovation, and slow to adopt new technologies relative to other high-value sectors due to a combination of traditional practice and risk aversion (Alarie et al., 2018; Ribstein, 2010). Among other things, it is difficult to convince highly profitable law firms to embrace disruptive technologies such as AI. Nevertheless, the sector is on the threshold of a structural reconfiguration that is going to profoundly affect business models (BM henceforth), and that is being driven by both technological, predominantly in the form of automation and AI, and market forces. The risk

is that firms that do not start thinking about adopting AI into their BMs will be at a disadvantage, which may carry consequences for the competitiveness and economic health of the sector internationally.

As Alarie et al. (2018, 123) emphasise, "the true benefits of artificially intelligent tools in the legal profession may be realized only once lawyers completely rethink the provision of legal services". Therefore, it is essential to understand how AI and other technological pressures combine with existing market trends to challenge existing BMs of legal services firms and the business areas to which AI can potentially contribute to, or disrupt current activity (Armour and Sako, 2019). This is particularly important for legal services firms which operate in a business environment where new data-driven AI-enabled technologies promise to disrupt every link in the value chain, and thus need to be agile in the face of technological advancements that are expected to prompt significant transformation. At the same time, given the hype surrounding AI and associated technologies proclaimed as 'disruptive', it is crucial to understand sources of resistance and barriers to AI adoption as perceived by those working in the sector. Attention to these issues now can enable the development of public policies and business practices to anticipate the transition to the next generation of services, support the resilience of the sector, and predict and mitigate ensuing labour market changes. As Hadfield (2017) observes, the infrastructure to handle disruption in the legal sector has yet to catch up with exogenous technological developments and market demands. Therefore, the two main research questions informing this study are, 'how do current technological and market pressures challenge the current business models of legal services firms?', and 'what are the perceived barriers to transformation within the legal services sector?'.

The article shows that firms in the UK legal services sector are seeing significant external

pressures, spurred by developments in automation and AI as well as from innovative new entrants to transform their practices and BMs. However, a pervading reactive mindset and resistance to change hamper transformation and opportunities for innovation, while established and enduring management structures disincentivise change. Skill gaps, coupled with fear and mistrust of technology and data concerns, further fuel conservative approaches. The article highlights business model innovation (BMI henceforth) as a valuable tool for change that can help legal services firms identify business areas that are most prone to disruption, but also where opportunities can be realised. BMI can enable firms to respond positively and adopt new technologies by reconfiguring their offering and structure to realise the benefits of AI. This will include considering where value is added to the business through the introduction of new technologies, and the trade-offs that may have to be made (Agrawal et al., 2018).

A key contribution of the article is in highlighting that, while the pressures for transformation are rooted in technological developments, the challenges to transformation and adaptation are largely social in nature. Specifically, it is the professional norms, tradition and culture that maintain existing structures and business models in the face of a technological impetus for change. Moreover, while automation, as opposed to 'true AI' technologies emulating intelligent behaviour, is currently the main source of disruption, it is also a stepping-stone towards AI diffusion and adoption. Therefore, engaging in BMI early on is critical to ultimately becoming 'AI-ready'. The article concludes that embracing innovation and reimagining legal services provision is key to ensuring the future competitiveness of the sector and the long-term sustainability of firms. It begins with a discussion of the role and importance of BMI in adapting to change and adopting new technologies such as AI, followed by an outline of how AI-enabled technologies

are expected to contribute to evolving business practices. A methodological section precedes the final sections which present our findings, discussion and recommendations.

Literature review

The importance of business model innovation

BMs are the pillars around which businesses are consciously or unconsciously constructed. They represent a 'formal conceptualisation that allows the viability of a business idea to be proved' (Klang et al., 2014, 455), with a consideration of how different components of the business work together to enable and deliver the core business activities. Magretta (2002, n.p.) argues that BMs are "stories that explain how enterprises work" and address critical questions of how value is generated to the business and its customers. BMs may focus on the configuration of a business activity and its 'building blocks' (Baden-Fuller and Morgan, 2010), such as skills or resources, or may be used to conceptualise interactions and interfaces with the customers and supply chain so that it can be understood and organised in more efficient ways (Casadesus-Masanell and Zhu, 2013).

While the term is prone to a degree of conceptual fuzziness, it is still a valuable lens through which to consider various aspects of innovation within firms. Magretta (2002) notes that terms such as BMs and business strategy are used interchangeably and vaguely, 'often stretched to mean everything—and end up meaning nothing'. However, this has not prevented an increase in scholarly attention paid to business model innovation (BMI), which has been noted as an important means of accentuating value creation and capture and providing ameliorating changes to boost firm effectiveness through the integration of innovation (Markides, 2006).

BMI has taken a number of directions in the literature, from a focus on organisational

capacities to enable innovation to take place (Foss and Saebi, 2015), to the analysis of new BMs that look to 'change the rules of the game' (Afuah, 2014, 4). Spieth et al. (2014) argue that BMI can occur at three levels: through the conceptualisation of what is innovative ('explaining the business'); how a firm is organised ('running the business'); and how BMI can assist in developing future strategic directions ('developing the business'). Other conceptualisations, such as the business model canvas advanced by Osterwalder and Pigneur (2010), consider several front-end and back-end elements. The front-end elements include the key resources of a firm, activities, firm partners and the cost structure, while the back-end elements incorporate the value proposition, the targeted customer segments, channels of resource acquisition, distribution and production, the customer relationship and the revenue structure (Günzel and Holm, 2013).

Building on these foundations, the article focuses on the three core elements of a BM:

(1) the offering, which refers to the products, processes, and services that the firm offers;
(2) the experience, which encompasses customer interfaces and engagement; and
(3) the configuration, which refers to how the firm is organised or structured to create, deliver and capture value.

Importantly, the model itself is a source of disruptive innovation (Baden Fuller and Morgan, 2010). As Pohle and Chapman (2006) note, businesses that place a greater emphasis on innovating their BMs tend to outperform their competition. Ultimately, BMI entails 'the search for new logics of the firm' (Casadesus-Masanell and Zhu, 2013, 464), which redefines how value is created, captured and delivered. BMs are a valuable strategic tool (Richardson, 2008), which is particularly important in legal services where the disruptive potential of AI requires firms to be more agile and responsive to change.

A key issue is that traditional legal practices have BMs which are firmly established, in some instances dating back centuries, with the business owned by authorised practicing solicitors licensed to practice law. Typically, UK legal services follow this partnership model, practising both reserved activities that are carried out only by those who are authorised to do so under the 2007 Legal Services Act, and non-reserved activities that are unregulated. This partnership model has led to the rise of *alternative business structures*, which adopted new provisions under the 2007 Legal Services Act to enable legal firms to have non-lawyer representation in the management of the firm, such as a non-lawyer managing partner, CEO or CFO on the board, and external investment outside of solicitor owners or banks.

This has led to the emergence of alternative legal service providers (ALSPs), 'non-law firm providers involved in many aspects of the delivery of legal services….[and] encompass activities performed by non-traditional legal service providers (including independent affiliates of law firms), that are directly related to the provision of legal services' (Curle, 2017). ALSPs can practice both reserved and non-reserved activities but operate outside the traditional legal firm BM. Their activities involve providing high-demand legal services such as document review, IP management, litigation support, contract management, investigation support, e-discovery and other specialised services, usually at a lower cost and on tighter timeframes than in-house teams can manage. ALSPs and alternative business structures enable capital investment into the more creative adoption of new technologies and the development of employee skills, hence being a potential source of disruption for traditional legal practice (McMorrow, 2016). Cohen (2018, n.p.) notes that:

ALSP growth reflects two key market trends: (1) An opportunity for tech and

process-enabled, well-capitalized, corporatized, digital, client-centric delivery models to provide managed "business of law" legal services with augmented expertise, efficiency, value, and measurable results that law firms have typically failed to deliver; and (2) growing willingness of legal consumers to engage a new suite of providers for tasks/matter traditionally the province of law firms. Leading ALSPs are agile, proactive, fluid, able to scale, aligned with consumers, and constructed to deliver at the speed of business.

These new trends challenge the ways of practising 'old law', in that traditional BMs are no longer the de facto means of conducting legal business (Dzienkowski, 2013), thereby stressing the importance of BMI based on an understanding of how current technological and market pressures challenge the current business models of legal services firms.

The potential role for AI in legal services' business models

McCarthy coined the term 'AI' in the mid-1950s, referring to it as "the science and engineering of making intelligent machines, especially intelligent computer programs" (2007, 2). Similarly, Alarie et al. (2018, 115) define AI as "a somewhat nebulous branch within computer science that seeks to build machines capable of what humans would regard as 'intelligent' behaviour", yet what 'intelligent' means exactly in this context is still up for debate. Therefore, AI remains "a notoriously difficult term to define" (Alarie et al., 2018, 115), which has led to much confusion around what represents 'true AI' in different application areas. This is important as, commonly referred to as an enabling technology or general-purpose technology, AI has the potential for application across multiple sectors.

In the legal services sector, new technologies, particularly AI, machine learning (ML) and automation, are increasingly prompting companies to identify new ways of creating, delivering and capturing value from their business activities. This makes technological advancement a catalyst for BMI, providing companies with opportunities to learn from, and adapt to, their external environment and client needs in order to remain competitive. As Alarie et al. (2018) highlight, AI may provide law firms with tools that facilitate their transformation in a financially viable and lucrative way. However, while AI has the potential to impact all aspects of legal services, it is most likely in the short–medium term to affect the configuration elements of the BM, which relate to how the firm is structured, and how resources are deployed, in the process of value creation.

For example, a recent report looking at technological innovation in legal services highlights that legal technologies, such as document assembly, automation and AI, are expected to disrupt the BMs of legal services firms by creating new and enhanced services, bringing new ways to engage and interact with clients, but also challenging their current structure and economic model (The Law Society, 2017). AI-based tools such as natural language processing (NLP) are already changing different practices, from discovery processes to contract review and prediction (Alarie et al., 2018). For example, lawyers now spend less than 5% of their time on basic document review, as ML-based tools such as NLP are enabling e-discovery, thereby reducing the need for labour-intensive processes. However, Alarie et al. (2018) argue that, in the short term, the impact of new technological tools will be evolutionary, meaning that these will not supplant lawyers but will augment their work by assisting them in exercising reasoned judgement in their evaluations, an aspect that machines are not (yet) able to perform. Therefore, by increasing efficiency and radically reducing the time taken to perform previously labour-intensive activities, AI is expected to allow lawyers to do more in the same amount

of time, thereby enabling them to broaden rather than narrow their areas of specialisation.

Furthermore, AI has the potential to change the production and consumption of legal services and even the nature of law itself. This may allow for greater efficiency, openness, transparency, and personalisation of services, but also potential challenges to trust between clients and lawyers, the replacement of human lawyers entirely, and changes to the broader regulatory environment (Greenleaf et al., 2018; Rostain, 2017). However, just as electricity led to an explosion of productivity in manufacturing only after restructuring the systems, logistics and roles of people, a complete rethinking of legal services provision may be required to realise the benefits of AI, and "artificial intelligence may provide impetus for a complete overhaul in the way legal services are provided" (Alarie et al., 2018, 123).

Nevertheless, innovation has tended to be considered a low priority by professional services firms (Brooks et al., 2018; LexisNexis, 2014), leading to a generally resistant approach in the sector to the potential for new technologies to change traditional business practices (Ribstein, 2010). In their commentary on the future of the professions, Susskind and Susskind (2015) highlight the challenges that the professions face in thinking about their future and highlight fundamental problems regarding the way in which the professions are organised and the impacts on the regime of current working practices. While such technologies can help create significant efficiencies and drive productivity in law firms, especially by leveraging the potential of data (Slaughter and May, 2017), they also reduce the need for human labour in certain areas, especially volume and transactional work, which means that law firms need to remain agile and to adapt to the new challenges brought by these technologies.

For the purpose of this article, and due to the range of underpinning technologies and applications of what has become known as 'legal tech', we discuss the impact of advances in ML, deep learning and NLP as subfields of AI, but also that of automation, which is increasingly pervading the legal tech space. As such, we adopt a broad perspective and consider the impact of automation and AI-based tools and technologies such as e-discovery, contract review and analysis, predictive analytics, legal research, case management and document automation on the BMs of legal services firms to understand the pressures and challenges of transformation in the sector more broadly.

Methodology

To examine the impact and challenges of AI and related new and emerging technologies on legal services, the study adopted an exploratory approach and employed a qualitative methodological approach. A total of 15 in-depth semi-structured interviews were conducted. To select the participants, we employed purposive sampling, which is commonly used in qualitative research to identify potential participants who have the best knowledge concerning the research questions (Elo et al., 2014). The aim was to ensure that representatives from legal firms at different stages in their technology adoption journey were interviewed (Robinson, 2014). Specifically, we targeted representatives of legal firms leading on AI adoption as well as those considering adoption in order to enable an in-depth understanding of how AI is expected to impact firms the sector. A list of top UK legal services firms was used to identify potential participants.

Selected respondents included Senior Partners, Directors of Innovation and Senior Partners with a remit for innovation and technology adoption within their firms, from a mix of national and international law firms of different sizes (see Table 1). Seven of the respondents represented legal services firms that can be considered leaders in terms of the adoption of AI-based legal technologies in the UK, having

Table 1. *Profile of respondents.*

Respondent	Role	Organisation size (number of employees)	Operational footprint
INT1	Director of innovation	>1000	Global
INT2	Senior partner	>1000	UK
INT3	Senior partner	250–999	UK
INT4	Innovation consultant/innovation team	>1000	Global
INT5	Head of R&D	>1000	Global
INT6	Senior partner	250–999	UK
INT7	Partner involved in technology innovation	250–999	UK
INT8	Operations director	250–999	UK and Europe
INT9	Managing director	>1000	Global
INT10	Business services and innovation director	>1000	UK
INT11	Senior partner involved in IT/technology	>1000	UK
INT12	IP and IT associate	>1000	Global
INT13	Senior partner	>1000	UK
INT14	Senior partner	>1000	UK
INT15	Global head of legal operations	>1000	Global

received recognition as innovators in the sector, with some of the respondents themselves recognised as key industry leaders. The rest of the sample includes representatives from large and mid-tier firms, which were either considering adoption, had already adopted some more basic forms of legal technology, or were in the process of implementing or experimenting with AI-based technologies. The diversity of firms, coupled with the mix of respondents and their remits and breadth of expertise, ensured that the study captured sector-wide views on the challenges and impact of new and emerging technologies, AI in particular, on UK legal services.

The interviews were conducted between February and May 2018 and recorded with the respondents' consent. They were subsequently transcribed to facilitate the analysis. The interviews followed an interview guide developed around the three key dimensions of the BM, namely the product/process (that is, the offering), the customer dimension (for example, customer experience, customer relationship) and the internal configuration dimension (for example, cost structure, profit model,

skills) with the aim of understanding the impact of new and emerging technologies, AI in particular, in each of these key building blocks of the BM and the pressures and challenges of transformation across the sector. Overall, the interviews focussed on the challenges they perceived emerging from external demands to innovate from government, competition and customers, but also about internal constraints.

The interviews started with a number of questions that helped to set out the context, particularly around main business activities, the current role of technology in the firm and how they approached innovation. These were followed by specific questions centred around the three dimensions of the BM. For example, 'offering' questions focussed on the current use of data as part of business activities, specifically whether they captured any data in any format and leveraged it to offer new or improved services, whether they employed any advanced technologies such as AI in the process and the challenges and barriers to doing so. 'Experience' questions focussed on the client interactions and whether/how new technologies are reshaping this dimension.

'Configuration' questions centred on aspects such as skills and changing demands in relation to the requirements of new technologies, business areas where efficiencies could be increased through the adoption of automation and AI-enabled technologies, and the billable hours model. A number of closing questions focussed on the challenges for the sector more broadly, particularly on perceived risks around new technologies, the issue of professionalisation and established BMs in the sector, and potential forms of government support that could promote the wider diffusion and adoption of AI-enabled technologies in legal services.

The interview transcripts were coded following an open-coding strategy (Hsieh and Shannon, 2005). Given the explicit focus of the article on pressures for transformation and barriers to doing so in the legal services context, and the structure of the interview guide, the thematic analysis process was conducted to identify themes within these two broad categories. We analysed the interview data inductively using the constant comparative method, which involves categorising, coding, delineating and connecting categories, while constantly comparing these with new data with the aim of identifying conceptual similarities and discovering patterns and recurring themes (Boeije, 2002). As such, initial codes were grouped based on similarity and the resulting second-order concepts were subsequently revised and labelled as the final themes, which are presented in the following findings section in two parts: the first focuses on external pressures for transformation and the second on internal barriers. Collectively, the interviews provide a comprehensive landscape of the impact of new and emerging technologies and the challenges to new technology adoption in the UK legal services sector.

Findings

Distinguishing between AI and automation in new legal technologies

Before presenting the findings in relation to external pressures for transformation and internal barriers, a relevant aspect that needs to be clarified is the fuzziness around what represents AI in the legal tech sphere. Specifically, there is a question as to whether new legal technologies are underpinned by AI capabilities or merely employ automation to perform more basic functions. While not being asked specifically about this, three of the respondents raised this issue. Interestingly, they differentiated between automation, which underpins the majority of new legal technologies and which in their view should not be labelled as AI, and 'true AI' involving largely ML, NLP, and vast amounts of data to perform more advanced 'cognitive' functions such as interpretation.

For example, one of the respondents emphasised that "one of the things that worries me at the minute is that everything is badged AI, because it's a way of selling it, but most of the technology is not AI" (INT9), while another stated "you do need to reserve the AI label for things that typically a human being would do some sort of cognitive task around it, like interpretation or judgment" (INT5). The three respondents highlighted a certain level of confusion around so-called 'AI technologies', which may create the perception that all new technologies involve AI and are out of reach and therefore currently deter more widespread adoption in the sector, and somewhat of a hype associated with new legal technologies as many of the problems they solve do not employ, nor require, AI capabilities. Nevertheless, this does not dismiss the disruptive potential of automation and its benefits in terms of increased efficiencies. As one of the respondents commented, "one technology that we think has got lots of potential is automation, which is sometimes categorised as AI, sometimes not. Document automation, for us, has been one of the most fundamental technological adoptions that we've had, because it's quite simple but dramatic. It speeds up the time it takes to generate a legal document, and the quality and consistency of what you're producing" (INT9).

Importantly, automation is viewed as a stepping-stone in the progress towards and adoption of 'true' AI-based technologies, and despite expectations of a lower disruptive impact it still requires legal services firms to rethink aspects of their BMs and redeploy resources no longer needed in impacted areas.

An interesting aspect highlighted by one respondent relates to the cost-benefit analysis of adopting new technologies. As they explained, "we've got a matrix which is effectively around impact and effort to adopt. It's a classic four squares box, and the ones we're looking for are the lowest possible friction to adopt and the highest possible impact, and AI doesn't feature in that category. It is relatively difficult to adopt" (INT9). While this cannot be generalised for the entire sector, it highlights the tendency of some firms to focus on technologies that are least disruptive and require fewer, if any, changes to the way they operate, while the adoption of more disruptive technologies such as those employing AI needs to be justified by a high positive impact. This also points to challenges to widespread transformation in the sector and adaptation of established BMs to new technologies that challenge the status quo. It is to such pressures that the next section turns to.

External pressures to transform current business models

The legal services sector around the world, including the UK, has been shaped by custom and tradition, being very slow to adapt to advances in information and communication technologies. As an interviewee emphasised: "The legal industry has missed out on the digitisation and workflow improvement process that most industries went through in the '90s and 2000s. Law generally stayed reasonably behind the curve on innovation" (INT8). However, it is not immune to change, and several contemporary trends are placing pressures on this sector that will demand innovative responses

from incumbent firms. While not all of these challenges will be receptive to AI solutions collectively, they confirm that the legal services sector is approaching an inflection point where it is likely that firms that are open to BMI and engage with emerging technologies will have an advantage.

Client and technological pressures challenge existing economic models

The interviews highlighted that the growing importance of client-centric approaches and price sensitivity of clients represent significant challenges to the sector. All those interviewed highlighted a 'client push' for innovation and new technology adoption to enhance service delivery and cut costs. As an interviewee explained: "We're just starting to look at AI solutions to help improve business processes, and efficiencies. That's driven largely by clients' interest in that, because clients are now increasingly applying pressure to reduce fees" (INT11). This, in turn, exerts pressures on profitability and the need to become more efficient and agile. As another respondent emphasised, this drives technology adoption: "There's client pressure, not necessarily for AI, but definitely for different ways of doing more repeat process, mundane, legal work at a lower cost and in a quicker timeframe, so immediately you get yourself in the headspace of automation to generate and then AI and machine learning systems that can review" (INT9). However, clients are generally unaware of the investment required to innovate or adopt new technologies and are reluctant to pay the same amounts for services enabled by technology, an aspect highlighted by all the respondents in firms that have adopted automation and AI technologies. As one explained, "Over the years, we've seen clients less and less willing to pay for those business-as-usual, lower value, low risk contracts" (INT8).

A key trait of the BMs carried out in the legal services is the billable hours approach.

However, as technology can solve problems faster, clients are now demanding lower costs and requesting estimates and fixed fees, making it increasingly difficult for law firms to justify the billable hours approach to costing. A respondent stated: "The hourly rate is almost dead…clients want to see a fixed price for a delivered value" (INT11). Changing client expectations are contributing to expected changes to the actual structure and profit model of law firms. All those interviewed highlighted that the current structure, where each partner has a big cohort of junior lawyers behind, is becoming unviable and unsustainable, and "there hasn't been enough thought gone into this" (INT12). Law firms have historically employed a two-tiered model with partners, who had ownership stakes in the firm, and associates, who did not (Alarie et al., 2018). However, as an interviewee explained, "the business model of relying on juniors to create profitability will probably have to go out of the window" (INT6).

Critically, the demise of the model is also driven by the rise of legal tech. However, the impact will not be the same across all types of legal work but stratified, with AI technologies expected to augment rather than replace some types of work. An interviewee explained: "Think of legal work as a pyramid. At the top, you have the 'rocket science work'. That's where someone's got a great reputation in the field for a very sophisticated type of legal work. I don't see that being touched by AI in any meaningful way for potentially decades. In the middle, you've got the business-as-usual contract work, and that's where AI tools will be used to make our jobs quicker. At the bottom, you've got the really commoditised work. I see that's where AI solutions are going to take that bread and butter work" (INT11). At a sectoral level, the impact is also likely to vary with firm size, with those focussing on repetitive work that can be automated more exposed to disruption. The interviewee emphasised: "I can see AI being a disruptive force particularly for less sophisticated legal work, and that's going to have a big impact on smaller law firms and firms that do a lot of bulk volume work" (INT11).

Therefore, rather than operating as a pyramid, with partners at the top and with junior lawyers doing the majority of work, law firms are expected to become more linear, which will challenge the current economic model. Nevertheless, as another interviewee emphasised, "you'll be paying lawyers to do what lawyers think they should be doing, which is actually providing the value add, their judgement, their skill and analysis, be it the information that's been extracted via the machine learning" (INT10). As such, changing the roles of people within organisations will be essential. A bottom-up approach to strategy means that "you've got to empower enough people to go out and think" (INT7). This will require people spending more time to generate new ideas internally, as opposed to spending all of their time on fee-generating activities. Importantly, responding to existing pressures through changes to the economic model cannot be achieved without a reconfiguration of existing BMs. This may involve the redeployment of resources to other areas and the creation of new or alternative revenue streams to compensate for expected decreases in hourly fees. With the expected impact unevenly distributed across the sector, it is critical that law firms of all sizes—mid-tier and smaller ones in particular—understand their BMs, particularly the areas where automation and AI are going to be most disruptive, but also the opportunities that can be realised by adopting the new technologies. This is where BMI can enable firms to respond positively to realise the benefits of AI and automation. As a respondent emphasised: "Technology doesn't in and of itself create efficiencies. You have to go back to the drawing board and rethink how you want to deliver this service, from the moment we get instructed to the moment we archive a file" (INT10).

New entrants challenge the status quo

The legal sector is under pressure from new entrants who aim to capitalise on the disruptive potential of legal technology, challenging incumbent firms that are facing increasing pressure to remain agile and respond to market changes. As highlighted in the literature, these reflect broader changes in market trends and changing client needs. Indeed, the majority of those interviewed, in particular the 'innovators' and those who had already adopted some form of legal technology, emphasised increasing competitive pressures from a new 'breed' of law firms, which are more agile and innovative. With competition from ALSPs expected to intensify (Preedy, 2018), the pressure from new entrants with alternative BMs highlights the need for legal firms to respond and rethink their BMs. An interviewee stated: "the rise of some competitors, alternative business models, different ways of providing legal services…they're becoming powerful" (INT4).

A continued slowness of the sector to react will open up the market to innovation that will not necessarily originate in the legal services, and there is a risk that lawyers will be cut out. The interviewees highlighted the potential emergence of new BMs powered by developments in AI, such as subscription and crowdsourcing, which are increasingly challenging the status quo and threaten to take away market share. An interviewee highlighted: "the biggest challenge for lawyers is the alignment of conservatism, inflexibility, and unwillingness to really grasp that technology is going to significantly disrupt legal services with the fact that new entrants are not inhibited in any way, and will have the ability to use an agile approach to developing services" (INT13). However, while competitive pressure from ALSPs has prompted many to develop their own solutions in-house, there is also a degree of co-operation between the two, with a number of firms using services provided by ALSPs. For example, an interviewee explained: "We buy in the disclosure review platform from a third party. They will help us develop the input criteria to ensure we get the right output from the processing" (INT2). This is potentially a way for traditional law firms to "buy themselves more time" and circumvent more transformational changes to their BMs in the shorter-term.

While each firm's response to will be unique, the nature of the challenges highlighted in this section will require them to reconsider fundamental elements of their BMs and practices. AI-enabled tools offer leading edge solutions to address emerging market trends—they have the potential to speed up and customise some practices that are currently cumbersome and offer their users the ability to leverage existing data to make existing processes more effective. In the medium term, these technologies hold the promise of cost reduction. Yet just as they aim to respond to transformative market trends, their adoption will also be transformative, accelerating changes to labour and management structures and highlighting institutional bottlenecks. By providing an externally oriented, market-based and dynamic approach to innovation, BMI is a valuable tool for change that can help legal services firms 'bring the outside in' to adapt to changing client needs and respond positively to the challenges of AI and automation to realise their benefits. As an interviewee emphasised: "The important skill set for a lawyer at the moment is just to embrace change, and innovation, and to think how processes can be improved…It's just being open-minded about embracing AI solutions and the business models behind them" (INT11).

Internal barriers to transformation and AI adoption

The legal services sector is characterised by cultural and structural factors that threaten the adaptation to the changing technological landscape and hinder transformation through BMI. These include the persistence of a reactive

approach to innovation, the endurance of time-honoured firm leadership structures based on partnership precedents rather than managerial acumen, and a not unreasonable mistrust of the potentials of data technologies. Our interviews show that, while these barriers are recognised within the sector, they are a long way from being overcome.

A reactive mindset and resistance to change reduce opportunities for innovation

The majority of interviewees agreed that, while technology has become more prevalent in their operations, it is still not leveraged to its full extent to create efficiencies and enhance service delivery. An interviewee stated: "We are still delivering our legal advice to our clients in a really traditional-ish way with a bit of technology on the side. It's not intrinsic to what we do" (INT2). Therefore, there are still significant efficiencies to be created through innovation and technology adoption, especially in high-volume areas and lower-level tasks such as document review. As one interviewee emphasised: "Everything we touch could be done more efficiently effectively … [but] there's no burning platform for change. It's hardly even smouldering…There's just not much commercial pressure" (INT1).

All interviewees highlighted that there is little incentive within the sector to challenge the status quo, which is reflected in the slowness of the sector to adapt, innovate and adopt new technologies. The legal sector is characterised by conservatism and risk aversion, typical of an 'old law' firm following traditional practice, which makes firms reactive to market changes and client needs rather than proactive in anticipating change. As two interviewees highlighted: "Law firms adopt technology when they don't have any option" (INT3) and "We're so used to being reactive. Client comes along, asks for some advice, you go away, you give it back to them, as opposed to being proactive and going to clients" (INT7).

The lack of technology adoption in the sector throughout the decades reflects somewhat of a resistance to change. This relates partly to what some interviewees highlighted as a "it won't apply to me" mentality, and partly to established norms, culture and the nature of work in the profession. An interviewee explained: "Lawyers are autonomous, so they're quite difficult to manage, don't want to be managed, think they're right and they're sceptical, so every change that you push upon them is attacked" (INT10). This is problematic when it comes to the significant changes required to adapt and adopt disruptive technologies such as AI and can impinge on efforts to transform and innovate BMs. An interviewee emphasised: "The biggest challenge over the next five–six years will be the innate conservatism of the profession, burying its head in the sand, and the risk-aversion that lawyers are famous for, which is not great in a commercial setting when some risk with firm strategy to adjust itself to the market is absolutely required" (INT13). A key question is the extent to which legal firms will be able to capitalise on AI-based technologies, with an interviewee stating: "Law firms create a reasonable amount of data, so the promise of AI theoretically is high, but we haven't managed to embrace much simpler technologies, so are we really going to embrace more complex ones…or are we going to still face the same problems of people being happy doing things the same way?" (INT8).

However, remaining complacent and dismissing the disruptive potential of AI and alternative BMs will increasingly threaten the viability of firms in the next-generation services sector. As an interviewee emphasised, the biggest risk facing law firms is "not adopting [technology] in a sustainable way. Change is coming, and the demand for change will always outstrip the ability of organisations to change but doing nothing is no longer an option" (INT15).

Unique and enduring management structures disincentivise change

While alternative economic models, such as the Public Limited Company, are starting to emerge within the sector, the LLP is the established and prevailing structure under which most law firms operate. However, this has been identified as a challenge to becoming more innovative and agile in the current prone to disruption environment. As an interviewee explained, one of the biggest challenges is "that law firms function as a partnership rather than as a company… For instance, having a C-suite is something that's new-ish, to have chains of command. Partners often consider themselves as equals. Often all the partners have a say which makes it quite difficult to function efficiently. Even politically adopting innovation and technology…these can often be bottlenecks because of the structure of the firm" (INT4).

A key issue concerns the autonomy at the partnership level to decide on the modus operandi, namely on how the work will be delivered and the resources to be employed. This means that pushing for greater efficiency is often challenging, especially since there is little drive to go beyond internally established growth and profitability targets. An interviewee highlighted: "There's a sense of keeping it going but not about blowing the lights out the park, probably because the mechanisms inherent in it are…'is it worth any individual partner blowing the lights out?'" (INT1). Consequently, being profitable enough is the norm rather than there being a business-wide drive to identify opportunities to innovate and create efficiencies.

A key issue in this respect relates to time horizons. As emphasised by some interviewees, in many situations it is difficult to differentiate between the horizons of the business and those of the partners, especially as the firm's strategy is contingent on partners' interests. Thus, despite significant technology-driven changes being expected in the next 10–20 years, the strategy is rather focussed on the short term, with such issues often beyond the time horizons of the partners. As an interviewee explained, when it comes to technology adoption "there's probably a little bit of reluctance, generally, that the closer you are to your retirement, the less of an issue this is for you" (INT6).

Nevertheless, developing a strategic vision, fostering an organisational culture that is open to change and incorporating a long-term focus into strategy to support transformation are essential given the magnitude of the challenges facing legal firms. In this sense, there is an internal push for transformation to move towards the creation of innovation teams and committees to act in a more entrepreneurial way. Where these exist, which tends to be in larger rather than mid-market and smaller firms which often face capacity constraints, they are seen as vehicles for change. Innovation teams can push the agenda on technology adoption and identify areas of opportunity and risk through engagement with clients and employees, thereby promoting a bottom-up approach to strategic transformation which incorporates both internal and external perspectives.

However, innovation teams are still reliant on buy-in at higher levels. Where change is promoted from top down, this fosters a culture of innovation that is open to disruption and change, thereby facilitating transformative efforts. However, in many instances there is a lack of appetite at leadership levels for promoting change. An interviewee emphasised: "It's not going to get anywhere but it requires me to be driving [change]…That's why it's going slowly now, because it is people like me pushing it rather than business or the industry pulling" (INT1). Therefore, the challenge is sometimes seen as generational in nature, with younger partners and leaders increasingly expected to tackle the challenges surrounding technology adoption and to play a central role in shaping long-term strategy and rethinking the delivery of legal services.

Skill gaps, fear and mistrust of technology and data concerns fuel conservative approaches

Changing the approach to business-as-usual is a common challenge, but the fear that innovations will reduce or even replace the work undertaken by legal professionals maintains resistance to change and promotes conservatism within the sector. It was noted by the interviewees that education and training were the primary avenues to overcome the current challenges of static BMs, by addressing the cultural resistance fuelled by a fear of change coupled with a lack of trust and understanding of AI. The majority of interviewees emphasised that the willingness to adopt new technologies will be greater if professionals understand its benefits and potential to augment rather than replace their work.

However, as an interviewee highlighted, "you've got lawyers wanting to give legal advice and then you've got the tech side, understanding AI" (INT4), and the challenge will be to enable communication between the two sides to support professionals to understand and work with new technologies. A key issue is the lack of skills within firms to enable them to understand and engage with legal tech more broadly and AI. An interviewee emphasised: "A main challenge is, certainly up until now, not having the skillset to analyse the data effectively" (INT10). All those interviewed highlighted that law firms have access to a wealth of data which could be leveraged for greater insights into client needs and industry trends. As one emphasised: "Law firms sit on so much data that actually they don't even necessarily realise they're sat on" (INT5). Addressing the skill gap is therefore essential if firms are to capitalise on the potential of data. Early adopters and innovators have recognised this and proactively recruited and created new specialised and 'hybrid' roles. As one explained: "We've created a whole batch of new roles that didn't exist, like legal project manager, legal analyst, legal knowledge engineer, legal technologist" (INT9).

However, a number of issues restrict firms' ability to extract value form their data and create additional challenges to technology adoption and the development of next-generation services. These include data security, identified by all interviewees as a critical risk. As one explained: "Every modern law firm relies on its IT systems, so there is always a risk that the more you become reliant on information, which is electronic, the more risk there is" (INT2). Ever-present threats such as ransomware attacks require firms to constantly adopt measures to mitigate the risk of data breaches, with an interviewee stating: "The thing that keeps me awake at night is cyber risk" (INT10). This is augmented by the fact that law firms hold confidential client information, with trust being a critical aspect of the client relationship. Data breaches can result in significant reputational damage, further deterring technology adoption.

These can also attract significant fines and penalties from regulators, with an interviewee emphasising: "The legislation that's in and about to come in is extremely draconian" (INT14). General Data Protection Regulation (GDPR) in particular is expected to significantly restrict firms' ability to extract value from their data. An interviewee explained: "We do have a lot of data, but we are very, very cautious about doing anything with it because it's not our data…[Due to] GDPR and the client relationship…the ability to monetise that [data] is quite limited." (INT6). There is also the issue of cross-jurisdictional compliance. Specifically, complying with different data protection laws in different countries is seen as an important challenge by firms with an international presence.

Such risks can thus further delay or deter new technology adoption. For example, there is already a reluctance among firms to use the cloud, a key infrastructural technology platform that enables "quicker, iterative, innovation-led design of client facing tools" (INT5), for storing client information. An interviewee emphasised:

"One of the biggest bottlenecks is the reluctance of law firms to store client information on the cloud…It requires an entire overhaul of that client engagement for clients to consent for their information to be stored on the cloud. There's a lot of technology that we struggle to implement because of that" (INT4).

Finally, a number of technical issues compound the challenge. Specifically, data is often unstructured, requiring sorting, or inaccurate, which impacts the quality of the output, hence requiring cleansing. Reflective of the views of all the respondents in firms that have adopted data-driven AI technologies, an interviewee highlighted: "Whilst the data's there, the biggest barrier to getting value out of that data at the moment is how do you digest that unstructured data?" (INT5). Getting the data ready for interrogation and analysis can be more time consuming than the actual analysis, with potential errors and glitches highly problematic, especially in volume-driven operations. If undetected, these can expose firms to negligence risks.

Discussion and conclusions

Legal services firms are on the cusp of a sectoral transformation that will upend traditional BMs and that is largely driven by emerging technologies based on advances in AI. These shifts challenge core aspects of established BMs, exerting external pressures on companies to identify new ways of creating, delivering and capturing value from their business activities. This new wave of technological advancements is both a catalyst of and a tool for transformation, providing firms within the sector with significant opportunities to learn from, and adapt to, their external environment in order to remain competitive.

While the case for adaptation is compelling, our findings show considerable resistance from legal services firms to engage with AI-based technologies as this requires significant

transformation of established practices and structures. Legal services firms are hampered by a traditionally reactive approach to their offerings, and firm structures and cultures that restrict innovation in business practices. These are compounded by skill gaps and fears about data security and handling. Therefore, the article demonstrates that the challenges to transformation are largely social in nature as highlighted by established norms, traditions and culture. These obstacles will be difficult but not intractable to overcome. It is encouraging that many interviewees seem to recognise these barriers even as they described the imperative to respond. This suggests that, although engaging in BMI may not (yet) be a priority, the threat of market changes and AI developments are not unknown. Importantly, while automation, rather than 'true AI', is currently the main source of disruption, ongoing developments in the technological arena coupled with wider diffusion efforts in the sector supported by Industrial Strategy initiatives means that UK legal services will continue to face external transformation pressures from AI. In this context, BMI is an important tool for managing change that can support firms in the sector to become 'AI-ready'. Ultimately, embracing new technologies and reimagining legal services provision is key to ensuring the future competitiveness of the sector and the long-term sustainability of firms.

Given these insights, there is a potential role for public policy to incentivise and shape technology adoption and promote BMI to support the wider diffusion of AI-based technologies. Specifically, the focus of innovation policy in the UK has been on product development through R&D expenditure (Department for Business Innovation and Skills, 2014; Foreman-Peck, 2013). This has led to R&D metrics dominating the measurement of innovation at both country and industry levels (Audretsch, 2004). Therefore, innovation policy has hitherto created incentives for the private sector to focus

mainly on product innovation, overlooking the potential of other forms of innovation. BMI can provide an important generative instrument in allowing firms to respond positively to change and broaden and expand their innovative potential. Often the firms interviewed considered BMI, through the adoption of automation and AI technologies, as 'extra work' or as constitutive of a completely different business activity rather than as a mode of innovation. Perhaps there is a need to first redefine the role of innovation policy as supporting innovation more broadly instead of being confined to "supporting the generation and diffusion on new products, processes and services" (Edler et al., 2013, 12) which in turn will incentivise services firms to be more welcoming of innovations. In the face of technological change, and to support the development of next-generation services, firms in the legal services sector are being challenged to respond to economic changes and new market trends. In this context, it is essential to encourage experimentation with new BMs to support the wider adoption and diffusion of AI.

While it is impossible to know what the eventual impact of AI will be on legal services firms, research such as this fills an important gap and provides a foundation upon which to build a better understanding of evolving dynamics and craft responsive public policies. However, there is still considerable work to be done in order to grasp the evolving implications of AI on professional service firms. We think that there are nuances related to the purpose or function to which AI is being applied that will yield important insights for policy and practice. A key distinction, for instance, regards whether AI technologies are used in the *practice* of the professions or as a part of the *business* of professional services firms. In the first instance, AI is used to augment and improve the practice of law. This may include the use of AI to automate more labour-intensive activities where little professional judgement is required, increasing the accuracy of activities involved in professional

practice, and improving the basis upon which professionals are making judgements. In short, this augments expertise. By contrast, the use of AI technologies in the 'business of professional service' are most commonly associated with business process management and workflow. While both are important in driving the future competitiveness, the former is ultimately more likely to add value and shape the future of the firm. When seeking to maximise the impact of BMI, these distinctions seem particularly relevant. Future research in this arena can provide new insights into how legal services firms are responding to current pressures and how experimentation with new BMs can support AI adoption.

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