Obstacles to Digital Innovation in KIBS — The Case of Law Firms in Poland

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Abstract

As digitalization continues to fundamentally change professional work, we examine obstacles to technological innovation in the legal sector, which is a notable outlier when compared to other knowledge-intensive business services (KIBS). This paper aims to explain the lower engagement with technological novelty in legal services in contrast to other KIBS spearheading global innovation.

We adopted a mixed-method approach, combining both deductive and inductive inferential modes in a pragmatic manner. We used a quantitative analysis of law firms (n = 258) to establish baseline observations that were used to understand the attitudes toward the use of technology in addition to interviews with individual lawyers (n = 28).

The study broadens the understanding of obstacles to digital change in small law firms operating on the periphery of the global market. Six different barriers clustered in two groups were identified: three reflect the character of individual work, two are related to law firm performance, and the last reveals an overarching problem in technology design. The discussion extends the debate on technological disruption in legal services.

The reluctance to adopt digital innovations is not irrational when the drawbacks of creative disruption are considered. Endogenous change would require altering fragmented structures of local markets for companies to grow via an economy of scale. It is more likely that digital novelties will continue to develop from the global market delimited by the English language.

A better understanding of obstacles to technological innovation may serve lawyers, managers, and LegalTech providers with material concerns that need to be addressed.

eywords: KIBS; digital transformation; lawyers; law firms; legal services; professional services

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Introduction

When the first seminal report (Miles et al., 1995) on Knowledge-Intensive Business Services (KIBS) emerged, scholarly interest in the subject gradually uncovered the importance of these companies for the economy. By providing, exchanging, and transferring expert knowledge to address the needs and concerns of other businesses, KIBS are becoming the backbone of modern economies (Miles, 2005). They are also a significant factor in the diffusion of novel ideas (Miles et al., 2019) by facilitating organizational change (Santos-Vijande et al., 2012), as well as translating novel solutions within and between industries (Hertog, 2000).

Innovation, in the Schumpeterian spirit (Schumpeter, 1942), is commonly considered a causal factor of social and economic progress (Aghion, Howitt, 1992). Given the significant role of KIBS in pushing future horizons at the systemic level (Sundbo, Gallouj, 1998), it becomes increasingly important to understand the reverse perspective of how these companies engage with innovation by providing new or better services at a lower cost to create value for their clients. Although not frequently researched, several studies have already stressed the importance of these reversed optics (Braga, Marques, 2016; J-Figueiredo et al., 2017).

KIBS are generally considered intrinsically innovative for their own benefit (Toivonen, 2004) due to the pace of technological change, competitive pressure, and clients' expectations. Accordingly, Gotsch et al. (2011), using Community Innovation Survey (CIS) data for EU27 from 2004, found that KIBS tend to portray themselves as innovative companies, reporting that the average share of innovative companies was 33% higher for KIBS than the market economy and 24% higher than the manufacturing sector. As noted by other researchers (Miles et al., 2019), however, this sample did not include legal, accounting or advertising services. When a similar study was conducted by Hipp et al. (2015), rates of innovative firms between KIBS and manufacturing were roughly similar. This is understandable because the groups of KIBS that were omitted in the first study generally report lower levels of innovation. Therefore, including them in the latter study likely balanced the scales.

The divergence between the results of those studies points to an inner variance of innovation among KIBS, which constitute a very heterogeneous cluster of firms that vary in size, operation, scale, and services. As a result, not all KIBS are equally cutting-edge. First, small service firms engage less deliberately in innovation boosting activities, such as strategic attention, planning of renewal activities, market research, and employee involvement (Vermeulen et al., 2005). Second, KIBS tend to be geographically "sticky" (Miles, 2005) and as their clients rely on their local knowledge, the motivation to innovate might be limited. Third, larger companies may develop bureaucratic rigidity as they scale, but they also gain resources (e.g., finance and manpower) that extend their innovative capacity, especially when compared to the limitations of innovation experienced by small firms (Bumberová, Milichovský, 2020).

Novelty, however, also comes in different forms. Hipp et al. (2015) report significant differences among KIBS regarding the type of innovation they dominantly pursue. CIS data, which is used in their study, is constructed based on the Oslo Manual, which defines innovation as "a significant degree of novelty for the firm" (OECD, 2018, p. 8) and divided into four categories (Table 1). These four types of innovation often are classified as either technological or non-technological forms of novelty, as ordered in the table below (Amara et al., 2016; Chichkanov et al., 2019).

In this context, Hipp et al. (2015) found that up to 77.7% of Research and Development (R&D) services reported introducing some kind of technological innovation, whereas this rate exceeded 50% for most other KIBS. Human Resources (HR) and consultancy services (legal, accounting, audit, management, and market research) however reported only about 20%. This variation is logical because innovation is often considered a low priority by professional service firms (Brooks et al., 2018; LexisNexis, 2014), leading to resistant attitudes toward new technologies that change traditional practices of work and business (Ribstein, 2010).

Innovation in Legal Services

Among KIBS that involve professional expertise (P-KIBS), however, there is one group that has particularly limited engagement with novelty. In two studies regarding the scale of innovation among KIBS in the United Kingdom (Miles, 2005) and Germany (Schmidt, Rammer, 2007), the clustered group of legal and accounting services scored the lowest positions. They also preferred introducing non-technological forms of novelty at their companies. This observable aversion toward technology makes this group an interesting case of outliers in the context of all other KIBS.

In this study, we focus exclusively on legal services, which we consider to be a cluster of KIBS (Eurostat, 2008; Miles et al., 1995) that lacks innovative practices. Lawyers are often seen as bystanders to change, relying on proven practices (Windrum, Tomlinson, 1999). On the one hand, this is understandable given that professional services (P-KIBS) primarily provide non-routine services, which because of their reliance on intensive-knowledge work and problem-solving, are less likely to be intensive users of new technology (Miles et al., 1995). However, there might also be a cultural factor at play, as maintaining the law's stability and predictability is part of a lawyer's responsibility, which may explain why lawyers have historically been slow to embrace change (Felstiner, 2005). Although lawyers have become increasingly aware of keeping up with technological progress (Gnusowski, 2017), the

legal industry still remains resistant to the creative destruction that is experienced across many other sectors (Chishti et al., 2020, p. 15).

Simultaneously, this reluctance cannot be easily explained by a lack of available digital solutions, as the efforts to enhance legal work has been happening for some time now. This is especially true in terms of progressing digitalization, which is understood as the use of information technologies to create value for a company (Sommarberg, Mäkinen, 2019). Automating and optimizing processes may spur productivity boosts, cost savings, streamlined service delivery, a reduction of human error, and a culture of innovation (Parida et al., 2019; Scott et al., 2019). In the legal sector, this belief has already spawned many digital technologies meant to facilitate daily work, management, and delivery of services. Given the scarcity of comparative sources on what is often referred to as LegalTech, we composed a table based on Chishti et al. (2020) to review areas addressed by digital technologies.

LegalTech companies (Chishti et al., 2020) apply technological advancements to facilitate the practice of law both internally — by replacing routine tasks and supporting professional work with computer-assisted aids — and externally — by creating new opportunities stemming from this progress (e.g., legal liability of actions performed by artificial intelligence). They also aim to help consumers gain access to legal expertise through organized information systems and interfaces (e.g., chatbots). Chishti et al. (2020) argue that a worldwide trend of intensive regulation increases the general demand for legal awareness and expertise, pressuring law firms to deliver their services more efficiently, i.e., at lower cost and in a shorter amount of time.

Therefore, these companies are presumably becoming increasingly digital, prompted by technological advancements to identify new ways of creating, delivering, and capturing value from their activities (Brooks et al., 2020). On this basis, some researchers claim that the legal field is at the advent of a revolution in the assessment, acquisition, processing, and delivery of legal knowledge (Susskind, Susskind, 2015). This reality could explain the general reluctance of lawyers to embrace digital technologies, if it were not for the current employment and compensation trends or the relational and creative problem-solving character of legal work (Miles et al., 2019) that paint these predictions at least a tad overdramatic.

In addition, Brooks et al. (2020) point to confusion in the literature between simple work automation and the advanced functions performed by artificial intelligence (AI). Whereas the former gains relative popularity by removing or replacing routine chores, the latter is still quite far from being able to replace higher cognitive functions exercised by humans, especially professionals. AI solutions based on machine-learning in the legal sector are focused on augmentation rather than automation (see (Davenport, Kirby, 2016; Raisch, Krakowski, 2021) for the discussion of the difference),

Table 1. **ypes of Innovation**

Technological	Non-technological
Product innovation refers to advancing goods and services or introducing novel ones to create value for the customer	Marketing innovation regards changing the customers' need, affecting the context in which goods and services are positioned on the market
Process innovation refers to changing ways in which goods and services are created and delivered	Organizational innovation regards mental models, shaping ways of what a company does in terms of management, strategy, and decision-making

Note: these distinctions are also relevant for structuring the findings section.
Source: own elaboration based on (OECD, 2018).

and therefore, lawyers should presumably be more likely to employ these technologies in their daily work.

Practically, however, employing AI encompasses a range of challenges related to the implementation and changing of established work processes to facilitate its proper integration, as well as new concerns for privacy and cybersecurity (Chishti et al., 2020). Brooks et al. (2020) even argue that at bigger law firms successful technological change requires a change of the law firm business model altogether. Therefore, technological innovation in the legal sector could be a double-edged sword; on the one hand, it may enhance professional work, but on the other, half-measure implementations may cause counterproductive disruptions. These circumstances could foster a general reluctance toward innovation. Therefore, in the short term, the impact of new technological aids on legal services will be evolutionary rather than radical (Alarie et al., 2018).

We have thus far discussed the instrumental role of KIBS in facilitating innovation in modern economies and their intrinsically innovative nature. Yet, these companies are also very heterogeneous, and there is an observable variance among company-level innovation in different types of KIBS. This holds especially true for legal services; however, it is not due to the lack of digital technologies available on the market or an impending threat of being replaced by machines or AI. Therefore, we find law firms to be interesting outliers among KIBS in their reluctance to embrace technological change in the face of a worldwide digital transformation that warrant further exploration.

Research Context

The literature on this subject has been relatively scarce, and so far, has primarily considered large law firms functioning globally within an English language circle (Brooks et al., 2020). Therefore, we would like to use the example of Poland as a case to illustrate the challenges of a locality outside the scope of law practiced in English as global lingua franca and the problems of small companies that compose most of the local market. In addition, there are two more geopolitical rea-

sons to choose this setting. First, as one of the transformation economies, the Polish case is relevant for other Central Eastern European (CEE) countries, which followed a similar path after 1989. Second, although it is no longer classified as an emerging economy, Poland still harbors the markers of that transformation.

Poland's rapid development over last two decades was followed by growth in international trade, as well as the emergence of new fields of practice in general and business law. Two decades ago, when we established our law firm, it would have been very difficult to imagine Poland as it is today. Early entrepreneurs and investors, their suppliers, advisers, and employees were building economic roles from scratch and, frequently, their innovation and entrepreneurial talents were far ahead of existing legal structures. The realities of the market required precedent-setting solutions, some of which have since become standard legal practice. As the Polish economy developed and the financial market became broader and deeper, the needs and expectations of our clients changed. As transactions became progressively complex, an ever-broader spectrum of legal services was required (Chadbourne & Parke LLP)

Along with this economic momentum, there were progressive changes in professional regulations that loosened the requirements for providing legal advice, subsequently boosting the number of lawyers to 65,000 in 2020 as compared to 23,000 in 2004. However, while the supply of lawyers grew rapidly, the demand remained relatively low with only 14% of consumers and 50% of businesses using legal services in the five years prior to 2017 (Gnusowski, 2017). The level of competition among law firms is even more significant considering law is practiced predominantly by small firms. Large law firms are rare in Poland, with only 36 firms reporting employment of more than 50 lawyers[1] (Rzeczpospolita, 2020), a relatively low rate compared to large law firms in more globally-oriented, Anglo-Saxon countries (Brooks et al., 2020). Furthermore, professional boundaries for competition are almost nonexistent in Poland because solicitors and barristers have very similar rights.

The combination of these factors makes the local legal market very competitive and hypothetically prone to innovate to gain a competitive edge over other providers. Digital technologies are also relevant in this context, as Poland, like other CEE countries, can be characterized as having a modern technical infrastructure (given it was built from the ground up later than in Western countries) and a high social acceptance for innovative solutions (Gnusowski, 2020). Yet, despite competitive pressures and its absorptive capacities for innovation, the legal industry in Poland remains reluctant to embrace technological change and maintains the status quo. This is especially visible in bar associations' policies that restrict promotion and marketing,

Table 2. **LegalTech Taxonomy**

Areas	Functions	Applications
Legal research	Browsing relevant legal resources	Multiple databases and search tools aiding easier and more rapid searches for relevant regulations, decisions, and case law.
Matter management	Billing and legal expenditure management	Serves the ROI assessment to either internal or external stakeholders.
	Knowledge management and expertise automation	Dissemination of legal expertise within the firm to make know-how accessible and useful.
		Automated reporting, standardized workflows, supporting cooperation, boosting research, following precedents, recording approvals.
Contracts	Drafting aids	Automated creation of new contracts.
		Using boilerplates or question-response interfaces to pre-fill relevant data in the new contract.
	Contract review and due diligence	Automated review of existing contracts.
		Risk management based on historic contracts and flagging risky clauses.
	Management	Contract repository, mapping and tracking obligations, task management.
	Analytics	Extraction of contract data to monitor obligations, trends, and efficiency.
Digital signature	Governance and control	Management of electronic documents while increasing speed of authorization.
E-Discovery	Processing electronic evidence	Litigation discovery tools, enabling collection, identification, and AI-supported analysis.
Intellectual Property Rights (IPR)	Management of clients' IPR portfolios	Automated tracking of patents, licenses, trademarks, and other IPR with dedicated tools
Dispute resolution	Managing alternative dispute resolution	Online platforms for arbitrage, mediation, and negotiation, offering cheaper and faster conflict resolutions.
Litigation prediction	Assessing litigation risk	Tools utilizing past court records to predict the outcome of the case, providing a strategic choice between litigation and settlement.

Source: authors based on (Chishti et al., 2020).

[1] "Rzeczpospolita" Law Firm Rank 2020. https://www.rp.pl/Rankingi/307279984-Ranking-Kancelarii-Prawniczych-Rzeczpospolitej-2020---wyniki.html, accessed 15.12.2021.

markedly limiting the use of social media and directed advertising. Therefore, the Polish case fits the profile of the research problem we aim to address, while providing additional explanatory potential regarding innovation at small law firms on the outskirts of the global legal market.

Method

Our aim was to explain the barriers that could account for legal services' lack of engagement with novel digital solutions in day-to-day work, despite their categorization as a KIBS, an otherwise innovative sector (Miles et al., 2019). We focused on small law firms because they are conceptually recognized for different innovative behaviors (Vermeulen et al., 2005) and empirically account for the majority of the Polish legal market. As such, they also provide an opportunity to explore the challenges of locality for legal services that cannot rely on expanding services that require English and the rich market capitalization to grow globally. Law is written and practiced locally, both in terms of the legal regulation system and the language underpinning the legal advice being delivered. Therefore, it is important to observe how such local conditions shape the opportunities for innovation in countries outside the boundaries of the contemporary lingua franca.

In this study, we adopted a mixed-method approach, combining both deductive and inductive inferential modes in a pragmatic manner (Morgan, 2014a) as follows. First, we used elements of quantitative analysis to provide baseline observations (Morgan, 2014b) regarding the specificity of law firms' attitudes toward the use of technology. The main aim of the survey was for lawyers to assess the relevance of 30 success factors extracted from the literature using a 5-point Likert scale (see Box 1). We used survey data collected among 258 companies, which were comprised of individual practices (71%) and small firms (29%; i.e., two to five lawyers). Approximately 25% of the firms were mature companies established before 2005, 44% were founded from 2006 to 2014, and the rest were young firms that opened in 2015 or later. Fifty-seven percent of companies were predominantly oriented toward business-services. Others focused on individual consumers, however it is common for law firms to have mixed client portfolios that change with time, so we consider all of them KIBS. As the results seemed to confirm the cognitive relevance of digital innovation in legal services, we ended up puzzled.

Based on our experience in the field, we were expecting devil-may-care disregard toward novelty among lawyers. Thus, we started wondering whether lawyers actually walk the talk in this regard. In the qualitative part of the study then, we aimed to learn about innovation in its professional context and explore possible discrepancies between positive attitudes toward digital novelty and actual practice among lawyers. We conducted 28 in-depth interviews with individual lawyers. We asked open-ended questions about their daily routines and the use of different tools and technologies. We also aimed to learn more about the subject by non-participant observation of LegalTech Meetup — a small community of law firms that organizes meetings to advance the use of technologies in the legal sector.

Our core premise was to examine situationally detached attitudes reported in our survey, which like other studies, paint the picture of inevitable technological progress (Susskind, Susskind, 2015). Given that we wanted to contrast these postures with actual practices we opted for an inductive mode of inquiry using constructivist grounded theory (Charmaz, 2014). As the way of analyzing either the content of behavior or its cognitive context along the relationship between them, it seems well suited to explore the problems of technological change (Jaehun, 2011). As follows, the grounded approach often elicits unknown heterogeneity or unexpected obstacles to innovative processes (Steensen, 2009). Therefore, given the professional specificity of legal services and the locality of performing them on the peripheries of the global market we found it quite useful to follow principles described by Charmaz (2014). We started with open-coding relevant excerpts in the transcripts to produce six different barriers related to legal innovation. After comparing these barriers, we clustered five of them into two categories (Individual Work and Law Firm Performance) that reflected the alternative ways our interviewees discussed technological innovation. The sixth barrier (Technological Design) was left outside this distinction, as it reflected an overarching problem within technology itself.

Findings

We identified six barriers hampering innovation in small law firms. Five of them were clustered into two categories (Individual Work and Law Firm Performance) mirroring the different ways the interviewed lawyers discussed their relationship with technological innovation. Initial barriers related to individual work included personal affordances, managing uncertainty, and confidentiality concerns. However, an increased workforce and client base among growing law firms revealed new barriers to technological adaptation that focused on the law firm's performance, including adjustment challenges and the cost of implementation. As these two bottom-up categories coincide with a top-down distinction between product and process forms of technological innovation, the findings can be examined within this context. At last, we will discuss the sixth overarching barrier of technology design, rendering slightly different prospects for each path of technological innovation in the foreseeable future.

Box 1. Selected Survey Questions

Below are excerpts from the questionnaire used in quantitative portion of the study described in the method section. For the sake of brevity, we included only the questions that were relevant in this particular study.

Question 1.
Assess the judgement: "I think that market position of my law firm will be stronger in the next five years":
Answer options:
- I strongly disagree
- I somewhat disagree
- I neither agree nor disagree
- I somewhat agree
- I strongly agree

Note that this item was used as the independent variable for the step-method regression and the final model presented in Table 3.

Question 7.
Assess the relevance of competition factors listed below (as of 2017 and in the perspective of the next five years). Please select the appropriate number from 1 to 5, where 1 means «completely does not matter», and 5 means «It is very important.»

Competition factors
- Experience, tradition, and history of the law firm
- Reputation of individual lawyers / law firm image
- Specialization in a specific field of law
- Orientation toward a specific market segment
- Low prices of legal services
- Convenient location of the office
- Exterior and interior design of the office
- Aesthetics of personnel attire
- High level of legal competence
- Cooperation with prestigious foreign partner
- Effective administration (e.g., secretariat or archives)
- Low cost of operations
- Adhering to the professional ethics code
- Adjusting business hours for the client's convenience
- Adjusting billing and payment for the client's convenience
- Marketing and promotion activity
- Introduction of new products and services
- Eye-catching website of the law firm
- Positioning the website in search engines
- Online promotion and social media presence
- Blogging and publishing articles on law-related websites
- Digitalization and gaining technological advantages
- Quick and time-efficient service
- Friendly atmosphere in relation to the clients
- Good customer care
- Keeping deadlines and promises made to customer
- Responding to client's expectations
- Ability to instill trust
- Reliability in service delivery
- Ability to give practical advice.

Note that each of the 30 factors was assessed twice (regarding their current and future relevance), accounting for a total number of 60 items. These data were used both in Figure 1, where the temporal dimension of the assessment was distinguished on the x and y axis. These items were also used for a step-method regression and the final model presented in Table 3, where the temporal difference was also marked and stressed in the text.

Source: authors.

Individual Work

When considering attitudes toward innovation, small law firms seem to be aware that technological progress changes the business environment, often reporting a willingness to change how services are produced and delivered (PWC, 2018). In our survey, we found a similar pattern when we asked our respondents to assess both the current and future relevance of technological factors for successful competition and ensuring a good position on the market. As presented in Figure 1, the importance of each factor is expected to grow over the next five years, with a greater importance assigned to value creation factors (i.e., service innovation, technology) and slightly lesser importance allocated to online presence factors (i.e., having a distinctive webpage, webpage positioning, and the use of social media).

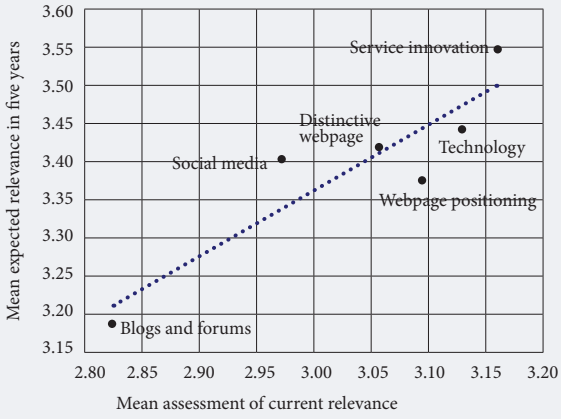
However, as we explored this pattern in our qualitative analysis, we found that these assessments do not necessarily translate into actual practice. It is not surprising that the companies do not always put their words into action (Li, 2016), but our findings provide a focal point to question why that may be the case.

Personal Affordances

Affordance is an ecological concept formulated by Gibson (1982) to capture the convergence of possibilities created by the environment's capacity and actor's capabilities, defining the prospective opportunities for action. This argument was extended by Norman (2013) to account for human-machine interactions, highlighting the role of interfaces in structuring the perception of what uses are available to the actor and to which end. Thus, in principle, people only perform actions that are afforded by their environments, including digital ones where affordances are designed through their programmed internal logic and interfaces. However, an actor's subjective perception of an action's relevance or ease of completion must also be considered simultaneously in a relational fashion (Gaver, 1991).

As previously noted, the innovative spirit emerging around the legal service market has generated many digital solutions to support the knowledge-intensive work of a lawyer (e.g., research, drafting, or managing relationships with clients). Thus, a lack of affordances cannot really be considered a causal factor to explain lawyers' baseline reluctance toward technological change. When we asked about this reluctance, the interviewed lawyers often referred to perceived expectations: "Well, I don't really see that clients who come to us are interested in any form of automation at all. They come to the lawyer, not to the machine, right? For many of these people the personal contact and touch is what really counts, even if it is merely via e-mail correspondence. It's mostly about the questions and they want ME – to answer them – not the machine."

Figure 1. **A Comparative Assessment of the Current and Future Relevance of Technological Factors in Successful Competition**



Note: The study was conducted using a 5-point Likert scale. The reference scale is slightly higher for the Y axis.

Source: own elaboration.

In this case, the environment's capacity is mediated by the actor's optics. The static structure of external expectations finds the value of legal service to be in personal attention and problem-solving. When providing expertise through direct communication is perceived to be the core feature of a provided service, digital solutions that rely on indirect contact are deemed irrelevant. This also highlights a difference between smaller and larger, more innovative law firms that are pressured by corporate clients who demand efficiency and cost-effective service (Brooks et al., 2020) rather than a personal touch. Therefore, we presume the structured cognition of external market expectations to be a relevant factor in explaining innovative behavior.

This perception does not necessarily preclude innovation at small law firms, especially when they start to develop: "our partnership slowly gains pace, and we start to think about enhancements (…) I mean the record of the incoming and outgoing post and… I cannot really explain it well, because when it comes to technical things my partner is better at this (...) but we will outsource that to professionals." However, it is worth noting that even when the need for managing the content of knowledge-intensive work via digital tools is recognized, the lack of technical knowledge about these solutions narrows the scope of their potential applications. Lawyers often lack this technological imagination and affordances remain hidden to them. Therefore, they need to rely on more technologically inclined partners or external professionals, effectively limiting possibilities for the endogenous, spontaneous change that is a driving factor for small firm innovation (Bumberová, Milichovský, 2020).

Managing Uncertainty

The professional work of a lawyer is often filled with uncertainty. The interviewees often reported that their clients usually sought their knowledge and advice when their matters became unbearably pressing and time-sensitive, suggesting that Flood's theorization of a law firm as crisis management (Flood, Mather, 2013) may have a significant merit. Simultaneously, a lawyer's choice of action is often influenced by an external source of decision-making beyond their control (e.g., an unruly adversary, a court of law, or a public office).

According to the literature on organizing (Weick, 1979, 2005; Czarniawska, 2005), facing uncertainty induces episodes of sensemaking that may result with either creating new patterns of response or resorting to proven behavioral schemes. We observed that lawyers tend to rely on routinized behavior to assist memory and adapt to daily challenges. As one interviewee noted, "As a traditional and analogue person, I keep a paper calendar anyway, because if I write something by hand, then I remember it better. I simply like this form, and I am always carrying it with me." In this sense, keeping the paper calendar becomes a psychological resource for reassurance. However, it gets interesting as the quote continues to the subject of managing collective knowledge:

"However, we also have a big calendar on the wall that we print every month and mark meetings, hearings, travels, and those kinds of things. Also, there is the electronic calendar among employees that we did not have before. The assistant is obliged to enter all the deadlines for the letters and organize it for other employees. I control it (...) to organize work of employees, allocate tasks, and monitor the deadlines."

Printing the calendar on the wall is important to facilitate the internal flow of information by considering the collective schedule. Seemingly, the electronic calendar could replace all the others, but instead, it merely supports a new function of managerial control. This limited use of technology illustrates the importance of reliance on proven routines for managing collective knowledge.

As such, the reliance on routinized behavior for a perceived stability of operations does not leave much space for innovation unless new challenges diminish the routine's value:

"We have problems with so called follow-ups (...) When we agree with the clients that they need to give us something, then if we do have time to keep an eye on it then we get it… and if we don't have time, we don't. (...) I realize that we have problems, delayed projects… I have a project list made headlong… We have to-do lists that I need to create, we have to-do lists that I need to keep up with because if we fail, the client will rip our heads off, but it is still a problem. It does not work well."

It was only in this context of crumbling personal practice that two partners started to describe the digital in-

formation system they would want to implement to aid their knowledge work (e.g., shifting contexts, keeping up developments, and changing requirements). The measure of reliance on established practice could be an important predictor for conservative behavior among lawyers, until the current practice becomes untenable.

Confidentiality Concerns

The last obstacle from the perspective of individual work is concern about the confidentiality of sensitive information, specifically the storing and handling of digital documents. In the context of big law firms, this problem is discussed as a matter of maintaining foundational trust to create value for the customer (Brooks et al., 2020). We would argue, however, that this concern goes beyond its market worth, given that client privilege is essential to the practice of law, and it is the lawyer's responsibility to keep entrusted information secret.

Many of our interviewees stressed ethical concerns. Holding themselves to a very high standard of confidentiality, the interviewees doubted if digital solution providers were able to match their standards:

"I don't use any system for managing clients because I don't have trust in the providers of those services. The less I put in the external tools, the better it is for me due to the responsibility of professional secrecy in keeping client's data under my care. I feel that at the present stage, service providers are too small to ensure a sufficient level of security. That's why I avoid them even though I have heard that such tools are heavily advertised. So far no one gained enough trust for me to put documentation, evidence and so on in their systems, because I'm afraid that in case of the hack these providers are not able yet to fight off the threat. I don't want to be the one testing if they can do it right and I don't want to explain myself before my clients if they cannot. (...) Well, I could be wrong, but for now I don't use these types of tools."

In this quote, the lawyer stresses the relevance of client privilege first and only then rationalizes his attitude by discussing trust with his clients. Undoubtedly, the two are mutually coupled. However, the underlying ethical obligation forged into a lawyer's professional identity may intensify an aversion to entrusting digital solution providers with privileged information. Given that such technologies create value by processing data, a reluctance to store information hampers the opportunities for product innovation in this KIBS sector.

Law Firm Performance

The distinction between product and process innovation can be blurred in legal services, because the same units of information (e.g., documents, memos, emails, and phone calls) are being used to both execute knowledge-intensive tasks and perform managerial control. In our interviews, lawyers often distinguished these two functions of technological innovation. While often discussing them interchangeably, they primarily considered the possibility of implementing digital solutions as a means of control and coordination of collective work rather than to support knowledge-intensive tasks.

This observation can be extended with a further analysis of the survey data (see above). We performed a regression model using a step method to see which factors of successful competition (see Box 1), assessed by the law firms based on their current and expected future relevance, were able to predict a subjective estimation of the market position in the next five years. Out of 60 factors, only five were determined to be statistically significant and were included in the final model, accounting for a 0.158 adjusted R^2.

Factors 2, 3, and 4 are fairly intuitive to explain. The failure in keeping the commitments on time (2) can endanger relationships with current clients but also prospective ones, given that recommendations are a primary source of business. Although reducing operational costs (3) may seem consequential to lowering prices (4), nothing suggests collinearity. Thus, they shall be taken as independent factors. Considering the content of our interviews, however, lawyers refer to operational costs and difficulties of getting more business (e.g., marketing activity limited by professional regulation) as related but distinct concerns.

The remaining factors are less obvious. It would be reasonable to expect that facilitating preferred payment methods (1) would gain relevance in the future rather than the opposite. Executing receivables, however, was a commonly reported problem because small law firms often provide service to individual consumers who usually seek professional aid once they fall into a financial predicament. Therefore, lawyers often use flat rates that are paid in advance to ensure they will stay fiscally afloat, rendering the customer's needs less important. Additionally, the lesser expected relevance of giving practical advice (5), in turn, resonates with specialization as the preferred model of growth. Specialization is presumed to bring business clients who are focused on getting results, rather than understanding how they were achieved.

These findings resonate with our earlier observation that innovation results from necessity in the stage of company growth, when the increasing volumes of clients, workload, and employees diminish the value of the established organizational structure. Our study indicates that lawyers seem to be prone to introducing process innovation for internal information flow, division of labor, and managerial control. Such solutions may be a steppingstone for altering the performance of knowledge-intensive tasks (e.g., filing and data organization systems, facilitating standardization, cross-referencing case solutions and outcomes). However, the barriers of technological adaptation for organizational performance are qualitatively different from the

technological opportunities for individual output and come with a unique set of obstacles from the law firms' perspective.

Problem of Adjustment

Coordinating the work of a lawyer is a complex endeavor. Most law firms provide services for multiple clients, cases, and projects, which are often fragmented over time due to the slow pace of court proceedings, administrative procedures, and contract negotiations. Lawyers must skillfully manage their workload, deadlines, and memory to ensure quality service delivery. Digital innovations are particularly instrumental in managing a company that has reached a certain size:

"Let's say that there are about 200-300 active clients on an ongoing basis. There is no way to remember all those discussions and agreements. Besides, you need to organize work so that people can replace each other. Somebody might get sick, somebody might get a day-off, somebody might resign… all sorts of things might happen. Had we just one person to manage finances, then if s/he got sick then nobody would handle the chaos that would arise. The pen and paper method—even if we are not that big of a company—would no longer pan out."

As this quote illustrates, the division of labor that comes with growth increases the level of interdependence that is needed for organizational performance.

In this context, the digital innovation meant to handle these organizational processes needs to match the corresponding degree of complexity. As one lawyer who had just implemented new software in his firm explained:

"The system consists of many elements. Of course, there is a calendar reminding us of what we must do, and we keep different things there: situations we register, conferences, trials, notary public visits, public office appointments, meetings with clients. They are divided between employees, letting us monitor individual workloads and if they have time to be assigned another task. There is other module for planning tasks and monitoring. If they are tasks are done the system requires making annotations for accounting and billing. The billing module, is also there, so as a financial module, where each client has a different payment model. We can also assign different models for different cases. As a rule of thumb, we charge hourly rates, unless the client negotiates other terms. Then, we create a case and apply flat rates or caps, or… the combinations are infinite because clients have an endless number of ideas, and we just try to meet their expectations."

The difficulty of adjusting digital systems to support law firm performance is relevant because lawyers expect complex solutions to match their complex problems and often do not find the existing systems sufficient. The aforementioned law firm settled with that solution out of necessity: "For now, we use (name of the system) because, despite it's relatively obsolete, it meets our expectations best, right? Although it's relatively slow due to technology and it isn't web-based, which is a pain for us, it's simply functional, and we have good support from developers so that any problem is being fixed almost on the spot." Other companies, however, often reported that this lack of adjustment to the specificity of legal services was the reason implementation was postponed until a better solution could be found.

Implementation Costs

The problem of adjustment was often followed by a discussion of implementation costs. A lawyer's workload comes in waves when intense surges of work are followed by temporary periods of calm. Furthermore, legal work often plays an intermediary role in the relationship between the client and other parties; thus, the work is mostly reactive to external decision-makers like courts, public offices, client's partners, or litigants. Effectively, lawyers have very limited control over their schedules.

Table 3. **Regression Model Explaining Predicted Market Position in Five Years**

		Model	Coefficients				Multicollinearity	
			Beta	Standard error	Standardized beta	Sig.	tolerance	VIF
		(Constant)	2.735	0.399		0.000	—	—
Current	1	Providing customers with preferred payment methods	–0.134	0.055	–0.165	0.016	0.815	1.345
	2	Keeping the commitments on time and informing the client about ongoing changes	0.370	0.095	0.326	0.000	0.533	1.299
Future	3	Low operation costs	–0.257	0.062	–0.293	0.000	0.744	1.226
	4	Low prices of services	0.242	0.056	0.301	0.000	0.770	1.876
	5	Capability of giving the client practical advice	–0.380	0.105	–0.298	0.000	0.552	1.812

Source: authors.

In this context, time is perceived as a very limited resource, and although a digital system may eventually help to save time, there is also a learning curve:

"Before, I was entering everything into Excel… I had millions of excel sheets to record my work time or things I had to do for the given client. Managing all of this started to make things take longer so I implemented this software to have everything in one place. (...) That really made things better although… I mean, moving onto this software is difficult because you need to learn to put in everything in that one place. But if you really start to use it, then it actually saves time."

As this case illustrates, the effective use of software requires attention and a time investment to learn a new way of managing work. Lawyers who were reluctant to use digital solutions often cited time as a resource they simply could not afford to lose.

The cost of time is not only limited to the initial effort to learn the software, as software also requires regular maintenance:

"(In the context of organizing work) Well, this is a problem for us that I try to tackle it with apps like (task management software) and such. I try to use them, but unfortunately you need to work on it all the time to see some effect. That is difficult and wearisome, even more given that we have a lot of work, a lot of things happen… and it's like an overflow."

Ensuring the reliance of digital solutions becomes an imposition on the lawyer's time-management routine. For small law firms that have limited control over their schedules, the subjective cost of commitment to these process innovations compounds over time.

Even if lawyers feel overwhelmed and recognize the need to alter their ways of organizing work, they often put off the implementation of digital technologies, especially when their concerns coincide with the problem of adjustment:

"I have two ideas that I'd like to implement that already are out there, however they do not work as they should. In other words, we should sit on it and figure it all out anew. I realize that this would cost tens or even hundreds of thousands, so this is something rather for the future… two or three years before we will get to this."

Although the matter of financial costs have been reported to be a significant barrier to innovation among lawyers (LegalTech Polska, 2018), our interviewees rarely brought it up without prompting. The implementation costs were mostly discussed in terms of the amount of time required to maintain or implement the digital technologies.

Technology Design

Technological innovation is relational in that it is not only the user's attitudes or decisions that matter for adoption, but also the qualities of the digital solutions. These qualities may facilitate or hinder dependence on the tools, and lawyers seem to be particularly sensitive to their shortcomings. This is especially true for products meant to support knowledge-intensive tasks in individual work. Apart from the issues of personal affordances, routine reliance, and confidentiality concerns, the technology is not always able to perform operations using specialized language in a sufficient way.

During one of the LegalTech meetups, one of the participants made a presentation on testing different contract analysis tools for a large international corporation. He stressed the necessity of manually training each individual software to provide the machine-learning algorithms with relevant information to evaluate the risky phrasing in legal clauses. The software itself cannot realize what is important without human input, and even if it recognizes the patterns of general language, it does not 'understand' the meaning behind it. This is especially relevant for the intricacies of legal language, in which certain terms have highly specific meanings. Thus, the software can only provide statistically appropriate guesses to flag certain clauses based on dictionaries that still have to be continuously maintained and evaluated by the lawyers.

To understand the bigger picture of digital innovation within the legal sector of KIBS, three additional factors must be considered. First, the natural language processing (NLP) responsible for part-of-speech tagging is only as good as the corpus it employs. This is foundational for language operations, and although such resources are well developed for English due to its global scope, support for more local and nuanced languages are still far from perfect (Kobyliński, Kieraś, 2018).

Second, even if the algorithm can distinguish between words in general, it still needs to be trained to for the specialized context through linguistic models to recognize true meanings and relationships among extracted terms. In the long-term, NLP software may enable legal analysis to be performed more quickly and thoroughly. However, it cannot replace the professional work needed to train, update, and evaluate outputs on an ongoing basis. Big international corporations may be able to afford such maintenance due to economies of scale on the user's side, but small law firms may lack the time to invest in such augmentation.

Third, updating and evaluating this output could be made easier with further economies of scale on the provider side, in which individual users train the algorithm for use by others, while also using the technology for their own benefit. While this is already being done to some extent, the lawyer running the presentation also stressed that legal work is sensitive to the style of legal advice and client-specific tolerance of risk. Therefore, it is very unlikely for there to be a one-size-fits-all digital solution. Product innovations would have to adjust to varying degrees of complexity, stemming from the professional preference and nuances of the legal work.

These limitations are less prominent among process innovations meant to aid organizational performance.

Numbers, dates, logical variables, classes, and objects that are employed to represent different aspects of the organization are less complex and easier to process. Given that these types of systems are less difficult to design, there are many more managerial tools available on the market than digital solutions meant to assist knowledge-intensive tasks. Legal work is inevitably local because of geographically specific regulations and the language of the country. Therefore, until language processing capabilities, particularly for non-English speaking countries, become more advanced and readily available, the opportunities for technological innovation will be steered more toward managerial control and coordination of knowledge-intensive work.

Discussion

We started this study by questioning why companies in the legal industry introduce notably fewer technological innovations than other KIBS. We explored barriers to innovative technological adoption in the context of Poland's legal sector, a transformation economy dominated by small law firms. We also highlighted the challenges of a locality on the peripheries of the global legal market delimited by the scope of the English language and rich capitalization of international corporations.

Based on our study, we identified six different barriers to technological adoption in the legal field: three reflecting the character of a lawyer's individual work, two related to the law firm's performance, and the overarching problem of technology design. Although it has been reported that legal companies tend to introduce rather non-technological forms of novelty (Miles, 2005), we also observed that when it comes to digital technologies, firms preferred to implement process rather than product innovation. The consistent expectations of local customers do not push small law firms to imagining new forms of value creation as global clients do. Brooks et al. (2020) discussed this phenomenon in terms of a skills gap. However, we would argue that it is not only about learning how to use digital enhancements but also determining their practicality.

This is especially true in cases in which the value of reliance on existing practices renders technological disruption counterproductive. However, as a company grows, there is a tipping point when the volume of clients, workload, and employment exceeds the mental and organizational capacities of individual lawyers. In such situations, law firms experience endogenous pressure, pushing them to introduce process innovations as a measure of control and coordination of knowledge-intensive work. Thus, the observed reluctance among lawyers to adopt technological innovations should not be assumed to be mere conservatism, because the implementation of digital novelty follows the value of reliance and stability in managing legal work.

In this context, we concur with Brooks et al. (2020) that LegalTech software does not seem to change the character of legal work, as suggested by other authors (Susskind, Susskind, 2015). Rather, it is deployed to automate repetitive administrative tasks and managerial control. This, of course, might augment the performance of legal tasks by ordering content and disseminating knowledge about working solutions to typical problems, but it does not change the practice itself.

More substantive technological innovations in countries outside the global scope would require advancements in the processing of natural and specialized language in languages other than English. Legal work is an inevitably linguistic endeavor built on the foundation of local meaning and systems of law that cannot be easily captured, let alone interpreted, without professional expertise. Currently, the maintenance of machine-learning algorithms to work effectively demand a time investment small law firms simply cannot afford.

Therefore, we expect that small clusters of larger companies will have to tread paths for digital enhancements in the legal sector. By spearheading innovation, they may effectively strengthen their local position by capturing more business clients who demand cost and time efficient services rather than relational and personal concern as individual consumers do. Consequently, these companies may alter the market structures in countries where small law firms depend heavily upon the business portion of their client portfolios. As follows, the larger players will be able to grow due to economies of scale and push the boundaries of technological novelty.

However, we do not expect such an endogenous change to happen soon—especially in Poland, where the partner model of legal corporations has not developed as extensively, and the ethos of professional independence supports the fragmentation rather than agglomeration of the legal service industry. We believe that the overall acceptance of digital technologies may be positively moderated locally by the scope of public sector implementations concerning the digitalization of registers, procedures, and information flow. In private sector relations, technological innovation in the legal field is more likely to travel exogenously through backchannels of cooperation networks, connecting law firms from different countries to work together on cross-country agreements. Furthermore, established LegalTech providers will eventually translate their solutions into languages across less lucrative borders to expand their markets.

We believe that in the foreseeable future, the legal sector will remain an outlier in technological innovation as compared to other KIBS who rely more on processing numbers (e.g., finance, accounting, consulting) and images (e.g., architecture and marketing) to enhance services. This concerns countries on the outskirts of the global legal market in particular, where law by being practiced in local languages other than English will require additional efforts in adopting novel solutions. Small companies would not be able to afford this premium, so they will avoid digital innovation until it

becomes *'a new normal'* created by a small cluster of innovators, accompanied by the public sector's digital transformations. However, we caution against assumptions that the field is simply adverse to technological progress. Rationalized concerns regarding the usefulness, reliance, trust, fit, and maintenance of digital solutions hint at a more reflective consideration of the drawbacks caused by creative disruption, given the value of the stability that legal services provide to other sectors of the economy. There are ideas whose time is yet to come. So an aloof behavior towards novelty may not necessarily mean turning an irrationally blind eye towards these developments as much as estimating the right timing. No one than a lawyer is bluntly aware that inaction is as much of an action as the action itself.

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