DESIGNING FOR LEGAL PRACTITIONERS: LESSONS LEARNED FROM LEGAL TECH DEVELOPMENT AND IMPLEMENTATION

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ABSTRACT

Recently, the design and digitalisation approaches have become increasingly utilised in the legal context, typically under the names of legal design and legal tech. One of their goals is to help legal practitioners be more efficient and to provide better quality and more comprehensive legal services. Also, given that both movements rely heavily on participatory and co-design, they will require increased support not only from design practitioners but also from design researchers and educators. Therefore, this paper investigates, from a design research viewpoint, the opportunities and challenges of developing and implementing legal tech, with a particular focus on legal practitioners. It reports on four cases of designing legal tech solutions and their implementation in a law firm. The main insights are related to the importance of value perception through participatory and co-design, the need for efficient and effective testing methodologies, and the opportunity to test a wide range of design methods and tools in the legal context. The paper also complements the legal design and legal tech literature with additional arguments on why designing in the legal context is challenging compared to designing in other domains.

Keywords: Legal tech, Legal design, Service design, Participatory design, Case study

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1 INTRODUCTION

In the last decades, the frameworks, methods, and principles originally introduced within different areas of design (e.g., engineering, industrial, and architectural) have penetrated seemingly unrelated domains such as healthcare, business, and policymaking. Problem-solvers in these domains have found the *'designerly way of thinking'* particularly well suited for coming up with innovative solutions through problem reformulation and reframing. Eventually, the designerly approach has become increasingly utilised in the legal context, typically under the name of 'legal design', and the corresponding research, conferences, and labs soon followed (Hagan, 2020).

Legal design merges the interdisciplinary and proactive approach of design thinking with forward-looking legal thinking, thus transforming information, processes, services, and systems (Corrales *et al.*, 2019). On the one hand, legal design aims to improve the user experience of legal service end-users when navigating the legal system. On the other hand, the goal of legal design is also to help legal practitioners be more efficient and to provide a better quality and more comprehensive legal service. The latter has often been approached by designing and implementing legal technology solutions (so-called 'legal tech'), which typically reduce the repetitive work, provide greater access to information, and enhance the legal practitioners' ability to use the right information at the right time.

Still, one could question the novelty and originality of legal design, given that similar efforts have long-time been present in design practice. Is legal design simply reinventing the application of design approaches in yet another domain? Indeed, such questions have been raised (e.g., Morgan and Allbon, 2021), and there are yet to be convincing arguments for why the law would pose unique requirements for designing compared to other domains. Most legal design research is conducted in the field of law, and empirical research with the support of the design field is needed to fill the gap (Ji, 2019).

Original or not, legal design and legal tech movements have undoubtedly gained credibility and started being rapidly adopted by law firms. Given that both movements rely heavily on participatory and co-design, they will require increased support not only from design practitioners but also from design researchers and educators. While design practitioners can help co-designing legal products and services (e.g., legal tech), researchers and educators are welcome to propose and teach the most suitable ways of their development and implementation (Corrales *et al.*, 2019). Ultimately, such a trend creates an opportunity for designers to take a vital role in the unprecedented legal transformation processes.

Therefore, the goal of this paper is to investigate, from a design research viewpoint, the opportunities and challenges of developing and implementing legal tech, with a particular focus on legal practitioners. The paper also aims to introduce the legal design and legal tech topics within the Design Society since there have been no such efforts in the community so far.

The presented study investigates four cases of designing legal tech solutions and their implementation in a law firm. It is hypothesised that similarities exist between designing for legal and designing in product and engineering design domains, including and beyond what is prescribed by the design thinking approach. The study thus contributes to legal design research and practice by discussing lessons learned from the studied legal tech projects and listing opportunities for future efforts within the field.

2 BACKGROUND

In its broadest sense, legal design is a human-centred, participatory approach to reforming the legal system (Hagan, 2020). It also serves as an umbrella term for any efforts merging design and legal thinking (Corrales *et al.*, 2019). Thus, any form of a structured approach to designing legal products and services, particularly when it focuses on user experience, can be considered as display of legal design. The following subsection briefly describes the legal design process and its connection to design thinking and design research in general.

2.1 Legal design

Besides the special issue on the rise of legal design recently published in MIT's Design Issues (Hagan and özenç, 2020a), legal design research has occupied unusually little space in design-focused literature. One might argue that the field is still emerging, without a specific or amplified distinction compared to existing design thinking efforts. Yet the reports on legal design projects, experiences, and challenges reveals major opportunities for the contribution of design researchers and practitioners.

Firstly, there is a *resemblance in how the legal design process is described in the literature and what the design thinking practitioners prescribe*. For example, Hagan (2020) recognises six critical steps in the

legal design process: (1) creating a broader, participatory network; (2) human-centred research of needs and opportunities; (3) exploratory design; (4) field pilots and evaluation; (5) scale and replication; and finally, (6) long-term evaluation. Morgan and Allbon (2021) note that, despite being adopted by many corporations, design thinking has also been criticised by design academics and practitioners, who fail to see its relevance. They cite Laursen and Haase (2019), who argue that design thinking can be problematic for non-designers when selecting the right tools and techniques. Nevertheless, the emphasis on activities which are at the core of the design thinking approach, can be read out in most reported legal design processes (Fioravanti and Romano, 2021; Kohlmeier and Santuber, 2020).

Secondly, *many design-related terms and buzzwords reappear across legal design papers and chapters*. On the one hand, there are examples of design approaches, including user- and human-centred design, participatory design, research through design (Hagan, 2020), co-design and co-creation (Jackson *et al.*, 2020), complex systems, agile design (Ross, 2020), visual design, interaction design (Hagan and özenç, 2020b), etc. On the other hand, there are examples of design methods, such as observations, interviews, and focus groups, brainstorming, collaborative prototyping and usability testing, minimally viable products (Fioravanti and Romano, 2021; Hagan and özenç, 2020b; Rossi and Palmirani, 2020), etc.

Looking at the legal design literature, one can conclude that much of what has been settled in engineering design and related fields is now being re-invented for the legal domain. An interesting question was raised by Morgan and Allbon (2021): "*Is law really that special?*". They address it by revisiting some of the comments from the 2020 Legal Design Roundtable, which recognise legal design simply as a label for approaches already sitting in other long-established disciplines, such as service design. Also, similar efforts in other contexts (e.g., healthcare, management, and policymaking) did not necessary result in ownerships of design (Morgan and Allbon, 2021) or significant effects of applying participatory and co-designing (Lewis *et al.*, 2020). Therefore, this study will also consider whether there are any distinctive features in designing legal products and services compared to designing in other domains.

Additionally, from a design research viewpoint, there are currently three apparent limitations of legal design studies reported in the literature. First, the application of design approaches is constrained mainly to design thinking, representing only a fraction of what is available in the designer's toolkit (Dabaghi, 2022; le Gall, 2021). Secondly, previous studies have focused on improving the experience of short-term consumers of legal services (end users) and often neglected the experience and effectiveness of legal practitioners, to whom the legal tech is often imposed (see examples in Corrales Compagnucci et al., 2020). Finally, with not many practitioners sharing their processes and experiences, it is challenging to get an accurate picture of how designing is performed in legal practice (Morgan and Allbon, 2021). As a result, there are only a few studies disseminating in detail the processes, methods, and tools used, as well as reporting specificities of collaboration between legal practitioners and designers (Ji, 2019).

Based on these limitations, this study will focus on designing solutions intended primarily for the legal practitioners, namely attorneys and legal administrators. Given that legal design is often inseparable from digital technologies, the following subsection briefly discusses the relevant legal tech research.

2.2 Legal tech

Legal technology or 'legal tech' broadly refers to the adoption of innovative and often disruptive technology (typically some sort of software) to streamline and enhance legal work (Corrales *et al.*, 2019). According to some researchers, legal tech can also include any technology or software used in the legal profession (Bues and Matthaei, 2017), including Word, Outlook, or computers, for that matter (Tolvanen and Toivonen, 2021). Nevertheless, most studies report on legal tech solutions in which familiarity with text processing, email, and other basic technologies is implied.

Justifiable or not, the legal industry is often characterised as one that is trailing in the digital transition. Such an impression is slowly changing, with more and more legal tech start-ups introducing novel legal support tools. It must, however, be noted that digitalisation is not only about innovative technologies but also about their successful implementation and diffusion, which is where traditional law firms typically struggle (Kronblad and Pregmark, 2019). Universal digitalisation is additionally hurdled by different regulations and jurisdictions, despite the global trend of deregulation in the area, which is one of the prerequisites of successful legal tech implementation (Kronblad and Pregmark, 2019).

Bues and Matthaei (2017) differentiate between three streams of legal tech. First are the *'enabler technologies',* such as cloud and cybersecurity solutions, which facilitate data access (retrieval), processing, and protection. The second stream represents *the support-process tools* developed to maximise the potential of legal administration by integrating human resources management, customer

relationship, and other administrative tasks largely related to performance, accounting, billing, and payrolls. Third are the *solutions which assist (or even replace) attorneys* in specific legal tasks. This stream is also the most diverse one, with subfields such as automated contracts, online dispute resolution, legal analytics, etc., and is expected to have the most disruptive effect on the legal profession in the technology-driven world (Bues and Matthaei, 2017; Corrales *et al.*, 2019).

Goodenough (2015) categorised legal tech into phases 1.0, 2.0, and 3.0, that is, a progression starting from the digitalisation of formerly analogue legal information in phase 1.0, followed by replacing much of human work using technology in phase 2.0, and finally, the automation of legal processes at a larger scale in phase 3.0. According to Timmer (2019), legal tech 1.0 has largely already been implemented, with phase 2.0 on its way in many parts of legal practice, whereas phase 3.0 remains merely a distant future scenario. It is, therefore, not surprising that most current legal tech efforts, such as contract lifecycle management, fall into phase 2.0. For example, automated drafting of contracts is one of the areas where legal tech started to replace legal practitioners (Timmer, 2019). However, a few sources suggest that law firms can benefit only from automating contracts of low complexity and high turnaround. The main reason is that attorneys often must become information designers and coders (Barton *et al.*, 2019) to create templates for such purposes. The overlap between the three streams and phases of legal tech is shown in Figure 1.

In addition to legal design, which can support the drafting of contracts by structuring the process flow and simplifying legal content (Kohlmeier and Santuber, 2020), there have been attempts to enhance contracting practices by employing machine learning (ML), artificial intelligence (AI), natural language processing (NLP), blockchain, and other fashionable technologies (Bues and Matthaei, 2017). Most recently, there have been calls for a common legal platform (CLP) in which different legal tech solutions would be consolidated and harmonised. In addition to combining and integrating legal services and software, it would provide a space for standardisation, legal information access, and collaboration across the legal market, thus uniting people, products, and services on a single platform (Jacob *et al.*, 2020).

Finally, some interesting similarities can be found between legal tech and design digitalisation. A literature survey by Cantamessa et al. (2020) distinguishes between three streams of engineering design digitalisation. The first concerns the effect of digitalisation on the way designers operate and interact, raising questions about data availability (integration of information, design automation, customisation, personalisation, etc.). The second stream involves the consequences of digital and agile environments on design processes and routines, such as minimum viable products, product platforms, concurrent engineering, etc. The third stream concerns new data analytics tools, which utilise predictive and prescriptive techniques to help the development teams exploit the advantages of data analysis.

Design digitalisation has recently been additionally emphasised given the Industry 4.0 and data-driven design contexts, which rely heavily on design engineers that are educated in IT-related subjects, on the design processes facilitated by the use of the already available data, and on the advanced engineering techniques and technologies (Pereira Pessôa and Jauregui Becker, 2020). Furthermore, Cantamessa et al. (2020) emphasise the overall effect of enabling technologies, such as internet/social networks, cloud computing, data mining, and machine learning, all of which are also trending in the legal tech realm.

This paper contributes to the above literature by reporting on the development of several additional examples of legal tech, which correspond to different streams and phases of legal tech, and their implementation by legal practitioners in a law firm environment.

3 METHODOLOGY

Qualitative case study research has been conducted to obtain insights into the legal tech processes and experiences. More precisely, four representative types of legal tech (see Figure 1) available at a case firm have been approached from three perspectives: the managers', the developers', and the users' points of view. These stakeholders were interviewed regarding their experiences in legal tech planning, design and development, and implementation processes. Moreover, some supplementary observations were recorded by one of the authors who has participated in the firm's digital transition. The study included the following cases of legal tech development and implementation:

A) Firmwide content management solution, which enables comprehensive data, case and project management, communication, archiving, billing, accounting, customer relationship, and integration with other software services used in the firm. The main purpose of this in-house developed solution is to digitalise all existing organisational processes on a single platform and can be compared with other complex firmwide solutions, such as enterprise resource planning (ERP), product lifecycle management

(PLM) and customer relationship management (CRM) systems. As such, it falls within the scope of enabler technologies and legal administration support (transition from legal tech 1.0 to 2.0).

B) Contract automation system (CAS), which can be tailored to specific organisational needs but mainly intended for use by the firm's customers (non-legal professionals) to generate contracts by themselves via a web-based app. This commercial solution relies heavily on preparing and testing CAS templates, which consist of branched questionnaires and the rules for structuring the answers in the form of a contract. It is assumed that the firm prepares the templates; however, an external template creation service is also available. As such, this tool represents a typical legal tech 2.0 solution within the legal service support stream.

C) Another commercial CAS, designed primarily as a support tool for attorneys, reduces repetitive work through automated drafting of simpler and often-used contract types (NDAs, sales, employment, etc.). Unlike the above web-based CAS tool, it is also available as a plug-in for Microsoft Word, a tool many legal practitioners depend on, thus allowing for easier integration within their existing workflows. As is the case with other CAS solutions, the tool falls within the legal tech 2.0 legal service support. Legal professionals can prepare the templates themselves or use an external service.

Figure 1. Overlap between legal tech streams (grey), phases (1.0, 2.0 and 3.0), and case study tools (A, B, C and D)

D) Legal document review tool for assisting in examination of legal document content, identifying risks, and conducting revisions. This self-service AI-based tool (ML + NLP) was trained on different sets of legal documents and offers support in reviewing numerous common contract types, such as NDAs, service agreements, employment contracts, etc. As such, it is intended not only for attorneys but also for business owners and professionals. It is available both as a web app and a Word plug-in; however, only the web app has been implemented in the case firm. Unlike the other three solutions, this tool represents the first step toward legal tech 3.0, with automation of more knowledge-intensive work.

In total, ten stakeholders were interviewed: chief executive officer (CEO) who has induced and overseen the firm's legal tech transition; four representatives of developers (one per solution, located in Croatia, the Netherlands, Serbia, and United States), three of the firm's attorneys, and two administrators. The interviews were semi-structured and adapted to the stakeholder type. Individual interviews were conducted with the CEO and the developers, whereas the attorneys and administrators were interviewed in two separate groups. The questions were prepared based on the digitalisation challenges reported in both the legal tech (see, e.g., Zalewski, 2021) and design literature, particularly concerning the development and implementation of PLM (Batenburg *et al.*, 2006; Koomen *et al.*, 2019) and ERP systems (Helo *et al.*, 2008; Kim *et al.*, 2005). In addition to the note-taking, the interviews were recorded and transcribed. All interviews lasted around 60 minutes and were roughly divided into four parts:

- Introductory part with a general discussion about the specific legal tech solution and its purpose. The developers were additionally asked to briefly describe the development process, the current state of development, the next steps, and the long-term plans.
- Discussion about the legal tech solution's design and development process, including the analysis of business processes, user needs, existing products on the market, functionality prioritisation, prototyping and testing with users, risk identification, etc.
- Discussion about the implementation process, including the commitment, required skills and competencies, training strategies, data and information structuring, etc.
- Conclusion on legal tech opportunities and challenges. This part also included a discussion on whether design and digitalisation in law firms are in any way different compared to other domains.

The participatory research conducted by one of the authors involved frequent discussions with attorneys and legal administrators on their experiences during the legal tech development and implementation process, obstacles that were encountered etc. Notes taken during such discussions were analysed along with the interview data.
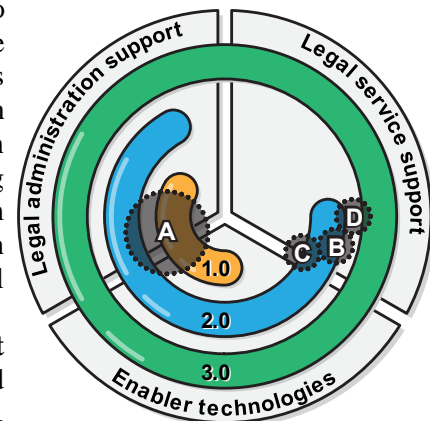
4 FINDINGS AND DISCUSSION

The interview notes and transcripts were analysed, and the relevant findings have been categorised into five main topics (as reported in subsections 4.1-4.5). Many of the insights are aligned with conclusions found across legal design and legal tech literature. For example, all interviewees highlighted the criticality of participatory design and the prototyping-testing cycles (see, e.g., Kohlmeier and Santuber, 2020 and Hagan, 2020) for legal tech design and implementation. To avoid repeating such insights, the rest of the section thus focuses solely on complementing, contradicting, or novel findings compared to what has been previously reported across the legal design and legal tech literature. Due to space available, not all findings could be reported in this paper. Also, the generalisation of the findings is limited because of the relatively small sample size of interviewed developers and users.

4.1 Legal tech development

The access to the developer, management and legal practitioner perspectives has enabled the comparison of experiences related to different aspects of the development process, including participatory design, solution testing, value perception, and user experience. It must be noted that all parties expressed their satisfaction with the development processes and that the importance of partnership between the developers and the case firm was highlighted in several interviews. For the developers, it is important that the customer has at least some understanding of the technology. Similarly, the developers must dive deep into the legal matter to grasp the complex nature of legal work and understand the needs of legal practitioners. And, while it is encouraged that developers understand how the law works, one must note that (for obvious reasons) this can only be done to a certain extent. Namely, the interviews related to the firmwide legal tech revealed that the differences in professions could result in a disproportional perception of functionalities' significance. The following excerpt shows that something can be a minor technical issue for a developer and, at the same time, be perceived as a significant obstacle for an attorney to properly handle a legal case, which ultimately leads to a lack of motivation for using legal tech in general: *"The current inability of documenting a carbon copy of an e-mail within the firmwide solution is to the developers just another minor technical problem, while it can have greater implications for the attorneys."* One of the developers even emphasised that the advantage of their solution is that it is *"designed by attorneys for attorneys"*, given that the development company is a spinoff of a law firm.

Nevertheless, many potential disproportions were eliminated through participatory design. Involving users early in the development was at the core of all four studied cases. Yet, the interviews have shown that the number of users involved in development can be critical for two reasons.

Firstly, the larger number of involved stakeholders will likely result in a more diverse set of user needs early in the process. The interviews showed that some developers only realised the diversity and complex nature of legal practitioners' workflows when they started doing testing and user training: *"Within the law firm, people differ tremendously, they have different profiles, different characters, and levels of technical background, which makes the environment specific compared to other business firms. You can only get such an insight if you talk to each one individually."*

Secondly, the interview analysis offered a hypothesis that the users who participated in legal tech development also perceive its value as higher when compared to users who only got to use it. Namely, as with other software, most legal tech solutions are continuously upgraded in a never-ending cycle of bug removal and functional enhancement. Legal practitioners are rarely (if ever) met with a plug-and-play solution that would benefit them out of the box. This implementation effort is easier to overcome if more users participate in the development and, consequently, have more patience and perceive more value because of collective ownership (Donetto *et al.*, 2015) of legal tech. One of the developers noted that they prefer to present the product not only to the management but also to the firm's employees to maximise value perception and facilitate implementation.

Another novel insight raised by the developers concerns the twofold difficulty of testing legal tech products. The first difficulty is finding adequate test users (with a legal background and sufficient time) in the early phases of development. For this reason, much of the testing is done by the development team itself, or "*by the early adopters*", as formulated by one of the developers. Involving additional users early in the development would thus also expand the pool of potential testers.

The second difficulty is testing (and checking) the content generated using legal tech solutions. For example, contract automation requires substantial testing of contract templates to ensure reliability, a step that has not been given much attention when designing the user experience. One could argue that

testing is often as annoying as repetitive work. Therefore, the interviews have raised the need for legal tech testing methodologies that the design researchers could address.

Finally, the studied legal tech solutions have been designed to impose structure and formalism on internal processes, which can negatively affect productivity. For example, not all users are authorised to access all data or use all functionalities. Typically, legal practitioners would overcome such situations through informal communication or agreements; however, the software does not allow for such a bypass, which often results in longer waiting times and additional workload. Legal tech should thus be designed to allow more flexible (but still secure) workflows when needed.

4.2 Legal tech implementation

The implementation processes of all four studied legal tech solutions are ongoing at the case firm. With this in mind, the user perspective on implementation can be summed up in one thought: *"it is challenging to implement multiple legal tech solutions at a time [...] and there is always a risk of biting off more than one can chew."* Sometimes even the individual legal tech can be overwhelming for legal practitioners, whereas implementing more than one can be counterproductive. On the other hand, the interviews suggest that the users expect support and integration in all their work and might be demotivated to use legal tech designed to support only certain aspects of legal work. *"The goal is to have everything in one place."* In contrast, the developers' perspective on implementation is more preoccupied with training. All four cases have involved some form of education on using the tool, with different levels of success. A general agreement between the developers is that the best approach would be to train several highly-motivated lead users, who can share the knowledge with others as the implementation proceeds. One of the developers refers to these lead users as 'ninjas': *"We call customers that are good with working on the solution ninjas. Instead of teaching the whole company, we teach one or two ninjas and then they do it."* These 'ninja' users can be helpful in several ways.

Firstly, assigning training only to the selected users allows other employees to focus on what is the core of their work, which pays the bills during the transition period. The interviews revealed that not all trained employees use the implemented legal tech regularly and at the same rate anyway. Secondly, these selected users can supervise the implementation and point out potential problems to the management. Namely, a misalignment was found between the extent of legal tech use reported by different stakeholders, suggesting that the managers need to be made aware of the specific obstacles to the full-scale and cost-effective implementation of legal tech. Thirdly, the 'ninjas' can, together with interactive educational materials, be used as fighters against the *"use it or lose it"* phenomenon of knowledge loss, which has been mentioned in the literature (Timmer, 2019).

Even if the firm didn't participate in legal tech development, the implementation would likely require its tailoring for the particular context. In such a case, the lead users can participate by providing input for adapting the solution and, in return, gain the aforementioned sense of value and ownership. This input could simultaneously reduce the sense of taking part in an experiment where nobody knows if the new solution will actually work (Kronblad and Pregmark, 2019): *"I have a feeling that people sometimes feel like guinea pigs in a way because new things are being put in front of them. [...] A new product that has not existed before and that other competing law firms do not use is being tested on them."*

Finally, a space for improvement was found in setting priorities for contract automation. The interviews revealed that these decisions were mainly based on what was needed at the moment of implementation. However, a data-driven design approach should focus more on the customer needs and rely on the available customer data (e.g., on the statistics about different types of contracts on the target market). On a positive note, all parties agree that contract automation ultimately leads to improved consistency (or even standardisation) of legal content, terminology, and processes within the firm.

4.3 Legal administration vs. attorneys

The interviews also revealed somewhat of a polarisation at the case firm in regard to experience and satisfaction of using the firmwide content management solution. Given that this tool falls predominantly in legal tech 1.0, its purpose is mainly to integrate and accelerate administrative legal work. It is hence not surprising that the administrators have spoken more positively about this type of legal tech when compared to the attorneys. *"We used to have multiple software, each with its own purpose but now everything is in one place, which is great. [...] We had this goal in mind from the beginning."*

Still, being a firmwide tool, it is intended to be used by most employees, which can interrupt previously established workflows. For example, one of the attorneys commented: *"Before, attorneys and interns*

were just doing their job, and now it's getting mixed up. After fully implementing the solution, the administrative staff will be less burdened than before. It was easier for the attorneys to sign and stamp the submission, call the administrators, give them an instruction, and the administrators would do the rest. Attorneys only dealt with their core work, which separated us from the competition."

Unlike the administrators, who now have more time for other tasks, the attorneys have been given additional work. Namely, the role of data integrator, which was previously carried out exclusively by the legal administration, is now allocated to all employees. Such strict distribution might be a result of the formal processes imposed by legal tech. At the same time, the attorneys face an increased cyber security risk. Namely, with all critical information now only a few clicks away on their laptops, they will likely be compelled to introduce additional security measures. *"The biggest advantage of the solution, which is that all files and documents are in one place and easily accessible, is also the biggest security risk. Security risks are certainly greater than before."* Interestingly, the developer of the firmwide solution responded that it was easier to codesign with the administrators, who could express their processes and needs more precisely than the attorneys. They also confirmed that the development priority was to reduce the scope of administrative work, which could be considered a low-hanging fruit compared to legal service support tools, which fall into the legal tech 2.0 category.

Finally, while the administrators can complete many of their tasks within a single legal tech solution, the attorneys still rely on multiple separate tools and media. Integration of all their work can only be achieved via future legal design efforts towards legal tech 3.0 (Goodenough, 2015) and common legal platforms (Jacob *et al.*, 2020). By then, their motivation might be hindered by the *"the old model is still working"* and *"there's no proof"* barriers proposed by Kronblad and Pregmark (2019).

4.4 Challenges of designing for legal practitioners

As mentioned earlier, this study also investigates whether there exist any distinctive features and challenges in designing legal products and services compared to designing in other domains. Previous research has highlighted the difficulties of digitalisation in law due to legal tech's threat to current modes of work, the intellectually intensive nature of legal work, and the lack of technical competencies and skills in the legal profession (Bues and Matthaei, 2017; Kronblad and Pregmark, 2019). However, it is questionable whether the law is that special in this regard. For example, while the lack of computer skills was mentioned during the interviews, it was not characterised as a major obstacle to legal tech implementation. The interviews instead provided two different yet noteworthy insights on why designing for legal practitioners might be distinctively challenging.

The first is the uniqueness of individual legal cases, which makes the creation of a general-purpose legal tech extremely difficult. The interviews revealed that the origin story of all four studied solutions started with the inability to find an existing legal tech which would meet the law firm's needs. Despite the large number of tools available on the market, law firms often end up launching legal tech spin-offs or collaborating with developers to build legal tech from scratch or ensure at least some degree of contextualisation (Zalewski, 2021). The more ambitious legal tech projects often end up in heavily modified and complex tools which try to cover myriads of special case scenarios. The inability to create and implement elegant, general-purpose, and plug-and-play legal tech subsequently results in a lack of value perceived by the users and low adoption rates of legal tech 2.0 (Timmer, 2019).

The second specificity relates to how law firms function in the broader legal system. Even if all employees are highly motivated and tech-savvy, the internal digital transition largely depends on the legislation, as well as the digitalisation pace of other stakeholders. Law firms can only utilise the competitive edge of legal tech if these tools work and integrate well with other system elements. This might explain why legal tech 3.0 has become an important research topic and why it demands joint effort from all stakeholders in the legal system, including legislators, courts, clients, and other firms.

4.5 Opportunities in designing for legal practitioners

The challenges described above are, at the same time, opportunities for designers to contribute to legal design and legal tech research. These, and other design-related opportunities identified during the interviews, are briefly described hereafter.

Firstly, legal design and legal tech are widely considered emerging fields, and there is still time for designers to catch up and contribute to state-of-the-art developments. None of the interviewed developers has experienced competitive pressure or has an impression that the legal tech market is saturated and with a high risk of category killers. Indeed, all of them are expanding both the

functionalities of their legal tech and their customer base. Design approaches could be used to better frame problems and give users more power in legal tech customisation and, consequently, a sense of value and ownership of the implemented technologies. The flexibility and customisation potential exhibited by CAD and PLM systems in engineering design can serve as a good practice example.

The interviews with the CEO, attorneys, and legal administration have shown no support for legal tech as a threat to maintaining legal practitioners' relevance in the workspace, which is one of the common barriers to legal tech implementation, according to Kronblad and Pregmark (2019) and Timmer (2019). Rather, an interest was shown for the new roles of legal designers and technologists (Markfort and Zamorski, 2020), who would have the capacity to (re)design the legal content (e.g., standardised, and user-friendly contracts) and manage the digital transition (e.g., customise legal tech solutions) within the firm. Additionally, the three interviewed legal tech 2.0 developers confirmed that they also offer the service of creating/customising content for their customers. Therefore, the legal technologist should eventually take over that part of the work for legal tech to be cost-effective.

Finally, support was found for the major opportunity in the form of large amounts of data spread out in the legal documents that can be used to implement NLP, ML, AI, and other advanced data-driven technologies. So far, such legal data has been used to train models for document review and providing legal advice. Yet, the developments in design research might inspire other types of technology applications, such as data mining, data analytics, mass personalisation, and the use of hardware-based systems such as augmented and virtual reality (Cantamessa *et al.*, 2020). Lastly, design researchers investigating gamification, design rationale documentation, solving contradictions (e.g., TRIZ), circular economy (see, e.g., Wasserbaur et al., 2022), etc., could test these approaches in the legal context.

5 CONCLUSION AND OUTLOOK

Two main research contributions can be outlined based on the presented background and new findings. The first is the overview of challenges and opportunities that design practitioners, researchers and educators can take on to contribute to the emerging fields of legal design and legal tech. The most notable examples include value perception through participatory and co-design, the need for efficient and effective testing methodologies, and the opportunity to test a wide range of design methods and tools in the legal context. The second contribution concerns complementing the legal design and legal tech literature with some new lessons learned and introducing new arguments on why designing legal tech is challenging compared to designing in other domains. The presented research also confronts different perspectives and stakeholders in legal tech projects, thus allowing for a comprehensive analysis of challenges faced during both the development and implementation of legal tech. Finally, given the limited sample size in this exploratory study, future research will investigate whether the findings identified within the case firm can also be confirmed in other organisations in the legal system.

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REFERENCES

Barton, T.D., Haapio, H., Passera, S. and Hazard, J.G. (2019), "Successful Contracts: Integrating Design and Technology", pp. 63–91, https://dx.doi.org/10.1007/978-981-13-6086-2_3.

Batenburg, R., Helms, R.W. and Versendaal, J. (2006), "PLM roadmap: stepwise PLM implementation based on the concepts of maturity and alignment", *International Journal of Product Lifecycle Management*, Vol. 1 No. 4, p. 333, https://dx.doi.org/10.1504/IJPLM.2006.011053.

Bues, M.-M. and Matthaei, E. (2017), "LegalTech on the Rise: Technology Changes Legal Work Behaviours, But Does Not Replace Its Profession", pp. 89–109, https://dx.doi.org/10.1007/978-3-319-45868-7_7.

Cantamessa, M., Montagna, F., Altavilla, S. and Casagrande-Seretti, A. (2020), "Data-driven design: the new challenges of digitalization on product design and development", *Design Science*, Vol. 6, p. e27, https://dx.doi.org/10.1017/dsj.2020.25.

Corrales Compagnucci, M., Forgó, N., Kono, T., Teramoto, S. and Vermeulen, E.P.M. (Eds.). (2020), *Legal Tech and the New Sharing Economy*, Springer Singapore, Singapore, https://dx.doi.org/10.1007/978-981-15-1350-3.

Corrales, M., Fenwick, M. and Haapio, H. (2019), "Digital Technologies, Legal Design and the Future of the Legal Profession", pp. 1–15, https://dx.doi.org/10.1007/978-981-13-6086-2_1.

Dabaghi, K. (2022), "Beyond design thinking and into speculative futures in legal design", https://dx.doi.org/10.21606/drs.2022.307.

Donetto, S., Pierri, P., Tsianakas, V. and Robert, G. (2015), "Experience-based Co-design and Healthcare Improvement: Realizing Participatory Design in the Public Sector", *The Design Journal*, Vol. 18 No. 2, pp. 227–248, https://dx.doi.org/10.2752/175630615X14212498964312.

Fioravanti, C. and Romano, F. (2021), "Legal Design project activities in the immigration domain", in Ducato, R. and Strowel, A. (Eds.), *Legal Design Perspectives: Theoretical and Practical Insights from the Field*, 1st ed., Ledizioni, pp. 227–249.

le Gall, A. (2021), "Legal Design beyond Design Thinking: processes and effects of the four spaces of design practices for the legal field", in Ducato, R. and Strowel, A. (Eds.), *Legal Design Perspectives: Theoretical and Practical Insights from the Field*, 1st ed., Ledizioni, pp. 27–70.

Goodenough, O.R. (2015), "Legal Technology 3.0", *HuffPost News*, 4 February.

Hagan, M. (2020), "Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System", *Design Issues*, Vol. 36 No. 3, pp. 3–15, https://dx.doi.org/10.1162/desi_a_00600.

Hagan, M. and özenç, F.K. (2020a), "Guest Editor's Introduction", *Design Issues*, Vol. 36 No. 3, pp. 2–2, https://dx.doi.org/10.1162/desi_e_00599.

Hagan, M. and özenç, F.K. (2020b), "A Design Space for Legal and Systems Capability: Interfaces for Self-Help in Complex Systems", *Design Issues*, Vol. 36 No. 3, pp. 61–81, https://dx.doi.org/10.1162/desi_a_00604.

Helo, P., Anussornnitisarn, P. and Phusavat, K. (2008), "Expectation and reality in ERP implementation: consultant and solution provider perspective", *Industrial Management & Data Systems*, Vol. 108 No. 8, pp. 1045–1059, https://dx.doi.org/10.1108/02635570810904604.

Jackson, D., Kim, M. and Sievert, J.R. (2020), "The Rapid Embrace of Legal Design and the Use of Co-Design to Avoid Enshrining Systemic Bias", *Design Issues*, Vol. 36 No. 3, pp. 16–30, https://dx.doi.org/10.1162/desi_a_00601.

Jacob, K., Schindler, D. and Strathausen, R. (Eds.). (2020), *Liquid Legal*, Springer International Publishing, Cham, https://dx.doi.org/10.1007/978-3-030-48266-4.

Ji, X. (2019), *Where Design and Law Meet - An Empirical Study for Understanding Legal Design and Its Implication for Research and Practice*, Master Thesis, Aalto University School of Arts, Design and Architecture.

Kim, Y., Lee, Z. and Gosain, S. (2005), "Impediments to successful ERP implementation process", *Business Process Management Journal*, Vol. 11 No. 2, pp. 158–170, https://dx.doi.org/10.1108/14637150510591156.

Kohlmeier, A. and Santuber, J. (2020), "Is the Common Legal Platform a Wicked Problem?", pp. 125–155, https://dx.doi.org/10.1007/978-3-030-48266-4_7.

Koomen, B., Hoogeboom, M. and Schellens, V. (2019), "PLM Implementation Success Rate in SME. An Empirical Study of Implementation Projects, Preliminary Findings", pp. 47–57, https://dx.doi.org/10.1007/978-3-030-42250-9_5.

Kronblad, C. and Pregmark, J.E. (2019), "Beyond Digital Inventions—Diffusion of Technology and Organizational Capabilities to Change", pp. 123–146, https://dx.doi.org/10.1007/978-981-13-6086-2_5.

Laursen, L.N. and Haase, L.M. (2019), "The Shortcomings of Design Thinking when Compared to Designerly Thinking", *The Design Journal*, Vol. 22 No. 6, pp. 813–832, https://dx.doi.org/10.1080/14606925.2019.1652531.

Lewis, J.M., McGann, M. and Blomkamp, E. (2020), "When design meets power: design thinking, public sector innovation and the politics of policymaking", *Policy & Politics*, Vol. 48 No. 1, pp. 111–130, https://dx.doi.org/10.1332/030557319X15579230420081.

Markfort, R. and Zamorski, P. (2020), "AI + EI = Future", pp. 293–310, https://dx.doi.org/10.1007/978-3-030-48266-4_13.

Morgan, R. and Allbon, E. (2021), "Is law really that special?", *Legal Design Perspectives: Theoretical and Practical Insights from the Field*, 1st ed., Ledizioni, pp. 139–158.

Pereira Pessôa, M.V. and Jauregui Becker, J.M. (2020), "Smart design engineering: a literature review of the impact of the 4th industrial revolution on product design and development", *Research in Engineering Design*, Vol. 31 No. 2, pp. 175–195, https://dx.doi.org/10.1007/s00163-020-00330-z.

Ross, G. (2020), "Airlines, Mayonnaise, and Justice: Reflections on the Theory and Practice of Legal Design and Technology", *Design Issues*, Vol. 36 No. 3, pp. 31–44, https://dx.doi.org/10.1162/desi_a_00602.

Rossi, A. and Palmirani, M. (2020), "Can Visual Design Provide Legal Transparency? The Challenges for Successful Implementation of Icons for Data Protection", *Design Issues*, Vol. 36 No. 3, pp. 82–96, https://dx.doi.org/10.1162/desi_a_00605.

Timmer, I. (2019), "Contract Automation: Experiences from Dutch Legal Practice", pp. 147–171, https://dx.doi.org/10.1007/978-981-13-6086-2_6.

Tolvanen, H. and Toivonen, N. (2021), "Episode 32: Demystifying Legal Tech with Colin Levy", *Legal Design Podcast*, 1 December.

Wasserbaur, R., Sakao, T. and Milios, L. (2022), "Interactions of governmental policies and business models for a circular economy: A systematic literature review", *Journal of Cleaner Production*, Vol. 337, p. 130329, https://dx.doi.org/10.1016/j.jclepro.2021.130329.

Zalewski, T. (2021), "Basic Principles for the Effective Use of Legal Tech Tools", *Legal Tech*, Nomos Verlagsgesellschaft mbH & Co. KG, pp. 315–332, https://dx.doi.org/10.5771/9783748922834-315.