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Designing technology for legal work: A case study on boundaries and legal expertise

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Abstract

This article discusses how legal professionals perceive the change in their work practices and work-related boundaries as they participate in the design and implementation of a new information system. By looking empirically at a large-scale IT development project within the judicial system in Finland, the paper contributes to debates on how technology development affects the key elements of legal work and how legal expertise is perceived when designing IT systems for the public judiciary. Drawing from research literature on science and technology studies (STS), particularly literature on expertise and boundaries, the article suggests four main findings. First, IT design is seen as an additional task with clear boundaries between legal and technological knowledge. Second, the embodied aspects of legal expertise are connected to issues of autonomy and individual work practices. Third, IT design and use affect organizational flexibility and boundaries between and within organizations. Fourth, there are changes in hierarchical relations and work divisions between judges and legal secretaries.

Key words

Legal professionals; digitalization; legal experts; IT system design; boundaries

Resumen

En este artículo se analiza la forma en que los profesionales del derecho perciben el cambio en sus prácticas laborales y los límites relacionados con el trabajo cuando participan en el diseño y la implantación de un nuevo sistema informático. Al analizar empíricamente un proyecto de desarrollo informático a gran escala dentro del sistema judicial de Finlandia, el artículo contribuye a los debates sobre cómo el desarrollo tecnológico afecta a los elementos clave del trabajo jurídico y cómo se percibe la pericia jurídica a la hora de diseñar sistemas informáticos para la judicatura pública. Basándose

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en la literatura de investigación sobre estudios de ciencia y tecnología (ECT), en particular en la literatura sobre pericia y límites, el artículo arroja cuatro conclusiones principales: en primer lugar, el diseño informático se considera una tarea adicional, con límites claros entre el conocimiento jurídico y el tecnológico; en segundo lugar, los aspectos incorporados de los conocimientos jurídicos están relacionados con cuestiones de autonomía y prácticas laborales individuales; en tercer lugar, el diseño y el uso de las TI afectan a la flexibilidad organizativa y a los límites entre las organizaciones y dentro de ellas; en cuarto lugar, se producen cambios en las relaciones jerárquicas y las divisiones de trabajo entre jueces y secretarios jurídicos.

Palabras clave

Profesionales del derecho; digitalización; expertos jurídicos; diseño de sistemas de TI; límites

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1. Introduction

Digitalization has shaped the working environment of judges and clerks in the public sector. While information technology has been used for decades, the current technologies promise to create environments that will speed up information exchange and optimize paperless work processes. At the same time, technological advancement has transformed the legal industry, and the distinctive features of the legal profession. Professional identities and work practices are shaped by technology as legal tech enables establishing new firms and ways of producing legal services (Kronblad and Henning Jensen 2023, Mania 2023).

Despite the changes in the legal industry, technology development in legal settings has been difficult (Reiling 2009, Lupo and Bailey 2014). Domain specific knowledge and expertise remain in the hands of judges and technical knowledge is assumed to come from organizations supplying technology. Reasons for the tricky implementation of IT systems vary; unclear visions of information use in the organization, lack of understanding of IT use in general, complexity of the projects, and the 'resisting' culture of law, which tends to safeguard its professional autonomy (Reiling 2009, Doherty 2021). While lessons can be learned from prior experiences on technology development projects, the viewpoints of legal professionals experiencing the design processes remain empirically under-researched. Recently, scholars have suggested that the changing logic of legal industry has led to a separation between the traditional law firms and digital pioneers allowing for a new type of professional identity to emerge which emphasizes adaptability (Webley *et al.* 2019, Kronblad 2020). These findings suggest that the professional boundaries are renegotiated, crossed and even abandoned. Similar studies do not exist in the public judiciary on the relationship between the legal experts and technologies they use. Since the judiciary's use of public power is based on the Finnish constitution, it can be argued that legal professionals in the public sector develop different professional identities compared to those in the private sector, which is driven by profit expectations Legal professionals who work in the general court system are representatives of public power and their work has implications for parties involved in legal processes. For example, prior research on the role of legal expertise in EU policymaking suggests that legal advisers in EU pursue public interest over private interests (Leino-Sandberg 2021). I argue that similarly, those in roles of public use of power tend to hold a more traditional professional identity as they are bound by liability and different values than private sector lawyers.

This article discusses how legal professionals perceive the changes in their work practices and work-related boundaries as they participate in the design, implementation, and use of a new information system. To understand how digitalization shapes the judicial systems and the professionals' work, I look at how technology changes the everyday legal practice in district courts and how professionals make sense of these changes. To this end, I ask *how legal professionals perceive the change in their work practices while participating in information system design and implementation? What kind of boundaries are related to technology design and use?* To answer the questions, I will discuss the change from the perspective of judges who have been involved in an IT project as legal user experts and end users of the system.

The paper's contribution to the legal expertise literature is empirical. By examining a large-scale IT development project (AIPA Data Bank, 2007–2024) in the Finnish judicial system, the paper contributes to debates on legal expertise as well as discussions on how technology changes the key elements of legal work in public judiciary. The case contextualizes the impacts of IT system design and use by looking at the organizational setting of district courts and their practices within the judiciary. At the same time, the paper provides self-understanding to the field as it presents how engaging end users in the design of an IT system affects the professionals and how they conceive their expertise in the process. The case study is based on interviews with 13 professionals (judges, legal secretaries) in district courts, the project office, and advisory board, and supplemented with documentary data.

The article draws from science and technology studies (STS) literature on expertise and boundaries as well as literature on organizations and their boundaries (Abbott 1993, 1995, Star 2010, Collins 2013). I present four themes through which boundaries become visible, and technology defined/made sense of. I also looked at how the growing experiences in using and developing the IT system changed the perceptions of the informants. The boundaries expressed by the informants highlight aspects of legal professionals' core work as they perceive it. I will start by describing the broader macro-level changes technology is perceived to have on the legal industry and legal professionals, followed by research on boundaries and expertise. After that I will present the case and findings of the study.

2. Technology's impact on legal industry and professionals

Recent research has suggested several macro-level outcomes of the increased use of technology in the legal industry. These include the reconfiguration of legal practice, the change in service delivery, and the rise of legal tech firms operating with new business logic (Kronblad 2020, Caserta 2020, Parsa *et al*. 2023). Simultaneously, scholars argue, the legal profession is pushed towards profit maximization and the traditional drivers of the profession, public good and fairness, are feared to lose their standing as legal services become automated resembling off-shelf commodities (Caserta 2020, Hunter 2020, Susskind 2023). Much of the research has focused on how technology is transforming the economic premises of legal practice and, concomitantly, legal profession (Guihot 2018, Hunter 2020). It has been argued that legal practice and services may become disconnected from the legal profession as the use of automation and machine learning systems increases (Hunter 2020). When legal knowledge no longer stays in the hands of the profession, legal services can become commodified, outsourced and routinized leading to what some scholars call "gig economy" (Webb 2020, Yao 2022). At the organizational level, the change has been conceptualized by a distinction between traditional companies (BigLaw) in contrast to new, "innovative" ones (NewLaw) as new technologies provide profit models that no longer seem to require the legal expert (Thornton 2019).

In the public judiciary, in turn, the question of technology's impact is often seen from the perspective of efficient administration (Vapnek 2013, Viapiana *et al*. 2023). Digitalization is aimed at organizational transformation, which in public administration is usually forwarded with expectations of cost-efficiency while maintaining at least some "public values" (Scupola and Mergel 2022). Hildebrandt (2023, 31) argues that the

drawing of boundaries takes place when technology changes law and turns it *into administration when crossing the boundaries between legal judgment and data-driven calculation, and between legal argumentation and the statistics of natural language processing*. As Hildebrandt notes, this opens the question of what technologies are adopted by legal practice (e.g. predictive technologies, assisting technology) and what then follows. Hildebrandt suggests that there is boundary work to be done by lawyers and legal scholars to protect the rule of law from technological managerialism (*ibid*., 65).

The changes in the legal services environment resonate in the narratives of legal professionalism. Webley *et al*. (2019) have characterized three professional narratives, or archetypes, which mesh with technology's envisioned role in legal practice either as augmenting, disrupting or ending the current legal services environment. By reflecting against prior literature on legal professionalism (e.g. Susskind 1986, Christensen 1997) they outline three narratives: *true legal professional*, *technological disruptor,* and *the death (of legal professional)*. In contrast to these, the authors (Webley *et al.* 2019) suggest a fourth narrative, *adaptive professionalism*. It accepts the variety of legal professionalism and stresses the more complex, contextual nature of the professional legal field. Adaptive professionals navigate the legal tech environment with their specific skills and knowledge.

The push toward becoming multi-skilled, boundary breaking professional is a phenomenon observed in information-intensive roles of specialists in several sectors of working life (Corrall 2008, Kirkpatrick e*t al.* 2023). For example, in the field of computer science, people crossing professional boundaries are described as "bilingual", "craftsmen" or "knowledge engineers" (Ribes *et al.* 2019, also, Lohr 2018). In other contexts, one can see "knowledge brokers" who gain experience in facilitating knowledge transfer by crossing institutional boundaries or professionals who have become *hybrids* by incorporating two very diverse professional identities (Pawlowski and Robey 2004, Blomgren and Waks 2015, Lam 2020, Chew *et al.* 2022).

Although the private legal tech industry may have more innovative potential, the public judiciaries still operate with the mandate of public power, and not with the logic of profit. However, there is not much research on the effects of technology design and use from legal professionals' perspective in the public domain although there is literature on the impact of digitalization on legal professionals (see for example Koulu *et al.* 2019, Kontiainen *et al.* 2021 on the impact of digitalization on the roles and skills of judges).

While Webley *et al* (2019, 10–11) state that professional archetypes and narratives serve as legitimation for the profession, they admit that these narratives are ideal types and as such can be inaccurate for specific legal contexts. Their suggestion for an adaptive professionalism draws partly from work on adaptive expertise, but also from seeing professional knowledge essentially problematic (see Collins and Evans 2007). Legal professionalism is thus connected to legal knowledge, which is a core feature of legal expertise. However, this expertise is related to its surroundings, community and organizational environment in which new technologies are designed for. One might expect to encounter the archetypes described in legal literature in practice, underscoring the need for empirical studies. Before moving to the case study, I will discuss legal expertise and boundaries in technology design from the perspective of science and technology studies (STS).

3. Legal expertise, boundaries and technology design

Alongside the future professionalism debate there is an interrelated discussion on legal expertise and how that will change as new technologies are implemented. A large part of legal expertise literature has focused on cognitive science, reasoning, and lawyering expertise as problem-solving (Blasi 1995, Glöckner *et al*. 2013, Jiménez 2024) whereas in science and technology studies (STS), scholars have focused on how law is gatekeeping expertise and determines who is regarded an expert or how expertise is performed in the court room context (Lynch and Cole 2005, Seear 2017, Faulkner and Poort 2017). Therefore, many STS studies have focused on scientific and technical expertise and its construction through knowledge claims. I suggest that by looking at legal professionals engaged in technology design we can see a different type of expertise at play, through which we can consider the professional narratives and archetypes described by Webley *et al.* 2019 empirically as well as look at how legal work is made sense of when designing technology within the public judiciary.

Korkea-aho and Leino-Sandberg (2022) have noted that legal scholars have been slow to analyze their own expertise. This absence of research, they argue, has led to ignoring the assumptions behind legal expertise, which is often considered technical, non-political, and non-partisan (see also Coggon 2024). However, at the same time legal professionals are thought to have a strong professional identity and boundaries because the profession itself is embedded in professional/institutional logics accompanied by historical patterns of practices, beliefs, rules, roles and values that guide the professionals and socialize them into the profession (Saks 2012, Kyratsis *et al*. 2017, Flood 2019, Francis 2020).

I approach legal expertise as a specific question in the context of IT design, in which the legal professionals (judges and legal secretaries) are included in the development of a new IT system. This approach excludes the debates on how to make IT design "lawful" with the help of legal expertise (Dickhaut *et al*. 2024), that is, how the developed systems comply with the law. I also look at the work practices and district courts as organizations that are in fact rather dissimilar regardless of them being within the same environment and under similar administrative pressures. My focus is not solely on roles and skills of users although this aspect is present in the analysis. In the case study presented here, legal professionals were perceived and included in the design as end users of the new IT system. Therefore, they were supposed to participate in IT design as experts of everyday legal practices and work, not only experts of normative, legal knowledge as such.

Engaging legal experts in the design of an IT system, relies on the assumption that these experts can provide knowledge which helps the design process, that is, the translation of legal practices into standardized technical code and routinized workflows. In the cases of legal technology design, user involvement is often mentioned as a critical issue and suggested as a solution for developing a well-functioning system (Reiling and Contini 2022). However, research has also noted that the user involvement has many definitions and the ideal of engaging users in certain phases of the development project is more complex than anticipated and user contributions are many times overlooked (see Kujala 2003). Furthermore, IT development projects have been known to fail repeatedly, and literature has shown user involvement to be one of the weak points (Schmidt 2023, 5).

Acknowledging the boundaries between domains of expertise is important. Boundaries can be structural or systemic organizational boundaries, but also internal, profession

related (see Kerosuo 2003). Boundaries often affect the narratives experts hold about themselves. Professions structure and diffuse expertise to solve social problems, but at the same time expertise tends to be understood as mental or intellectual possession (Pakarinen and Huising 2023). In STS expertise is considered as a property of groups, a social process, which means that the law forms a domain of expertise of a particular kind (Collins and Evans 2007, Collins 2011). Legal knowledge and expertise entail a complex set of practical, embodied, tacit and procedural knowledge, which is situated in diverse (organizational) contexts and can be described as relational (Sandefor 2015, also Pakarinen and Huising 2023). When information systems are developed for public judiciaries the increasing standardization of legal procedures and work-flow re-engineering presents an underlying question of how to ensure legal expertise in the design process. It also opens the debate about the specific features in the domains of technology and law but also of what or who is in between (Ribes *et al.* 2019).

Becoming an expert requires immersion in the domain in question and the acquisition of tacit knowledge through socialization processes (Collins and Evans 2007, Collins 2018). This means that much of the expertise gained is tacit, related to discourse, interactions and learning to navigate in the social context of the given work (Sandefor 2015, Caudill *et al.* 2024). However, in technology design, to be able to formalize the knowledge and features of a domain, boundary crossing expertise is often needed. Sometimes this is referred to as translation (Crisci and Romanello 2023), sometimes as building a trading zone, an intersection of discursive and material practices, between the different domains (Galison 2010) to ensure cooperation and a shared language between actors and fields otherwise detached from each other.

In an IT design project, the legal professional therefore would have an opportunity to become a hybrid - or an adaptive professional as suggested by Webley *et al.* (2019) depending on how deeply they are involved in the project. It is also probable that those involved in the design of an information system may see themselves as experts differently, at least when they are involved in making decisions in the design process. STS scholars have observed that one can acquire *interactional expertise* by being immersed in and learning the language of an expert domain without having expertise in practice (Collins and Evans 2017). Understanding expertise as relational and embedded in interaction with its socio-material practices suggests knowledge circulates and is situated in contexts which are then mediated by technologies (Crisci and Romanello 2023). Hence, while technology pushes for changes in skills that are needed to carry out legal work, it also impacts the meaning of work (Kontiainen *et al*. 2021). Focusing on the context and complexity of the legal environment, one can assume more variation in terms of the experienced core elements of practicing law and the experienced boundaries. Next, I will describe the case and research design, after which I will present the findings.

4. Case and context: The AIPA Data Bank[1]

The AIPA Data Bank project was initiated in 2007 by the Ministry of Justice in Finland who wanted to develop the work practices and case management systems of the public

[1] Currently, the general courts in Finland include 20 District Courts, 5 Courts of Appeal, and the Supreme court. Most of the cases are processed in district courts, which is also the focus of this study.

prosecutor offices and general courts. In 2010, a working group suggested developing a new information system as part of the judiciary's change management and reorganization. The aim was to minimize paper use, increase efficiency and quality of decisions and information transfer by switching to digital working methods/workflow in law use. The working group criticized the existing judicial IT systems for not being developed holistically to cater to the needs of interorganizational information transfer.

The AIPA project created an information system for the offices to unify the operational processes of case and document management, enabling cross-administrative electronic cooperation with other authorities, such as the police. Prior IT systems had become outdated, and a unified system was envisioned to encompass the information transfer of the whole judicial system and its stakeholders. An important part of the project was to involve end-users in the design of the new information system from scratch. When the project office was established in 2012, user-involvement became a leading principle in the design process. This engagement included several working groups to define the work processes, judges becoming product owners, and legal professionals working as AIPA contact persons and trainers within the public judiciary.

The legal expertise of judges and legal secretaries was envisaged to ensure the relevant technological choices from the viewpoint of legal practice and end users' needs. At the same time, developing the information system was connected to organizational change as working practices were supposed to ameliorate. This reflects the assumption that knowledge of the experts can be extracted and debriefed, that is, transferred to the software as a conclusion or rule, and that the legal expert can make this conclusion, that is, the expert is aware of this knowledge (see Davis and King 1975, also Pakarinen and Huising 2023, 6-7).

4.1. Research design, data and analysis

The research is based on a qualitative research design and the case provides empirical enquiry and observations on how the users and developers of the information system made sense of their work and the role of technology as they engaged in the development and implementation of the new IT system. By design the study is a single retrospective case study, providing an in-depth exploration on IT design within a real-life context of the Finnish public judiciary (Rowley 2002, Yin 2009). As a case, the AIPA project (2007 – 2024) forms a unique, yet complex setting for studying the experiences of legal professionals as they participate in IT design and use.

The primary data for the article includes semi-structured interviews with 13 informants. Of those, eight were end users (six judges and two secretaries) from six different district courts. Two informants represented the project office and two were connected to the project office as a product owner and member of the advisory board. One participant had a technological background only but had years of experience in technology development projects within the judiciary. Table 1 shows the information about the informants, their organization, and professional role. The informants have worked in the AIPA design process in different positions, such as project leaders, testers, trainers, organizational or regional core trainers, and piloting. These roles have been indicated in the table.

TABLE 1

Informant	Organization	Professional role	AIPA role
H1	District court, Helsinki area	Judge	Project leader at Helsinki district court (piloting, testing)
H2	District court, Lappi area	Judge	Agency trainer, Head of AIPA working group at district court, piloting
H3	District court, West Uusimaa area	Judge	User
H4	District court, Kanta-Häme area	Secretary	Tester, Trainer, Working Group member for district courts and courts of appeal
H5	Prime Minister's Office	Chief Information Officer	Member of advisory board (pre-design stage, procurement and implementation stage)
H6	Project office	Judge	Head of development, product owner 2014-2019
H7	Consultancy	Usability expert	Usability expert, leader of the user interface working group
H8	District court, Kainuu area	Judge	Tester, Agency and regional core trainer
H9	District court, North Carelia area	Secretary	Network and Agency trainer
H10	District court, West Uusimaa area	Judge	Interface working group 2007
H11	District court, North Carelia area	Judge	Piloting, Agency trainer
H12	Project office	Judge	Project leader
H13	Project office	Coordinator	Coordinator

Table 1. Informants and their role in AIPA.

As part of the semi-structured interviews covering the whole duration of the AIPA project, the informants explained how they perceived the changes in their work when they reflected on the design and implementation of the new information system. I paid attention to the passages in the interviews in which they talked about collaboration, knowledge and expertise when participating in design and the changes over time. Through these expressions I looked at how boundaries were either directly addressed (expressions of limits, boundaries, professional and organizational boundaries) or otherwise expressed, as in talking about maintaining, questioning or transforming the qualities of work activity (see Kerosuo 2003). In addition, I looked at how the new system was perceived in relation to the informants' current work.

While I looked for the expressions on boundaries, I analyzed the interviews by using reflexive thematic analysis (Braun and Clarke 2019, 2023) and by coding the interviews accordingly. The analysis had loosely six phases as reflexive thematic analysis means (1) *familiarizing* with the dataset, (2) *coding*, (3) *generating initial themes*, (4) developing and *reviewing themes* before they were (5) *refined and named*, and finally (6) *written down* as an analytic narrative (Braun and Clarke 2019). Thematically, I identified four themes through which the informants made sense of the design process, its outcomes and the meaning of the new system for their work. These themes show boundaries expressed by the informants but more importantly, through these expressions you can see how using technology relates to legal work and its organization, and what it means for the legal experts to be involved in the design. I look at the boundaries through the following themes: *technology development as an extra job, embodied legal expertise, organizational flexibility, and shifting boundaries of work division*. The first theme is related to the design process whereas the three others reflect individual, professional and organizational boundaries related to expertise and technology use. The las theme describes the boundaries between professionals and the work division within the district courts. Next, I will discuss these themes in more detail.

5. Findings

5.1. Technology development as an extra job

New information systems are often reflected against the prior ones by comparison between different technological systems already in use (legacy systems vs new system). Therefore, there are expectations for new technologies and often they are seen as augmenting the legal professional's practice (Armour *et al.* 2022). When engaged in technology design, however, I noticed that many legal professionals were "doing IT" as a side job, assisting and helping data analysts and developers from the perspective of legal processes and concepts. They also perceived their role in the AIPA project as teachers, trainers and practical help within the organization.

In the early phases of the project legal professionals described themselves as providing expert knowledge on legal procedures and terminology to contribute to the design. Six informants also had the role of AIPA trainer, and their image of this position was quite straight-forward. They saw themselves as teachers and practical advisors in questions related to AIPA, but also that this job was something extra:

> I think that it has been one task of the agency trainer from the start. When AIPA came the agency trainer simply had to teach people how to use it. (…) In the beginning, when PetitionAIPA came, I felt I had to study a lot in my own time. Because this is not only training, but I have my normal work here as well. (H9 secretary).

Referring to "normal work" and "own time" suggests that the development project was understood as something extra requiring more time. While IT systems were already embedded in the daily work, the informants described the AIPA trainer position as a task among others. Even those who had been involved in the early stages of the AIPA project, for example as working group members, described their involvement as an additional task:

> Since February this year, I have been holding my own position at the Länsi-Uusimaa District Court and I am our in-house, now that the criminal AIPA will be introduced in the spring, I am the AIPA Project Manager. I work full-time as a district judge. This is just an extra job for me. (H10 Judge)

Overall, engaging with IT development was an additional task, which of course depended on the phase of the AIPA project. For example, testing in the last phase of the information system's implementation consisted mainly of reporting the bugs and shortcomings of the system, which was considered rather unidirectional notification work from legal professionals to technological developers. Training or working as an in-house project manager is a position of a mediator; new information and knowledge related to AIPA goes through them. This may suggest a form of knowledge broker when the role and position of the AIPA contact persons and trainers so required (Currie and White 2012). Nevertheless, many considered it as a task among others.

In terms of boundaries, seeing technology as an additional task demarcated the boundary between legal expertise and technological expertise. This was seen not only by highlighting AIPA related work as an extra task but also in the quotes explaining the difference between what AIPA meant for the judges and for the tech developers. A member of the advisory board stressed that in the meetings where the development was planned the system provider and IT architects talked about the technical aspects of the system, but it seemed that the legal experts talked about something else: They talked about the legal procedure and law as they knew it. This difference in the mindset was explained by different vocabularies and ways of thinking, but also in practice:

> People who are IT oriented see in their mind that this is how it goes, and this is how it will look like, and the process is like this. People who have not been involved in IT system design only understand it when they see it in practice. (H5 Chief Information Officer)

The way the informants spoke about their participation in the design, especially in the early stages of the project, reveals that legal expertise was not easily conveyed to the designers. It also suggests that legal professionals brought to the table their understanding of what is important from the perspective of legal practice and law. The legal professionals were just not used to the technical domain's language and vice versa. For those who were more involved in the AIPA project, for example as product owners, this boundary was more visible. It also caused more distress to some. For example, one of the judges had a computer science degree and was therefore drawn to participate in AIPA training network. This judge did not perceive any problems in terms of

professional identity, in contrast, it was clear that IT and legal work meshed. Another judge, however, had conflicting feelings: "It was like learning a new language or culture" (H6 Judge). While prior literature has noted that in fields with high institutional complexity hybrid professionals become "soft actors" capable of mediating and constructing solutions within the complexities (Blomgren and Waks 2015) the context of a project may not be long enough to produce such outcomes.

In a way, a hybrid role was imposed on those who were working within the project office, even though they had voluntarily participated in the design project. In the end, they did not assume the role of hybrid professional after they left the AIPA project office but returned to their "original" professional role although with cumulated technical expertise. In the words of Collins and Evans (2007) one might describe the legal experts as acquiring the language of technical expertise while not gaining the necessary expertise in practice, that is, they gained interactional expertise (see also Epstein 2011). All the informants can be considered to gain a sort of interactional expertise as they too were aware of the technical outcomes and were able to critically examine the design process.

5.2. Embodied and situated legal expertise

The second theme included various ways to operate around technology and draw boundaries between the core of legal practice and its tools. While many judges perceived that quality was the most important aspect of their work, for some judges it was not related to the information systems at all. Rather, quality meant that information was transmitted fast and in a reliable way, but also that there was enough time for preparation, for example when going to court. From that perspective IT systems were trivial and considered merely as tools and the boundary was created between the domain of law and the technical domain through defending legal expertise.

As one judge said: "Systems rarely affect the quality of one's own work, at least not that I feel they have so far. It's largely the work situation and how much time you can spend at any given time" (H11 Judge). The quote indicates a boundary between having legal expertise regardless of technology use. The volume of cases and how to manage them was of the essence and as such in the personal realm of each judge to manage. It also highlights the work situation as a significant factor. The quote can be interpreted to have a defending expression that expertise does not come from how well one uses technologies. Rather, quality is related to a judge's way of working. Thus, the professional role of doing quality work was disconnected from technology, which was not a factor in handling the work situation. Given the prior literature on professionals' autonomy as a means to control their work (Pakarinen and Huising 2023, also Koulu *et al.* 2019, 188), it is not surprising that the informants stressed the autonomy and discretion they have.

The autonomy and physical aspects of legal work were noted by the advisory board member who reflected on the design process and ways of working:

> And then we come back to defining that 'we have always sat at this table so that the second oldest is here on the right side of me, so this system must be made so that it is then on the right side of the button, which is pressed (…). And judges have so much autonomy that if they state that I have always written these decisions with a pencil so that is what they do in the future.' (H5 Chief Information Officer)

Similarly, informants expressed variation in individual practice that is either affected or unaffected by technology. Boundary setting protects the domain of the judge and their way of working, autonomy and expertise:

> Then the way you structure the material cannot be the same for everyone, because everyone structures the huge mass of documents, which we have in practice, or the mass of information, so everyone deals with it in their own head so differently. So, in my opinion, you cannot go into how everyone organizes the document mass in their own head. But in AIPA it is in all, it is uniformly. (H8 Judge)

While the previous quote describes differences in judges' work it does not translate into resistance toward the AIPA system. AIPA is just a tool. Also, another judge's observations about the new AIPA system in court room use were different. While agreeing that "quality means that we provide a consistent and good service in an expeditious manner" (H 10 Judge) this judge considered the information system crucial in delivering that quality. The judge had experience in piloting the criminal case AIPA and noted that the system was too slow, which would mean that it cannot be used as intended in court session. To explain why AIPA was not working the judge referred to the boundary between the domains of technology development and law:

> It seems to me that the system should have been developed more on the terms of the law user and his session work, rather than on the terms of the system and data protection and data security and system development. (H10 Judge)

The critique here was directed at the technology developers, but it also makes visible the complex dimensions of legal work; it is one thing to use the IT system in court than in the office and this qualitative difference, or boundary, was somehow not conveyed to the development process. While in the office, the myriad ways of working were seen as part of individual preferences and autonomy for the judges. In courtroom sessions, the practice itself is considered different. Creating space for carrying out one's work was understood as the core of the legal work of the judge, that is, autonomy. The common practices were related to how judgments were written and presented, but "how to get there" was left to judges. Thus, individual working methods were not related to technology per se, but to the material and embodied practices:

> I don't think of it as being the fault of AIPA, so to speak, that people have different ways of working. I believe that people have always had different ways of working. Some people have liked to make notes, print out a workpiece for themselves, write with a pencil on the edge of the page, underline, cross out, do this kind of word processing by hand. And some people have taken the traditional paper and written with a pencil. They haven't made any notes. They haven't had to have any workpieces. (H8 Judge)

Defending the boundary of how to do one's work, i.e. whether to use technology for organizing or not, seems to stem from the strong professional ideal of discretion and autonomy of the judge. An interesting notion, however, was the physicality of work, which was connected to the discretion of the judge and even to the embodied experience and expertise they had gained, as seen in the quote about dealing with the information *in one's head*. Similarly, references to the use of pen and paper as a choice of how to carry out one's work showed the embodiment of autonomy. Legal expertise still has its materialities in one form or another and in some cases, autonomy is embodied in the choice of tools.

5.3. Organizational flexibility

The third theme focused on organizational flexibility and working around and with the new IT system. The boundaries expressed by the informants related to organizational boundaries (either within one organization or among different organizations) and creating work practices that ensure the functioning of the district court with the help of the new IT system. Compared to the individual work practices and the autonomy of legal professionals, organizational flexibility stressed reliability of district court as a public organization. Legal work has long circulated around paper and digital technology is supposed to help diminish the amount of paper. Improved efficiency was clearly anticipated in the AIPA project, but organizational change in terms of practices depended on the district court in question to organize its work.

Ensuring their organization's perspective in the design motivated some informants as it presented an opportunity to make a difference:

> I volunteered because I want to learn it. And of course I want our house perspective on it. Because this is a bit different [district court], it's the biggest [district court] in Finland, bigger than any other. So, we have our own big problems and big problems if AIPA doesn't work or fails. This is not working on the criminal side. When it comes. And the second is that I have been given time to do this. So, I have a deputy doing half the sessions. So here in the house we are resourced. I have tried to make use of the whole AIPA project. Because why not, when you don't necessarily have that opportunity elsewhere. So that's why. And at the same time, you learn yourself. The better you get at it, the better you notice the things you need to focus on here. (H1 judge)

Organizational differences create various contexts and situations for IT use, which echoes the autonomous position of district courts. Flexibility was also an organizational question because the prior IT systems had made work too complicated. One way of making sense of the role of technology in legal work was stressing the affordances of technology. Certain aspects of technology free the professionals from paper and office space. This flexibility was considered essential both from the perspective of the individual and the organization. In some sense, flexibility ensures both autonomy and organizational function. Flexibility was related not only to online or remote work but also to shared work practices and to the shifting boundaries between judges' and legal secretaries' work division as explained later in more detail. While standardization can be considered as a restricting factor in legal work and to shift decision-making to the level of software development (Contini 2020), it also gave an opportunity to create shared rules and practices, which are crucial from the perspective of changes in personnel and case management of the given organization. Outside of standardized AIPA practices, there is room for flexible maneuvering.

Standardization and digital work practices such as electronic signature free people from the office space but also give organizations an opportunity to keep certain parts of the work proceedings fixed even though personnel would change. This was particularly important as one informant explained:

> We also need to develop some kind of common routines, agreed rules and practices, because we must always think in such a way that if a secretary or a judge does not come to work tomorrow or ever again, the cases will not remain somewhere in the system,

> but that someone will always be able to continue. Where has the previous one left off, if such a situation arises. (H9 Secretary)

Flexibility of shared working practices thus ensures reliability and continuity of work in the organization, but only if shared practices are thought of in advance. Otherwise, as the quote above suggests, the cases are stuck inside the system. Standardized working practices, when they lead to shared guidelines and agreements, provide "social technicalities" for people to continue working even when facing personnel shifts. As such, being able to anticipate and prepare in advance increases flexibility of the organization. Knowledge and expertise are thus embedded in the collective professional understanding of the work and creating practices:

> For example, there was a situation where we went to attend a case for a partial judge with a three-judge panel in Oulu. In this situation, it made sense to have a separate folder stored here on our own network drive, because we all have access to each other's network drive folders. We thought it made sense, and the secretary can get there, that we are now not operating on the AIPA side in practice. (...) You must remember that we have a really small district court, that we adapt to everything. We can, among ourselves, when we agree on something, so it is very fast. (H8 Judge)

Flexible professionals, as well as flexible organizations, base their work on shared guidelines agreements, and standardization of work practices which I describe "social technicalities". These social technicalities meant also anticipation and being prepared, and they reflect the relationship between individual legal professionals with the judicial system. The boundary between the organization and "outside" world is perceived with the help of the IT system. In this sense, legal professionals see themselves as guardians of justice (public values). To some extent, flexibility can be interpreted to ensure autonomy. Shared practices mean that knowledge acquired is thus a feature of the organization and it is transferred between the professionals within that organization. There is similarity with the notion of adaptive professionalism (Webley *et al*. 2019) here, but the difference is a systemic perspective of the organization. Next, I will discuss how these new practices affect the work division of the district courts.

5.4. Shifting boundaries and work division

The previous theme described the flexibility of the whole district court organization. There was a related theme which emphasized the work division on a more detailed task level. The work division between legal secretaries and judges was both an issue of individual work practices and negotiated context-specific situations within the organizations. The first observation by the informants was that while the AIPA system was designed to transform the general court system into digital work practices, it affected the legal secretaries more than judges. Hence, the division of work between the legal secretaries and judges was a negotiation of which tasks would now belong to the clerks and which to judges. As such, this theme included more reflection and expressions on the actual change of work. The negotiation made visible a) the meanings of what kind of work is "reasonable" for a judge and b) the IT systems' role for drawing the line between work division.

A concrete example was the division between office work and court room session, which were seen qualitatively different from each other: "It's different in that it's more about creating and editing content in the office. In the session it is more about using the

information that is already there." (H12 Judge). Also, the common experience of the legal secretaries and judges was that they had not found a good way to use the system yet. This was probably because the system was still being developed. However, some judges suspected the use of the system would lead to redefining the work division and actual changes in their work: "I believe that in the long run I will do more and more traditional secretarial work, and that the work division between me and the secretary will change" (H10 Judge).

Organizational flexibility was one reason for looking at the individual work practices and collective ones, but at the level of everyday work tasks, however, individuals had to change their possibly hierarchical way of thinking:

> Here we are used to secretaries making templates for judges, for example simple decision templates. Of course, the judge will modify them. It is an open question how much we can make judges do these. What is reasonable, because only judges can make the judgement. But what is reasonable in a certain kind of a system? It will change things; people will have to change this hierarchical way of thinking (...). Some see it as a decline in authority. (H1 Judge)

In addition to possible decline of experienced authority, there is leeway in work practices. These overlap with the previous theme of organizational flexibility and highlight the possibilities of working around technology. For example, one judge described how the work done by legal secretaries had diminished and affected the work division between judges and secretaries. This judge also stressed that they have shared practices that ensure that

> secretaries do not have to do different kind of work among themselves (…) preferably not in such a way that someone's preference causes different working methods for secretaries, for example. (H8 Judge)

However, later the same judge described how they asked for their secretary for a working template that other secretaries do not have to do. This contradiction, as explained by the informant, was based on an agreement between the judge and the secretary.

The boundary between the judges' and the secretaries' work was rather unstable, pointing out how boundaries are complex and often negotiable (Kerosuo 2003). AIPA was in fact aimed at diminishing secretaries' work in the first place, but as in some courts secretaries work in pairs with the judges it was in fact the judge's skills that affected the work division. According to one secretary the judges had different levels of skills in IT:

> The secretary may have to do something for one judge and then another judge may do it themselves (…). But the type of work that transfers to the judges is checking the distributions. They have to do that, because with secretary's rights you cannot do that in the system. (H4 secretary)

As the quote above clarifies, technological choices affect what kind of work can be done by the secretaries and judges as the system design with its permissions and limitations to perform tasks forces certain tasks on judges. Who is given access and rights to functions has been in fact decided earlier although detecting who made that design decision cannot be traced.

6. Conclusion

Legal professionals have experienced increasing pressures to operate in the new environment of legal technology. It has been argued that the legal industry has changed and produced new types of legal professionals, who need to be more adaptive because of economic and technological changes (Webley *et al*. 2019, Kronblad and Jensen 2023). However, there is not much empirical research on legal professionals as participants in technology design processes. This article has looked at a specific context of IT system design, The AIPA project, to study the changes experienced by legal professionals involved in the design process. In the beginning I asked *how legal professionals perceive the change in their work practices while participating in information system design and implementation? What kind of boundaries are related to work, technology design and use?*

Based on the findings, legal experts often consider IT as a tool, but they make distinctions based on how they see the role of that tool in relation to their legal expertise and legal practice. These distinctions are based on how legal professionals express the boundaries related to their work and IT system design and use. Presenting four themes dealing with boundaries, the findings portray legal professionals making sense of the design and use of the AIPA system. Table 2. illustrates the findings by presenting the theme, boundary and what happens at the boundary.

TABLE 2

Theme	**Boundary**	**What happens at the boundary?**
Technology development as an extra job	Between legal knowledge and technological knowledge	Mediating, providing and exchanging knowledge
Embodied legal expertise	Between embodied legal expertise and technology use	Defending personal professional autonomy
Organizational flexibility	Boundaries within and between organizations, location, physical space	Sharing and maintaining organizational functions and public values
Shifting of work division	Boundary between secretarial and judge's work	Negotiating professional roles

Table 2. Findings.

The first theme emphasized seeing IT system design as an extra task, in which the legal experts' role was seen as trainers or contact persons. Hence, there was a clear boundary between legal and technological knowledge. The second theme highlighted the embodied aspects of legal expertise, and the boundary was expressed as an issue of autonomy and ways of working. For some this meant that legal expertise was a characteristic of and possessed by an individual judge (Pakarinen and Huising 2023) whereas others perceived technology as a crucial element in legal work. The third theme, organizational flexibility, stressed that creating shared organizational practices and rules of using AIPA increased flexibility of the district court as an organization and secured the public function it has. The boundary was hence organizational but also location specific as technology freed professionals to work remotely while maintaining the

quality work. The last theme related to work divisions and how they might change the hierarchical relations between judges and legal secretaries.

What do the findings tell us about legal expertise and legal professionals' role in technology design? First, the findings show where the boundaries are when legal experts engage in technology design and what types of boundaries are expressed when technology is used. In the AIPA project legal experts were involved in the very beginning. Many legal professionals, however, perceived themselves as experts who help the tech developers with legal terminology or as teachers of the new system suggesting a boundary between the legal and technical domains. However, they could be described as mediators within their own district court organization (Currie and White 2012). As the project proceeded the participants' knowledge of the IT system grew, making them also more critical toward the system. Being critical, however, does not equal resisting technology use. Rather, it makes the legal experts realistic about the functions of the new IT system. In the early phases of design, they provided legal expertise, but they can enact as "quasi-experts" when getting more familiar with the new technology. They used interactional expertise combining their knowledge on legal procedures with growing understanding on technology design (Collins and Evans 2007, Seear 2017).

Second, while prior literature has suggested narratives of adaptive legal professionals who enhance their skills and maneuver in the changed technological environment (Webley *et al*. 2019), the work in district courts included more variation in the professionals' approaches towards technology design and use. The boundaries expressed by the informants were situational, negotiable and context specific. Although the findings offer a perspective into the public judiciary and legal professionals as participants in legal tech design, it also highlights the need for understanding technologies and IT systems as something more than tools: rather, they are a part of judiciary's organizational structures, work practices, and legal infrastructure (see Byrne *et al*. 2023).

Third, legal expertise in the context of IT system design tends to narrow down to an additional task in providing help or training to introduce the system to other users within the organization. Alternatively, legal expertise, if seen as something easily "extracted" from the legal professionals, leads to a view of professionals being a help to the technology developers. It opens the question of how the design process can immerse both legal and technology professionals in each other's domains to better understand the context in which the technology is to be used. In any case, the boundaries expressed by the informants showed a much more varied and complex set of skills, interactions and situated decisions and uses of the IT system than originally envisioned in the early phases of starting the development project.

As with all studies, there are limitations to consider. This study is based on a limited number of interviews in six district courts in Finland. A larger number of interviews from all district courts would have strengthened the study especially considering the use of the new system. While the results have limited transferability, the case provides concrete, valuable knowledge to studying legal professionals as participants in technology design.

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