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Koulu, Riikka

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In Search of Living Law: How Should We Design for (Digital) Legal Interaction?

Riikka Koulu¹

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Abstract

In his work on human-centric design, urban theorist Christopher Alexander elaborated design patterns as a way to conceptualise and practice urban design together with its users. Alexander aspired to design “living places”, physical spaces created by the social interactions that take place there. In this article, I use this lens to uncover the “living places” of law, and what might be the “living law” that legal design patterns could capture? I explore law as a product of design, and design as an activity, an activity that produces the many material manifestations of law. These manifestations may be digital or analog, such as case files on paper or interactive online forms, courthouse architecture or institutional webpages, courtroom furniture or dispute resolution platforms. Although often overlooked in legal scholarship, such material manifestations shape legal interaction, privileging certain forms and actors over others. They reflect values and ideologies as well as legal concepts and doctrines. By thinking about law through *legal design patterns*, living law becomes defined through interaction. I explore this connection between spatial and material arrangements and legal interaction they manifest and enable. This analysis makes it possible to compare law’s old material manifestations with its new places and things that rely on digital technologies. This shift of focus to legal interaction enables us to ask what legal interaction is, how it should be designed, and by whom, reconceptualising the dynamics of law, technology, and design. Ultimately, legal design patterns may provide us with conceptual and methodological tools for designing user-centric justice.

Keywords Law · Design · Design patterns · Living law · Interaction · User-centricity

✉ Riikka Koulu
Riikka.koulu@helsinki.fi

¹ University of Helsinki Legal Tech Lab, Helsinki, Finland

1 Thinking About Law and Technology Through Legal Design Patterns

Digital technologies have become ubiquitous in our everyday lives in modern Western societies. Public institutions, such as courts and administrative bodies are no exception to such socio-technical change, although digitalisation is a much broader societal phenomenon than legal practices. During recent years, many aspects of regulatory attention and research on law, technology, and society have focused on the possibilities and limitations of technology regulation in governing and shaping the design and use digital technologies, particularly artificial intelligence systems (e.g., Veale & Zuiderveen Borgesius, 2021; Koulu et al., 2023).

In this article, I hope to add to the growing socio-legal scholarship by discussing technological design as a process and activity that is fundamentally political and contextual. In doing so, I hope to decentre technology, the end-product of design, as an object of scholarly attention, and instead I shall focus on humans, and on the experiences and interactions that make designed objects come to life. This approach does not aim to critique or go against the scholarship on technology regulation, rather it complements it by elaborating design as activity.

Technological design has also taken on a fundamental importance for regulation. The EU's chosen regulatory strategy on digital technologies, exemplified by such milestones as the General Data Protection Regulation (GDPR, 679/2016) and the upcoming Artificial Intelligence Act (AIA, COM/2021/206), builds on horizontal rules and principles that shape technological design processes. The architectural choices of these legal instruments reflect a growing acknowledgment that digital technologies are designed—and that by imposing rules for the design process itself we can effectively shape the implications of digital technologies. The notion is enticing: technologies can be governed by governing their design. Such design is the process in which legal rules and principles are implemented in technology (Koulu, 2021). There are many examples of this. GDPR Article 25 imposes 'data protection by design and by default', obliging data controllers to observe data-protection principles when planning, designing and developing data processing activities. In turn, the AIA introduces many requirements for designing high-risk AI systems, including the obligation to ensure effective human oversight when designing and developing these systems, and their appropriate human-machine interface tools (Art. 14).

This is to say that technological design seems to be at the core of technology regulation. The design process becomes increasingly regulated but at the same time, through these requirements, design becomes the means for legal protection. Many of the AIA's provisions can be read as design requirements, e.g. risk management, quality of training data, technical documentation and human-machine interface tools through which human oversight is implemented into high-risk AI systems. These new provisions regulate what kind of data may be used in training, testing and validation. They regulate what user interfaces should look like and what functions they should enable so that a human user can effectively oversee the workings of the system and safeguard fundamental rights.

On a higher level of abstraction, technology regulation is one example of the co-constituting relationship between law and technology. On one hand, technologies and

technology markets are shaped by it. On the other, technology regulation changes law by introducing new concepts and modes of working (Koivisto et al., 2024). As others have shown (e.g. Cohen, 2019), law shapes digital technologies through technology regulation but is simultaneously shaped by them. Here, I explore the latter aspect of this dynamic reciprocity between law and technology, which can also shed light on the former.

Furthermore, effectiveness of (and compliance with) technology regulation relies on successful translations between law and technology. I use the term translation loosely to refer to the need to combine legal and technical knowledge and the ability to move from one knowledge domain to the other. Such translations are involved when legal values are implemented into socio-technical systems. For example, technology regulation builds on the ability of designers and developers to assess the potential impacts and risks to the fundamental rights of the systems being designed. Regulation imposes structures, tools, and processes to these ends, such as data governance processes and fundamental rights impact assessments. In order to ensure that the developed system complies with the regulation, the people involved in the design need to a certain extent to understand the regulation. However, assessing the fundamental rights implications of a specific AI system requires some understanding of what is included in fundamental rights, which rights might be affected, and how. Most lawyers know the plurality and complexity associated with fundamental rights jurisprudence, the possibility of collisions between various rights, and the associated interpretative difficulties. While such an understanding is available for most lawyers, it is unclear to what extent a non-lawyer such as a designer possesses such legal knowledge. It is likely that in many AI development organisations there is a lawyer who is responsible for assessing fundamental rights impacts, but this does not avoid the translation problem, it merely shifts it to the inter-personal level. Lawyers do possess legal knowledge but they may need to rely on designers for sufficient technical knowledge about the system's workings.

These translations take place within the design process, this leads us to focus on design itself. Although the importance of design is broadly acknowledged in relation to digital technologies, this is not always the case with other technologies. By describing design as a human activity that has always contributed to the form and function of law—and digital technologies as only one example of artefacts produced through such activities—I hope to provide an awareness of the possibilities and limitations of design regulation. Furthermore, by bringing together research on law, technology and society, user-centric design, and design patterns as a way to implement such user-centricity, I wish to open up new ways to discuss how law in its many manifestations could be rethought and redesigned, so that digital technologies might improve and not impede people-centred justice.

To this end, I employ legal design patterns as a theoretical lens. Legal design patterns help us to conceptualise design as a process and a product, and shed light into the many ways in which law is, has been, and could be designed. Legal design patterns provide us with an understanding of law as a combination of material, social and legal practices. By theorising about and around the concept of legal design patterns, I hope to elaborate law's socio-technical change as designs for legal interaction. Through this analysis, I also explore the conceptual and analytic potential

of legal design patterns for examining and translating between law and technological design, thus contributing to this topical collection and our prior work (Koulu et al., 2021). The design patterns approach, I argue, provides us with a perspective for rethinking the relationship between law, technology and design. Instead of a focus on digital artefacts themselves or the associated legal implications, design patterns bring interaction to the centre of our attention.

Urban theorist and pioneer of human-centric design Christopher Alexander introduced design patterns as a way to conceptualise and practice the design of urban spaces together with users. By identifying and elaborating successful design solutions to problems, Alexander hoped to enable the construction of “living places”. For Alexander, these were physical spaces co-produced by social interaction that takes place there. I examine what these “living places” could be in the context of law. What is the quality without a name that design of law should strive towards? To this end, I ask: How could legal design patterns capture and help to produce this essence in the context of law and technology, providing living places for living interaction? What are we hoping to translate into technological design, what is desirable legal interaction such design of law’s old and new places and things should cater for?

I draw insights from socio-legal studies on law, technology and society, Science and technology studies (STS), and human-computer interaction (HCI) research, and engage with the urban theorist Alexander’s work to argue that the core of living law is interaction, as it happens in and through law’s many places, things and structures. This focus on enabling interaction through design should inform both scholarship as well as design practice. Living law is about interaction and this interaction is what we hope to explore in relation to law and technology. Legal design patterns provide the means for elaborating, discussing and implementing this interaction.

The connection that Alexander’s design patterns make between place and social action helps us to draw on the similarities and differences between architecture, software and law, and to conceptualise socio-technical changes in law in terms of interaction. From this perspective, law is a multifaceted living practice in which legally oriented interaction is entwined with formal rules, organisational practices, and various technological and digital artefacts. The designs of law’s many places and things embed socially situated practices and can thus make patterns of legal interaction visible—and reflect what is being considered desirable.

By directing one’s gaze to desirable legal interaction, legal design patterns provide documentations of doctrinal, organisational, and socio-technical practices and situated engagements with texts, values, places and things, as well as with ways of thinking. In this way we can tap into the analytic and interactional prowess of design patterns as tools for interdisciplinary collaboration, as they have been shown to travel well from architecture to software to support interactional expertise across domains (e.g., Borchers 2001). Ultimately, the promise of legal design patterns lies in the vocabulary and language it provides for us to describe socio-technical entanglements of law and technology in a way that supports translating living law into technological design.

I build my argument as follows. In Sect. 2, I describe the origins of design patterns in Alexander’s work and how the approach has been adapted to software engineering. Although originally design patterns were focused on spatial design, later iterations

have proven its value for design of digital artefacts, suggesting its feasibility also for designing law. In Sect. 3, I describe legal design patterns as manifestations of living practice, embodying both internal and external perspectives on law. In Sect. 4, I employ the design patterns approach to examine how living law is shaped and produced by law's material conditions, such as places and things. This connection between legal interaction and material conditions is what design in general—and legal design patterns in particular—hope to capture. My argument closes with some concluding remarks.

2 Designing Through Patterns

2.1 Design Patterns of Architecture and Software Design

The notion of design patterns originated in architect and urban theorist Christopher Alexander's work on human-centered design. In his philosophical work *The Timeless Way of Building* (1979), Alexander perceived the objective of design to be the creation of places that are alive, that possess “the quality without a name” which escapes exact definition, yet is recognisable as we encounter and experience it. Although Alexander intentionally leaves the definition of the quality without a name open, he uses ‘aliveness’ to describe it. According to Alexander:

The fact is that the difference between a good building and a bad building, between a good town and a bad town, is an objective matter. It is a difference between health and sickness, wholeness and dividedness, self-maintenance and self-destruction. In a world which is healthy, whole, alive and self-maintaining, people themselves can be alive and self-creating. In a world which is unwhole and self-destroying, people cannot be alive: they will inevitably themselves be self-destroying, and miserable. But it is easy to understand why people believe so firmly that there is no single, solid basis for the difference between good building and bad. It happens because the single central quality which makes the difference cannot be named. (Alexander, 1979, p. 25)

Thus, the quality without a name has an emotional and experiential dimension. It is shared, objective and precise, yet subjectively experienced. One simply knows that a place is good and living: simply by entering a room full of light or by spending time in a park, inner tranquillity is induced. A living place invites people to spend time there rather than rushing through it. For Alexander, the quality without a name seems to deal with an almost implicit yet instant way of recognising what is good and living in a place. In this sense, the quality without a name comes close to the colloquial phrase “I know it when I see it”—an expression that has also gained legal meaning in the famous 1964 US Supreme Court case *Jacobellis v. Ohio*. In the case, Justice Potter Stewart could not provide a definition of hardcore pornography, but instead used the expression to explain his threshold test for obscenity. Be that as it may, Alexander connects the quality with a name with interaction, which is also the inspiration behind my focus on legal interaction. Later in Sect. 4 I aim to connect this interaction and

experiential dimension of quality without a name with established legal concepts, such as the right to be heard and the experience of procedural justice.

In Alexander's work, design patterns are a way to capture this quality. Patterns are a language and a map for documenting, elaborating, and producing solutions to design problems in the quest for the quality without a name. Alexander emphasised the connection between place and social interaction that design patterns help to document and produce. According to Alexander, "In order to define this quality in buildings and towns, we must begin by understanding that every place is given its character by certain patterns of events that keep on happening there" (1979 p. 55). This means that patterns of places and patterns of events are indivisible, and the timeless way of building is to design places that enable living and desirable patterns of events. Design pattern, in turn, is "a unitary pattern of activity and space, which repeats itself over and over again, in any given place, always appearing each time in a slightly different manifestation" (1979, p. 181). In Alexander's conceptualisation, only a rather small number of patterns exist (p. 98). They are relatively stable (p. 118) and constantly repeated (p. 146), although each manifestation of a pattern demonstrates variation and uniqueness (p. 147). This is to say that each application of a design pattern may be different depending on the context and the situation, yet what remains the same is the connection between the activity and the space that the pattern elaborates.

An example we have used in prior work is Alexander's mid-level pattern called *Small Public Squares* (Alexander et al., 1977; Koulu et al., 2021). The pattern has been formulated in reaction to empirical observation that large public squares end up being "desolate and dead", whereas smaller squares invite lively interaction among pedestrians. According to Alexander, there are many reasons for this, which he elaborates as forces. There is a certain threshold for pedestrian traffic, which makes us humans consider a place to be either deserted or lively. In addition, humans are typically capable of recognising faces and hearing others' voices only within the reach of some 25–30 m, which sets certain limitations for architectural design. Hence, the pattern that *Small Public Squares* suggests is that squares should be relatively small, smaller in fact than often imagined in architecture, namely no more than 15–25 m across in order to accommodate human capabilities for interaction.

Formulating something as a design pattern does not yet say anything about its quality as a design solution. Alexander avoids describing patterns as 'good' or 'bad', but instead opts for 'living/dead'. In Alexander's terms, a design pattern may be alive or dead; the difference is that living patterns are able to let loose inner forces, whereas dead patterns lock us into inner conflict (Alexander, 1979, p. 101). It is not, however, this change of a more inspirational vocabulary or the idea of collecting recipes of successful designs for reuse, that is useful for our perspective. As we hope to elaborate legal design patterns as a way of translating living law into technological design, what is particularly interesting is the procedural dimension that Alexander associates with the concept. This is to say, the form of design patterns itself can guide the design process.

Design patterns are not only outcomes of formalisation, they are also the means. For Alexander, a design pattern is simultaneously a thing and a process. He describes

patterns simultaneously as something being in the world and a rule for creating that something by formulating it as a pattern:

Each pattern is a three-part rule, which expresses a relation between a certain context, a problem, and a solution. [...] As an element of language, a pattern is an instruction, which shows how this spatial configuration can be used, over and over again, to resolve the given system of forces, wherever the context makes it relevant. The pattern is, in short, at same time a thing, which happens in world, and the rule which tells us how to create that thing, and when we must create it. It is both a process and a thing; both a description of a thing which is alive, and a description of the process which will generate that thing. (1979, p. 247)

It is likely that this dual nature of the design patterns approach is what has been so appealing for various fields other than architecture. The formulation of the pattern provides guidance for the design process and creates a way to discuss what is being designed and to what ends.

Although nothing to do with the physical architecture of buildings and towns, the software design community adopted Alexander's design patterns as translational and interactional tools. The concept of design patterns is already known within the technological sphere and has been discussed specifically as a language that enables the inclusion of lay and technical knowledges into design processes (e.g. Borchers, 2001). The adoption of design patterns—and the notion of collecting and iterating reoccurring design problems and solutions—was enabled by the understanding of software as *sui generis* architecture. The book by the catchily titled Gang of Four *Design Patterns: Elements of Reusable Object-Oriented Software* (1997) saw the potential of Alexander's concept for capturing design experience, enabling the reuse of successful designs and architectures, and for improving the documentation and maintenance of existing systems (Gamma et al., 1997, p. 2).

These new iterations of design patterns by software and HCI communities shift the concept from a method of architectural design into something more like a metaphor of place and action. This is to say that in the software community, the design pattern approach was detached from the spatiality that dominated Alexander's own work. But this conceptual change should not only be understood as detachment from spatial architecture. In addition to a more metaphorical reading of the design pattern approach, the adoption of design patterns to elaborate interaction in software architecture broadens the conceptualisation of what constitutes a place. There are digital and virtual places, hybrid places, digital objects, tools and artefacts that are in many ways connected to our other material realities but in others remain distanced from our (other) architectural experiences. This is to say, patterns travel well. As there is very little fixed, each discipline can interpret Alexander's key concepts—the quality without a name, design patterns, and interaction—on their own terms. Yet what remains the same is the constitutive role interaction plays in defining living places. This interaction in these digital places and things becomes visible through the lens of Alexander's design patterns.

As the software iteration of design patterns demonstrates, what is relevant for interdisciplinary dialogue in the design process is interactional expertise (Collins et al., 2017). Interactional expertise refers to participants who possess enough expertise for interaction with other participants, but are not expected to possess the level of expertise needed to contribute to the domain of practice. These insights lead us to three observations. First, good design requires the inclusion of various perspectives and fields as well as expertise to interact across these boundaries. Second, it sets criteria which legal design patterns need to meet in order to be useful for translating between law and technology. Legal design patterns are not only about the language of law but also about the practice of law and they need to provide a language to describe that practice. Third, legal design patterns should support interaction across specialist languages, i.e. they need to communicate law's complexity adequately without relying extensively on its own concepts and established structures. The spatial metaphor directs attention to what is desirable in terms of legal interaction. It brings to the fore that the thing technological design produces is not the artefact but this connection between a place and the interaction it embodies. This interaction around built surroundings and digital technologies is improvised and dynamic and cannot be documented by rigid rules.

2.2 Legitimacy of Technological Design and The Role of Users

Above, I have argued that design patterns are tools that can structure the design process itself and support interactions across various fields, including law and technology. The differences and similarities between legal and technological architectures and the tensions inherent in design are well established as are the legal problems related to digital technologies. Here, I suggest that human-centric design, which draws its inspiration from Alexander's work, may partially help address one of the biggest legal shortcomings of technological design, namely the lack of democratic legitimacy for ormativity.

For example, there is an ongoing scholarly discussion on the (in)compatibility of legal and technological normativities (e.g., Lessig, 1999; Hildebrandt, 2008). One difference between the steering effects of law and technology follows from their production. Laws undergo democratic control through the legislative process, whereas code is produced through non-democratic design practices by software designers, engineers, and data analysts. Diver argues that this legitimacy gap of 'code-based norms', needs to be addressed through an *ex ante* perspective to the design practice that shapes the production of a code (Diver, 2021). These concerns for the legitimacy of rule-by-code and technological normativity pinpoint the legitimacy of the design process itself. Who participates and how to the design process becomes an essential question for legitimising the outcomes.

This lack of democratic legitimacy can at least partly be remedied by conceptualising technological design as a collaborative and communicative practice that builds on inclusion and participation of various perspectives. This would mean including the perspectives of technical/ legal expertise as well as those ultimately involved in the use of the developed tools. There are existing design frameworks to support this. For example, the Swedish tradition of participatory design (Bødker et al., 2000;

Gregory, 2003) has elaborated the gains in legitimacy and acceptance of use achieved by including the end-users into the design process and by developing the means and tools for such inclusion.

Legal scholars, design theorists and practitioners all agree on the importance of user inclusion in the design process. For Christopher Alexander, this inclusion of users into the design process was necessary for making ‘living’ places. Instead of juxtaposing the ‘user’ and the ‘designer’, Alexander perceived there to be a direct and self-evident connection between users and the act of building, in which people build for themselves either with their own hands or talk directly to the craftsmen that build for them. This connection, in turn, ties everyone to the society in which they live (1979, 231). Thus, users are creating living places, and in our case, also living law.

However, users are also designers in other ways than merely being participants in the design process. The adoption and use of digital technologies, which is the objective of design, is not a straightforward process. Instead, users shape technologies through their use and the adoption of any digital technology can also be understood as its redesign. STS scholars have examined human interaction in relation to technological systems. User studies have emphasised the role of users in shaping technology deployment and adoption in addition to designers’ perspectives. Human users bring various technologies to life, and these human users are not separate from technologies but are instead in many ways embedded (van der Scott et al., 2017, p. 502).

Through design, digital tools also embed and reflect more foundational assumptions about their human users. In the 1980s, Lucy Suchman’s interdisciplinary work spoke both to STS and HCI audiences when she contested the earlier dominant, rationalist understanding of human—machine interaction as sequences of stepwise plans and actions executed by human users. Suchman’s work, continued and further developed by others, replaced the rationalist paradigm with a conceptualisation of situated action, in which humans engage with machines in continuous improvised activity (Vertesi et al., 2017, p. 170; Dourish, 2001; Suchman, 2007).

To summarise, users are in many ways also designers and creators who actively shape digital technologies. Users need to be included in the design but they also redesign through use. There are inherent problems that are connected with legitimacy of technology, which involves prioritising certain users and perspectives above others. As STS scholars argue:

“Who is the user?” is far from a trivial question. The very act of identifying specific individuals or groups as users may facilitate or constrain the actual roles of specific groups of users in shaping the development and use of technologies. Different groups involved in the design of technologies may have different views of who the user might or should be, and these different groups may mobilize different resources to inscribe their views in the design of technical objects. (Oudshoor & Pinch, 2005)

These issues are both conceptual and practical. There are questions such as: What is the overall image of human cognition and action that technological design reflects? What roles are conceptualised for human users? Which user groups are recognised and how are they involved in the design?

Users are also the gateway to finding living places, and thus also for elaborating living law in relation to technological design. Informed by Alexander's design patterns, this leads us to ask: Who are the users of law and legal practice, and where does this interaction take place?

3 Legal Design Patterns Documenting Living Practice

In this section, I connect living law with legal design patterns, which I define as documentations of living practice. In our 2021 working paper, we argued that Alexander's concept might also be a useful tool for assessing law's problem-solving capabilities and for communicating established legal solutions to non-lawyers, for example, to software designers (Koulu et al., 2021). Traditionally, legal scholarship has made a strong distinction between normative and descriptive statements, which the American legal philosopher Roscoe Pound described as the difference between abstract *law in books* and law as it takes place *in action* (Pound 1910; Halperin, 2011). Although Pound's dichotomy has been criticised as an oversimplification, the problematic relationship between internal-to-law and external-to-law perspectives remains a feature of current socio-legal studies. What are legal design patterns in relation to this distinction? Are they to be found and identified in legal sources and doctrine or as empirical facts and events in social reality?

As discussed above, for Alexander, design patterns are both a thing in the world and a process and a rule for producing that thing. What is interesting from the socio-legal perspective is the inherent tension as well as the conceptual strength of the concept, the unproblematising combination of descriptive and normative dimensions. Design patterns embody rules but are also subject to empirical conditions; they are not applied in the same way every time, but instead vary in their manifestations. This is to say that legal design patterns embed both internal and external perspectives to law. Empirical approaches and sociology of law help to draw a picture of legal practice as it takes place, and these actual practices are vital for recognising legal design patterns. However, it is necessary to maintain an internal-to-law perspective at least partly in order to ensure that patterns are 'legal' in the sense that they are produced and embodied through legal structures. Yet one needs to partially detach oneself from law's internal perspective in order to identify patterns and a language to describe law to non-lawyers without being pinned down by internal legal language and concepts. To sum up, instead of an either/or perspective, identifying and elaborating legal design patterns requires a dialogue between these internal and external perspectives on law (Koulu & Pohle, 2024). The notion of living law has a long tradition in legal theory. Austrian sociologist of law Eugen Ehrlich used the concept of living law when referring to the social norms that govern everyday life but which are not considered legal (Ehrlich, 1913). However, despite these connections with 20th century sociology of law, my conceptualisation of living law is not derived from Ehrlich but from Alexander's connection between interaction and living places.

Legal design patterns describe a situated practice that evolves around and in relation to formal legal rules but cannot be reduced to them; it is a description of the patterns of events that take place in a space. In other words, design patterns provide the

distance and vocabulary needed for understanding design(ing) of law. As we describe in further detail in the introduction to this topical collection, legal design patterns are documentations of living practice with embedded normative dimensions.

Thinking through legal design patterns leads us to legal interaction, namely asking where and how legal interaction takes place. The connection between Alexander's 'living places' across various fields from software design to law lies in interaction. Thus, we are looking for interaction and ways of creating it through and within legal structures. However, this poses a methodological challenge for us, as such interaction cannot be identified and documented simply by looking at legal structures as they are presented in legal sources of legislation, case law and doctrine. Instead, it requires elaborating the entanglements of law, technology and design, both as places and things and as associated practices.

As is argued throughout this article, the design patterns approach opens up a venue for elaborating living law as legal interaction. As such, the focus on living law provides a fresh perspective to law and technology, detaching from the artefact and the legal and social consequences of the deployment and use of digital technologies. This is to say that we should look at interaction at a place, digital or analog, to gain a better understanding of translations between law and technology. Legal design patterns could also provide a language for designing law, both in its digital and analog manifestations.

This leads us back to the connection between place and action, both metaphorically and concretely. In order to find legal interaction, we need to understand the material dimensions of law, how everyday legal practice is connected with things and objects in which law happens. Such an inquiry also reveals a facet of law's socio-technical change, how simple changes in the tools of the legal everyday may change the action around them, with potentially long-lasting and cumulative socio-legal implications.

4 In Search of Living Law

4.1 Law's Old Places

Here, I examine material objects that have, and continue to embody and shape, legal interaction. The objective is to reveal how media forms mediate and shape legal practice. When we look at these examples of case files and courtroom architecture through the lens of legal design patterns, we are able to make the connection between legal interaction and material things visible. These examples of files, documents, courthouses and user interfaces reveal that there is no single form of legal interaction; instead such interaction can take many different forms across different contexts. Furthermore, such interaction can be rethought and redesigned through law's material manifestations, both digital and other. Simultaneously, the analog and digital manifestations are made comparable, providing a nuanced view how legal interaction may change through digital technologies.

What does this mean? Let's take as an example the right to be heard, the focal procedural right that gives content to various legal practices from legislation to vari-

ous legal processes, and that defines the legitimacy of political process as well as the fundamental form of a fair trial.

What is interesting from our perspective is that the right to be heard is not only a well-established legal concept but also concerns interaction within legal structures. As such, the right to be heard finds its material manifestation in how things are organised in practice. There are many implementations of this right that shape how it is conducted as a practice. It can be implemented through written procedures in files and documents, through the design of a courtroom layout, or through various digital systems and their interfaces. Traditionally, the right to be heard is the focal conceptualisation that defines and shapes the role and participation of law's ultimate end-users of law, that is, the parties in a legal conflict or procedure. In the following, I demonstrate how law's old places, here exemplified through documents, files and courthouses, and law's new digital places, embed such interaction.

Legal interaction takes place in connection with designed objects and places. Objects and places shape and enable 'living law', Alexander's quality without a name, in which inner conflicts are momentarily reconciled. In Alexander's work, this reconciliation of inner conflicts seems to refer to one's inner sense of belonging, well-being and satisfaction, and not to political and social tensions in society, although self-evidently these cannot be completely separated. A better understanding of how things, places, doctrines and the routines of legal thinking become entwined in the legal everyday, provides two insights. First, it reveals how law is already designed and what forms of interaction and values these things and places have are reflected over time. Second, it exposes the points in which patterns of interaction emerge, and which could potentially be captured through design patterns.

The relationship between law and material objects has lately been the object of much scholarly attention. New materialists, STS scholars, and socio-legal scholars have elaborated the many ways in which legal practice is connected with spatial arrangements, material objects and situated social practices (e.g., Gillespie et al., 2014; Parikka, 2012; Philippopoulos-Mihalopoulos, 2014; Käll, 2020; Layard, 2020). For example, in *Making of Law* (2010), Latour describes an ethnographic case study of the French Conseil d'Etat, in which legal work is defined by the passage of files and the intertextuality of legal argumentation (Latour, 2009). Similarly, the German legal historian and media theorist Cornelia Vismann has discussed how files should be understood as a cultural technique that fundamentally shapes law's basic entities of truth, state and the subject (Vismann, 2008). Files are processed, not simply read, and their basic forms shape the practice as well as the rationalities of law, although increasingly implicitly:

These acts—transmitting, storing, cancelling, manipulating, and destroying—write the history of law. They find a weak echo in the federal law for data protection, where they reoccur as transfer, storage, cancellation, modification, and deletion. The echo is weak as these activities now refer to the handling of *data*, the informational substrate of files. By the virtue of this shift to the data dispositive, files are removed from the order of the visible. Their materiality is no longer any concern, which is why data-protection laws can safely ignore all physical acts. (Vismann, 2008, p. xiv)

Files and texts mediate law and form the core of many bureaucratic practices. When these files and texts are presented in a digital form, the very experience of interacting through and around them changes. In her media archeology of documents, Lisa Gitelman, citing Buckland, describes how the transition from analog to digital documents signifies the disappearance of the division between text and display, and how the physical form fades away (Gitelman, 2014, p. 17).

The changes in the physical form are bound to influence many bureaucratic practices, including those in courts and other public institutions. Such bureaucracies have long operated based on paper files and paper documents, which are moved from one clerk's desk to another. Documents are added to the files, and ultimately a case file is closed and archived. A judge in court goes through a case file document by document in preparation for a trial. Their cognitive work, the process of gaining an understanding of a case and forming a mental model of the legal reasoning, is often inseparable from the tactile sensation of dealing with the paper documents.

The transition to the digital in legal practices is ongoing. Digital forms have not replaced paper entirely and paperless legal work remains an illusion, an aspiration that is not shared by everyone. In many legal work places, e-mails and other digital files are printed so that they can be added to the case file, although increasingly legal professionals deal with hybrid working methods in which some tasks are performed on paper and others on information systems. As Vismann has argued, the physical form of files is not a by-product or an afterthought of legal practices, but is instead an inseparable and constitutive part of law. Simply put, thinking with a digital display is different—not necessarily better or worse, but simply different—than thinking with paper. Against this backdrop, how could these changes in material manifestations of law *not* affect the way in which law works?

But in the practice and creation of law in courts, these written communication means are also complemented by the oral tradition, which is epitomised in the form of the trial and which can shed light on our understanding of the places of law and how to find Alexander's "quality without a name" in them.

In *Legal Architecture*, Linda Mulcahy argues how the place of law is not simply a metaphor for our very notion of law is embedded in tangible architecture: "In the west concepts of the trial tend to be treated as symbiotic with the enclosed places in which they take place, be it the court *house* or court *room*" (Mulcahy, 2011, p. 15).

Mulcahy tracks the evolution of court design in the UK from outdoor gatherings that pre-date the 12th century to indoor sessions in shared public spaces such as buildings that are used both for commerce and as purpose-built court houses. She demonstrates how this specialisation afforded new ways of organising the circulation of people through architectural design and the increasing separation between professional legal work and the participation of the public. These changes were reflected in the furniture and design of the courtroom, in which lawyers were granted more space closer to the judge and the audience became distanced and increasingly separated from the other actors in a trial.

According to Mulcahy, the changes in spatial practices are at least partly related to changing notions of trials and the evolution of due process, which can be exemplified by the positioning of the jury, which once shared a space with the spectators but was later on dedicated its own separate space in courtroom layout (Mulcahy, 2011, p. 51).

Increasing specialisation of legal practice also correlated with courthouse design in which court personnel and judges had their own offices separate from the more public-facing parts of the courthouse. Together these legal structures, both architectural and spatial as well as abstract rules, principles and concepts reflect the segregation and isolation of court activities and contribute to the diminishing role of the public from active participation towards passivity. This is to say that law's users are increasingly absent, which is alarming from the perspective of interaction and living law.

These examples demonstrate what the connections are between law's things and places, legal values, and design. Law's designed features and places are not neutral but instead material manifestations of law's rationalities and ways of working. Mulcahy's observation on the connection between thinking about and organising legal work and courthouse design is also interesting for our focus on socio-technical change of law. It makes explicit the many patterns—and shifts in patterns—of interaction that design reflects, produces and perpetuates. Locating these patterns provides ways of reflecting on the design of law's digital things and places, and asks whether these patterns of interaction should be preserved or changed.

To a certain extent, the increasing separation of audience and jury in the courtroom and courthouse design that privileges judges and court staff are replicated in the digitalisation efforts of courts. A 2016 study by the European Commission for the Efficiency of Justice of the Council of Europe, reported significant state investments in court technology and wide availability of digital tools for judges and other legal professionals in most of the countries examined but less availability for citizens (CEPEJ 2016).

Thus, judges and legal professionals also remain the primary user groups when designing digital tools for the courts and the social practices around these tools, the users whose perspectives inform user-centric design means, objectives and practices. The design and deployment of court technologies may result in reinforcing the separation between lawyers and the public, while simultaneously challenging the traditional notion of the open court principle. This brings us back to the role of the user and to prioritising certain user groups over others in design.

Design—and not even in the sense of architectural design—is foreign to law and its many practices. It also demonstrates that design is always value-sensitive and political and shapes legal interaction on various levels, from rooms and buildings to objects and infrastructure. Depending on who are perceived as users and stakeholders, the design of digital legal tools can reflect very different notions of what law ought to be and for whom it exists.

4.2 Law's New Places

Although digital technologies may at least partially reflect different ideals and power configurations than their analog counterparts, it is also likely that some of these implicit values and roles are carried over to digital technologies and practices without deliberation. Furthermore, they may become sedimented into digital infrastructures of law, making reassessment and contestation difficult if not impossible. Recognising and elaborating on these value-laden and political dimensions of design and discov-

ering alternative ways to socio-technically change law, requires a certain analytic distance from practice and a vocabulary of designing for legal interaction.

Above, I have discussed law as architecture(s) and legal practices that are co-produced and co-constituted with things and places, be they conceptual, procedural, substantive or material. This perspective makes use of the connection between physical space and social action made by the design theorist Christopher Alexander, who introduced the concept of design patterns in his work on urban design, *The Timeless Way of Building* (1979). Law becomes materialised in combinations of different spaces and legal interaction. Law happens around objects and places, such as documents, courtrooms, digital systems, registers and computer interfaces. These insights provide an understanding into the ways in which law's places and artefacts come to be and how they are being reconceptualised through socio-technical change. These digital transformations change law's places and things, as well as the interaction that takes place in such places. Despite this focus on places, it should be noted that the interactions made are human interactions. Law is produced, enacted and experienced by situated embodied beings in connection with various material and technological tools and physical places. This leads us to describe socio-technical change of law (and law's role in shaping this change) as the increasing deployment of digital tools and systems and their associated rationalities. This results in new configurations of legal architecture, in new normative technological systems, and in new forms of interactions around them.

Legal interaction can be understood in at least two different senses. First, there is direct interaction between a citizen and the legal institutions that apply and interpret the law, such as courts or public administrative bodies. Second, there is interaction that has legal relevance, in the meaning that the interaction pertains to legal structures and is recognised by these to produce legal effects or expectations. There is a body of prior research, which has discussed legal interaction in this second meaning. In his treatise on customary law, the American legal philosopher Lon Fuller discusses custom as a language of interaction that shapes communication between humans, creates stable expectations that facilitate interaction, and possesses certain functions of ritual by "labelling acts so that there can be no mistake as to their meaning" (Fuller, 1969, p. 6). Similar to Fuller's argument that customary law can elaborate our understanding of law, I argue that by looking at legal interaction as it takes place at various legal sites, ranging from documents and courthouses to digital user interfaces, we can learn more about the relationships between law, technology and design.

What, then, is the living law that should define these new places and new forms of interaction? Living law is a combination of places, physical artefacts, social interaction, embodiment, as well as rules, norms, principles, sources and doctrine of law. If we take for granted the connection between spatial and conceptual legal architecture, particularly two patterns of activities can be derived from principles that seem to capture something about "living law" as both normative structures and living practices. One option is to look for the most definitive legal solutions at the core of any legal system, such as the right (and the experience) of being heard or the open court principle, and ask how these solutions are manifest in law's new places.

As stated above, "living law" is here conceptualised through interaction, but there is a tension with this and the operationalisation of such interaction into a digital user

interfaces, their visual layout and different functionalities on the computer screen. User interfaces are the gateways through which humans interact with digital systems, be it online retail, or digital public services. The user interface is the material manifestation of technological design that shapes user action and perception. User interfaces can take many forms but ultimately they shape legal interaction as law's new place. They affect how parties to a trial file a petition or exercise their right to be heard on an online portal, through secured email clients or through structured drop-down menus. They also affect how judges access the files and documents of a case and write judgements.

What is worrying about computer interfaces as law's new places is the interaction they induce and enable. The computer screen is fundamentally individual. It reflects a distinctly individual ethos through its very essence. The interface is designed for and experienced by an individual user, not by the public or even the specialised legal community of a given legal institution. Although user experiences may be similar between many users, the actual use is shaped by the individuality of the interface, both on the side of the legal decision maker and the citizen seeking access to law. As such, this individuality seems to detach various users from one another, downplaying the interactional aspirations of the right to be heard and the open court principle. Such individuality is the epitome of isolation and segregation.

4.3 Desirable Legal Interaction

Throughout this article, I have argued that legal design patterns steer our attention towards interaction within places and objects and thus we can utilise this kind of approach to analyse socio-technical changes in law and compare law's old and new places. These observations also have implications for conceptualising, implementing and shaping socio-technical change of law. It provides an alternative framing by framing law's translation into technology as a question about creating the tangible and spatial conditions of law—be they analog like files or rooms or digital like user interface tools—and the interactions they reflect and enable.

What is the role that legal design patterns play in realising this living law in various forms of technological design? In the diagram below, I hope to illustrate this by drawing out the connections that legal design patterns make, first, between internal and external perspectives on law, and second, between design patterns in other fields. Legal design patterns mediate law both as rules and doctrine but also as living practice. Their interactional and analytic potential lies in the ability to connect legal design patterns with other design patterns, such as software and architectural design patterns. As such, they provide analytical tools for comparing various implementations of interaction.

Let us return to the example of the right to be heard and how it is organised. The right to be heard can be implemented in many ways. For example, it is implemented in written procedures through documents, where a party is invited to give a statement, which is then recorded in a file. In oral hearings, the right to be heard is realised through procedural rules as well as by the courtroom layout, which defines where parties sit and when they can have their say. In digital environments, the right may be exercised through portals and platforms, which may require the party to partici-

pate through structured input forms and strong identification. Some implementations build on asynchronous interaction, as is the case with written procedures and submissions on online portals. Others rely on synchronous interaction, as with offline and online hearings. Through design patterns we can compare these various interactional implementations and conflate the material and immaterial dimensions of law (Fig. 1).

However, as I have mainly focused on demonstrating the usefulness of legal design patterns for theoretical analysis of law’s socio-technical change, I must leave it for future researchers to try to articulate various aspects of the right to be heard as a design pattern. This would entail formulating the interaction rgw right reflects in the format of design patterns that consist of a name, a context, conflicting forces, a problem and a solution. Such elaboration could inform the digitalisation efforts of courts and administrative decision-making. In our context, it suffices to say that the right to be heard is a legal framing of interaction that is central to both the organisation and legitimacy of most legal processes. But the interaction it reflects cannot be fully captured through its legal meaning, as it is also about the experience of truly being heard, as seminal work on the social psychology of procedural justice has shown (Lind & Tyler, 1988).

Ultimately, the right to be heard and the experience of de facto being heard is another way to describe the participation of law’s ultimate end-users, the parties con-

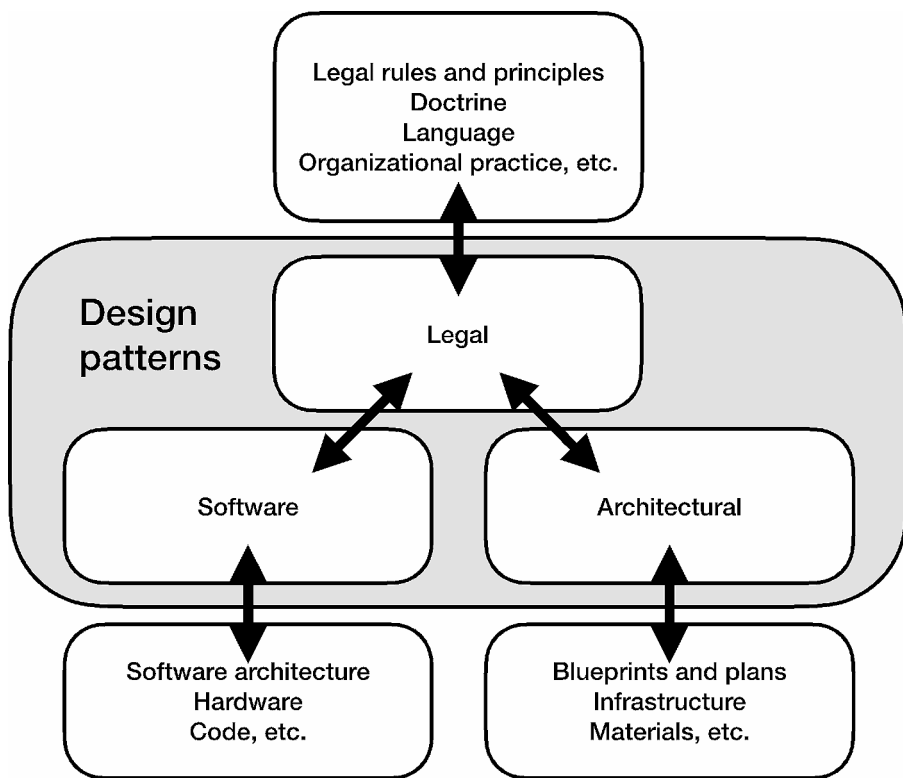


Fig. 1 Translating law through design patterns

cerned, to a legal process. Simply put, from the perspective of interaction, *being heard* is more than a legal rule, a right or a principle. This interaction is also about its implementation into places and things. The conditions (or forces at play in design pattern parlance) for fulfilling this ‘being heard’ require us to ask how easy is it to say something in a process and can participants using their right to be heard verify that there is a reaction to what they have said. This reaction can be many things. It can be the decision-maker nodding or asking follow-up questions in face-to-face encounters, or it may be asynchronous reference back to what had been said in written documents. To a certain extent, these reactions can be modelled in digital settings; the nod and the question in videoconferencing, the reference through a pop-up message on the user interface that registers a submission of statement. Digital settings can also afford *sui generis* reactions that differ from these analog ones.

There is no single answer to the question of how end-users experience such different forms of validation. However, we should be cautious in assuming that face-to-face is always better and preferred by people, as situations and subjective preferences vary and alter from person to person and from situation to situation. What can be said, however, is that synchronous face-to-face reaction in a courtroom or in videoconferencing sessions centre upon human-to-human interaction, whereas automated validation messages make visible that the interaction takes place between humans and machines. Of course, machine-generated reactions can be complemented with personalised human responses and much depends on the visual appeal and informational content of such a message. However, as I have argued throughout, we should also prioritise interactional needs and human experiences when such interactions are mediated through human-machine interface tools.

In sum, the connection between law and technology can be formulated through human interactions and through experience. By focusing on interactions from the perspective of law’s users, we come closer to enabling living law in digital incarnations of legal practice.

5 Conclusions

Above, I hope to have demonstrated the usefulness of legal design patterns for analysing law and technology from the perspective of interaction. I elaborated legal design patterns as a way to capture living law and to mediate between law and design. I have argued that living law is—and should remain—connected with human interaction and experience, which are also embedded in legal doctrine and practice, for example as due process principles that highlight the experience of procedural justice alongside the fundamental right.

I draw two main conclusions. First, in the face of socio-technical changes in law, there is a need to develop tools for preserving the focal tenets of law, which are often described through principles such as the rule of law, fundamental rights, and access to justice. In this article, I have argued that the thing we hope to translate between law and technology—and preserve for the future—is living law, defined by the co-constitution of designed places and things and social interaction. Building on this connection between places and things and the interaction that they induce, the ques-

tion of socio-technical change of law becomes a question of desirable legal interaction, of building places and things that enable living law.

Second, to what extent do the things we build facilitate the interaction we want to see? What should we build? Interestingly, these questions seem to provide alternative framings in comparison with the pressures we experience in the face of increasing technology regulation and of the concerns for the very real risks and pitfalls of ubiquitous deployment of digital technologies across contemporary societies. This perspective of building for desirable legal interaction in its various manifestations challenges the inevitability and immediacy of socio-technical change.

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