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Legal consciousness in the tech community: A conceptual and analytical framework

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ABSTRACT

The regulation of technology, including artificial intelligence and other autonomous systems, increasingly takes place through hybrid governance regimes where formal law intersects with technical standards, organisational policies, and professional norms. Implementing these overlapping normative requirements depends to a significant extent on actors within the tech community, especially software developers and engineers expected to build compliant systems. Yet we know comparatively little about how these actors encounter, interpret and engage with legal norms in everyday technical practice. Our paper introduces legal consciousness as a lens for analysing this problem and develops a conceptual and analytical framework for empirical research on the tech community. Drawing on legal consciousness and legal pluralism, the framework identifies legal dilemmas as empirical entry points and links them to narratives of law, knowledge pathways, and resulting patterns of action. It also distinguishes multiple levels of analysis and allows researchers to examine how legal meaning varies across professional subcommunities, organisations, regulatory fields, and over time. The framework is intended to support systematic empirical investigation of how legal norms are interpreted, negotiated, delegated, resisted, and translated into technical practice.

1. Introduction

The legal regulation of technology, including artificial intelligence and other autonomous systems, has been a priority for policymakers worldwide over the past decade. At national and international levels, lawmakers are addressing and anticipating the socio-economic, environmental, and ethical implications of technological innovation. The European Union, in particular, has produced a substantial body of regulations and directives aimed at taming private technological power. Simultaneously, much of the regulatory burden is delegated to private entities, such as standardisation organisations and tech platforms, which establish their own systems of governance, creating hybrid regimes where formal law intersects with technical standards, organisational policies, and informal norms.

Ultimately, the burden of implementing these regulations – whether the product of legislation or private rule-making – falls to a significant extent on the tech community, especially software developers and engineers, who are expected to build compliant systems. While strategic decisions in larger technology companies are typically made at management level and may be taken by professionals with business or marketing backgrounds, these decisions guide and constrain the work of developers and engineers responsible for implementation. Our focus, however, is on the legal consciousness of tech professionals and how they navigate legal dilemmas when formal law is unclear, contested, or difficult to implement. Even in organisations with dedicated legal compliance teams, legal requirements are mediated through organisational practices and technical workflows. Compliance therefore depends not only on understanding the rules, but on how these rules are interpreted and prioritised in design and development processes. Moreover, the boundaries between law, ethics, and social norms are often blurred, adding further complexity to regulatory compliance in practice.

This paper introduces the concept of legal consciousness as a lens to observe and analyse these problems as part of a web of norms circulating across platforms, workplaces, and transnational governance regimes [1, 2]. We argue that this socio-legal concept enables empirical investigations of how members of the tech community experience, understand, and engage with the law. While scholarship has shown that legal meaning is relational and multi-sited, circulating across

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institutional and digital spaces [3,4], we know little about how developers themselves encounter and interpret these norms in everyday work. Do they rely on internal compliance teams, peer networks, broader social norms, or fragmented online resources? How do these pathways influence their sense of obligation, avoidance, or resistance? These questions underscore the need for empirical research and a conceptual framework capable of capturing such complexity.

This paper establishes a foundation for future research by providing a map of ideas and concepts to study legal consciousness in the tech community. It offers an analytical framework, including levels of analysis and structured steps of empirical enquiry, going beyond descriptive analysis. The framework is intended to support empirical investigation of concrete situations in which legal and technical considerations intersect. It proposes legal dilemmas as empirical entry points and provides a structured analytical sequence for examining (1) how tech professionals encounter legally relevant dilemmas, (2) how they narrate and interpret the role of law, (3) how legal knowledge is mediated through different knowledge pathways, and (4) how legal dilemmas are translated into technical and organisational action. In this way, our framework offers researchers and policymakers a set of concepts and analytical questions that can be used comparatively across different subcommunities within the tech community and in various regulatory settings. Its contribution lies in integrating legal consciousness and legal pluralism into a structured analytical approach, which enables empirical research to move beyond examining legal compliance towards investigating how legal meaning is constructed, mediated, and translated into technical practice.

2. State of the art

Since this paper develops a conceptual and analytical framework rather than presenting empirical findings, this section reviews relevant scholarship on tech governance, socio-legal theory, and science and technology studies (STS) to clarify how existing approaches address the relationship between legal norms and technological development, and to identify the conceptual gap that this paper seeks to fill.

Scholars interested in the relationship between law and digital technologies have focused on various aspects, including different regulatory approaches, such as international and domestic legislation [5] and private rule-making [6], as well as the impact of digitalisation on law [7] and the legal profession [8,9]. Some studies have been looking at the impact of the use of artificial intelligence (AI) in the decision-making processes in the public sector that can lead to vulnerability and fundamental rights violations in the automated state [10,11]. There are scholarly discussions on the challenges of interdisciplinary research and the need for effective cooperation between different scientific fields. However, these discussions are often either general or showcase specific interdisciplinary projects [12,13].

A substantial body of interdisciplinary research at the intersection of law and computer science has also focused on how specific legal principles are translated into technical systems. Studies have examined, for example, privacy [14–16], explainability and transparency in algorithmic systems [17,18], and broader questions of fairness and accountability in AI. Although many of these works examine how specific legal norms and principles are interpreted and embedded in technical practices, our paper aims to establish a foundation for a more holistic perspective on the relationship between law and digital technologies, and to achieve this it considers the lens through which computer scientists and software engineers view law.

There are studies that look at social norms in the tech community, providing theoretical and methodological frameworks [19], interdisciplinary approaches [20], and empirical explorations [21,22]. The STS theory of 'social construction of technology' (SCOT) holds that human action shapes technology, arguing that the ways a technology is used cannot be understood without a thorough understanding of how that technology is embedded in its social context [23]. There are also studies that focus on community norms in specific online communities, such as GitHub or Stack Overflow [24,25], but none of these consider the concept of legal or normative consciousness.

Despite these advances, existing scholarship has largely examined how law regulates technology or how legal principles are translated into technical systems, rather than how members of the tech community themselves experience, interpret, and engage with law as a normative order. STS research has richly documented the social organisation of technical work, but has rarely examined how formal legal norms are understood and enacted as legally binding obligations in everyday technical practice. At the same time, socio-legal scholars have critiqued framing law as an external constraint, advocating instead focusing on how law becomes meaningful through social interpretation and practice [26–28]. Yet these insights have not been systematically applied to the tech community. As a result, we lack a conceptual and analytical framework capable of analysing how legal meaning is constructed within pluralistic techno-legal environments shaped by overlapping legal, organisational, and professional norms. To address this gap, we bring a legal consciousness perspective into dialogue with STS and governance scholarship. This paper introduces legal consciousness as an analytical lens and develops a structured framework to guide empirical research into how legal norms are translated, mediated, prioritised, and contested in technical practice, and how these processes shape technical and organisational action.

3. A socio-legal conceptual framework: legal consciousness and legal pluralism

Legal consciousness is a prominent concept in socio-legal research today, referring to how people experience, understand, and engage with the law, especially where it leaves room for individual agency and discretion [27,29]. Emerging from the insight of socio-legal research that the social and cultural cannot be separated from the legal, the study of legal consciousness has attracted growing scholarly attention since the 1980s [3]. These studies explore both cognition and behaviour, as well as the ideologies, power relations, and practices of individuals and groups. Research on legal consciousness employs both quantitative and qualitative methods to explore perceptions and lived experiences [30]. Recent work emphasises how legal consciousness is shaped by structural factors such as race, gender, and class, which influence who feels entitled to invoke law and who perceives it as hostile or irrelevant [31,32]. Relational approaches further show that legal meaning is co-constructed through interactions within workplaces, professional networks, and digital environments [3,4]. These perspectives highlight the need to examine both individual narratives and the broader socio-institutional, historical and technological contexts in which they emerge.

Legal consciousness, however, has been conceptualised by socio-legal scholars in different ways. Some rely on an individualist or attitudinal conception, while others adopt a structuralist perspective. A third strand of literature takes a constitutive approach, attempting to reconcile these opposing conceptions, and emphasises the role of consciousness and cultural practice in mediating between individual agency and social structure (see Fig. 1) [33].

The constitutive approach best captures the essence of a pluralistic legal context, in which different (legal and non-legal) normative orders exist at various levels and in various forms, mutually constituting each other. Using the term coined by Peter Fitzpatrick, we can examine how various normative orders, including law, simultaneously support and oppose each other within this theoretical framework of 'integral plurality' [34]. This approach emphasises that law does not operate in isolation but is deeply intertwined with other normative orders and exists within a complex web of relationships involving both opposition and support. It helps us to identify the ways in which modern legal systems are challenged and shaped by other social forces, and to gain a deeper understanding of the role of law within society.

Therefore, we propose an analytical framework that situates legal

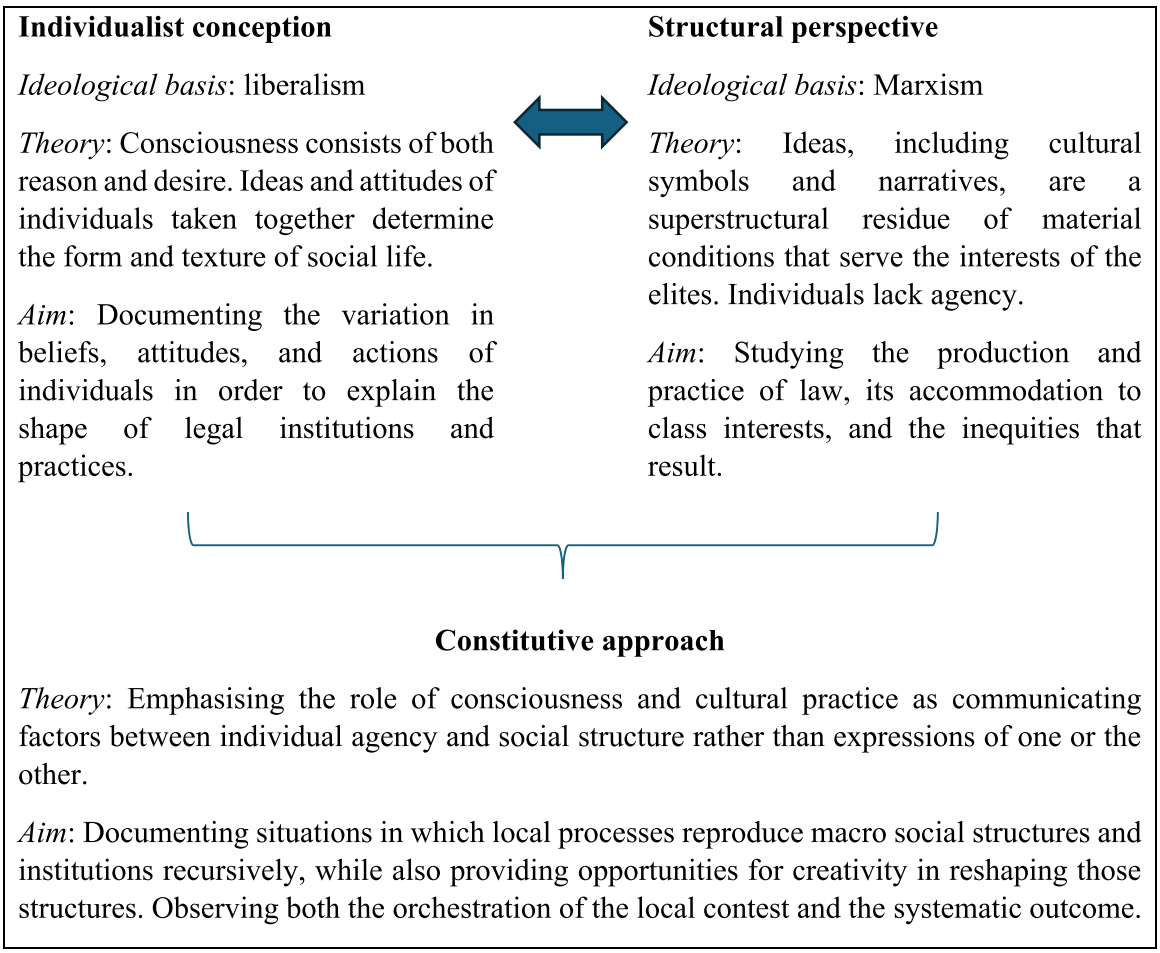

Fig. 1. Theoretical approaches to legal consciousness and legal culture.

consciousness within a pluralistic normative context across individual, relational, and institutional levels. Legal pluralism is particularly important where regulation operates across global, national, and local scales. It refers to the co-existence of more legal systems within the same social field, including state law, transnational standards, and local normative orders [35]. Adopting a social science perspective on legal pluralism, rather than a strictly juristic one, allows us to examine legal consciousness within the intricate relationships between state law and other normative orders, such as social norms and corporate self-regulation [36, p. 5]. As Santos argues [37], these plural legal orders reflect and reproduce global power asymmetries, with corporate governance and transnational standards often dominating local norms – a dynamic visible in the tech industry's global supply chains and platform ecosystems. Scholars across anthropology, sociology, and comparative law therefore argue that lawyers must move beyond their state-centred focus to consider coexisting normative orders [35], which may take the form of formal institutions, such as private corporations or standardisation bodies, or less formal structures [1], such as project-based working groups and developer communities.

Virtually every individual belongs to multiple normative orders in addition to being subject to state law. These orders often reflect historical and global power imbalances that privilege certain actors while marginalising others [37]. Tech professionals are subject not only to formal legal rules, but also to professional norms, including ethical frameworks, organisational expectations, and peer pressure. Cyberspace itself exemplifies a pluralistic legal environment [38], in which state law coexists with formal and informal normative orders. As Larsson notes, the governance of emerging technologies such as AI increasingly relies on hybrid regulatory arrangements, where legal norms interact with ethical guidelines and technical standards, creating a fragmented landscape that complicates compliance and accountability [39]. The legal consciousness of the tech community, with its diverse subcommunities and internal norms, can therefore be studied in relation to both state law and private rule-making. This perspective helps explain how developers and organisations navigate legal and ethical dilemmas and regulatory uncertainty in the rapidly evolving field of AI.

In addition to being shaped by multiple overlapping normative orders, legal consciousness also has a temporal dimension. It is not static but evolves over time in response to changing legal frameworks, social conditions, and organisational practices [27]. This dynamic quality is not unique to the tech community but is a general feature of how law is experienced and interpreted. However, in rapidly evolving technological fields such as AI, the pace of change is unusually fast. New regulations continually reshape how legal norms are interpreted and prioritised, while technological innovation generates novel situations not fully anticipated by existing legal frameworks, creating new forms of legal uncertainty and new legal dilemmas. As a result, the legal consciousness of tech professionals is shaped not only by the coexistence of multiple normative orders, but also by the speed and intensity of their ongoing transformation. A temporal perspective is therefore especially valuable for understanding how legal consciousness develops, particularly in techno-legal environments where legal and technological change occur rapidly.

Taken together, these plural and dynamic features of the normative environment also help clarify why a legal consciousness perspective differs from compliance-oriented approaches, which typically focus on whether organisations follow legal rules and how these are enforced. By contrast, a legal consciousness perspective examines how individuals

interpret and make sense of legal norms, whether they perceive them as a constraint, a tool, or an obstacle, and how these interpretations shape their actions. This distinction is particularly important in the tech sector, where developers often encounter law indirectly through organisational policies, technical standards, and professional norms.

4. The analytical framework

Building on the socio-legal foundations outlined above, this section translates these conceptual insights into a structured analytical framework for studying legal consciousness empirically within the tech community. Because both technological development and legal regulation evolve rapidly, the framework can be applied not only to analyse legal consciousness at a given moment, but also to examine how it changes over time in response to new regulations, organisational practices, and technological shifts.

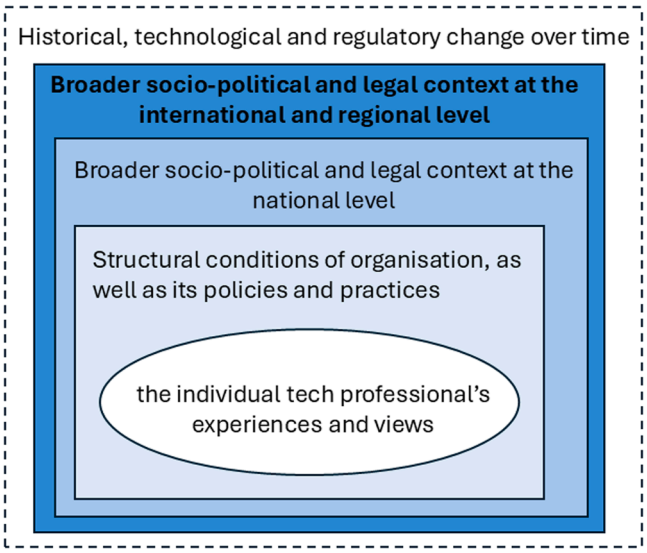

Fig. 2. Anticipated levels of analysis.

4.1. Levels of analysis in a pluralistic context

The framework aims to capture complexity and multiple layers of meaning by recognising that individuals' experiences and views are shaped by a pluralistic legal environment, which can be visualised as nested contexts (see Fig. 2). Drawing on social psychologist Anne Galletta's analytical framework, individuals' experiences and views can be understood as embedded in organisational policies, practices, and structural conditions [40]. These organisational dynamics are themselves situated within broader socio-political and legal contexts at national and international levels. In Europe, national legal and political systems are strongly influenced by regional and international frameworks, particularly the European Union. Analysing legal consciousness therefore requires situating individual experience within these interconnected organisational and legal environments, which strengthens the interpretation of empirical findings [40, p. 19].

However, viewing the legal context vertically, as divided into national and international levels, does not accurately reflect its internal complexity. These two levels are today intertwined in complex ways, rather than displaying a purely hierarchical relationship. Due to globalisation and deepened regional political integration, the divide between the national and the international domains has become increasingly blurred, making it difficult to keep these two levels separate for analytical purposes [41, p. 335]. This complexity can be represented by a set of nested and overlapping ovals and rectangles (see Fig. 3), in which the various manifestations of law are represented by ovals, while the broader context is represented by rectangles.

As Fig. 3 shows, the legal context forms part of the broader socio-political context of a given historical period. Moreover, each national legal system exists at the intersection of a legal tradition – used here interchangeably with legal culture to refer broadly to the historically developed characteristics of a legal system – and supranational legal systems. This is particularly evident in Europe, where national legal systems have been profoundly shaped by European Union law and the European Convention on Human Rights. For example, Germany belongs to the civil law tradition while also being an EU Member State and a party to numerous international treaties and conventions. As a result, its domestic laws reflect both the civil law tradition and supranational legal obligations. A social science perspective on legal pluralism moreover

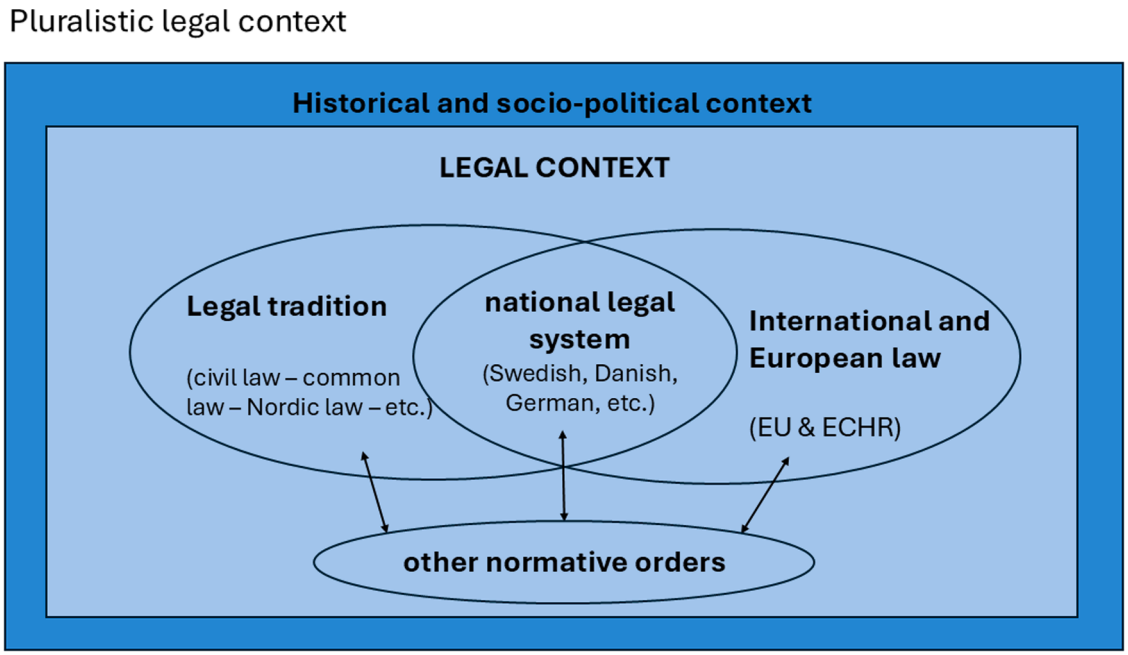

Fig. 3. Pluralistic legal context.

requires considering other normative orders beyond state law, including social norms, corporate policies, and organisational practices, which constantly interact with the formal legal systems in various ways. Consequently, when mapping the legal consciousness of individuals belonging to a specific community – in our case, a professional community – the researcher needs to be aware of the broader context, in which their experiences have taken place and their views have been formed.

4.2. Narratives of law

We propose an explanatory model that links narratives about law to action. Drawing on Ewick and Silbey's typology [42], we argue that how people working in the tech community interpret law, whether as authoritative, negotiable, or oppressive, shapes their responses to regulatory demands. Ewick and Silbey describe these three different conceptions of law as 'standing before the law', 'playing with the law', and 'up against the law'. Thus, these responses range from compliance and strategic negotiation to resistance or avoidance.

We can observe how the members of the tech (or any other) community experience, understand and engage with state law by asking the following questions:

(1) To what extent and in what circumstances do they view law as a normative system that commands respect and constrains their behaviour? ('standing before the law' attitude)
(2) To what extent and in what circumstances do they view law as a tool or resource that can be used strategically? ('playing with the law' attitude)
(3) To what extent and in what circumstances do they view the law as an obstacle to technological development that should be resisted or circumvented? ('up against the law' attitude)

4.3. Legal dilemmas as empirical entry points

In practice, legal requirements often reach tech professionals indirectly rather than through direct engagement with legal texts or formal legal advice. Instead, they are mediated through organisational and professional pathways – such as product policy choices, compliance routines, platform rules, technical standards, and open-source project practices – which translate legal norms into design choices and workflows. Through this mediation, legally relevant questions become embedded into everyday technical decisions shaped by organisational interpretations of law, technical feasibility constraints, and community expectations. The meaning of law in technical practice therefore depends less on individual legal reasoning than on how developers navigate these organisational interpretations. We conceptualise as 'legal dilemmas' those situations in which legal requirements become relevant to technical practice but do not provide clear guidance for action, particularly where they must be interpreted alongside competing organisational, technical, or professional considerations.

Such dilemmas are especially likely to arise when multiple normative orders apply simultaneously or when legal requirements are perceived as difficult to align with technical workflows and professional norms. In these situations, tech professionals must decide how much weight to give legal requirements relative to technical, organisational, and other normative considerations. It is in these everyday choices that law acquires practical meaning. Legal dilemmas can therefore serve as empirical entry points for analysing legal consciousness across different technical subcommunities and organisational contexts.

In our framework, we build on Ewick and Silbey's typology and employ a set of recurring situations in which legal norms become practically relevant in technical work. The following table illustrates how legal dilemmas correspond to different narratives of legal consciousness: (Table 1).

While Ewick and Silbey do not explicitly theorise delegation, their 'with the law' narrative captures forms of engagement in which law is treated as a negotiable and mediable resource rather than as an external command. In contemporary techno-legal governance, engagement with law is often mediated through organisational routines, templates, and standards that function as proxies for legality, reflecting the organisational mediation noted above. We therefore treat dilemmas of delegation not as an absence of legal consciousness, but as a specific mode of legal meaning-making characteristic in contexts of legal pluralism, where multiple normative orders coexist and responsibility for legality is routinely distributed across organisational and technical arrangements.

Table 1
Legal dilemmas and narratives of legal consciousness.

Type of dilemma	Narrative of law in Ewick and Silbey's typology	How law is experienced in practice
Dilemmas of interpretation	Before the law	Law is experienced as authoritative but ambiguous; actors seek to understand what the law *requires* in a technical context
Dilemmas of translation	Before the law	Engagement with law occurs through *translating* legal texts *into data and code* and embedding them into system design
Dilemmas of prioritisation	With the law	Law is experienced as one normative resource among others and is *negotiated* alongside professional, organisational or technical considerations
Dilemmas of delegation	With the law	Engagement with law occurs *indirectly, mediated* through organisational routines (such as ethics review boards), templates, or standards, distancing tech professionals from direct legal interpretation
Dilemmas of scope and relevance	Against the law	Law is experienced as *external or misaligned* with technical practice; actors question its relevance or appropriate scope
Dilemmas of resistance and circumvention	Against the law	Law is framed as an *obstacle* and is actively reinterpreted, circumvented, or displaced through informal practices or technical solutions

These dilemma types are not treated as fixed categories imposed *a priori*, but as situational and relational framings that may overlap and shift across different contexts and moments of technical decision-making. This typology is therefore intended to guide empirical enquiry and remains open to refinement. Particular analytical attention can be given to narrative shifts, tracing how the same individual invokes different narratives of law depending on the situation or institutional setting. These narratives may also change over time as new legal requirements emerge, organisational compliance structures become more formalised, and technological developments generate new regulatory uncertainties. A longitudinal analysis can therefore capture legal consciousness as situational and dynamic rather than as a stable professional orientation.

4.4. From dilemmas to action

Moving from legal dilemmas and narratives of law to action requires attention to the factors that mediate how these are translated into practice. Such mediating factors include plural legalities, power asymmetries, and knowledge pathways [43]. We use the term 'knowledge pathways' in the sense employed in organisational sociology and science and technology studies (STS), referring to the mechanisms and channels through which legal knowledge is produced, circulated, and interpreted within the tech community. These pathways can include sources of legal information, such as internal compliance teams and external legal

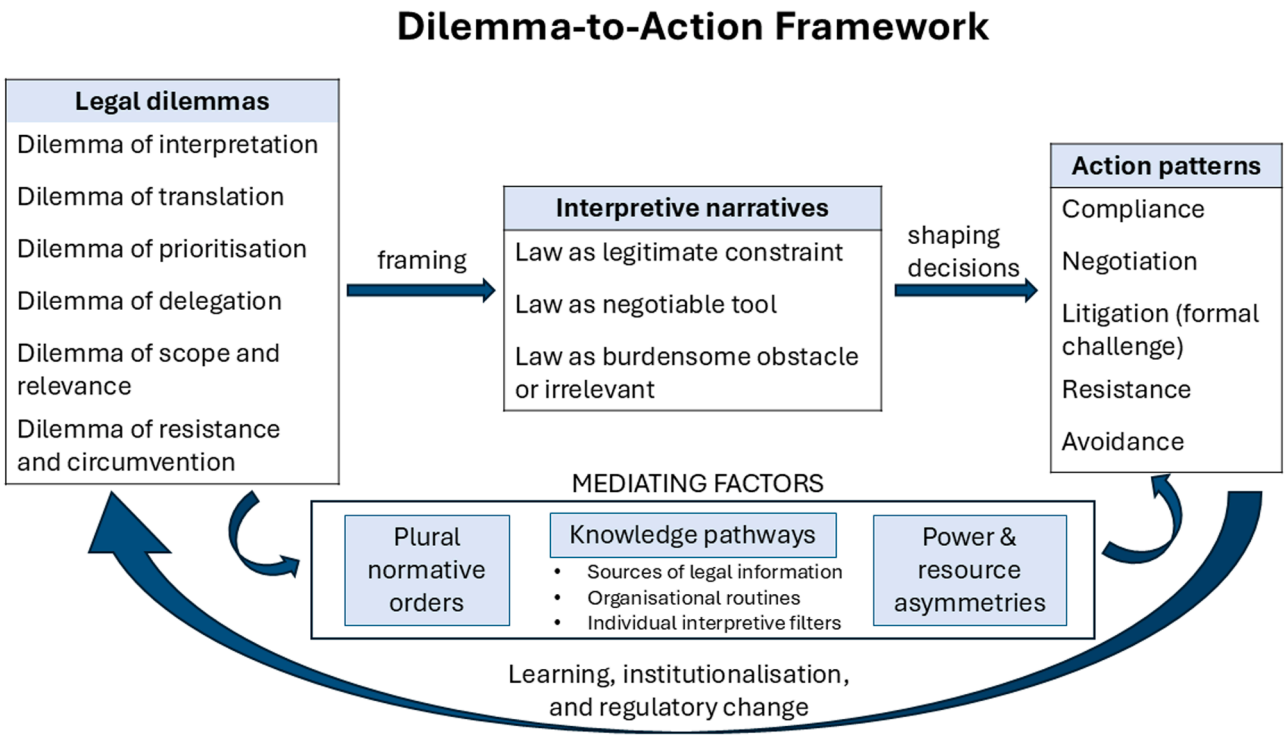

Fig. 4. Dilemma-to-action legal consciousness framework.

counsel, organisational routines, and individual interpretive filters, such as legal literacy, past experiences, and role within the organisation. They also evolve over time as organisations develop compliance infrastructures, legal expertise becomes more embedded in technical teams, and regulatory expectations become clearer. Our proposed explanatory model therefore allows researchers to move beyond describing attitudes towards the law and examine how these attitudes are translated into specific behaviours within the tech community (see Fig. 4).

Taken together, these elements allow researchers to systematically analyse how legally relevant situations are interpreted, mediated, and ultimately translated into technical and organisational action.

4.5. *Using the framework in empirical research*

The proposed framework can be used in the design and analysis of empirical research on legal compliance and opposition to the law in technological settings. Researchers can begin by identifying concrete situations in which legal norms become relevant to technical decision-making and analysing these situations as legal dilemmas. The analytical focus can then move to narratives about law and values, the normative orders invoked alongside formal law, and the knowledge pathways through which legal meaning is communicated and interpreted. In addition to interviews with tech professionals and other relevant organisational actors, documentary materials such as organisational policies and professional guidelines, as well as observations at relevant meetings and events, can provide evidence of how law and other norms are encountered, mediated and translated into action. Furthermore, our framework encourages researchers to examine individual experiences within their organisational and professional contexts. In this way, it can also support comparative and longitudinal research. Researchers may compare how similar legal dilemmas are interpreted across different subcommunities, organisations, professional roles, or jurisdictions, as well as how these interpretations change over time.

As discussed in Section 2 on the state of the art, previous research has examined legal compliance, the translation of legal requirements into technical systems, and professional norms within the tech community. However, to the best of our knowledge, no existing analytical framework systematically connects legal consciousness, organisational mediation, and resulting patterns of technical action to guide empirical research on the tech community. Our framework addresses this gap by integrating legal consciousness and legal pluralism into a structured analytical approach. It thereby enables researchers to investigate how these elements interact in concrete situations, why the same legal requirement may be interpreted and translated into practice differently across organisational and professional contexts, and why similar legal dilemmas may lead to substantially different responses.

While our conceptual and analytical framework provides a common starting point for socio-legal research, the categories proposed in this paper – legal dilemmas, interpretive narratives, action patterns, and knowledge pathways – are not intended as fixed classifications, but as analytical tools that can be refined through empirical application. Applying the framework to different subcommunities, organisations, regulatory fields, or jurisdictions may require adjustments and may reveal additional categories or relationships. For example, the legal consciousness of tech professionals who develop new technologies within scientific research is shaped by a distinctive organisational and professional context. In this setting, legal knowledge may circulate through knowledge pathways that are less prominent in commercial organisations, including scientific conferences and publications, interdisciplinary research collaborations, and ethical review processes. These pathways may influence which normative considerations are perceived as relevant and how legal dilemmas are framed and navigated. Empirical investigations can therefore reveal context-specific knowledge pathways, dilemma types, and patterns of action that are not fully captured by the initial analytical categories.

5. Which tech community?

The tech community is as diverse and rapidly evolving as the legal and technological environment. It comprises numerous large and small subcommunities, each with its own work methods, professional ethics, and social norms, which continue to develop in response to technological and regulatory change, often at a faster pace than in many other

professional domains. While all of these subcommunities engage with the law, they exhibit significant differences in their legal consciousness, which evolve as legal frameworks expand. In this paper, we illustrate our points by selecting four subcommunities that reflect the diversity of the tech community. This allows us to examine how distinct subcultures emerge and evolve within this broad and multifaceted field.

The first subcommunity consists of academic and research lab engineers, who conduct non-profit AI research. Academic and public-sector research labs produce cutting-edge AI models and theoretical frameworks with open science norms. Their legal consciousness is increasingly characterised by awareness of intellectual property rights, especially regarding scientific publications and patents, and data protection. They display growing engagement with research ethics, institutional review boards, and data management, particularly in response to expanding regulatory frameworks such as the GDPR. On the other hand, they are less exposed to product liability law. Furthermore, academics are often driving the production of reports informing policy makers (for example, [44]).

The second subcommunity is the open-source AI community, historically and continuously shaped by copyleft licensing and resistance to proprietary capture. One of the most well-known copyleft licences is the GNU General Public License (GPL), which allows free use and modification of software, while requiring that any derivative works remain under the same licence. The idea is to ensure that developments by the open-source community remain available to all, thereby preventing corporate or individual appropriation of collectively developed tools. More permissive licences, such as the Apache 2.0 License or the MIT License, allow for modification and distribution of the software, even in commercial products. However, even under these more permissive licences, the original authors of the open-source software do not assume any liability.

The third example of subcommunity comprises large technology corporations ('Big Tech'), whose economic, political, and regulatory influence sets them apart from other actors in the AI ecosystem. These firms (e.g. Google, Meta, Microsoft, Amazon, and Apple) operate at a scale that allows them to shape industry standards, steer public discourse, and exert substantial influence on the design of regulatory frameworks [45]. Their legal consciousness has become strongly oriented toward compliance management, risk containment, and the strategic use of law as a competitive instrument. Big Tech companies actively lobby legislators and regulators [46], not only to mitigate obligations perceived as burdensome but also to shape the regulatory landscape in ways that protect incumbents from emerging competitors. Consequently, the boundaries between politics and Big Tech can be relatively permeable. The issues arising with these fluid transitions between public service and the private sector have already been pointed out in the legal literature [47].

Within large companies in industry, an important subgroup consists of researchers working in the corporate R&D (research and development) departments. Although they operate within for-profit organisations, their work often resembles academic research in its orientation toward publication, collaboration, and longer-term technological development. At the same time, their legal consciousness is shaped by corporate intellectual property strategies, confidentiality obligations, and product integration pathways, which create dilemmas of interpretation and prioritisation between academic norms of openness and corporate legal and strategic constraints. They therefore occupy a hybrid position between academic and commercial environments, highlighting the diversity of legal consciousness within corporate settings.

A fourth subcommunity consists of AI startups and emerging AI companies, such as Mistral AI in France, Stability AI in the UK, and Lovable in Sweden, which are often strongly influenced by investor concerns. These companies operate in fast-paced, innovation-driven environments where legal awareness and compliance structures often emerge alongside rapid organisational growth. Startups are more likely to rely on compliance consultants than on in-house legal counsel, and their approach to law tends to evolve from reactive and pragmatic to more formalised as regulatory and organisational pressures increase. They may also show resistance to state regulation, for example by disregarding copyright rules. Some AI companies have faced legal challenges related to copyright and data use from actors in the music industry [48], book publishing [49], and the tech sector itself [50]. However, a relatively lenient attitude toward copyright laws is not limited to startups; major tech firms such as Meta have also been accused of using data sourced from pirated material via LibGen [51].

Although these subcommunities can be studied separately, it is important to consider their intertwined nature. While they operate within distinct organisational environments, they are interconnected on both personal and professional levels. Many individuals move fluidly between these subcommunities over the course of their careers, carrying legal interpretations and practices across organisational and regulatory contexts. For instance, researchers from academic institutions often contribute to open-source projects, sometimes using these platforms (such as GitHub, which is owned by Microsoft) to share code related to scientific publications or to build reputational capital. Some for-profit companies build business models around open-source ecosystems, e.g. Canonical, which develops the Ubuntu Linux distro, further blurring organisational boundaries. It is also common for academics to co-found or advise startups, bringing theoretical knowledge and cutting-edge models into commercial application. In turn, startups frequently recruit talent directly from academia or open-source communities. Moreover, it is not uncommon for senior researchers to hold double affiliations with public universities and Big Tech companies. Thus, corporate research labs further blur these boundaries.

Understanding how individuals navigate and reconcile the tensions between the subcommunities to which they simultaneously belong is essential to capturing the legal consciousness of the tech community as a whole. Taken together, these overlaps point to a deeply interwoven and evolving network of subcommunities whose connections complicate any attempt to analyse them as distinct domains.

6. Applying the conceptual and analytical framework of legal consciousness to the tech community

In this pluralistic context, the legal consciousness of the tech community can be examined through the interplay of normative orders, global power asymmetries, and cultural practices that shape how law is understood and enacted. Socio-legal scholars focus not only on the impact of state law but on the lived realities through which law is experienced, contested, and negotiated. While state law remains an important reference point, socio-legal research emphasises how legal norms intersect with everyday practices, cultural meanings, and alternative normative orders [52]. Although state law is often seen as the dominant normative order imposed from above, it exists in a mutually constitutive relationship with other normative orders (see Fig. 5) [1], and the state does not hold a monopoly over law in society [35].

This section illustrates how the proposed framework can be applied by examining examples from open-source licensing and Big Tech lobbying. The mutually constitutive relationship between state law and other normative orders is reflected in the aforementioned GNU General Public License (GPL), one of the most influential open-source licences. It emerged as a legal tool developed by programmers at a time when software was shifting from a culture of openness to proprietary restrictions, making collaborative sharing legally risky. The GNU Project of the Free Software Foundation, initiated by Richard Stallman, created copyleft licensing to make it possible to develop a sufficient body of software to get along without any software that is not free [53]. The GPL was thus developed by the tech community itself, rather than policymakers, as a legal mechanism to preserve openness and resist restrictive intellectual property regimes. The philosophy of the open-source software movement is predicated on the belief that the best product is created when software developers collaborate in a programming

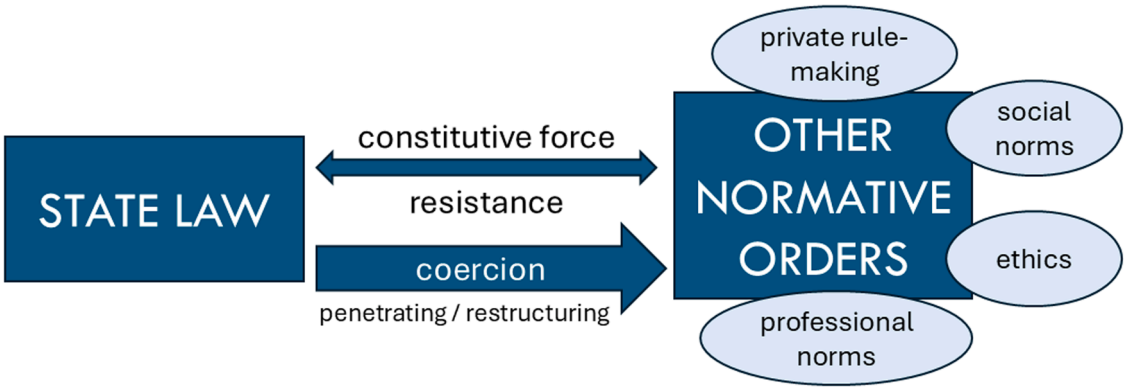

Fig. 5. The relationship between state law and other normative orders.

environment that is free of the restraints imposed by intellectual property law [54].

At the same time, the GPL relies on copyright law to enforce its conditions, requiring derivative works to remain under the same licence and source code to be made available upon distribution. It uses exclusive copyright rights as leverage to impose conditions on redistribution, explicitly acknowledging users' underlying rights [55]. In other words, the GPL's enforcement mechanisms derive their legal force from copyright law. Distributing GPL-licensed free software without providing the source code is considered distribution without valid permission. Although the GPL is a form of private rule-making, it demonstrates how private ordering can become intertwined with state law. These rules originate from a private actor, the Free Software Foundation, but their legal force depends on state-recognised copyright protections. In this way, copyright law provides the enforcement mechanism, while the specific obligations originate from the open-source community. The state enforces these rules indirectly by recognising the underlying legal rights. For example, in *Jacobsen v. Katzer* (609 F. Supp. 2d 925), US courts affirmed that open-source licenses are enforceable under both contract and federal copyright law [54]. The GPL thus illustrates how private normative orders and state law interact to govern technological practice.

Interestingly, some scholars claim that the legal order that has emerged within the open-source community resembles a new *lex mercatoria* [56], evolving pragmatically through transnational and extra-governmental rule-making. In this sense, the legal frameworks surrounding free and open-source software can be read as forms of resistance to state-driven digital rights management regimes. Viewed through this lens, the practices of open-source communities parallel those observed in informal settings in the Global South, where people navigate, reinterpret, and reshape multiple overlapping rule systems [57].

In this already complex legal landscape related to open-source software a further layer of ambiguity is introduced by the increasing use of AI-assisted coding in the tech community. Currently, the legal status of AI-generated code produced by coding assistants trained on large bodies of publicly available software, including GPL-licensed code, remains uncertain. In such cases, a tech company developing a proprietary software product may integrate code generated by an AI tool while arguing that the output has not been copied from GPL projects but merely reflects what the model has "learned" from training data. This creates a legal dilemma of scope and relevance, because copyright law and open-source licensing concepts were developed around identifiable acts of copying, authorship, and derivation, whereas AI-assisted coding involves opaque generation processes and often fails to provide accurate licensing information [58]. If the generated output is identical or substantially similar to protected GPL code, copyleft obligations may be triggered. However, where similarity is only structural, partial, or difficult to trace, developers and companies may frame the output as independent and proceed without treating the GPL as applicable. This scenario raises several legal dilemmas at once: a dilemma of interpretation when establishing whether AI-generated code is a derivative work under copyright law; a dilemma of prioritisation when weighing legal certainty against gains in development speed, functionality, or product performance; a dilemma of delegation when deciding to what extent developers should rely on legal teams and industry practices; a dilemma of scope and relevance when questioning whether open-source licences meaningfully apply to AI-generated code or are misaligned with current technical practices; and a dilemma of circumvention when developers bypass copyleft's reciprocity principle by claiming that AI-generated code is not copying in the traditional sense but learning.

The newer ambiguity surrounding AI-generated code shows that the relationship between open-source licensing, state copyright law, and legal consciousness is not static, but is being reshaped by new technologies and emerging technical practices. Using the concepts defined and elaborated above, we can say that the GPL licence was born as a resistance to state law ('up against the law' in Ewick and Silbey's scheme) and existing power asymmetries in the tech world. At the same time, it is relying on the enforcement mechanisms provided by state law ('playing with the law', ie. using state law as a tool strategically), which it turns to the open-source community's advantage. The analytical framework developed here, however, is not limited to questions of copyright and open-source licensing.

Data protection law is another field in which the intersection between law and technology is particularly pronounced, giving rise to many legal dilemmas to which our framework can be applied. Consider a development team building a machine-learning model that identifies a publicly available dataset capable of substantially improving model performance. The dataset appears to contain personal data collected from publicly accessible sources, while the legal basis for its collection and subsequent reuse is uncertain. Using the dataset could significantly improve model accuracy, competitors are reportedly using similar data, and delaying deployment while awaiting legal review could result in substantial commercial costs. This situation can generate several types of legal dilemmas identified in our framework. It presents a dilemma of scope and relevance concerning how data protection law applies to the reuse of such data, as well as a dilemma of interpretation concerning the requirements that follow from it. The tension between legal considerations, on the one hand, and technical performance and commercial pressure, on the other, can be described and analysed as a dilemma of prioritisation. Finally, the legal uncertainty raises a dilemma of delegation concerning who within the organisation is expected to determine whether the dataset may be used. Depending on how these competing considerations are framed, law may be experienced as an authoritative constraint, a resource to be used strategically, or an obstacle to technical and commercial objectives. This example also shows that the legal dilemma categories are not mutually exclusive. The same factual situation can activate several of them at the same time.

The preceding examples illustrate how the problems of compliance and resistance to the law can be analysed through the lenses of legal consciousness at the level of technical practice and decision-making. At a different level of analysis, the framework also draws attention to the broader processes through which legal norms themselves are shaped by the tech community. Lobbying by the tech industry, particularly by Big Tech companies, provides one such example. In the AI domain, this phenomenon is particularly visible in the legislative negotiations surrounding the EU AI Act. Investigative reporting has documented the intensity of lobbying efforts [59]. Meta, for instance, engaged extensively with EU institutions to influence provisions related to foundation models and high-risk AI systems. While such engagement is formally legitimate within democratic processes, it raises questions about whether regulation may inadvertently entrench dominant actors. From a political economy perspective, this reflects the classic tension between innovation and incumbent power: although 'creative destruction' relies on the entry of new firms and disruptive technologies [60], regulatory environments shaped by incumbent lobbying can dampen this process by imposing compliance costs that startups or academic labs are less able to bear. Big Tech's approach to regulation thus illustrates how legal norms in the AI sector emerge not only from state authority or civil-society advocacy, but also from the strategic behaviours of powerful market actors seeking to preserve their position within an evolving technological order.

7. Concluding thoughts

Investigating legal consciousness in the tech community requires attention to the multiple normative orders through which law is encountered and enacted in technical practice. As this paper has argued, formal law does not operate in isolation but interacts with private rule-making, professional ethics, and informal norms. Future research must therefore embrace this plurality rather than treating law as a purely top-down force. The conceptual and analytical framework proposed here combines legal consciousness and legal pluralism with a structured approach to empirical enquiry. It enables researchers to analyse legal consciousness across different levels and trace how legal norms are mediated through knowledge pathways and organisational routines by treating legal dilemmas as empirical entry points and connecting them to narratives of law, knowledge pathways and other mediating factors, as well as resulting patterns of technical and organisational action. This approach makes it possible to move beyond questions of whether tech organisations formally comply with legal requirements and instead examine how legal meaning is constructed in practice.

In rapidly evolving technological fields such as AI, legal consciousness evolves particularly quickly in response to emerging regulations, organisational adaptations, and technological innovation. While legal consciousness is dynamic in all social contexts, the pace of legal and technological change in techno-legal environments makes longitudinal analysis particularly valuable for understanding how legal norms are interpreted and become embedded in technical practice. The framework is also designed to accommodate variation across subcommunities, regulatory fields, and jurisdictions. Empirical research should therefore adopt comparative and longitudinal approaches to examine how legal norms are understood, negotiated, and translated into practice across different tech communities, jurisdictions, and organisational settings.

By viewing tech professionals not simply as implementers of law, but as actors who interpret, mediate, and sometimes reshape legal meaning in the course of technical work, our framework provides a foundation for systematic empirical research into how law operates in practice in contemporary techno-legal environments. Such research can contribute to a more grounded understanding of the conditions under which legal norms are translated into practice, negotiated alongside competing normative orders, or resisted in the development of new technologies.

CRediT author statement

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Declaration of generative AI use

During the preparation of this manuscript, the authors used generative AI and AI-assisted tools to support language editing, consistency checks, formatting, and adaptation of the manuscript to the journal's submission requirements. The tools were not used to generate the substantive argument, conceptual framework, analysis, or conclusions of the article. After using these tools, the authors reviewed and edited the manuscript as needed and take full responsibility for the content of the published article.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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